2024

Scottsdale Flood Response Plan

MARICOPA COUNTY
FLOOD CONTROL DISTRICT

CITY OF SCOTTSDALE

Prepared by:

The Flood Control District of Maricopa County

2801 W. Durango Street

Phoenix, AZ 85009

DISCLAIMER

The user should read this entire Flood Response Plan (FRP) carefully and should be aware of all elements of this plan, including strengths and limitations, and individual responsibilities. This FRP is useful as one component in developing a flood warning system for the City of Scottsdale. However, the possibility of inadvertent error in design or failure of equipment to function exists and may prevent the system from performing perfectly at all times. Therefore, nothing contained herein may be construed as a guarantee of the system or its operation or create any liability on the part of any party or its directors, officers, employees, or agents for any damage that may be alleged to result from the operation, or failure to operate, the system or any of its component parts.

This constitutes notice to any and all persons or parties that the Scottsdale Police Department, Scottsdale Emergency Management, Scottsdale Fire Department, Scottsdale Street Operations and Public Works Department, Scottsdale Parks and Recreation Department, Scottsdale Solid Waste Department, Maricopa Department of Emergency Management, Flood Control District of Maricopa County, National Weather Service, Maricopa County Department of Transportation, Maricopa County Parks and Recreation, Maricopa County Sheriff's Office, Arizona Department of Transportation, Arizona Department of Public Safety, American Red Cross, The Salvation Army, Arizona Department of Emergency and Military Affairs, or any officer, agent or employee thereof, shall not be liable for any deaths, injuries, or damages of whatever kind that may result from reliance on the terms and conditions of this FRP.

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List of Acronyms	
Agencies and Departments	
CBRFC	Colorado Basin River Forecast Center
ADOT	Arizona Department of Transportation
ADEMA	Arizona Department of Emergency and Military Affairs
ADPS	Arizona Department of Public Safety
ADWR	Arizona Department of Water Resources
AOC	ALERT Operations Center at FCDMC
EOC	Emergency Operations Center at MCDEM
FCDMC	Flood Control District of Maricopa County
FEMA	Federal Emergency Management Agency
FERM	Flood Emergency Response Manual
MC Parks	Maricopa County Parks and Recreation
MCDEM	Maricopa County Department of Emergency Management
MCDOT	Maricopa County Department of Transportation
MCSO	Maricopa County Sheriff's Office
NWS	National Weather Service
O&M	Operations and Maintenance
USACE	U.S. Army Corps of Engineers
ESC	Emergency Services Coordinator
Units/Abbreviations	
ac	Acre
ac-ft.	Acre-feet
cfs	Cubic feet per second
Other	
ALERT	Automated Local Evaluation in Real Time
DSFRM	FCDMC Dam Safety Flood Response Manual
EAP	FCDMC Emergency Action Plan for dams & levees
RED BOOK	MCDEM Emergency Resource Manual
ADMS	Area Drainage Master Study
ADMP	Area Drainage Master Plan
WEA	Wireless Emergency Alerts
CENS	Community Emergency Notification System
FRS	Flood Retarding Structure
MFRRP	MCDOT Flooded Roadway Response Program
OEM	Office of Emergency Management
CAP	Central Arizona Project
SFRP	Scottsdale Flood Response Plan
FRP	Flood Response Plan
MSP	Meteorological Services Program
QPF	Quantitative Precipitation Forecast

Table 1 List of Acronyms

INTRODUCTION

The Flood Control District of Maricopa County (District) provides flood hazard identification, prevention, regulation, and remediation to reduce the risk of injury, loss of life and property damage from flooding in the County. The purpose of this comprehensive Flood Response Plan (FRP) is to ultimately reduce the potential for property damage and loss of life resulting from floods in the City of Scottsdale.

Project Need

Scottsdale is prone to frequent flooding that can occur with little to no warning. The original Flood Response Plan for Scottsdale was completed in August 2004. Since the original Adverse Weather Alert & Response Plan (AWARE Plan) there has been extreme growth in the City. Increased communication of weather information and flood warning information is essential to safeguard lives and property. This FRP provides a means to coordinate the District's flood data collection and monitoring activities with the emergency response activities specific to flooding with the City of Scottsdale.

Location

The Scottsdale FRP area covers approximately 184 square miles and is now the states' seventh largest city. Scottsdale shares boundaries with many other municipalities and entities. On the west, Scottsdale is bordered by Phoenix, Paradise Valley, Carefree, and Unincorporated Maricopa County land. The north is bordered by the Tonto National Forest. The eastern boundary is bordered by Tonto National Forest, unincorporated Maricopa County, the McDowell Mountain Regional Park, Fountain Hills, and the Salt River Pima-Maricopa Indian Community. To the south Scottsdale is bordered by Tempe (Figure 1).

Involvement

This FRP will require special coordination between Scottsdale Police Department, Scottsdale Emergency Management, Scottsdale Fire Department, Scottsdale Street Operations Office and Public Works Department, Scottsdale Parks and Recreation, Scottsdale Solid Waste Department, National Weather Service, Flood Control District of Maricopa County, Maricopa County Department of Emergency Management, Maricopa County Sheriff's Office, Maricopa County Parks and Recreation, Arizona Department of Transportation, Salt River Project, Central Arizona Project and possibly other agencies and responders, as applicable.

Most of the Scottsdale Flood Response Plan (SFRP) falls within the City of Scottsdale (Scottsdale) but there are a few county islands. A county island is an area of unincorporated land completely surrounded by the surrounding jurisdiction. The people who live in these county islands usually don't recevie services from Scottsdale. Figure 2 shows the locations of the Unincorporated Maricopa County islands. This FRP will specify Maricopa County Department of Transporation

and Maricopa County Sheriff's Office as responders to the areas Scottsdale is not responsible for. The Scottsdale Fire Department responds to areas within the County Islands because the Maricopa County does not have its own Fire Department.

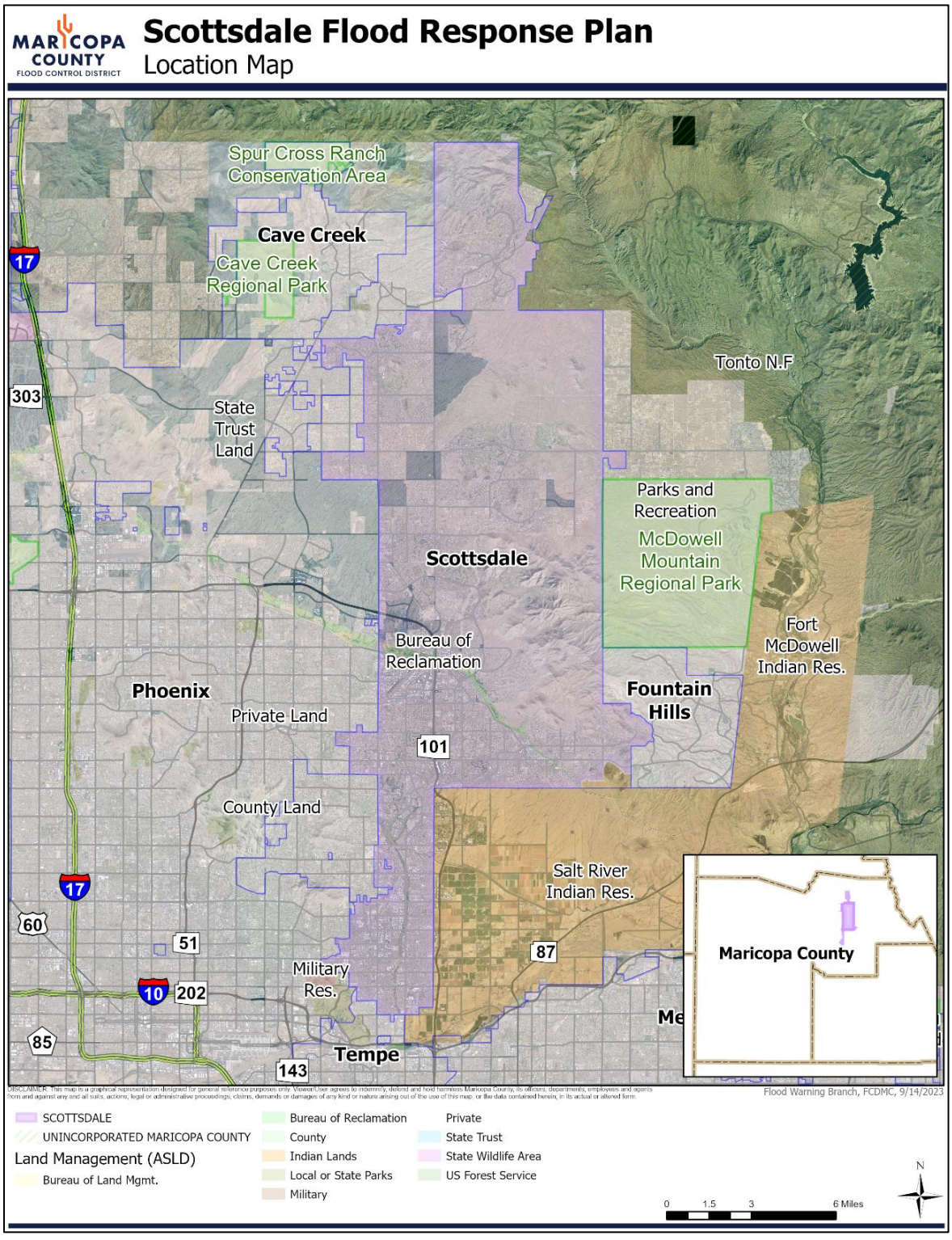

Figure 1 SFRP Location Map

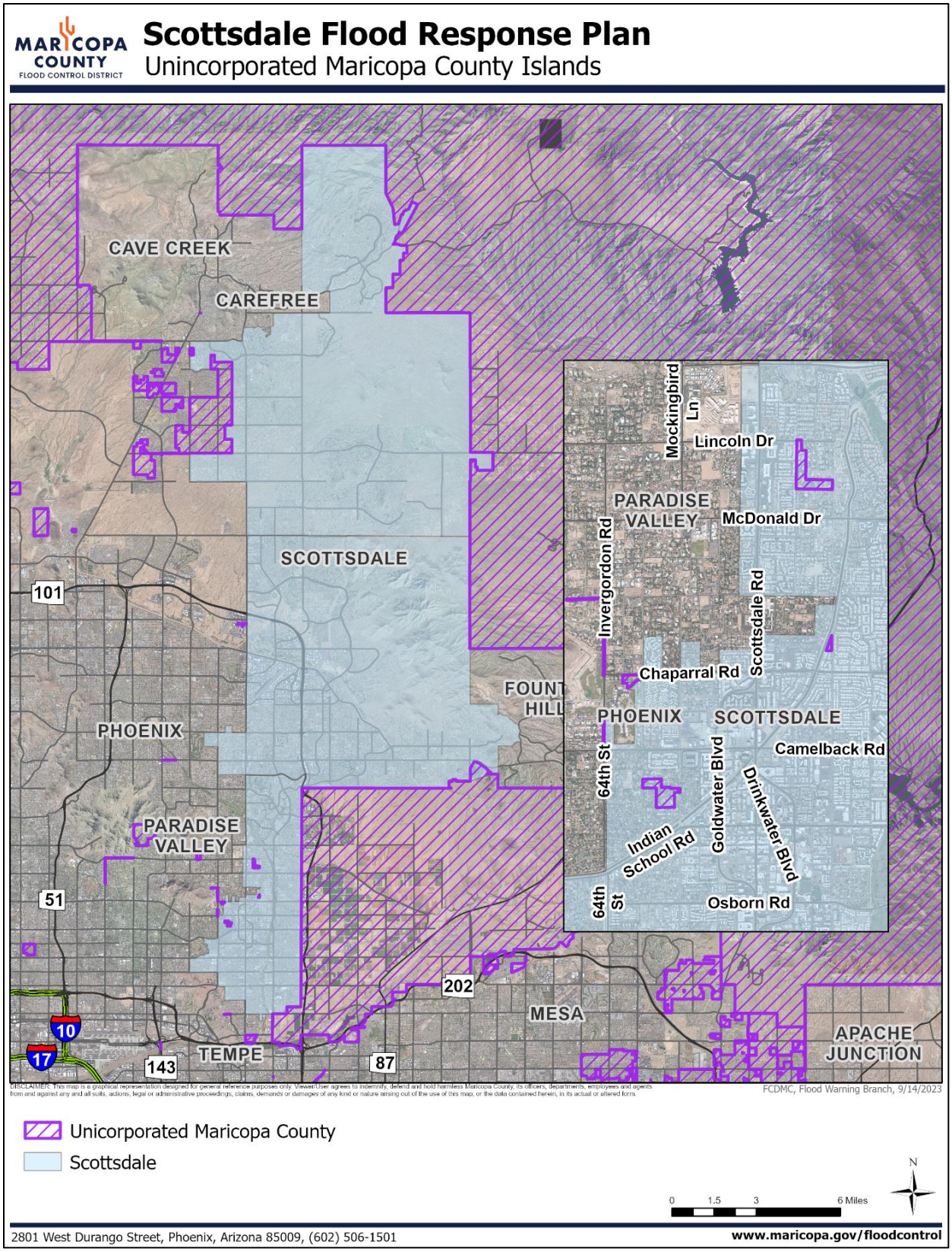

Figure 2 Unincorporated Maricopa County Islands within the City of Scottsdale

FLOOD DECTECTION

The District provides early warning messages to agencies and first responders through weather monitoring and an elaborate ALERT gage network. The District's ALERT gage network provides real-time data for rainfall, streamflow, water levels, and weather information 24 hours a day 365 days a year. All of this information is easily accessible via the District's website: http://www.maricopa.gov/3833/Get-Weather-Information.

Weather Monitoring

The District's in-house meteorologists monitor satellite data, radar data, National Weather Service (NWS) products and other tools to develop rainfall forecasts for the County. The forecasts are used as an early "heads up" for flood threat within the County. The daily weather outlook is prepared and posted at http://www.maricopa.gov/weatheroutlook each day around noon for the subsequent 72 hours, covering all Meteorological Services Program (MSP) Forecast Zones (Figure 3). If requested, this outlook is made available to local jurisdictions and the public by email notification and by text message. Scottsdale falls within the South Scottsdale and North Scottsdale Forecast Zones (See Figure 4).

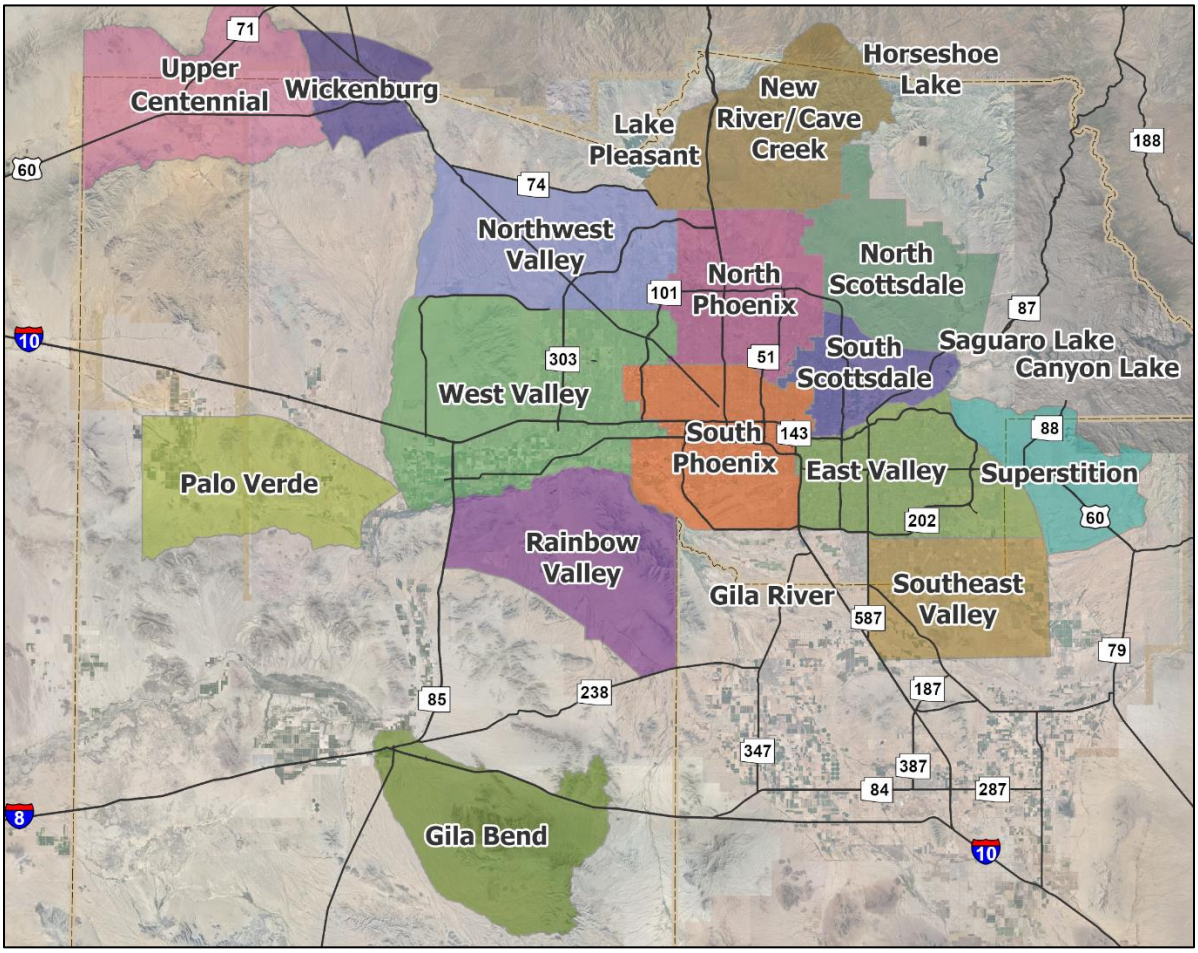

Figure 3 FCDMC MSP Forecast Zones

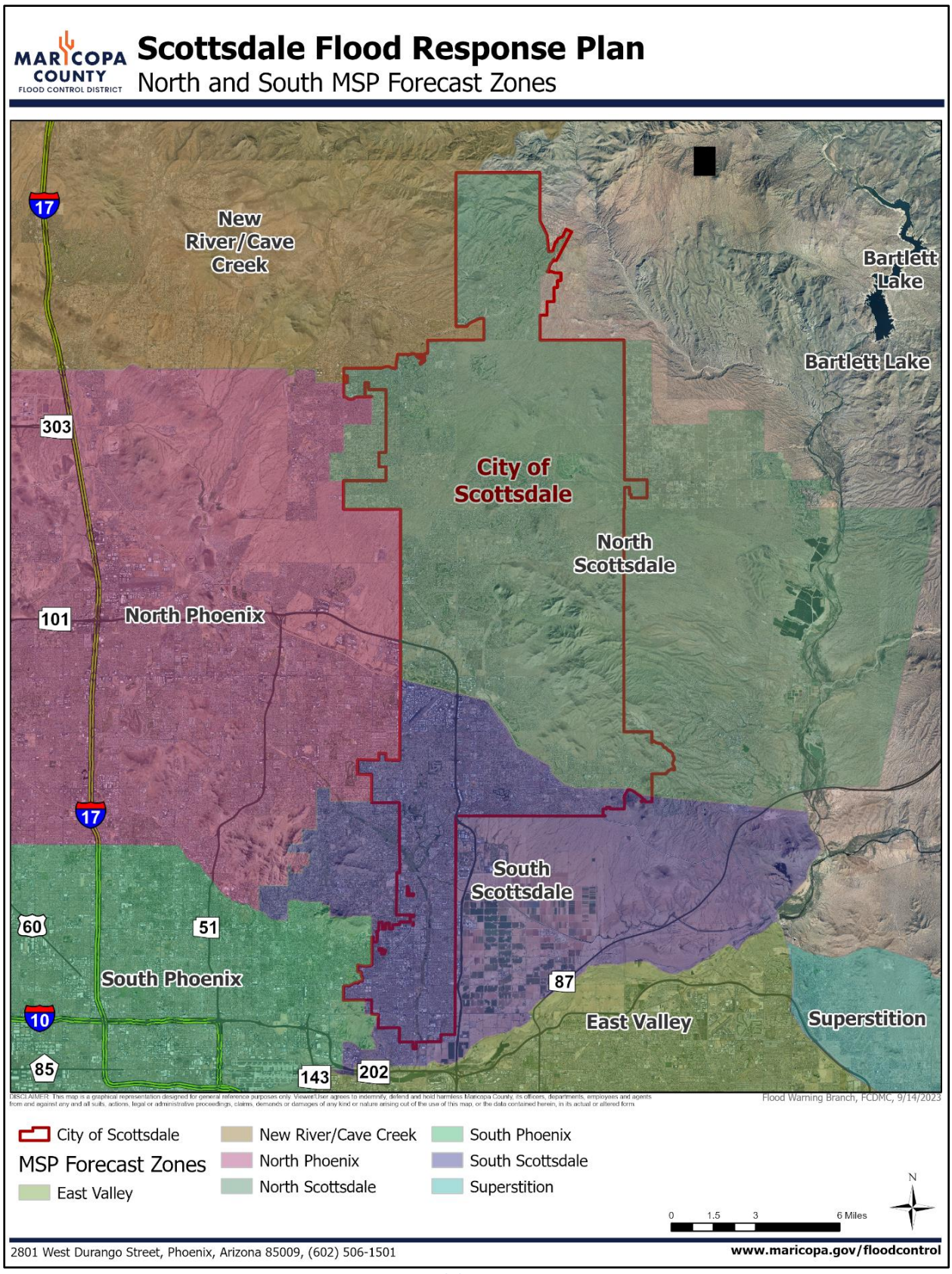

Figure 4 Scottsdale MSP Forecast Zone

According to the District's MSP Standard Operating Procedure, if meteorological conditions warrant, the following messages are delivered for individual zones:

District Meteorological Services Program (MSP) Products	
Product	**Description**
Weather Outlook	The Weather Outlook is disseminated to clients daily, no later than 2PM, throughout the year. During the Off Season, this product covers the today through the next 2-3 days weather. During the Monsoon Season this product covers the today through tomorrow period and occasionally the following 2-3 days where appropriate. Occasionally, due to unexpected weather pattern changes, Weather Outlooks will be updated throughout the day or early the following morning. Weather Outlooks include: a synopsis of expected weather conditions, the probability of occurrence of rain, the expected prime time for the bulk of the rain, the amount of rain expected during the prime-time period, and Message issuance potential. Temperature forecasts and trends as well as a forecast of peak wind speeds may also be included. From May 15th through September 15th additional sections are required covering "health" related issues including an Air Quality Forecast and Summer Heat Risk Index.
Message 1	When it is believed developing weather conditions may lead to heavy rain and/or minor to moderate flooding, an Alert is issued. Lead time will generally be less than an hour. The Alert will normally identify the affected Forecast Zone(s), the time frame of the event (valid period), rainfall potential, and the type of areas that will be impacted, such as roads and/or washes.
Message 2	When it appears the developing weather event may lead to significant flash flooding, a Flash Flood Watch is issued for the possible affected areas. Lead time will generally be 1 to 6 hours in advance of the expected event. The Flash Flood Watch will normally identify the affected Forecast Zone(s), the valid period, rainfall potential, and a section describing what may take place (comments).
Message 3	When it appears that significant flash flooding is imminent or has started to take place, a Flash Flood Warning will be issued for the affected areas. Lead time will generally be less than an hour. The Flash Flood Warning will normally identify the affected zone(s), the valid period, rainfall potential, and a section describing what is expected to take place (comments).
Message 4	When an event (Alert, Watch, or Warning) no longer poses a threat, and the expiration time has not been reached, a Cancel may be issued.
Message 1, 2 & 3 Update	This product, issued as needed, will update an existing Alert, Watch, or Warning.
Lake Alerts	In addition to the above MSP products, weather guidance is provided for Maricopa County lakes/reservoirs from June 15th through October 15th. Lake Alerts are issued as needed to inform of approaching adverse weather conditions. Emphasis in these statements is placed on expected wind gusts and lightning activity.

Table 2 MSP Products

ALERT Gage Network Monitoring

The District monitors a sophisticated network of automated rain gages, stream gages, and weather stations in and around Maricopa County. The network uses ALERT (Automated Local Evaluation in Real Time) technology to detect and monitor rainfall and runoff during storms. The system is monitored continuously (24/7) by using threshold alarm features available onsite or by remote notification and access.

Flood Control District of Maricopa County (FCDMC) Gages

ALERT gages located in or near Scottsdale with their specific alarm values are listed below in Table 3. See Figure 5 for a map of the ALERT station locations. The first column in the table below identifies the Zone of each ALERT station. These Zones have been created specifically for this Flood Response Plan and are described in detail on page 14 shown in Figure 7.

ALERT Stations in the Scottsdale Flood Response Plan							
Zone	**Gage Name**	**Location**	**Station ID**	**Old Sensor ID**	**ALERT 2 Sensor ID**	**Sensors**	**Alarm Value**
Central	Aztec Park	Near Thunderbird & Frank Lloyd Wright	50597	4695	59700	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
Near South	Berneil Wash	Near 66th St. and Doubletree Rd.	50592	4685	59200	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
				4688	59207	Stream	2.0 ft. / 650 cfs
							5.0 ft. / 3,065 cfs
							6.0 ft. / 4,300 cfs
Near North	Camp Creek	4 mi. SE of Seven Springs Campground	50770	5955	77000	Rain	1 in. / 1 hr.
Near South	Camelback Mountain East	1/2 mi. NW of Chaparral Rd. & Invergordon Rd.	50570	-	57000	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
Central	CAP Reach11 Dike #3	On the CAP dike between Hayden and Pima Rd.	50601	-	60107	Stage	25% = 5.87 ft.
							100% = 13.0 ft.
Central	CAP Reach11 Dike #4	Near the CAP crossing at Thompson Peak Pkwy.	50598	-	59807	Stage	25% = 7.87 ft.
							100% = 18.0 ft.
North	Carefree Ranch	2.5 mi. NE of Sky Ranch Airport	50210	4930	21000	Rain	1 in. / 1 hr.
				4932	21001	Temperature	N/A
				4931	21002	Humidity	N/A
				4927	21004	Ave. Wind	N/A
				4937	21005	Wind Direction	N/A
				4924	21006	Peak Wind	40 mph or greater
				4933	21011	Solar Radiation	N/A
				4928	21016	Dewpoint	N/A
South	El Dorado Park	0.3 mi. N of McDowell Rd. on Miller Rd.	50566	-	56600	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
North	Fraesfield Mountain	0.25 mi. N of Dixileta Dr. and 128th St.	50762	5930	76200	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
South	Granite Reef Wash	On McDowell Rd. just E of Granite Reef Rd.	50575	4725	57500	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
				4728	57507	Stream	2.3 ft. / 20 cfs
							6.0 ft. / 465 cfs
							7.0 ft. / 655 cfs
Central	Hesperus Wash		50793	5995	79300	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.

ALERT Stations in the Scottsdale Flood Response Plan							
Zone	**Gage Name**	**Location**	**Station ID**	**Old Sensor ID**	**ALERT 2 Sensor ID**	**Sensors**	**Alarm Value**
		Near Dixie Mine on E side of McDowell Mtns.					2.50 in. / 1 hr.
South	IBW @ Indian Bend Rd.	On IBW just S of Indian School	50563	4610	56300	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
				4613	56307	Stream	4.91 ft. / 2,000 cfs
							6.05 ft. / 5,320 cfs
							6.75 ft. / 8,430 cfs
South	IBW @ Indian School Rd.	Indian School Rd. @ Hayden Rd.	50565	4615	56500	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
				4618	56507	Stream	3.97 ft. / 2,000 cfs
							5.0 ft. / 3,000 cfs
South	IBW @ Interceptor Channel	1/4 mi. SW of Pima Rd & Indian Bend Rd.	50568	4620	56800	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
				4623	56807	Stream	3.45 ft. / 495 cfs
							7.92 ft. / 4,135 cfs
							9.27 ft. / 6,000 cfs
South	IBW @ McDonald Dr.	On McDonald Dr W of Hayden Rd.	50572	4628	57207	Stream	2.0 ft. / 1,500 cfs
							3.4 ft. / 2,750 cfs
							4.3 ft. / 3,780 cfs
Near South	IBW @ McKellips Rd.	On IBW 1/4 mi. S of McKellips Rd.	50557	4600	55700	Rain	N/A
						Stream	2.65 ft. / 950 cfs
							5.9 ft. / 4,370 cfs
							7.4 ft. / 6,710 cfs
Near South	IBW @ Shea Blvd.	Shea Blvd. @ 52nd St.	50595	4690	59500	Rain	N/A
						Stream	2.0 ft. / 700 cfs
							4.0 ft. / 4,000 cfs
							5.3 ft. / 7,265 cfs
Near South	IBW @ Sweetwater Ave.	1/2 mi. E of 32nd St. & Sweetwater Ave.	50583	4640	58300	Rain	N/A
						Stream	2.05 ft. / 305 cfs
							4.46 ft. / 1,480 cfs
							5.0 ft. / 2,010 cfs
South	Lake Margherite	1/4 mi. W of Doubletree & Hayden Rd.	50590	4675	59000	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
				4678	59007	Stream	1.82 ft. / 280 cfs
							5.43 ft. / 2,000 cfs
							7.67 ft. / 3,200 cfs
Central	Lost Dog Wash	1/2 mi. NNW of Shea Blvd. & 128th St.	50588	4660	58800	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
North	Middle Rawhide Wash	2.6 mi. NNE past Pinnacle Peak Powerline Gage	50609	-	60900	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
North	Old Paint Wash	1.5 NW of 136th St. N of Rio Verde Dr.	50769	-	76900	Rain	N/A
				-	76907	Stage/Storage	None
South		Osborn Rd. @ 64th St.	50560	4605	56000	Rain	0.50 in. / 15 min.

ALERT Stations in the Scottsdale Flood Response Plan							
Zone	**Gage Name**	**Location**	**Station ID**	**Old Sensor ID**	**ALERT 2 Sensor ID**	**Sensors**	**Alarm Value**
	Osborn Rd. @ 64th St.						0.75 in. / 30 min.
							2.50 in. / 1 hr.
				4617	56001	Temperature	N/A
				4616	56002	Relative Humidity	N/A
				4612	56004	Wind Speed	N/A
				4622	56005	Wind Direction	N/A
				4609	56006	Peak Wind	40 mph or greater
				4614	56016	Dewpoint	N/A
North	Jomax Rd. @ 70th St.	1/8 mi. NW of Pima Rd and Jomax Rd	50608	4670	60800	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
				4672	60801	Temperature	N/A
				4671	60802	Humidity	N/A
				4674	60803	Barometric Pressure	N/A
				4667	60804	Ave. Wind	N/A
				4677	60805	Wind Direction	N/A
				4664	60806	Peak Wind	40 mph or greater
				4673	60811	Solar Radiation	N/A
				4669	60816	Dewpoint	N/A
Near South	Paradise Valley Country Club	1/2 mi. N of Lincoln Dr & Tatum Blvd.	50960	4790	9300	Rain	N/A
Central	Pima Rd. @ Union Hills Dr.	1/4 mi. W of Pima Rd. & Union Hills Dr.	50603	4590	60300	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
North	Pinnacle Peak Powerline	1.7 mi. ENE of Dixileta Rd. & Pima Rd.	50607	-	60700	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
Central	Pinnacle Peak Vista	1.2 mi. SSE of Deer Valley Rd. & Pima Rd.	50605	4595	60500	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
North	Rackensack Canyon	8 mi. NE of Cave Creek	50765	5940	76500	Rain	N/A
				5942	76501	Temperature	N/A
				5941	76502	Relative Humidity	N/A
				5938	76503	Barometric Pressure	N/A
				5936	76504	Ave. Wind	N/A
				5937	76505	Wind Direction	N/A
				5934	76506	Peak Wind	40 mph or greater
				5939	76516	Dewpoint	N/A
North	Ranch Gate Road	Ranch Gate Rd. @ 118th St.	50763	-	76300	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
North	Rawhide Wash	1/3 mi. W of Pima Rd on Dynamite Blvd.	50610	4860	61000	Rain	0.50 in. / 15 min.
							0.75 in. / 30 min.
							2.50 in. / 1 hr.
				4863	61007	Stream	1.0 ft. / 134 cfs
							4.0 ft. / 2,000 cfs

ALERT Stations in the Scottsdale Flood Response Plan							
Zone	**Gage Name**	**Location**	**Station ID**	**Old Sensor ID**	**ALERT 2 Sensor ID**	**Sensors**	**Alarm Value**
							4.6 ft. / 2,500 cfs
North	Rawhide Wash @ Pinnacle Peak Rd.	300 yds. E of Scottsdale Rd. on Pinnacle Peak Rd.	50606	-	60600	Rain	0.50 in. / 15 min. 0.75 in. / 30 min. 2.50 in. / 1 hr.
North	Reata Pass Dam	1/2 mi. S of Dynamite Blvd. & 112th St.	50612	4935	61200	Rain	0.50 in. / 15 min. 0.75 in. / 30 min. 2.50 in. / 1 hr.
				4938	61207	Stage	5.8 ft. / 10% 13.07 ft. / 50%
North	Reata Pass Wash	1.6 mi. E of Pima Rd. on Pinnacle Peak Rd.	50600	4585	60000	Rain	0.50 in. / 15 min. 0.75 in. / 30 min. 2.50 in. / 1 hr.
				4588	60007	Stream	2.4 ft. / 720 cfs 5.0 ft. / 4,700 cfs 6.6 ft. / 9,400 cfs
North	Stagecoach Wash	1/2 mi. S of Cave Creek Rd. & Pima Rd.	50200	4910	20000	Rain	0.50 in. / 15 min. 0.75 in. / 30 min. 2.50 in. / 1 hr.
				4913	20007	Stream	3.0 ft. / 175 cfs 4.3 ft. / 395 cfs 4.75 ft. / 570 cfs
Central	Thompson Peak	120th St. and Bell Rd. alignments	50019	5945	1900	Rain	N/A
				5947	1901	Temperature	N/A
				5946	1902	Humidity	N/A
				5943	1916	Dewpoint	N/A
Central	Thunderbird Academy	1/4 mi. E of Thunderbird and Scottsdale	50577	4630	57700	Rain	0.50 in. / 15 min. 0.75 in. / 30 min. 2.50 in. / 1 hr.

Table 3 ALERT Stations in SFRP

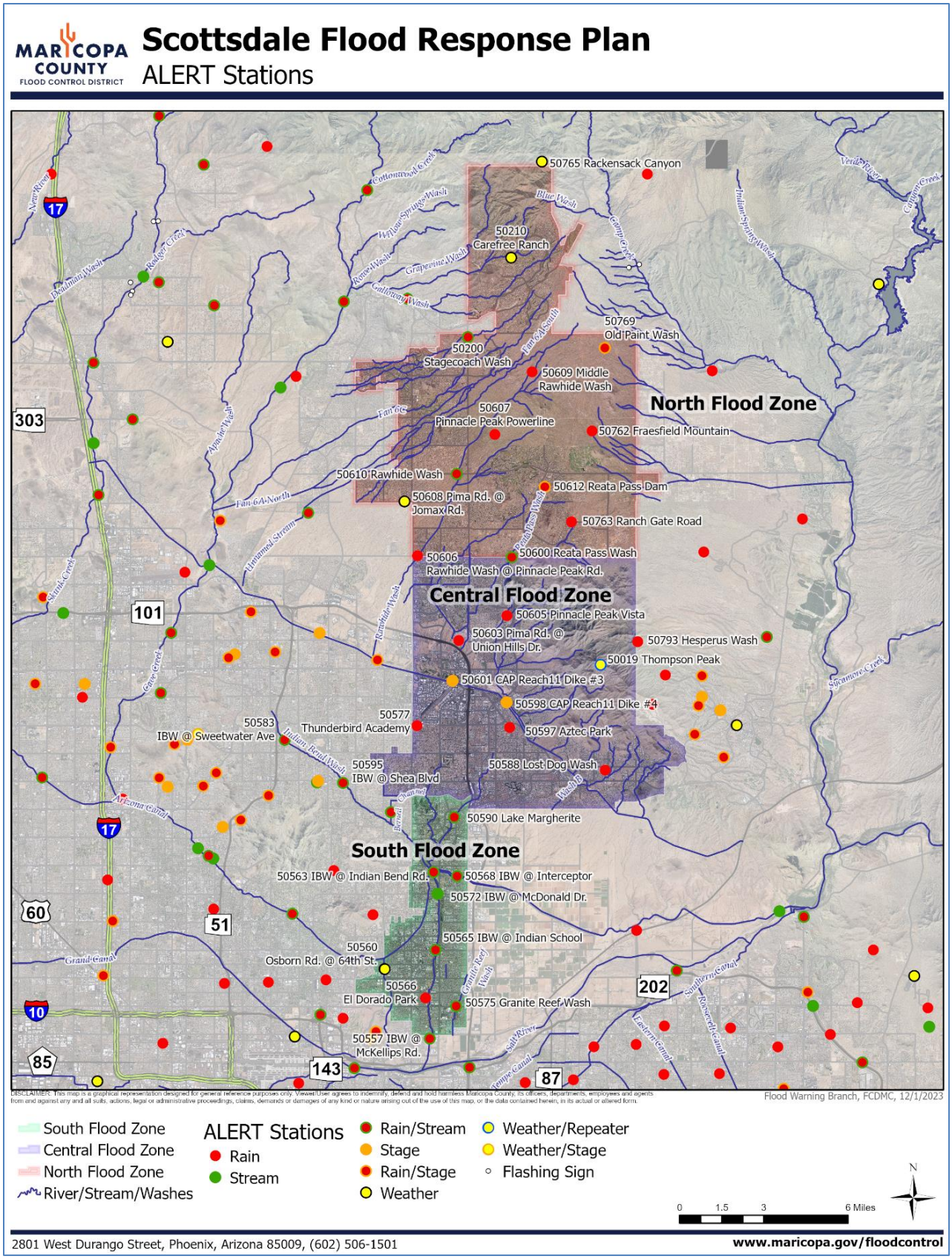

Figure 5 ALERT Stations

Other Data Sources

Additional data sources are available online which help provide information about the weather and flooding conditions in Maricopa County and throughout Arizona. The District is a partner with Arizona Flood Warning System (www.afws.org). The National Weather Services' Phoenix Forecast Office issues meteorological and hydrological forecasts and warnings to the public and to local jurisdictions (www.wrh.noaa.gov/psr). The Colorado Basin River Forecast Center (CBRFC) in Salt Lake City, Utah, prepares forecasts using computer-based river forecast models (www.cbrfc.noaa.gov). The United States Geological Survey also operates a network of rain and stream gages in Maricopa County in partnership with FCDMC (https://www2.usgs.gov/water/).

FCDMC offers numerous products on our website, and they are available 24/7.

A list of some of our products specific to Scottsdale are listed below:

- The Scottsdale Flood Response Plan Online Map is located at http://alert.fcd.maricopa.gov/alert/Google/v3/scottsdale.html.
- The Flood Condition Maps and flowcharts are located at http://alert.fcd.maricopa.gov/alert/Google/docs/SFRP.pdf.

Location of Critical Facilities

During a flood event it is important to know the location of critical facilities. Critical facilities include fire stations, police stations, hospitals, schools, waste and wastewater treatment facilities and power substations. Scottsdale has a total of fifteen (15) fire stations, five (5) police stations, eight (8) hospitals, eighty-two (82) schools, twenty-one (21) power and seven (7) water and wastewater treatment facilities. The Emergency operations center is located at the Fire and Police Administration Headquarters at 8401 E Indian School Road.

There is a total of one (1) fire stations, one (1) police station, one (1) elementary school, one (1) hospital, three (3) power substations and three (3) wastewater treatment facilities located in FEMA Flood Zones. One of the wastewater treatment facilities is owned and operated by the Scottsdale and the other one is owned and operated by the Central Arizona Project (CAP). All the critical facilities are identified Figure 6 and listed in Appendix E.

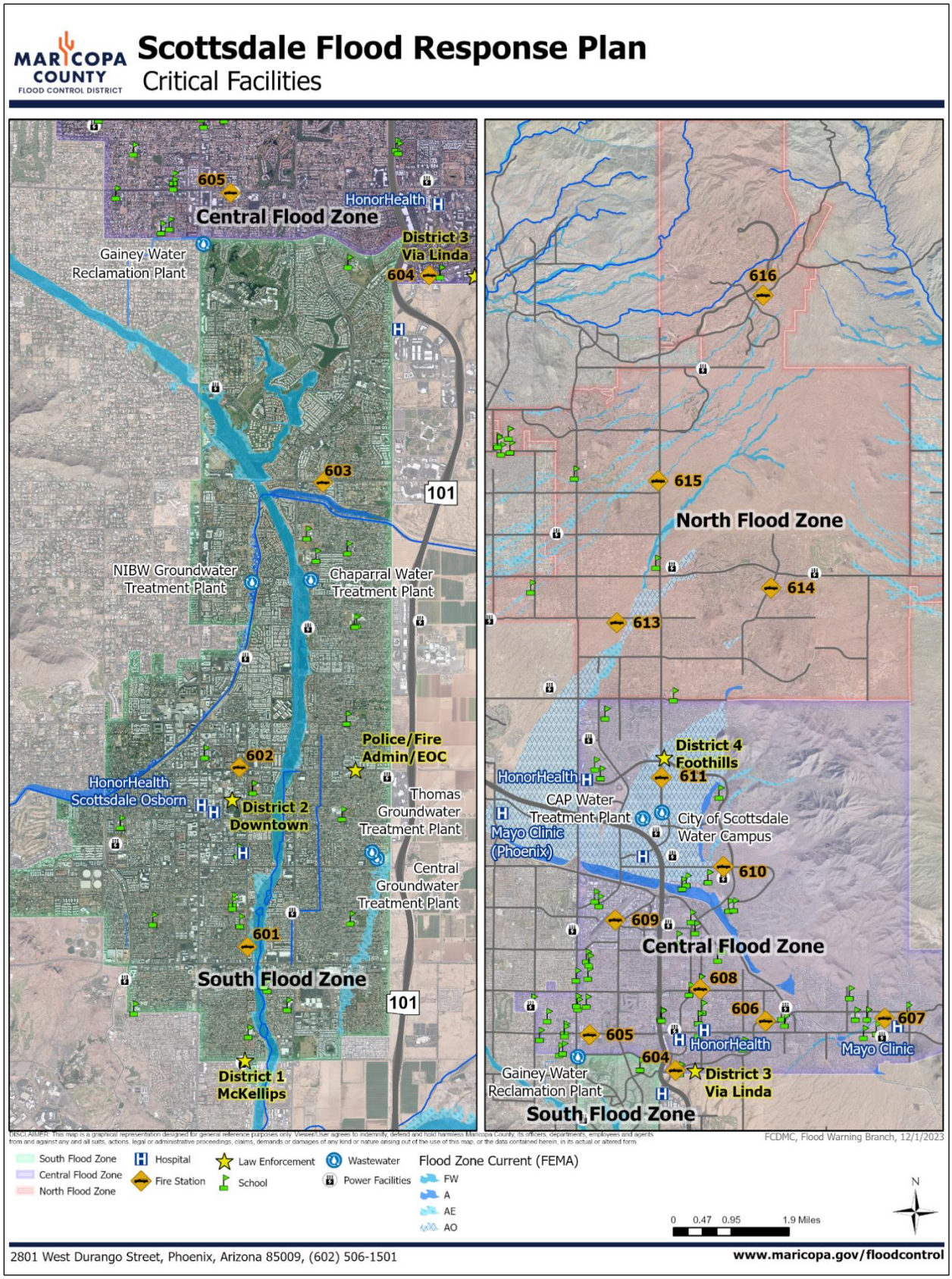

Figure 6 Critical Facilities

Scottsdale Flood Response Plan Zones

The FRP area is a total of 184 square miles and has been divided into three different zones for use in the Flood Condition Maps (Flood Condition Maps and Flowcharts pages 65-76). The South Zone is 21 square miles. The south border starts at McKellips and the north boundary is Mountain View Road. The Central Zone is 75 square miles. The south border starts at Mountain View Road and the north boundary is Pinnacle Peak Road. The North Zone is 88 square miles. The south border starts at Pinnacle Peak Rd and ends at the Tonto Nation Forest Boundary to the North. The Flood Condition Maps are divided in this way to enable emergency responders to easily identify response priorities depending on their current locations. Figure 7 shows the boundaries of these zones.

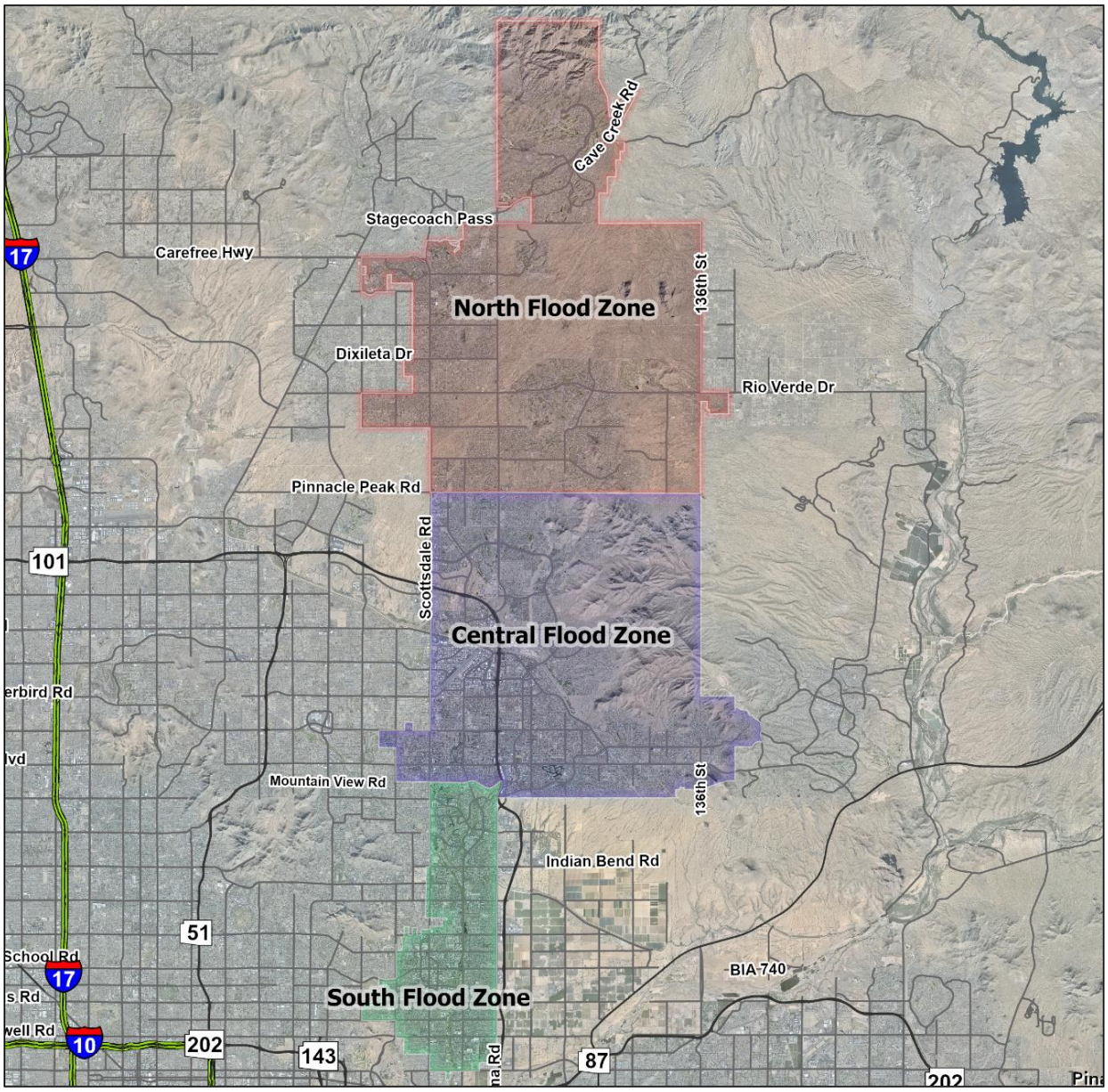

Figure 7 SFRP Zones

FLOOD THREAT RECOGNITION

This section of the FRP identifies roadways and structures that have a high likelihood of being inundated by flood waters. There are particular road crossings noted within this FRP that are vulnerable to dangerous flooding. At any point in a storm event, road crossings may become impassable and alternate routes may need to be taken by pedestrians, motorists, and emergency vehicles to bypass a particular crossing. These crossings on roadways need to be barricaded in a timely manner to prevent motorists from trying to cross floodwaters. The responsibility of maintaining, monitoring, and barricading these roads lies with the road owner. Specific tasks are

detailed in the Emergency Response Actions (pages 48-64) section of this FRP and on the Flowcharts for **YELLOW ALERT** and **RED ALERT**.

Road Crossings

Major roadway crossings are defined as road crossings that have a combination of being highly travelled and have a high flood discharge (cubic feet per second) value or a high velocity (feet per second) value. High flows in these watercourses can make them extremely dangerous during a flood event. Vulnerable road crossings have been analyzed and identified for the City and are listed below by zone:

- The North Zone has a total of four hundred nine (409) unbridged crossings, one hundred seventy (170) ponding areas, four hundred ninety-nine (499) culverts and forty-nine (49) bridges.
- The Central Zone has a total of one hundred nineteen (119) unbridged crossings, two hundred seven (207) ponding areas, four hundred sixty-two (462) culverts and forty-six (46) bridges.
- The South Zone has six (6) unbridged crossings, eighty-two (82) ponding areas, thirty (30) culverts and twenty-five (25) bridges.

Figures 8, 9 and 10 show the streets most vulnerable to being closed due to water on roadways. These locations are identified by Scottsdale, FEMA Flood Zones and FLO-2D® flood models. The areas that are red/yellow have a high percentage of crossings in that zone and should be an area that is prioritized when a heavy rainfall event is happening. A complete list of the locations most vulnerable to flooding can be found in Appendix E and all locations are identified on the Flood Condition Maps and Flowcharts (pages 65-76). The Scottsdale FRP Google Map® has a Crossings Layer that also shows all these identified crossings.

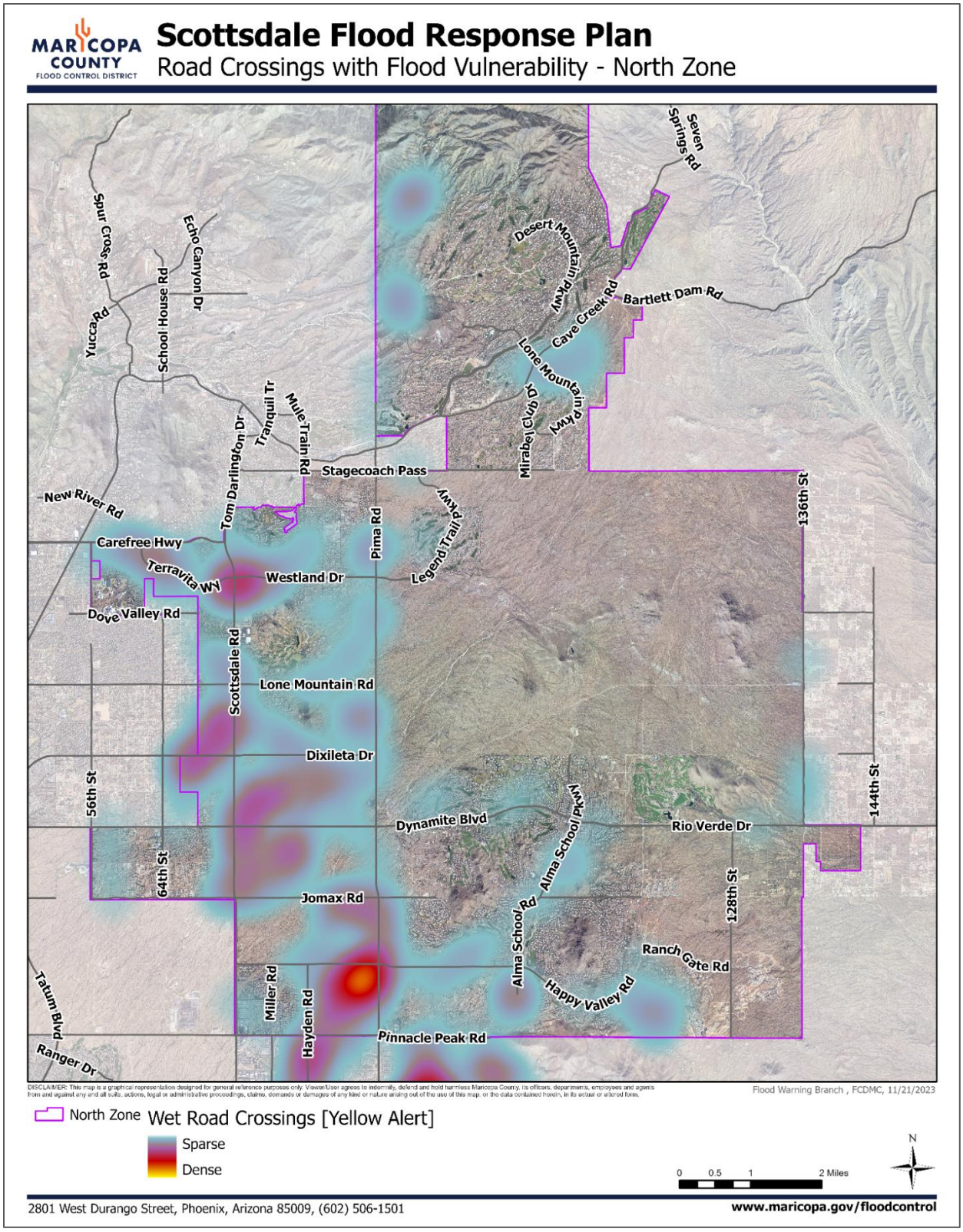

Figure 8: Road Crossing Only North Zone

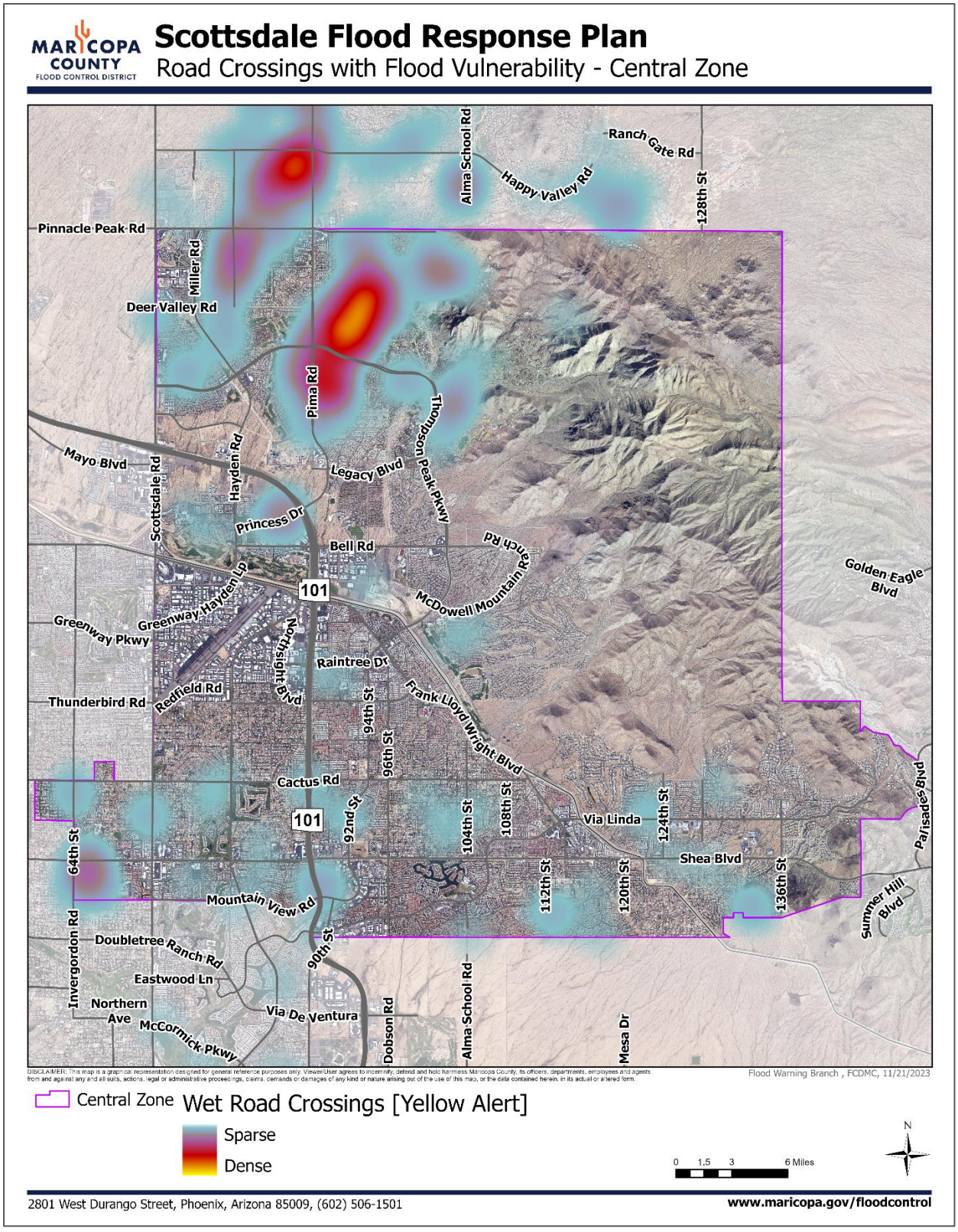

Figure 9: Road Crossing Only South Zone

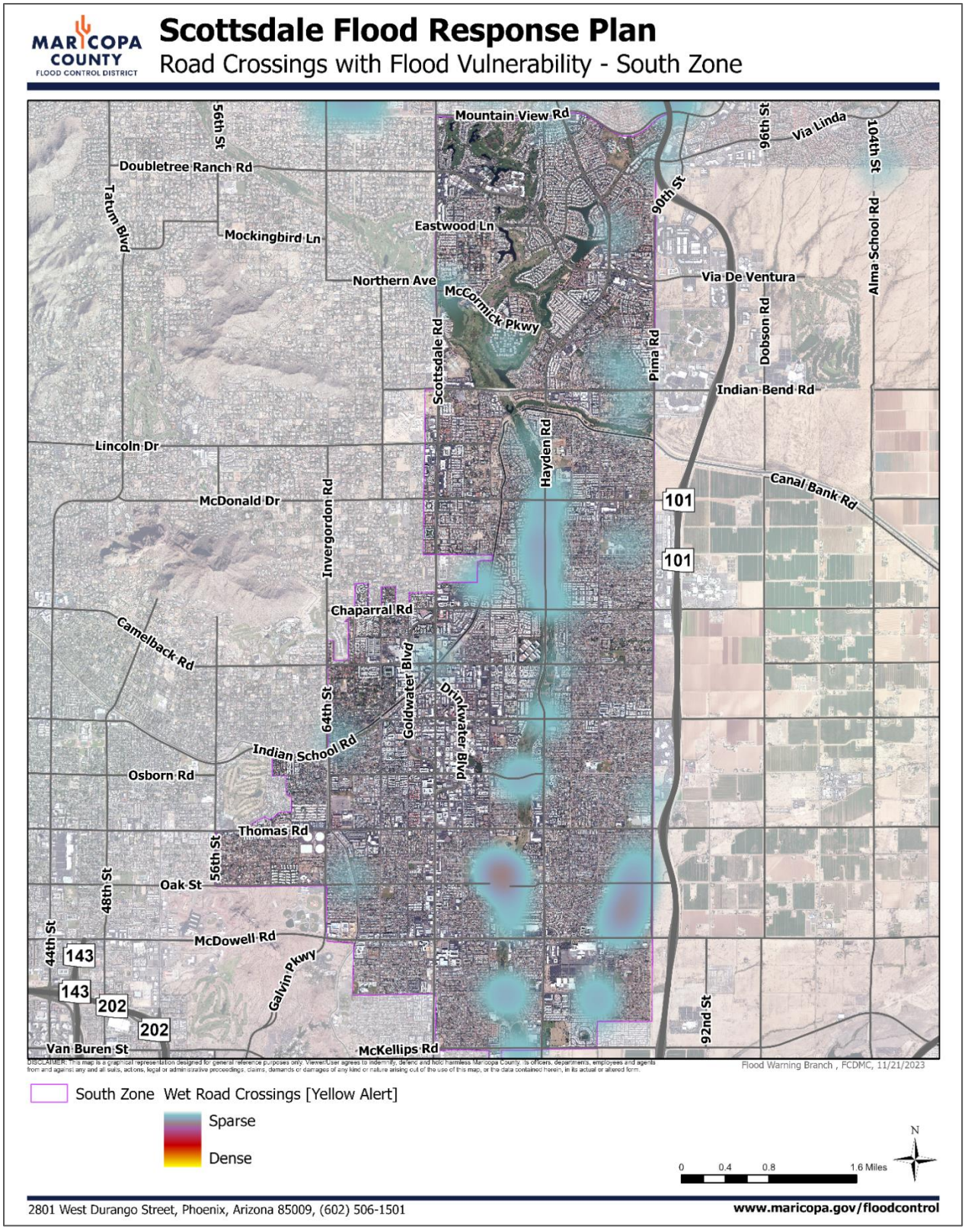

Figure 10: Road Crossings Only South Zone

Many recreational areas are prone to flooding within Scottsdale. Many trails, golf courses and parks are built along flood control structures. Maricopa County's Maricopa Trail also runs through Scottsdale and crosses flood hazard areas.

The North Zone has thirty-four (34) Scottsdale trails crossings and eight (8) Maricopa County trail crossings. There are also eight (8) Golf Courses that are in flood prone areas which are Whisper Rock Golf Club, Terravita Golf Club, Boulders Golf Club, Legend Trail Golf Club, Mirabel Golf Course, Renegade, Apache, and Cochise Golf Course.

The Central Zone has twenty-six (26) Scottsdale trail crossings and twelve (12) Maricopa County trail crossings. There are five (5) parks that are in flood prone areas which are Ironwood Park, Scottsdale Sports Complex, McDowell Mountain Ranch Park, Rio Montana Park, and Princess Resort. There are five (5) Golf Courses that are in flood prone areas which are Ancala, McDowell Mountain Golf Club, Silverleaf Golf Club, TPC Scottsdale Desert and Stadium Course Golf Course and The Country Club at DC Ranch.

The South Zone has fifty-two (52) Scottsdale trail crossings and ten (10) Maricopa County trail crossings. There are also seven (7) parks that are in flood prone areas which are Nature Areas at IBW Interceptor, Chaparral Park, Camelback Park, Indian School Park, Thomas Road Bike Stop, Eldorado Park and McKellips Lake Park. There are two (2) golf courses in the flood prone area which are McCormick Ranch Golf Course and Continental Golf Course.

All these specific areas are identified in the Flood Condition Maps and flowcharts (pages 65-76). See Appendix F for the Maricopa County Maricopa Trail Map.

Canals, Channels and Washes

Early flood detection is one of the most important aspects of being able to provide early warnings to communities and their residents. When a threshold value has been met at a sensor, the District's ALERT software sets off an alarm. This alarm alerts an operator to a hazardous condition. By monitoring the stream gages the District can estimate travel times from when the water is at the gage to when it will reach a particular road crossing. Certain road crossings are more vulnerable to flooding and need to be barricaded during an event to prevent injury, property damage or loss of life.

Canals

Scottsdale has numerous canals that run through the City. The Crosscut Canal and Arizona Canal are owned and operated by Salt River Project (SRP). The CAP Canal is owned by Central Arizona Project (CAP). These canals primarily convey water to the City and to irrigation customers. The canal banks also provide a great place for walking, running, and bicycling. See Figures 11 and 12 for the SRP and CAP service territories.

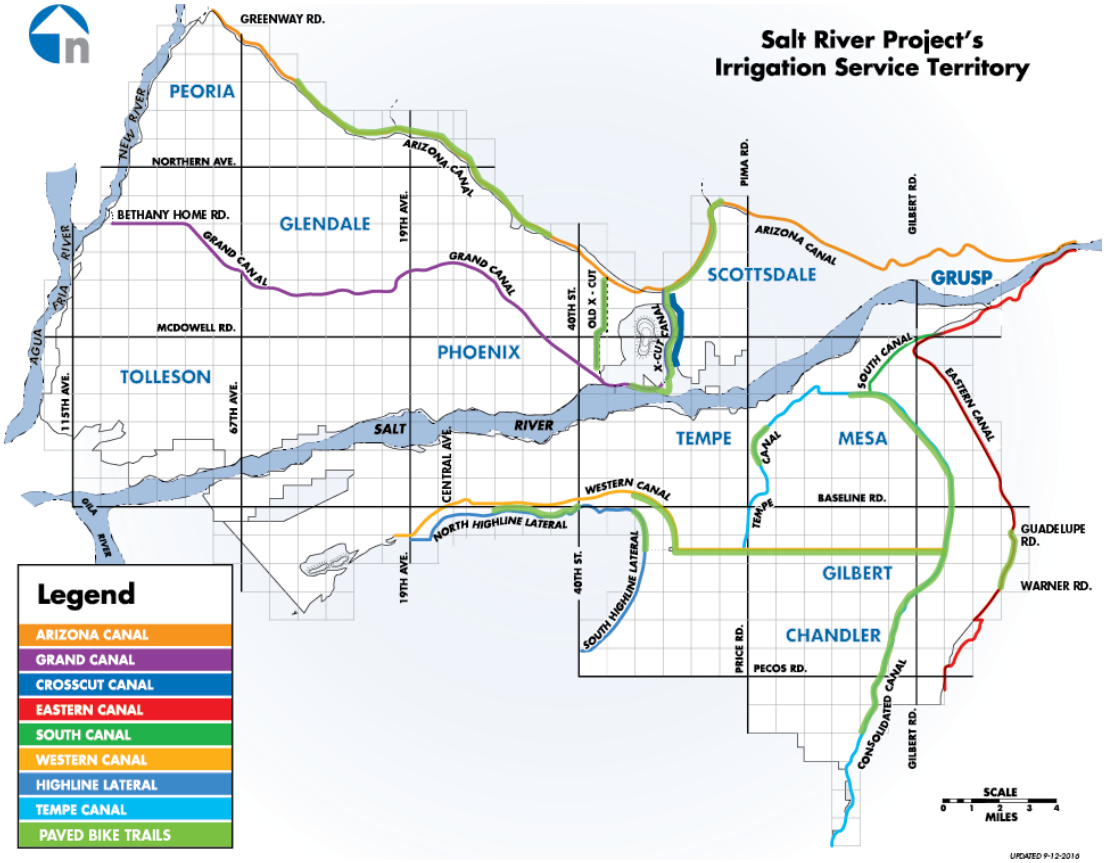

Figure 11 SRP Irrigation Service Territory

Figure 12 Central Arizona Project Service Area

Active Planning Studies and Projects

Area Drainage Master Studies and Plans are comprehensive studies of storm water drainage and flood risk. Figure 13 shows the ADMS/ADMP and projects that the District has partnered with City of Scottsdale to complete.

Figure 14 shows where there is FLO-2D® data available within the City of Scottdale. There are 6 different projects that include 15 different study areas that have been used in the analysis of all flood threats. These projects include Desert Mountain ADMS (D1, D2, D3, D4) 100yr 6HR, Reata Hydrology CLOMR (North and South) 100YR6HR, Pinnacle Peak (South and West) 100YR24HR, Lower Indian Bend Wash (North and South) 100YR6HR, Scottsdale Pima Road Channel 100YR6HR, and East Shea corridor ADMS (01, 02, 03, 04) 100YR6HR.

The East Shea Corridor ADMS/P is a current study to identify potential flooding hazards in the study area due to changes in the watershed since 1978 (i.e., development, homes, etc.) using updated mapping technology and a more technically sound approach to identification for these hazards. The ADMS is one of many projects the District is conducting to protect existing and future development form possible flood damage during large storm events. The Data Collection & Base FLO-2D® model was completed in August 2019. The next phase was creating FLO-2D® models. These new detailed FLO-2D® models are essential for the determination of flood hazards and risks as part of the East Shea Corridor ADMS. This information was used to identify flood prone roadways and structures.

The Pinnacle Peak West ADMS identified that the floodplains known as Fans 5 & 6 should be remapped using FLO-2D® modeling to better depict the current flood hazards. The Flood Control District developed new floodplain maps for Fans 5 & 6. The floodplain delineation and study was submitted to FEMA and approved in January 2018. After the public review period, the maps became effective on July 20, 2021.

The Flood Control District of Maricopa County, in partnership with the City of Scottsdale and Town of Carefree, has completed the Desert Mountain Area Drainage Master Study (ADMS). The study identified known and potential flooding hazards. The project area is approximately 15 square miles and includes residential subdivisions, large lot residential development, commercial areas, and undeveloped land. Specifically, the study area encompasses the communities of Desert Mountain, Carefree Ranch, Quail Ridge, Tonto Hills, and Carefree Shadows. The primary purpose of this ADMS was to identify the flooding hazards based on existing conditions. This was accomplished by technical evaluation and data collection using various methods and sources, such as hydrologic and hydraulic modeling, surveys, reviewing previous studies, and meeting with property owners and the agencies. FLO-2D® modeling was included in this ADMS. The results of the Desert Mountain ADMS shows if additional actions are needed to help protect property owners and development from flooding hazards. The results can also be used to guide future

development and help plan drainage infrastructure and flood mitigation measures that are appropriate for the built and natural environment.

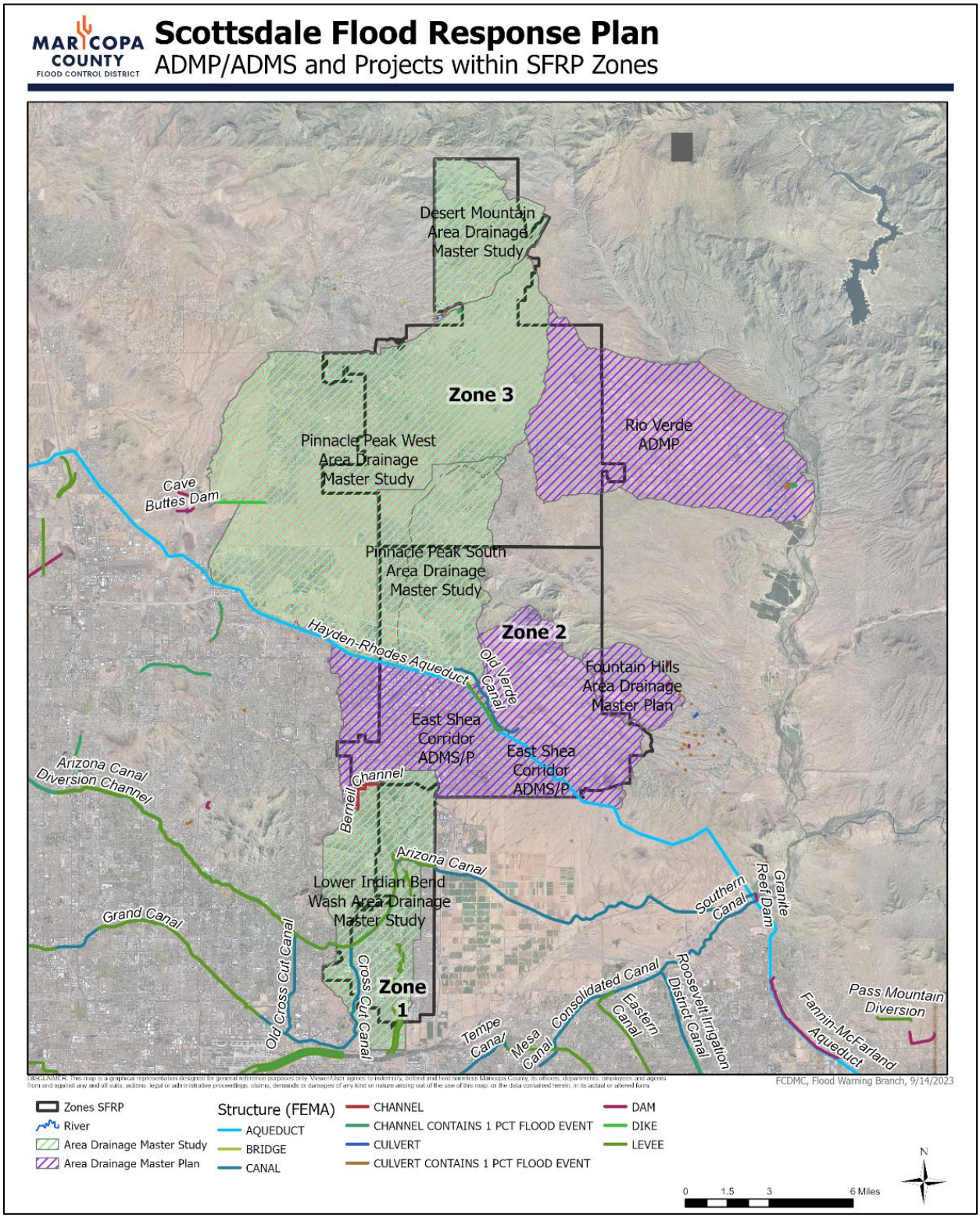

Figure 13 Projects Completed in Scottsdale

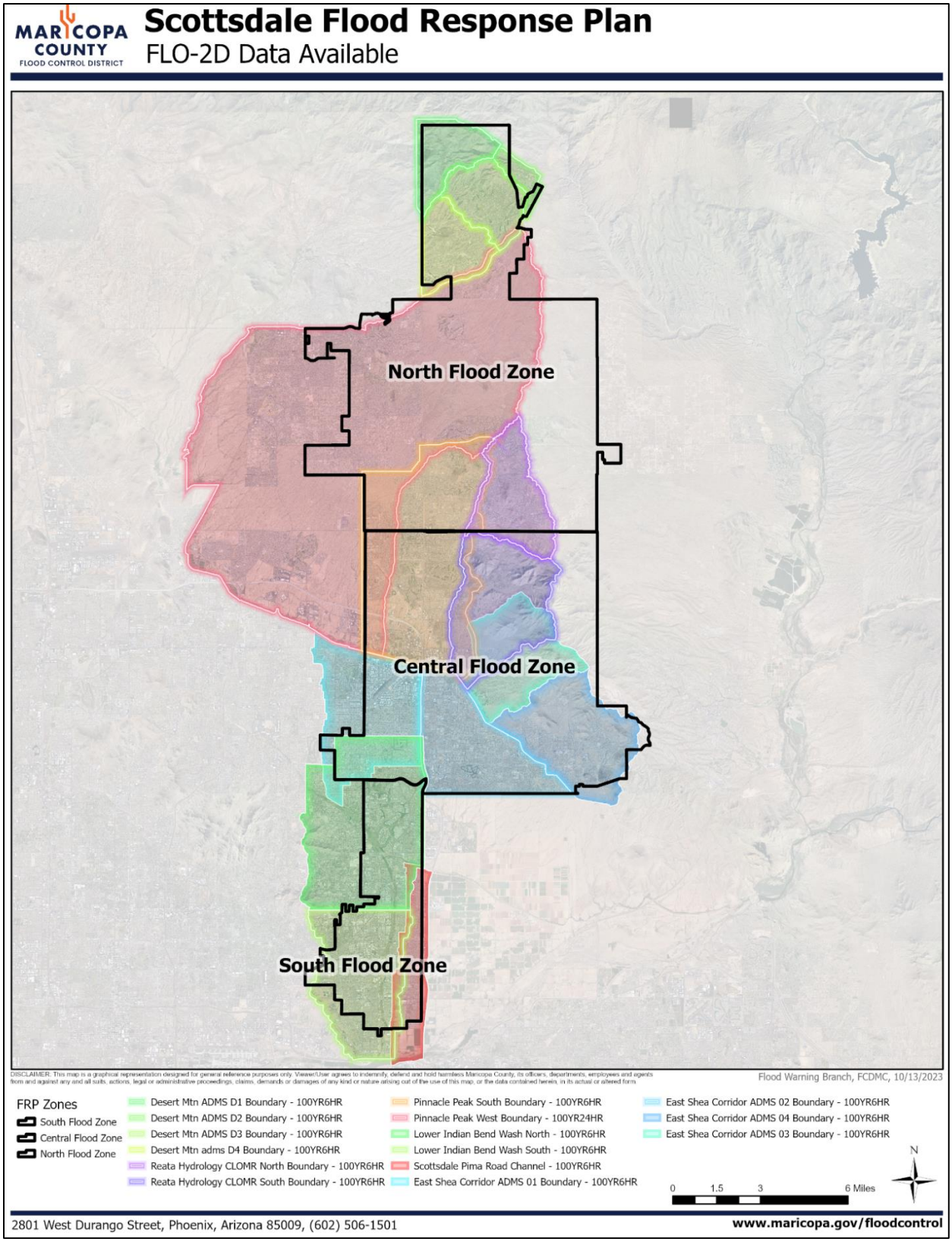

Figure 14 FLO-2D® Data

The Granite Reef Wash Hydrology Update was completed in 2022. This hydraulic study was to identify, quantify and document known and potential flooding hazards. This study used FLO-2D® modeling for evaluation and analysis of the wash. The estimated depths, discharges, and flow patterning with the current existing infrastructure allowed a better structure count for homes with an elevated flood risk.

Reata Wash Flood Control Improvement Study is being completed for the City of Scottsdale. The CLOMR Technical Support Data Notebook was completed January 2023. FLO-2D® modeling was used to complete the hydrology for Reata Wash and Tributaries. The final draft of this Study has not been submitted. The data used for this FRP is from the 30% submittal from January 2023.

The Indian Bend Wash was implemented by a partnership involving the District, the U.S. Army Corps of Engineers (USACE), the City of Scottsdale and private developers. The project is a flood control channel stretching from Indian Bend Road south to the Salt River consisting of five components: a greenbelt, an inlet channel, an outlet channel, an interceptor channel, and collector and side channels. The greenbelt, located between McDonald Drive and McKellips Road, is the largest section, a 4.5-mile-long grassy swale used for recreation including playgrounds and open space, golf courses, bicycle and hiking trails, and ball fields. The inlet is located at Indian Bend Road and is a one-mile-long, unlined earthen channel north of the greenbelt. The Indian Bend Wash outlet is also an unlined earthen channel and stretches from McKellips Road to the Salt River, the project's outfall. The interceptor, side and collector channels collect storm water and convey it to the main channel. The Arizona Canal is siphoned under Indian Bend Wash.

The Indian Bend Wash project accommodates a 65-square-mile drainage area including portions of Scottsdale and Tempe and provides 100-year flood protection. In accordance with project agreements, the cities of Scottsdale and Tempe are responsible for the operation and maintenance of the project within their jurisdictions, excluding the side and collector channels, which are the responsibility of the District. The project was completed in 1985.

Following construction of the Indian Bend Wash, the District cooperated with the City of Scottsdale to construct the related Camelback Side Drain Extension project. The project consists of storm drains along Camelback Road from 64th Street to 68th Street and along Lafayette Boulevard from 64th Street to 68th Street. The drains outfall to the Indian Bend Wash Side Channels system and, ultimately, to the Indian Bend Wash. As it primarily served to mitigate a local flooding hazard, the project was primarily paid for by the City of Scottsdale, with the District

reimbursing the City as compensation for providing added protection to a county island. The City of Scottsdale has operation and maintenance responsibility for the side drain extension.

The Lower Indian Bend Wash ADMS was completed in 2017 and included FLO-2D® modeling for the entirely of Indian Bend Wash. The Hydrology and Hydrologic Report provided detailed information about the depth, discharges and velocities help assess the flooding potential for the trail system, unbridged roadways and structures prone to flooding.

Channels and Washes with Available Lead Times

There are multiple stream gages that directly benefit Scottsdale. These following links will direct the user to the FCDMC current conditions, decision support pages, and summary statistics & complete records for each water-level station that has a calculated travel time:

Indian Bend Wash at Indian Bend Road

http://alert.fcd.maricopa.gov/php/submap_933.php?MP=56307_5
http://alert.fcd.maricopa.gov/alert/DSS/56507/DSS_56307.html
http://alert.fcd.maricopa.gov/alert/Flow/56307.htm

Indian Bend Wash at McDonald Drive

http://alert.fcd.maricopa.gov/php/submap_933.php?MP=57207_5
http://alert.fcd.maricopa.gov/alert/DSS/56507/DSS_57207.html
http://alert.fcd.maricopa.gov/alert/Flow/57207.htm

Indian Bend Wash at Indian School Road

http://alert.fcd.maricopa.gov/php/submap_933.php?MP=56507_5
http://alert.fcd.maricopa.gov/alert/DSS/56507/DSS_56507.html
http://alert.fcd.maricopa.gov/alert/Flow/56507.htm

Indian Bend Wash near McKellips Road

http://alert.fcd.maricopa.gov/php/submap_933.php?MP=55707_5
http://alert.fcd.maricopa.gov/alert/DSS/56507/DSS_55707.html
http://alert.fcd.maricopa.gov/alert/Flow/55707.htm

Reata Pass Wash

http://alert.fcd.maricopa.gov/php/submap_933.php?MP=60007_5
http://alert.fcd.maricopa.gov/alert/DSS/56507/DSS_60007.html
http://alert.fcd.maricopa.gov/alert/Flow/60007.htm

Rawhide Wash

http://alert.fcd.maricopa.gov/php/submap_933.php?MP=61007_5
http://alert.fcd.maricopa.gov/alert/DSS/56507/DSS_61007.html
http://alert.fcd.maricopa.gov/alert/Flow/61007.htm

Indian Bend Wash is in the South Zone of the SFRP. The wash is subject to frequent flooding and is very well gaged. Table 4 and Figure 15 presents calculated travel times for selected discharge values. These are calculated using the current Flood Insurance Study for Maricopa County and Incorporated Areas by FEMA completed in October 2013. Indian Bend Wash Levee 3 and Levee 4 have Emergency Action Plan Quick Sheets available in Appendix G.

Floodwater Travel Times

Channel or Wash	**Location**		**100-yr Discharge (cfs)**	**Distance (miles)**	**Velocity (ft./s)**	**Time (min)**
Indian Bend Wash	1	IBW at Sweetwater #58307 (Sweetwater Ave and 36th St)	6,000	-	-	-
	1→2	IBW at Sweetwater #58307 to IBW at Shea Blvd #59507 (Shea Blvd and 52nd St)	16,000	2.6	6.0	38
	2→3	IBW at Shea Blvd #56507 to IBW at Indian Bend Road #56307 (Indian Bend Rd and Hayden Rd)	17,000	4.6	5.6	72
	3→4	IBW at Indian Bend Rd #56307 to IBW at McDonald Dr #57207 (McDonald Dr at Hayden Rd)	17,000	0.8	6.0	12
	4→5	IBW at McDonald Dr #57207 to IBW at Indian School #56507 (Indian School Rd nr Hayden Rd)	20,000	2.0	4.7	37
	5→6	IBW at Indian School Rd #56507 to IBW at El Dorado Park #50566 (Miller Rd and Hubell St)	20,000	1.8	6.0	26
	6→7	El Dorado Park #56507 to IBW at McKellips #55707 (McKellips Rd nr Miller Rd)	20,000	1.5	7.3	18

Table 4 Travel Times IBW

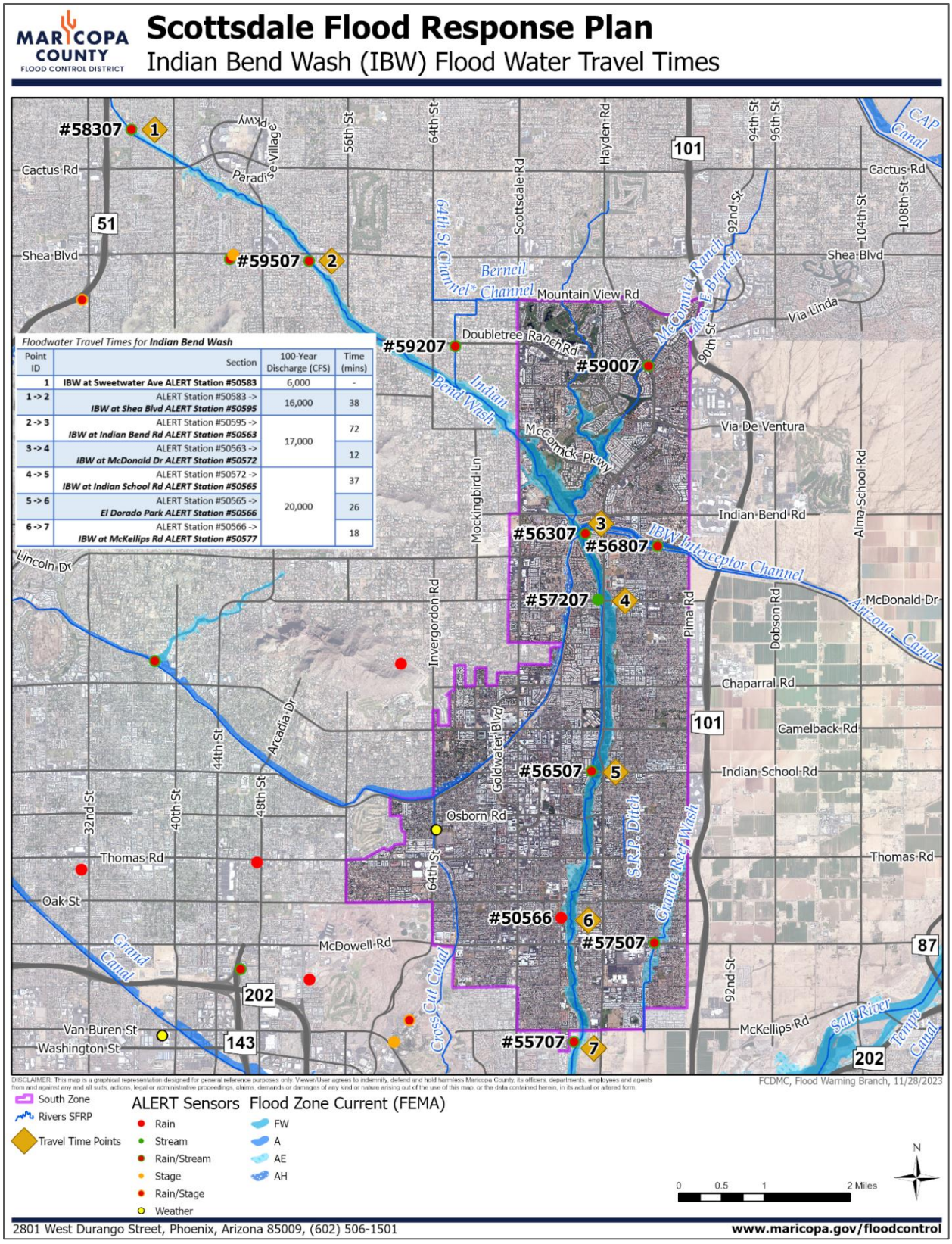

Figure 15: IBW Travel Times

Reata Pass Wash is in the Central Zone of the SFRP. There is a stream gage located east of Pima Road and just north of Pinnacle Peak Road. Table 5 and Figure 16 show the calculated travel times. These are calculated using the 100-year 6-hour FLO-2D® from the Reata Hydrology CLOMR Reata Wash Hydrology Study.

Floodwater Travel Times

Channel or Wash	**Location**		**100-yr Discharge (cfs)**	**Distance (miles)**	**Velocity (ft./s)**	**Time (min)**
Reata Pass Wash	8	Reata Pass Wash ALERT Gage #60007	5,420	-	-	-
	8→9A	Reata Pass Wash #60007 to Foothills Drive	5,420	0.6	11	5
	8→9	Reata Pass Wash #60007 to Adobe Drive	5,420	1.2	11	10
	8→10	Reata Pass Wash #60007 to Thompson Peak Parkway	5,420	2.2	8	21
	8→11	Reata Pass Wash #60007 to Pima Road	5,420	2.7	6	28
	8→12	Reata Pass Wash #60007 to Hualapai Drive	5,420	3.5	6	40
	8→13	Reata Pass Wash #60007 to AZ Loop 101	5,420	4.4	3	66

Table 5: Travel Times Reata Pass Wash

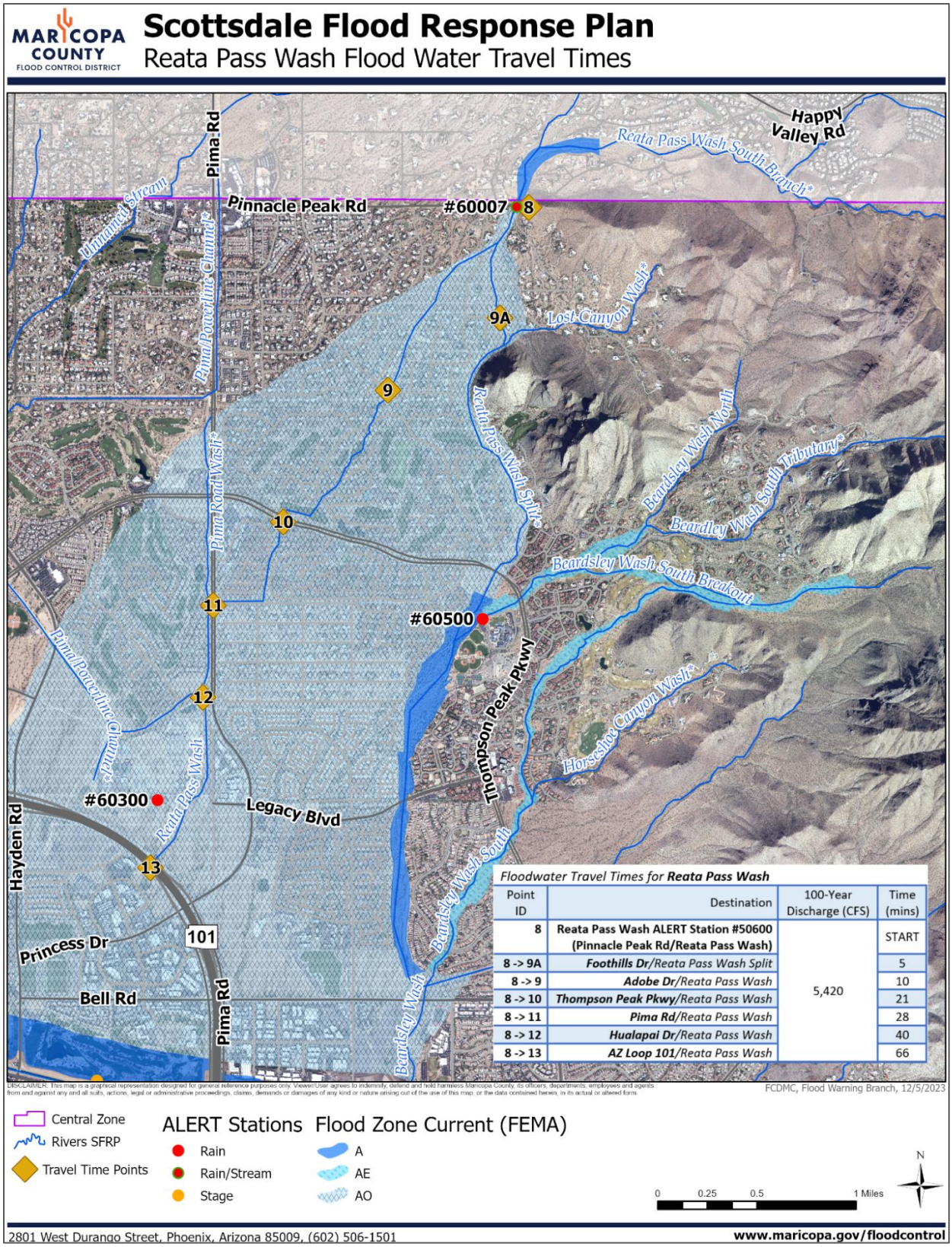

Figure 16 Reata Pass Wash Travel Times

Rawhide Wash is in the North Zone of the SFRP. Table 6 and Figure 17 show the calculated travel times for select discharge values. These are calculated using the current Flood Insurance Study for Maricopa County and Incorporated Areas by FEMA completed in October 2013.

Floodwater Travel Times

Channel or Wash		Location	100-yr Discharge (cfs)	Distance (miles)	Velocity (ft./s)	Time (min)
Rawhide Wash	14	Rawhide Wash ALERT Station #50610	6,340	-	-	-
	14→15	Jomax Rd	6,340	1.1	13.3	7
	14→16	Hayden Road	6,340	0.8	13.3	12
	14→17	Happy Valley Road	6,340	0.26	13.3	14
	14→18	Los Portones	6,340	1.0	13.3	21
	14→19	Rawhide Wash at Pinnacle Peak Rd ALERT Station #50606	6,340	0.2	13.3	22
	14→20	Pinnacle Peak to Scottsdale Road	6,340	0.3	13.3	24

Table 6: Travel Times Rawhide Wash

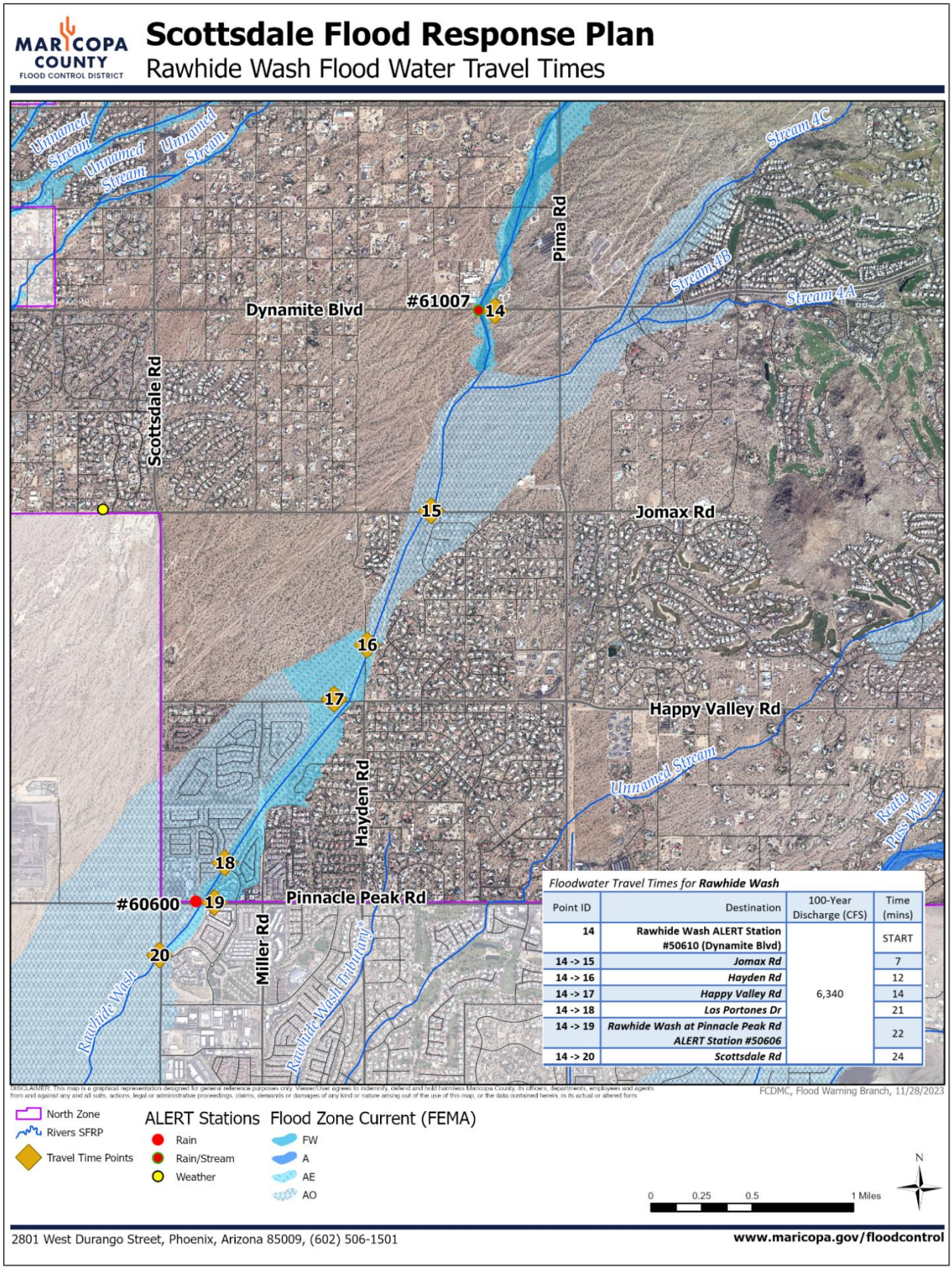

Figure 17 Rawhide Wash Travel Times

Flow frequency based on HECWRC implementation of Bulletin 17B, n=range 19-28, 1992-2019, for washes are listed in Table 7. Flow frequencies based on the FEMA Flood Insurance Study are listed in Table 8.

Flow Frequency Based on HECWRC implementation of Bulletin 17B, n=19-28, 1989-2018

Location	**Discharge (cfs)**					
	2-year	**5-year**	**10-year**	**20-year**	**50-year**	**100-year**
Berneil Wash	317	603	830	1,070	1,420	1,700
IBW at Sweetwater Ave	442	880	1,240	1,640	2,230	2,720
IBW at Shea Blvd	1,210	2,410	3,460	4,690	6,600	8,300
IBW at Indian Bend Road	918	2,430	4,110	6,410	10,700	15,000
IBW at McDonald Drive	981	2,020	2,970	4,070	5,830	7,420
IBW at Indian School Road	835	1,950	2,980	4,200	6,110	7,800
IBW at McKellips Road	1,120	2,940	4,770	7,080	10,900	14,500
Reata Pass Wash	117	753	1,770	3,370	6,570	9,890
Rawhide Wash	560	2,070	2,800	4,400	5,350	6,340
Stagecoach	17	68	148	288	630	1,080

Table 7: Flow Frequency based on Bulletin 17B

Flow Frequency from FEMA FIS

Location	**Discharge (cfs)**			
	10-year	**50-year**	**100-year**	**500-year**
IBW at Sweetwater Ave	2,000	3,500	6,000	15,500
IBW at Indian Bend Road	3,500	12,000	17,000	39,000
IBW at Indian School Road	4,000	14,000	20,000	43,000
IBW at McKellips Road	4,000	14,000	20,000	42,000

Table 8: Flow Frequency from FEMA FIS

Portions of Scottsdale are in the dam failure hazard zones for the CAP Reach 11 Dikes 1 – 4. The Reach 11 Dikes are an integral part of the Hayden-Rhodes Aqueduct, which is a major element of the Central Arizona Project. The primary function of the dikes is to intercept and detain floodwater originating within the watershed north of the dike system, thereby providing cross drainage protection for the Hayden-Rhodes Aqueduct and flood protection for the communities immediately downstream. The inundation limits show potential breach locations. Each of the Dikes have the potential to impact Scottsdale so it is important to monitor each of the impoundment gages. The CAP Reach 11 Emergency Action Plan (EAP) shall be used when responding to any flooding resulting from a breach of any kind. SFRP Flood Condition Maps will refer to the CAP EAP where applicable. Figure 18 shows the location and inundations maps for a failure during probable maximum flood.

There are four impoundment gages that monitor CAP Reach 11. These following links will direct the user to the FCDMC current conditions for each CAP station:

1. Dike 1 Current Conditions Graphic
   http://alert.fcd.maricopa.gov/php/submap_933.php?MP=8407_5
2. Dike 2 Current Conditions Graphic
   http://alert.fcd.maricopa.gov/php/submap_933.php?MP=58607_5
3. Dike 3 Current Conditions Graphic
   http://alert.fcd.maricopa.gov/php/submap_933.php?MP=60107_5
4. Dike 4 Current Conditions Graphic
   http://alert.fcd.maricopa.gov/php/submap_933.php?MP=59807_5

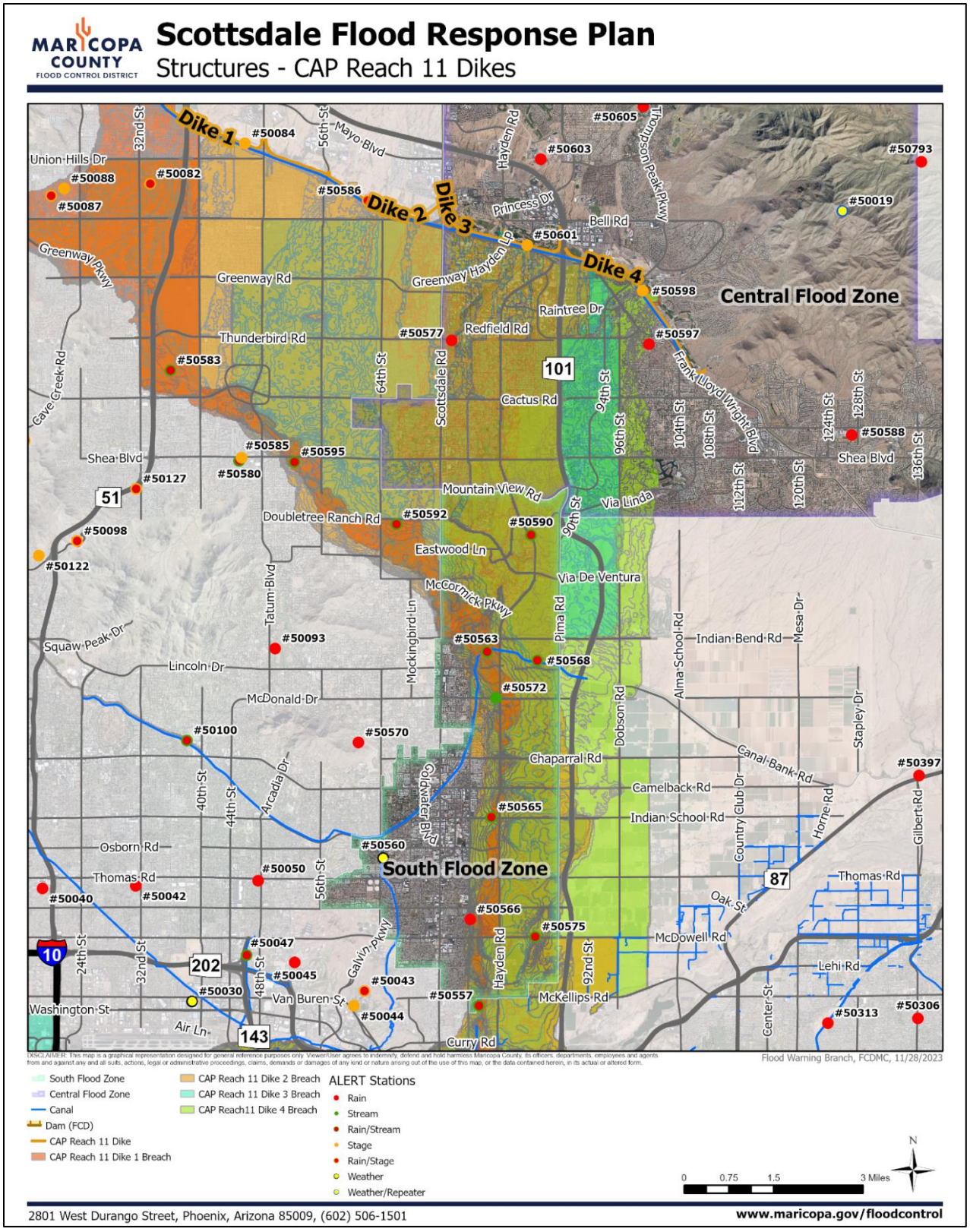

Figure 18 Dam Failure Hazard Zones

Structures at Risk within FEMA Flood Hazard Zones

There are a total of six thousand four hundred seventy-three (6,473) structures within the SFRP that are located within high-risk areas of FEMA designated Flood Hazard Zones. The maximum depth for the FLO-2D® was also used in the analysis to add at risk structures. A structure in this FRP is defined as anything with a roof and walls. These flood zones are geographic areas that FEMA has defined according to varying levels of flood risk. Each Zone reflects a severity or type of flooding in the area. For this FRP, all the structures within the High-Risk Areas, including Zones FW, AE and A1-A30, and Zone AO, have been documented because in these areas mandatory flood insurance purchase requirements apply. Below is a table with the definitions of the FEMA Zone Designations.

Definitions of FEMA Flood Zone Designations

Zone	Description
	High Risk Areas
Zone AE and A1-A30	Zones AE and A1-A30 are the flood insurance rate zones that correspond to the 1-percent annual chance floodplains that are determined in the Flood Insurance Study by detailed methods of analysis. In most instances, Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.
Zone AH	Zone AH is the flood insurance rate zone that corresponds to the areas of 1-percent annual chance shallow flooding with a constant water-surface elevation (usually areas of ponding) where average depths are between 1 and 3 feet. The Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.
Zone AO	Zone AO is the flood insurance rate zone that corresponds to the areas of 1-percent shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average flood depths derived from the detailed hydraulic analyses are shown within this zone. In addition, alluvial fan flood hazards are shown as Zone AO on the Flood Insurance Rate Map. Mandatory flood insurance purchase requirements apply.
	Moderate to Low-Risk Areas
Zone X (shade)	Zone X is an area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. Also used to designate floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile. Flood insurance purchase requirements do not apply.
Zone D	Zone D is an area of undetermined but possible flood hazards. Flood insurance purchase requirements do not apply.

Residential Structures at Risk within FEMA Flood Zones

There are a total of six thousand thirty-five (6,035) parcels with residential structures within high-risk Flood Zones. A residential structure in the FRP is defined as a structure that people reside in as a permanent home. Of these 6,035 parcels, three thousand five hundred eighty-seven (3,587) are single family residential homes and two thousand four hundred forty-eight (2,448) are multi-family housing. Below is a breakdown of the residential structure count by zone.

- The North Zone has three hundred seventy-four (374) single family residential homes and seventeen (17) multi-family residential homes.
- The Central Zone has three thousand twelve (3,012) single family residential homes and two thousand one hundred and eighty-four (2,184) multi-family residential houses.
- The South Zone has two hundred and one (201) single family residential homes and two hundred forty-seven (247) multi-family residential houses.

These residential structures may be prone to ponding and/or shallow flow during a 100-year event. During a flood event, structures within the floodplain, but not limited to the floodplain, are at an increased flood threat and need to be monitored. See Figure 19, 20 and 21 for maps of these locations. For a complete list of all the residential structures and more detailed maps see Appendix E. The Scottsdale FRP Google Map® has a North, Central and South Structures Layer that shows all structures that have been identified within the FEMA Flood Zone.

Other Structures at Risk in FEMA Flood Zones

In addition to the residential structures listed above, there are also four hundred thirty-eight (438) parcels with other structures within the moderate risk FEMA Flood Zones. Other structure in the FRP is defined as any structure that people do not reside in as a permanent home. Of these three four hundred and thirty-eight structures; three hundred seventy-one (371) are commercial buildings, forty-two (42) are accessory buildings, fifteen (15) are utilities and ten (10) are recreation areas. Below is a breakdown of the structure count by zone.

- The North Zone has seventeen (17) commercial buildings, (1) utility and twenty-seven (27) accessory buildings.
- The Central Zone has three hundred fifty (350) commercial buildings, ten (10) utilities, thirteen (13) accessory buildings and eight (8) recreation areas.
- The South Zone has four (4) commercial buildings, four (4) utilities, two (2) accessory buildings and two (2) recreation areas.

See Figures 19, 20 and 21 for maps of these locations. For a complete list of these structures and more detailed maps see Appendix E.

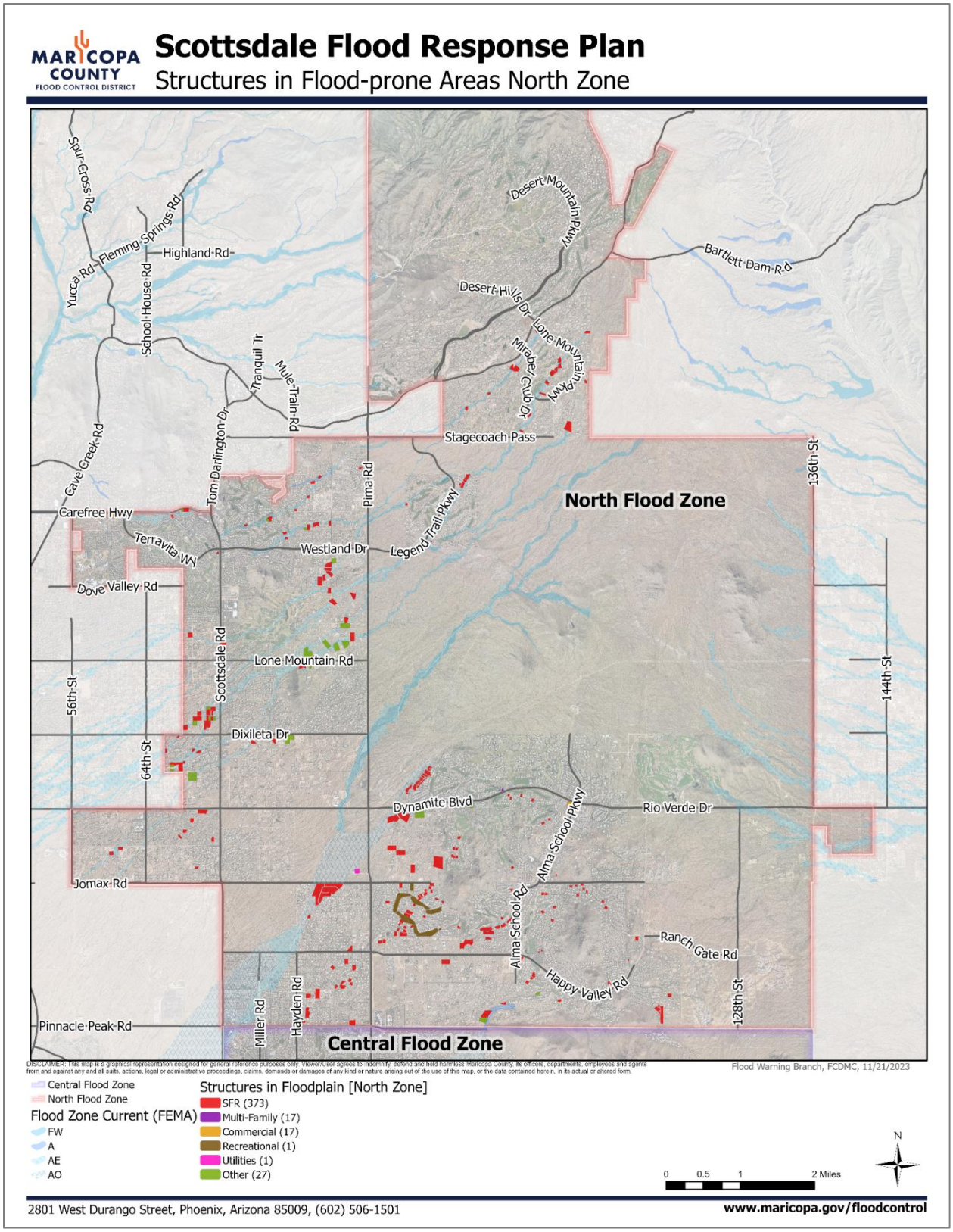

Figure 19 Structures in Flood-Prone Areas North Zone

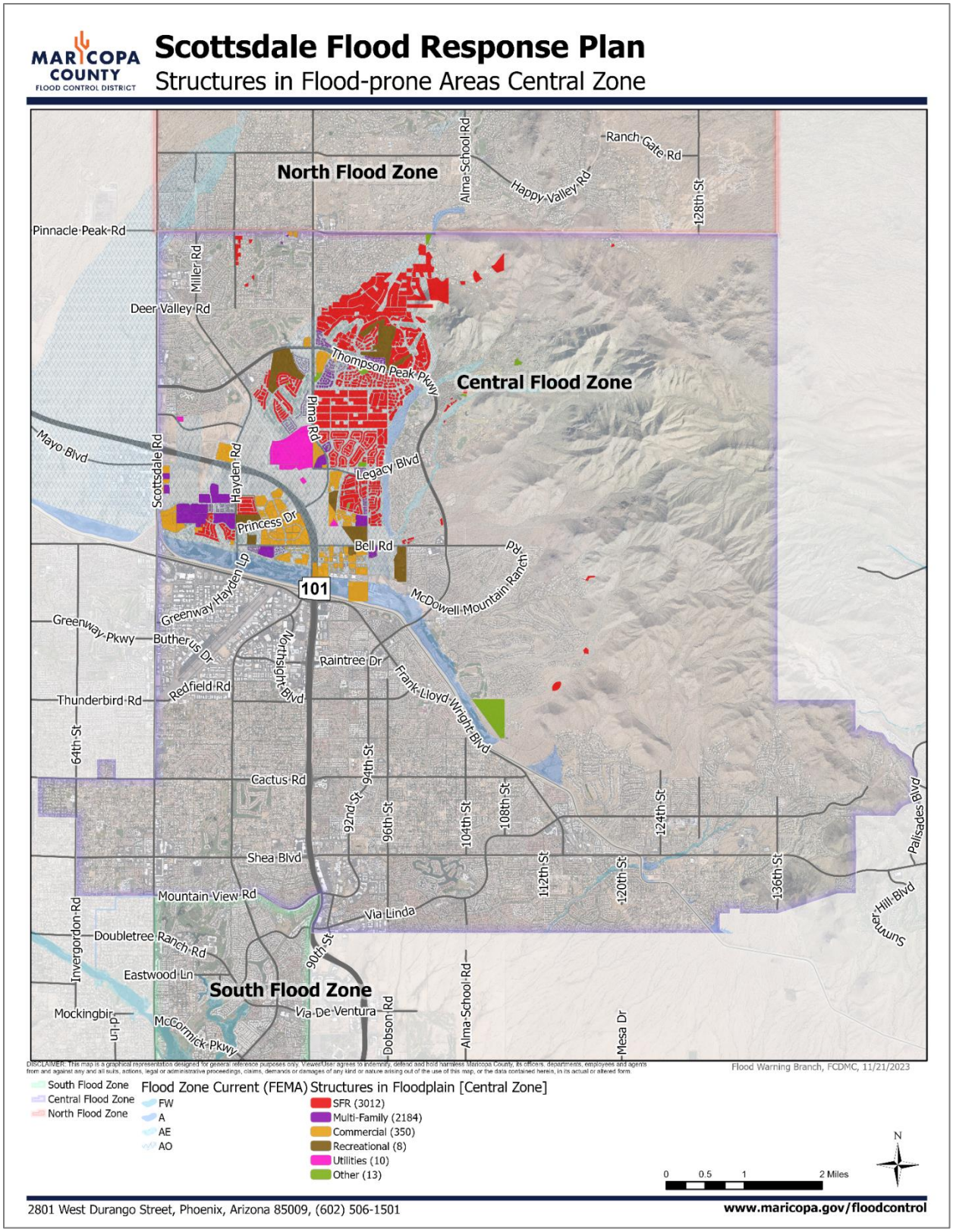

Figure 20 Structures in Flood-Prone Areas Central Zone

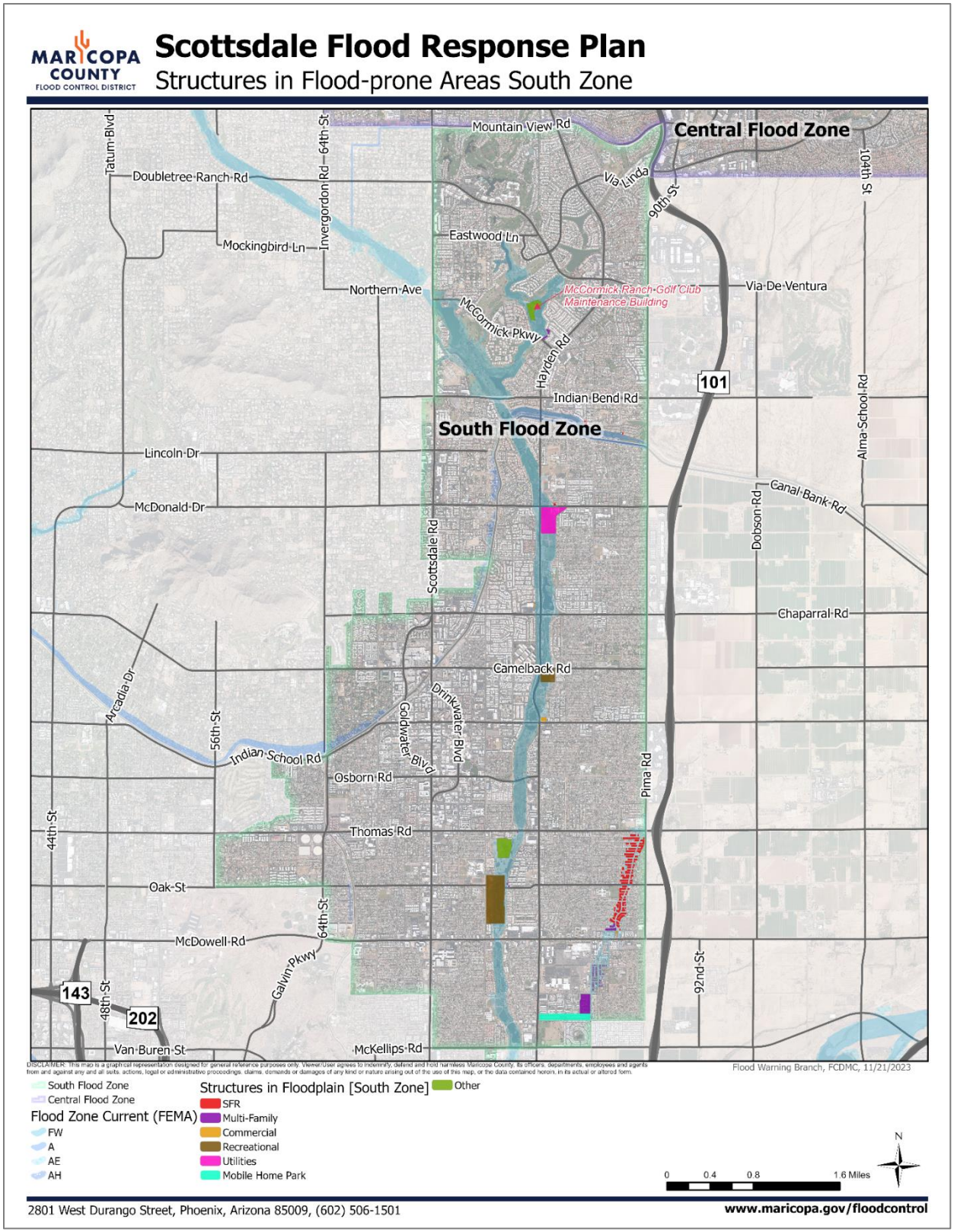

Figure 21 Structures in Flood-prone Structures South Zone

Structures Removed from FEMA Floodplains with LOMR-F's

The National Flood Insurance Program (NFIP) Elevation Certificate (EC) is an administrative tool of the NFIP which is used to provide elevation information necessary to ensure compliance with community floodplain management ordinances, to determine the proper insurance premium rate, or to support a request for a Letter of Map Amendment (LOMA), a Letter of Map Revision (LOMR) or a Letter of Map Revision – Fill (LOMR-F). A total of two thousand four hundred ninety-three (2,493) parcels that are within a High-Risk FEMA Flood Zone have LOMR's. This means they are still within the FEMA Floodplain, but the developer or owner requested a change in the flood zone designation for the property. Elevation certificates can be used to verify the elevation of the home's first floor is greater than the FEMA base flood elevation. Below is a breakdown of the LOMR count by zone.

- The North Zone has eight hundred thirty-seven (837) LOMR's.
- The Central Zone one hundred eight (108) LOMR's.
- The South Zone has one thousand five hundred forty-eight (1,548) LOMR's.

See Figures 22, 23 and 24 for maps of these LOMR locations.

There are also one hundred twenty thousand four hundred fifteen (120,415) parcels within the low-risk FEMA Flood Zone X, D and Zone AE, A, AH, AO that do not have structures identified in a FEMA Flood Zone. These parcels were not further evaluated for structure counts but still could potentially experience flooding during a flood event. Maps and tables showing the Parcels in a FEMA Flood Zone, Parcels in the FLO-2D® result area, LOMR Locations and Structures in a FEMA Flood Zone without a LOMR are in Appendix E.

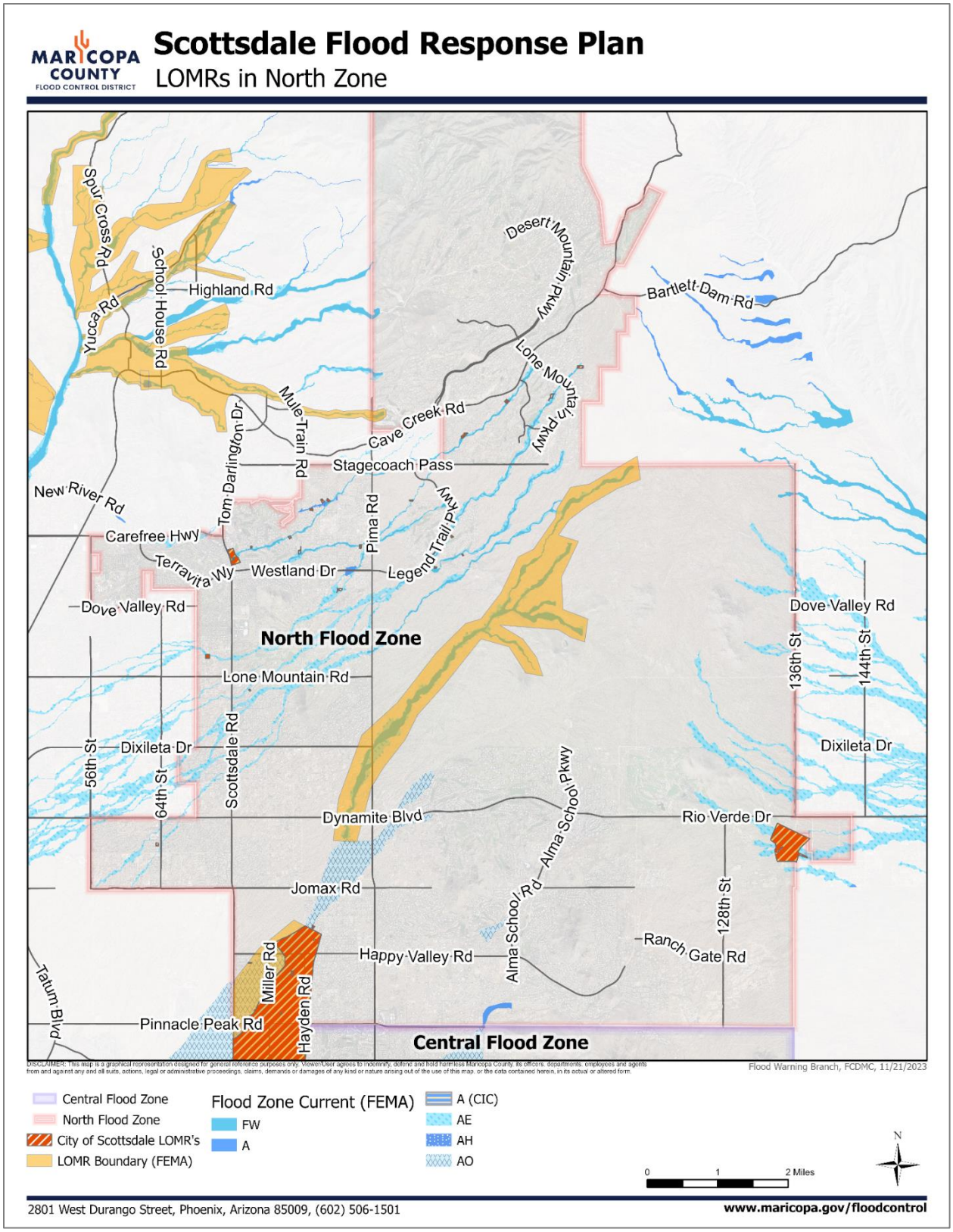

Figure 22 LOMR's in North Zone

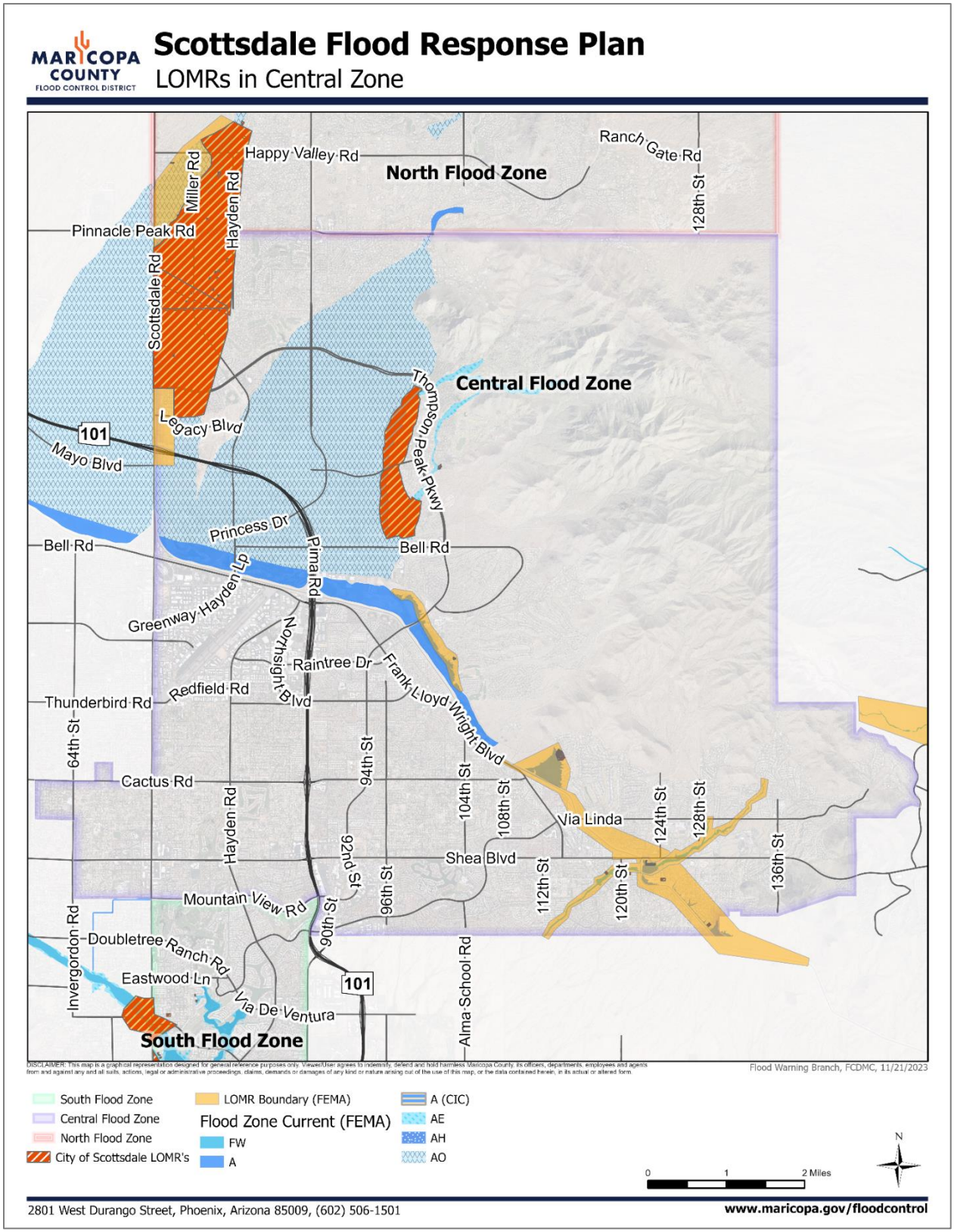

Figure 23 LOMR's in Central Zone

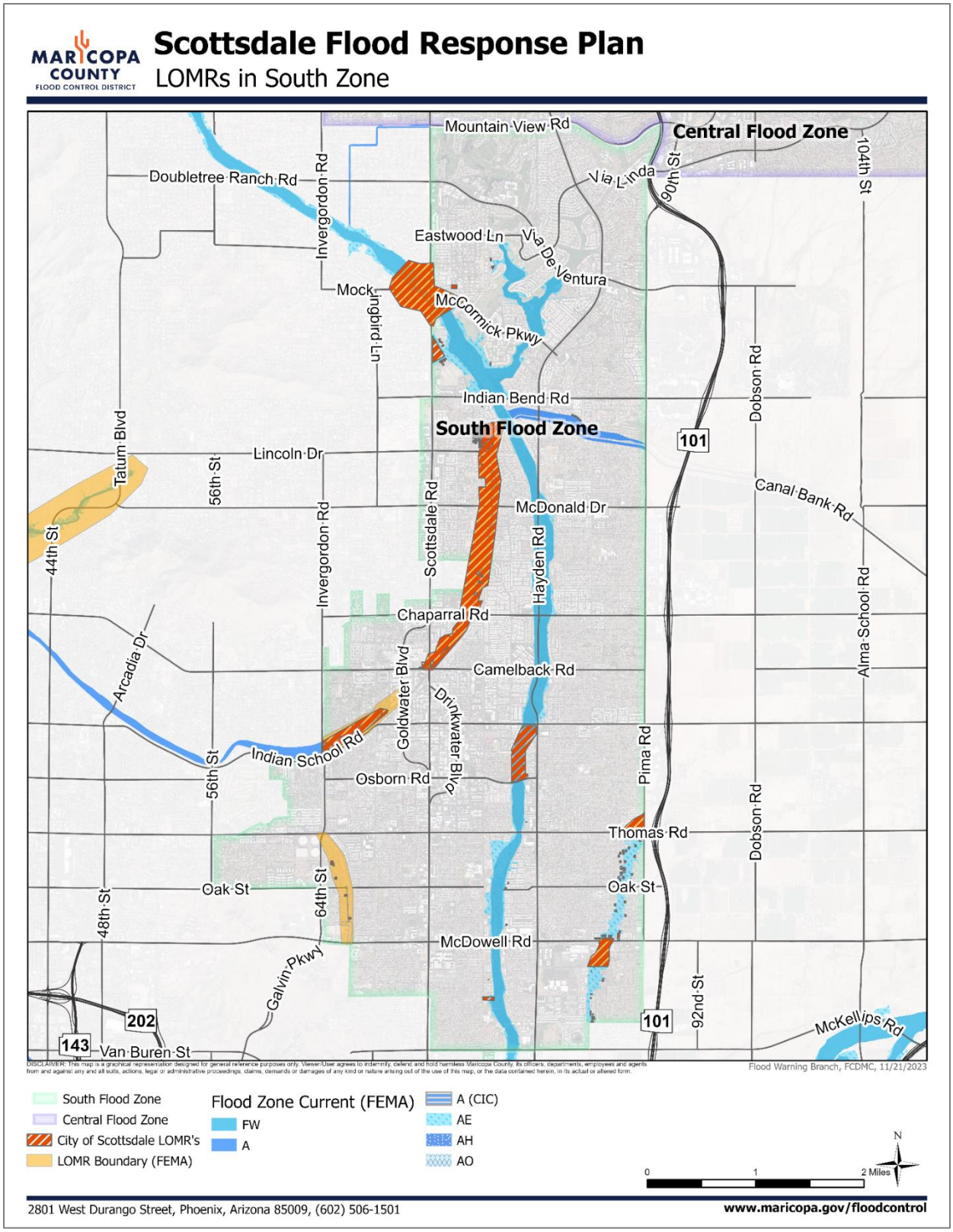

Figure 24 LOMR's in South Zone

DISSEMINATION OF INFORMATION

Good communication among the participating agencies is critical to the success of the Scottsdale FRP. The responsibilities of the entities involved are identified below. A copy of the City of Scottsdale's Emergency Operations Procedure, Annex B, Storm and Flood is in Appendix C.

City of Scottsdale Emergency Management

The Scottsdale Emergency Management Coordinator (EMC) is tasked with monitoring flood emergency situations within Scottsdale and coordinating support, if needed with, Police, Fire, Street Operations and Public Works, Parks and Recreation, Solid Waste & Stormwater and Maricopa County Department of Emergency Management. The EMC is responsible for recommending activation of the Emergency Operations Center (EOC) to the Mayor and/or the Town Manager. Emergency Staff will follow the Emergency Operations Plan (EOP) Annex B – Storms and Floods protocol for Scottsdale. Any Emergency Support Functions will be activated by the Mayor and/or Town Manager. Have all field employees who are members of the City of Scottsdale Emergency Response Program refer to the Emergency Response Guide for an additional reference resource.

City of Scottsdale Police Department

The Police Department is responsible for notifying Scottsdale residents who are potentially in harm's way. Police units are dispatched to patrol flood prone residential structures identified in the Flood Response Plan and recreational areas. Information is relayed back to the Dispatch/EMC.

City of Scottsdale Fire Department

The Fire Department protects and preserves life and property from the impact of fire, disaster, injury, and illness by providing fire suppression, fire prevention, and emergency medical services to the citizenry within the community. The EMC will work closely with the Fire Department to monitor road crossings and structures in the event of a flood.

City of Scottsdale Street Operations and Public Works Department

Street Operations and Public Works will perform any road closures on Scottsdale roadways and park trails and can also provide/transport sandbags and sand if needed. They will also provide road information, barricades, lights, assistance to police, oversee barricade and debris removal before roads are reopened, and provide a safe and dependable water supply and wastewater collection and treatment system. They maintain and operate five (5) flashing flooded roadway signs on Indian Bend Wash. Those signs are not part of the Maricopa County ALERT network.

City of Scottsdale Parks and Recreation Department

The Scottsdale Parks and Recreation Department is tasked with monitoring and maintaining all of Scottsdale's parks and recreational areas. They also have primary responsibility to perform road and trail closures along Indian Bend Wash.

City of Scottsdale Solid Waste Department

The Solid Waste Department receives and reviews severe weather information and works with Emergency Staff during the activation of the EOC to provide support as required.

National Weather Service

The National Weather Service (NWS) is tasked with providing weather forecasts, warning of hazardous weather, and other weather-related products to organizations and the public for the purposes of protection, safety, and general information.

Flood Control District of Maricopa County

An important function of the District is to monitor rainfall and runoff conditions through its county-wide real-time flood detection and data collection network to support its flood control facilities and local jurisdictions within the County. While not responsible for notifying the citizens in and around Scottsdale of potential or occurring flooding, the District will provide available weather and flooding information to Scottsdale emergency responders and MCDEM. The District may offer opinions of flood threat based on the information it collects. Notifications include products prepared by the in-house MSP describing anticipated heavy storms that are likely to fill washes and temporally restrict passage, as well as more specific data from area precipitation and stream gages.

Maricopa County Department of Transportation

Maricopa County Department of Transportation will perform any road closures on MCDOT roadways and can also provide/transport sandbags and sand if needed. MCDOT will provide road information, barricades and lights, assist sheriff units, and oversee barricade and debris removal when roads are reopened. MCDOT should coordinate with ADOT in their responses.

Maricopa County Department of Emergency Management

Maricopa County Department of Emergency Management is tasked with monitoring information given to them by the Flood Control District of Maricopa County and the Scottsdale EOC Chief/Mayor/City Manager/Emergency Services Coordinator. They will activate the county Emergency Operations Center if needed. MCDEM will be responsible for notifying Union Pacific

Railroad of potential flooding issues. They will also contact Arizona Department of Emergency and Military Affairs if necessary.

Maricopa County Sheriff's Office

MCSO is tasked with distributing NWS and FCDMC forecasts to the MSCO Scottsdale Sub-Station. They will assist the Emergency Management Coordinator (EMC) in monitoring flood emergency situations within the Maricopa County Unincorporated areas and performing road closures and evacuations if necessary. MCSO is tasked with monitoring flood emergency situations within the Maricopa County Unincorporated areas and performing road closures and evacuations if necessary.

Maricopa County Parks and Recreation

Maricopa County has a regional trail system that provides a shared use, non-motorized trail system to connect the Maricopa County Regional Parks. Scottsdale has part of the Sun Circle and Maricopa Trail within its boundaries. A majority of the trail system is along existing canals and creeks/washes. Maricopa County Parks and Recreation will be responsible for barricading and closing these trails if necessary.

Arizona Department of Transportation

Arizona Department of Transportation will monitor and close/barricade the Pima Freeway Loop 101 between Scottsdale Road and Doubletree Road if necessary.

Arizona Department of Public Safety

The Arizona Department of Public Safety (DPS) is tasked with monitoring daily weather information from the National Weather Service (NWS) and the Flood Control District of Maricopa County (FCDMC). When there is potential for adverse weather, distribute the forecast to Maricopa County Sherriff's Office (MCSO) Dispatch.

Salt River Project

Salt River Project (SRP) owns and operates the Arizona Canal and the Crosscut Canal. They will be responsible for communicating with the City of Scottsdale and MCDEM if any flood related issues arise in the canals.

Central Arizona Project

Central Arizona Project owns and operates the CAP Canal. They will be responsible for communicating with the City of Scottsdale and MCDEM if any flood related issues arise in their canal.

EMERGENCY RESPONSE ACTIONS

Flood Conditions

This Plan defines the two types of Flood Conditions: **YELLOW ALERT** and **RED ALERT**. Each Alert describes an intensity of flooding in Scottsdale. **It is the responsibly of the Emergency Management Coordinator to receive weather data from FCDMC and NWS, analyze the data received and declare if and when the City of Scottsdale goes into a YELLOW ALERT or RED ALERT**. Below are some flood condition criteria for each Flood Condition.

YELLOW ALERT

The term "**YELLOW ALERT**" will be used to denote a situation that causes a higher degree of readiness than is normally present but poses no immediate threat to life and/or property. "**YELLOW ALERT**" actions could be generated by:

i. An issuance by the National Weather Service of a severe weather watch or urban/stream flood advisory; and/or
ii. Notification by the Flood Control District of Maricopa County that weather conditions may develop into a flood situation for Scottsdale and/or a **Message 1**.
iii. An issuance by the National Weather Service of a severe weather warning or a flash flood watch and/or;
iv. Notification by the Flood Control District of Maricopa County that conditions are developing that could lead to heavy storms within the SFRP boundary and conditions may develop into a flood situation and/or a **Message 2**.
v. Observed floodwaters in Scottsdale or upstream watercourses.

RED ALERT

The term "**RED ALERT**" will be used to signify that hazardous flood conditions are imminent or occurring. "**RED ALERT**" denotes a greater sense of danger and urgency and could be generated by:

i. An issuance of a severe weather or flash flood warning by the National Weather Service combined with factors making the effect more imminent such as a severe storm sighting near or moving toward Scottsdale or its contributing watersheds.
ii. Notification by the Flood Control District of Maricopa County of observed flood conditions within the SFRP boundary and/or a **Message 3.**
iii. Observed floodwaters within the SFRP boundary.

Note that the flood condition criteria are guidelines only and cannot cover all scenarios or flood emergencies.

Routine Operational Procedures

Although flooding in Scottsdale is infrequent and unpredictable, it is important to perform frequent monitoring procedures so that staff is familiar with the procedures when a flood occurs. During normal (non-flood) conditions, these actions are recommended (Figure 25):

City of Scottsdale Emergency Management Coordinator

Emergency Management Coordinator is responsible for notifying Scottsdale of FLOOD CONDITIONS to signify an increase of flood threat to Scottsdale. The Emergency Manager should monitor weather data daily during fair weather. Daily monitoring during fair weather consists of the following tasks:

i. Review weather outlooks from the Flood Control District of Maricopa County and National Weather Service daily.
   a. FCDMC Weather Outlooks and Messages are sent via email and text to email addresses and phone numbers provided to FCDMC. Weather Outlooks are available online at http://www.maricopa.gov/878/Weather-Outlook.
   b. NWS Quick Forecast is available at https://forecast.weather.gov/MapClick.php?lon=-111.92321777343749&lat=33.5665726400041#.XtfK5lVKguU.

ii. Distribute FCDMC and NWS forecasts to Police, Fire, Street Ops, Parks & Rec and Solid Waste.

iii. Monitor daily weather information.

City of Scottsdale Police Department

i. Review weather information provided by the Scottsdale Emergency Manager.

ii. Monitor daily weather information.

City of Scottsdale Fire Department

i. Review weather information provided by the Scottsdale Emergency Manager.

ii. Monitor daily weather information.

City of Scottsdale Street Operations and Public Works Department

i. Review weather information provided by the Scottsdale Emergency Manager.

ii. Monitor daily weather information.

City of Scottsdale Parks and Recreation Department

i. Review weather information provided by the Scottsdale Emergency Manager.

ii. Monitor daily weather information.

City of Scottsdale Solid Waste Department

i. Review weather information provided by the Scottsdale Emergency Manager.

ii. Monitor daily weather information.

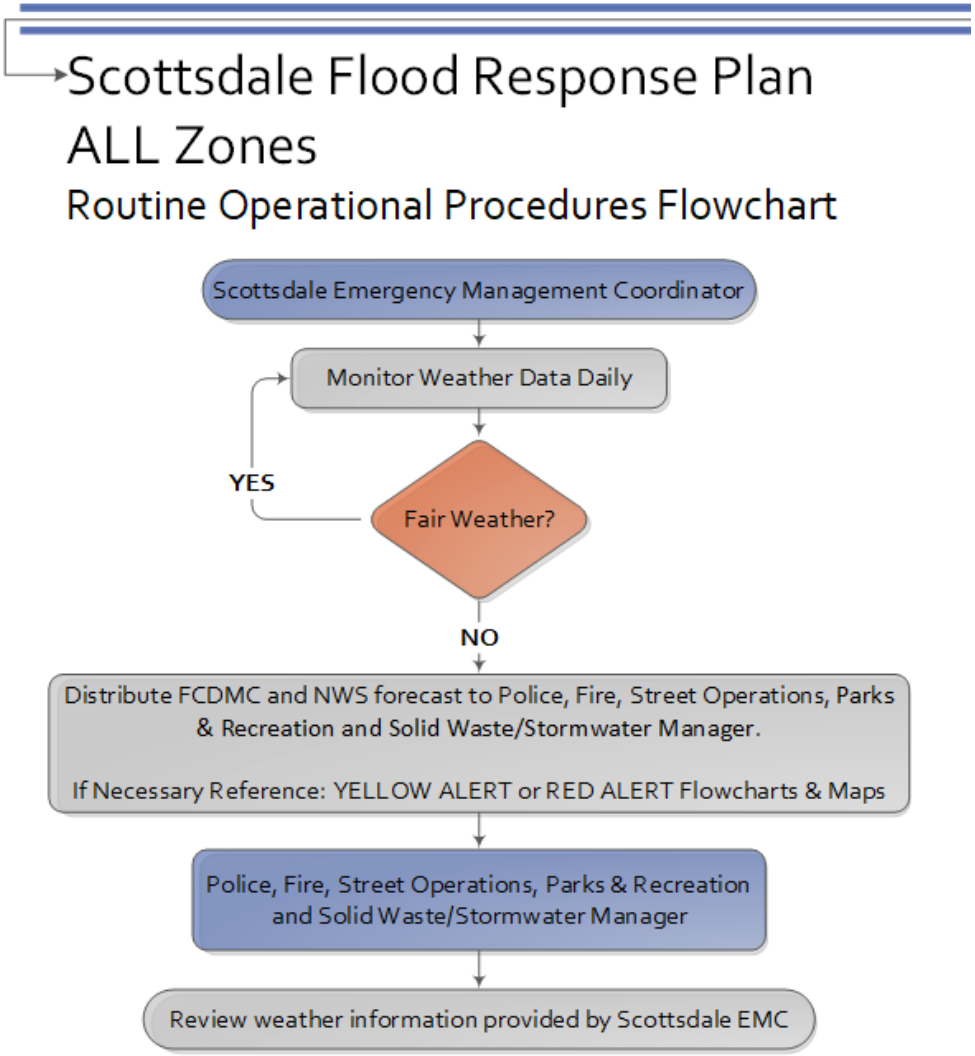

Figure 25 Routine Operational Procedure Flowchart

YELLOW ALERT Procedures

The Emergency Management Coordinator can declare a "**YELLOW ALERT**" to denote a situation that causes a higher degree of readiness than is normally present but poses no immediate threat to life and/or property. **YELLOW ALERT** actions could be generated by:

i. An issuance by the National Weather Service of a severe weather watch or urban/stream flood advisory; and/or
ii. Notification by the Flood Control District of Maricopa County that weather conditions may develop into a flood situation for Scottsdale and/or a **Message 1**.
iii. An issuance by the National Weather Service of a severe weather warning or a flash flood watch and/or;
iv. Notification by the Flood Control District of Maricopa County that conditions are developing that could lead to heavy storms within the SFRP boundary and conditions may develop into a flood situation and/or a **Message 2**.
v. Observed floodwaters in Scottsdale or upstream watercourses.

If a **YELLOW ALERT** is declared for Scottsdale, the following tasks will be performed (Figures 26-37):

City of Scottsdale Emergency Management Coordinator

i. Notify EMC, Police, Fire, Street Operations and Transportation, Parks and Recreation, Solid Waste/Storm water Manager and MCDEM of the **YELLOW ALERT.**
ii. Coordinate with Scottsdale to discuss the current flood threat, alert level, road closures and possible evacuations.
iii. Notify Scottsdale residents of weather and flooding information using Community Emergency Notification System (CENS) and/or Wireless Emergency Alert (WEA) if necessary.
iv. Notify Digital Media to send out weather and flooding information to Scottsdale residents through social media if necessary.
v. Refer to the SFRP North, Central and South Zone Yellow Flood Condition Maps.
vi. Review weather information provided by FCDMC, NWS and the EMC.

City of Scottsdale Police Department

i. Advise staff and employees of the **YELLOW ALERT.**
ii. Monitor the following recreational facilities if necessary:
    a. South Zone - McCormick Ranch Golf Course (Indian Bend Wash) and Continental Golf Course (Indian Bend Wash).
iii. Monitor the following structures and evacuate residential structure if necessary:

a. Structures located in a FEMA Flood Zone or identified flood prone area.
    i. South Zone has one (1) City of Scottsdale Maintenance Building within the Floodway at the confluence of McCormick Ranch Lakes East and West Branch.
b. Provide assistance to Scottsdale Parks and Recreation in monitoring Parks if necessary.
c. Monitor McCormick Ranch Golf Course (Indian Bend Wash) and Continental Golf Course (Indian Bend Wash) if necessary.

iv. Contact MSCO for additional resources if necessary.
v. Provide assistance to Street Operations with barricading roads if necessary.
vi. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.
vii. Review weather information provided by FCDMC, NWS and the EMC.

City of Scottsdale Fire Department

i. Advise staff and employees of the **YELLOW ALERT.**
ii. Assist with monitoring and barricading roads as necessary.
iii. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.
iv. Review weather information provided by FCDMC, NWS and the EMC.

City of Scottsdale Street Operations and Public Works Department

i. Advise staff and employees of the **YELLOW ALERT.**
ii. Monitor and barricade as necessary the following road crossings if necessary. Refer to the Flood Condition Maps and Flowcharts and/or the Online map for specific locations.
    a. North Zone has two hundred seventy-nine (279) crossings.
        i. Two hundred twenty-three (223) are unbridged crossings.
        ii. Forty-two (42) are ponding locations.
        iii. Fourteen (14) are culvert crossings.
    b. Central Zone has one hundred ninety-six (196) crossings.
        i. Eighty-eight (88) are unbridged crossings.
        ii. Ninety-six (96) are ponding locations.
        iii. Twelve (12) are culvert crossings.
    c. South Zone fifty-six (56) crossings
        i. Six (6) unbridged crossings

1. **Indian Bend** Wash at Lincoln Drive at Jackrabbit Road, Medlock Drive, Hayden Road (just south of Medlock), Hayden Road (just North of Indian School Road)
2. **Granite Reef Wash** at North of McDowell Road and West of 87th Street.
    a. When Granite Reef Wash #57507 reads 7.0 ft/655cfs close McDowell Rd from Granite Reef Rd and Pima Rd.

ii. Forty-six (46) ponding locations
iii. Four (4) culvert crossings

iii. Monitor City of Scottsdale Water Campus. CAP Water Treatment Plan is located just west of the Scottsdale Water Campus. MCDEM will contact CAP if necessary.
iv. Contact Police for additional resources if necessary.
v. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.
vi. Review weather information provided by FCDMC, NWS and the EMC.

City of Scottsdale Parks and Recreation Department

i. Advise staff and employees of the **YELLOW ALERT.**
ii. Monitor and restrict access if necessary to the following locations:
    a. South Zone at Chaparral Park, Camelback Park, Indian School Park, Eldorado Park, and McKellips Lake Park.
iii. Monitor and barricade trail crossings along Indian Bend Wash.
iv. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.
v. Review weather information provided by FCDMC, NWS and the EMC.

City of Scottsdale Solid Waste Department

i. Advise staff and employees of the **YELLOW ALERT.**
ii. Monitor City of Scottsdale Water Campus.
iii. Assist with providing information requested by the Emergency Management Coordinator and/or the Emergency Operations Center.
iv. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map.
v. Review weather information provided by FCDMC, NWS and the EMC.

Maricopa County Department of Emergency Management

i. Notify FCDMC, MCDOT, MCSO, MC Parks, and Recreation, ADOT, Arizona Department of Emergency and Military Affairs, Salt River Project (Power and Water), Central Arizona Project, American Red Cross and The Salvation Army of the **YELLOW ALERT** status and flood threat in and around the Scottsdale area**.**

ii. Initiate the Scottsdale FRP Red Book Protocol for **YELLOW ALERT.**

iii. Coordinate with the Emergency Management Coordinator to activate the Emergency Operations Center if necessary.

iv. If Emergency Spillway Discharge or Potential Dam Failure is imminent or occurring, there is a severe flood potential for Scottsdale. All Departments follow the procedures in the Central Arizona Project Reach 11 Emergency Action Plan.

Flood Control District of Maricopa County

i. Advise staff and employees of the **YELLOW ALERT.**

ii. Monitor weather conditions and issue MSP products, as necessary.

iii. Courtesy call to EMC if Reata Pass Dam reaches 50% capacity (13.07 ft.). Scottsdale is responsible for basin evacuation when flooded.

iv. Courtesy call to EMC if CAP Reach 11 Dikes 3 or 4 reach 25% full.

   a. CAP Reach 11 Dike #3 25%=5.87 ft
   b. CAP Reach 11 Dike #4 25%=7.87 ft

v. Courtesy call the EMC if Indian Bend Wash reaches or will reach greater than 2,000 cfs.

   a. IBW at Shea Blvd 4.0 ft/4,000 cfs
   b. IBW at Indian Bend Rd 6.05 ft/5,320 cfs
   c. IBW Interceptor 7.92 ft/4,135 cfs
   d. IBW at McDonald Dr 3.4 ft/ 2,750 cfs
   e. IBW at Indian School Rd 3.97 ft / 2,000 cfs
   f. IBW at McKellips Rd 5.9ft / 4,370 cfs

Maricopa County Department of Transportation

i. Advise staff and employees of the **YELLOW ALERT.**

ii. Assist Scottsdale if additional resources are requested.

iii. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.

iv. Review weather information provided by FCDMC and NWS.

Maricopa County Sheriff's Office

i. Advise staff and employees of the **YELLOW ALERT.**
ii. Assist with monitoring and barricading roads if necessary.
iii. Provide status updates across the county trunk radio system on any current activities, actions and/or observations in the field.
iv. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.
v. Review weather information provided by FCDMC and NWS.

Maricopa County Parks and Recreation Department

i. Advise staff and employees of the **YELLOW ALERT.**
ii. Monitor the Maricopa Trail (Scottsdale) along the Arizona and Sun Circle Trail (Sun Circle North and Sun Circle Maricopa Northeast). Restrict access if necessary.
iii. Monitor Sun Circle Trail from Baseline Road to Freestone Basin along Consolidated Canal.
iv. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.
v. Review weather information provided by FCDMC and NWS.

Arizona Department of Transportation

i. Advise staff and employees of the **YELLOW ALERT.**
ii. Monitor L101 Pima Freeway from Scottsdale Road to Doubletree Ranch Road.
iii. Coordinate with Scottsdale and MCDEM to close L101 if necessary.
iv. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map.
v. Review weather information provided by FCDMC and NWS.

RED ALERT Procedures

The Emergency Management Coordinator can declare an "**RED ALERT**" at any time they feel it is necessary. This alert level denotes a greater sense of danger and urgency than the **YELLOW ALERT** and could be generated by:

i. An issuance of a severe weather or flash flood warning by the National Weather Service combined with factors making the effect more imminent such as a severe storm sighting near or moving toward Scottsdale or its contributing watersheds.
ii. Notification by the Flood Control District of Maricopa County of observed flood conditions within the SFRP boundary and/or a **Message 3.**
iii. Observed floodwaters within the SFRP boundary.

Upon a **RED ALERT** notification, all departments shall maintain an increased state of readiness. If a **RED ALERT** is declared by the Emergency Management Coordinator for Scottsdale, the following tasks will be performed (Figure 26-37):

City of Scottsdale Emergency Management Coordinator

i. Notify Police, Fire, Street Operations and Transportation, Parks and Recreation, Solid Waste/Stormwater Manager and MCDEM of the **RED ALERT.**
ii. Coordinate to discuss the current flood threat, alert level, road closures and possible evacuations.
iii. Activate Emergency Operation Center (EOC) if necessary. All contact with Scottsdale should be coordinated through the EOC Incident Commander once the EOC is activated.
iv. Notify Scottsdale residents of weather and flooding information using Community Emergency Notification System (CENS) and/or Wireless Emergency Alert (WEA) if necessary.
v. Notify Digital Media to send out weather and flooding information to Scottsdale residents through social media if necessary.
vi. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map.
vii. If Emergency Spillway Discharge or Potential Dam Failure is imminent or occurring, there is a severe flood potential for Scottsdale. All Departments follow the procedures in the Central Arizona Reach 11 Emergency Action Plan.
viii. If Indian Bend Wash Levee 1-4 flooding is imminent or occurring, refer to the IBW Levee Emergency Action Plans.
ix. Review weather information provided by FCDMC, NWS and the EMC.

City of Scottsdale Police Department

i. Advise staff and employees of the **RED ALERT**

ii. Monitor and evacuate the following recreational facilities if necessary:

   a. North Zone

      i. Whisper Rock Golf Club (Fan 6C and Fan 6A North), Terravita Golf Club (Stagecoach Pass Wash), Boulders Golf Club (Cave Creek Unnamed Central Tributary), Legend Trail Golf Club (Fan 6C and Fan 6A North), Mirabel Golf Course (Fan 6A North), Renegade Golf Course (Galloway Wash), Apache Golf Course (Galloway Wash), Cochise Geronimo Golf Club (Galloway Wash North Tributary) and the McDowell Sonoran Preserve.

   b. Central Zone

      i. Ancala Country Club (Lost Dog Wash), McDowell Mountain Golf Club (CAP Dike 4), Silverleaf Golf Club (Beardsley Wash South), TPC Scottsdale Desert and Stadium Course Golf Course (CAP Dike 3), The Country Club at DC Ranch (Reata Pass Wash Alluvial Fan), Ironwood Park, Scottsdale Sports Complex, Rio Montana Park, Bell 94 Sport Complex, DC Ranch Park, and McDowell Sonoran Preserve.

   c. South Zone

      i. McCormick Ranch Golf Course, Continental Golf Course, Chaparral Park, Camelback Park, Indian School Park, Eldorado Park, and McKellips Lake Park (Indian Bend Wash) and Nature Area (IBW Interceptor).

iii. Monitor the following structures and evacuate residential structures if necessary. Refer to the Flood Condition Maps and Flowcharts and/or the Online map for specific locations.

   a. Residential structures (Single Family and/or Multi Family Residential) located in a FEMA Flood Zone or identified flood prone area.

      i. North Zone 436 total

      ii. Central Zone 5,577 total

      iii. South Zone 460 total

   b. Non-Residential Structures with include Commercial, Utilities, Other and Recreational located in FEMA Flood Zone.

      i. North Zone 45 total

      ii. Central Zone 381 total

      iii. South Zone 12 total

iv. Contact MSCO for additional resources if necessary.

v. Provide assistance to Street Operations and Public Works Department with barricading roads if necessary.

vi. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map, Flowcharts on the Online Map for exact locations listed above.
vii. Review weather information provided by FCDMC, NWS and the EMC.

City of Scottsdale Fire Department

i. Advise staff and employees of the **RED ALERT.**
ii. Assist with monitoring and barricading roads as necessary.
iii. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.
iv. Review weather information provided by FCDMC, NWS and the EMC.

City of Scottsdale Street Operations and Public Works Department

i. Advise staff and employees of the **RED ALERT.**
ii. Monitor and barricade as necessary the following road crossings if necessary. Refer to the Flood Condition Maps and Flowcharts and/or the Online map for specific locations.
    a. North Zone has one thousand one hundred and twenty-seven (1,127) crossings.
        i. Four hundred nine (409) are unbridged crossings.
            1. **Eastern Boundary** at 128th Street, 132nd Street, 136th Street, 138th Street, 141st Street and Rio Verde Drive.
            2. **Reata Pass Wash South Branch** at 114th Place, 118th Pave, 199th Way, 120th Place, 121st Place, Alameda Road, Buckskin Trail, De La O Road, Desert Holly Drive, Desert Vista Road, Juan Tabo Road and Sand Hills Road.
            3. **Reata Pass Wash** at 111th Place, 111th Street, 112th Place, 114th Street, 118th Place, 119th Way, 120th Place, Alameda Road, Alma School Road, Buckskin Trail, Dale Lane, De La O Road, Desert Holly Drive Driveway, Desert Vista Road, Greenan Road, Jomax Road, Juan Tabo Road, Pinnacle Vista Drive, Sand Hills Road, Whispering Wind Drive and White Feather Lane.
            4. **Rawhide Wash (and unnamed Stream west of Reata Pass Wash)** at 103rd Street, 75th Street, 81st Place, 82nd Street, 83rd Street, 84th Street, 85th Street, 86th Street, 88th Way, 89th Street, 90th Street, 90th Way, 92nd Street, 93rd Street, 94th Street, 95th Street, 95th Way, Alameda Road, Bronco Trail, Buckskin Trail, Camino Del Monte, Camino Vivaz, Chama Road, Christmas Cholla Drive, De La O Road, Desert Highlands Drive, Diamond Cholla Drive, Dobson Road, Dynamite Boulevard, Golf Club Drive, Grand Vista Road,

Happy Valley Road, Jomax Road, Juan Tabo Road, La Junta Road, Lariat Lane, Los Portones Drive, Mariposa Grande Drive, Pima Dynamite Trailhead, Pima Road, Questa Road, Ranch Gate Road, Remuda Drive, Rowel Road, Santa Catalina Road, Scottsdale Road, Sulky Circle, Tether Trail, Via Dona Road, Whispering Wind Drive, White Feather Lane and Yearling Road.

5. **Upper Fan 5** at 68th Street, 78th Street, Ironwood Drive, Via Dona Road, 57th Street, 59th Street, 61st Street, 62nd Street, 64th Street, 65th Place, 66th Street, 67th Street, 67th Way, 68th Street, 69th Street, 70th Place, 70th Street, 71st Street, 71st Place, 73rd Street, 74th Street, 75th Street, 76th Street, 77th Street, 78th Street, 79th Street, 82nd Street, 83rd Street, 84th Street, Antioch Way, Baker Drive, Bent Tree Drive, Black Cross Road, Campestre/Artemisa, Carriage Trails Drive, Cavedale Drive, Church Driveway, Dale Lane, Davis Road, Dixileta Drive, Dynamite Boulevard, Granite Reef Road, Hayden Road, Hunter Court, Ironwood Drive, Jomax Road, Ladrillo, Las Piedras, Lone Mountain Road, Lowden Drive, Mary Sharon Drive, Miller Road, Milton Drive, Montanoso, Montgomery Road, Morning Vista Drive, Morning Vista Lane, Nimitz Road, Oberlin Way, Peak View Road, Penasco, Pinnacle Vista Drive, Quail Track Drive, Red Bird Road, Scottsdale Road, Via Dona Road and Windstone Trail.
6. **Fan 6A North, Fan 6C and Fan 6C North Branch** at 68th Place, 68th Street, 69th Street, 70th Street, 71st Street, 81st Street, 86th Street, Arroyo Verde, Ashler Hills Drive, Dove Valley Road, Lone Mountain Road, Pima Road, Ranch Road, Scottsdale Road, Segundo Drive, Smokehouse Trail and Wildcat Drive.
7. **Upper Boulders Wash** at 64th Place, 68th Place, 71st Avenue, 71st Street, 86th Place, Boulders Way, Ironwood Drive, Pima Road, Soaring Eagle Way and Terravita Way.
8. **Stagecoach Pass Wash** at 110th Street, 102nd Street, 103rd Place, 108th Street, 72nd Place, 99th Way, Boulder View Drive, Boulders Parkway, Evening Glow Drive, Fernwood Lane, Ironwood Drive, Loving Tree Lane and Santa Fe Trail.
9. **Cave Creek Unnamed Central Tributary** at 56th Street, Boulder Resort Road, Carefree Highway and Terravita Way.
10. **Galloway Wash and Galloway North Tributary** at 109th Place, 94th Street, 95th Way, Covey Trail, Horizon Drive, Paint Pony Drive,

Pima Road, Rising Sun Drive, Venado Trail, Larry Hughes Drive and Tom Morris Road.

11. **Grapevine Wash** at Charolais Road, Brahma Road, Brangus Road, Charbray Drive, Charolais Road and Longhorn Drive.

ii. One hundred and seventy (170) are ponding locations.

iii. Four hundred and ninety-nine (499) are ponding locations.

iv. Forty-nine (49) are ponding locations.

b. Central Zone has eight hundred thirty-four (834) crossings.

i. One hundred nineteen (119) unbridged crossings

1. South of Central Arizona Project

a. **Wash B** at Del Timbre Drive and Turquoise Avenue.

b. **South of the CAP** at 83rd Place/Gail Road, Charter Oak Road, Desert Cove Avenue, Jenan Drive, Larkspur Drive, Mary Katherine Drive, Paradise Drive, Shangri La Road, Sundown Drive, Sweetwater Avenue and Wood Drive.

2. North of the Central Arizona Project

a. **Unnamed Wash** at 132nd Street East of Gold Dust Avenue, Cochise Road Mountain View Road and Del Timbre Drive.

b. **Lost Dog Wash** at 112th Place.

c. **Industrial Park South of the 101** at 85th Street/Saint John Road, Perimeter Drive at Saint John Road, Princess Drive and Anderson Drive.

d. **Beardsley Wash** at 103rd Place, 103rd Way, Bell Road, Chino Drive, Robs Camp Road, Saguaro Canyon Trail/Canyon Cross Way and Siesta Lane.

e. **Lost Canyon Wash** at Calle De Las Brisas, Foothills Drive, Lost Canyon Drive and Via Ventosa.

f. **Reata Pass Wash (East of Pima Road)** at 85th Way, 87th Street, 89th Way, 90th Place, 90th Street, 93rd Street, 94th Street, 98th Street, Adobe Drive, Bridle Place, Calle De Valle Drive, Canyon Mesa Way, Cattle Whip Drive, Chino Drive, Church Road, Cross Canyon Way, Desert Camp Drive, Diamond Rim Drive, Happy Hollow Drive, Hualapai Drive, Lariat Lane, Lasso Place, Los Gatos Drive, Mountain Spring Road, Rimrock Road, Rusty Spur Place, Sierra Pinta Drive, Thompson Peak Parkway, Via Del Sol Drive and Via Montoya.

g. **Rawhide Wash (West of Pima Road)** at 74th Way, 85th Street, 85th Way, Conquistadores Drive, Country Club Trail, Grayhawk Drive, Hayden Road, Legacy Boulevard, Phantom Way, Pinnacle Peak Road, Scottsdale Road and Vista Bonita Drive.

ii. Two hundred seven (207) ponding locations

iii. Four hundred sixty-two (462) culvert crossings

iv. Forty-six (46) bridge crossings

c. South Zone has one hundred forty-three (143) crossings.

i. Six (6) unbridged crossings

1. **Indian Bend Wash** at Lincoln Drive, Jackrabbit Road, Medlock Drive, Hayden Road (just south of Medlock), Hayden Road (just North of Indian School Road)
2. **Granite Reef Wash** north of McDowell Road and West of 87th Street.
    a. When Granite Reef Wash #57507 reads 7.0 ft/655cfs close McDowell Rd from Granite Reef Rd and Pima Rd.

ii. Eighty-two (82) ponding locations

iii. Thirty (30) culvert crossings

iv. Twenty-five (25) bridge crossings

vii. Monitor Water and Wastewater Treatment Facilities

a. Central Zone

i. City of Scottsdale Water Campus and Central Arizona Project (CAP) Water Treatment Plant.

b. South Zone

i. NIBW Groundwater Treatment Plant, Chaparral Water Treatment Plant and Central Groundwater Treatment Plant.

viii. Contact Police for additional resources if necessary.

ix. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.

x. Review weather information provided by FCDMC, NWS and the EMC.

City of Scottsdale Parks and Recreation Department

i. Advise staff and employees of the **RED ALERT.**

ii. Monitor and restrict access if necessary to the following locations:

a. South Zone at Nature Area at IBW Interceptor, Chaparral Park, Camelback Park, Indian School Park, Eldorado Park, and McKellips Lake Park.

iii. Monitor and barricade trail crossings along Indian Bend Wash and McCormick Lake West and East Branch.
iv. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.
v. Review weather information provided by FCDMC, NWS and the EMC.

City of Scottsdale Solid Waste Department

i. Advise staff and employees of the **RED ALERT.**
ii. Monitor the following Water and Wastewater Treatment Centers that are either in a FEMA Floodplain or close to the boundary of one.
    a. Central Zone
        i. City of Scottsdale Water Campus and Central Arizona Project (CAP) Water Treatment Plant.
    b. South Zone
        i. NIBW Groundwater Treatment Plant, Chaparral Water Treatment Plant and Central Groundwater Treatment Plant.
iii. Assist with providing information requested by the Emergency Management Coordinator and/or the Emergency Operations Center.
iv. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map.
v. Review weather information provided by FCDMC, NWS and the EMC.

Maricopa County Department of Emergency Management

i. Notify FCDMC, MCDOT, MCSO, MC Parks and Recreation, ADOT, Arizona Department of Emergency and Military Affairs, Salt River Project (Power and Water), Central Arizona Project, American Red Cross and The Salvation Army of the **RED ALERT** status and flood threat in and around the Scottsdale area**.**
ii. Initiate the Scottsdale FRP Red Book Protocol for the **RED ALERT. See Appendix D.**
iii. Coordinate with the Emergency Management Coordinator to activate the Emergency Operations Center if necessary.
iv. If Emergency Spillway Discharge or Potential Dam Failure is imminent or occurring, there is a severe flood potential for Scottsdale. All Departments follow the procedures in the Central Arizona Project Reach 11 Emergency Action Plan.

Flood Control District of Maricopa County

i. Advise staff and employees of the **RED ALERT.**
ii. Monitor weather conditions and issue MSP products as necessary.

iii. Courtesy call to EMC if Reata Pass Dam reaches 50% capacity (13.07 ft.). Scottsdale is responsible for basin evacuation when flooded.

iv. Courtesy call to EMC if CAP Reach 11 Dikes 3 or 4 reach 25% full.

   a. CAP Reach 11 Dike #3 25%=5.87 ft
   b. CAP Reach 11 Dike #4 25%=7.87 ft

v. Courtesy call the EMC if Indian Bend Wash reaches or will reach greater than 2,000 cfs.

   a. IBW at Shea Blvd 4.0 ft/4,000 cfs
   b. IBW at Indian Bend Rd 6.05 ft/5,320 cfs
   c. IBW Interceptor 7.92 ft/4,135 cfs
   d. IBW at McDonald Dr 3.4 ft/ 2,750 cfs
   e. IBW at Indian School Rd 3.97 ft / 2,000 cfs
   f. IBW at McKellips Rd5.9ft / 4,370 cfs

Maricopa County Department of Transportation

i. Advise staff and employees of the **RED ALERT.**
ii. Assist Scottsdale if additional resources are requested.
iii. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.
iv. Review weather information provided by FCDMC and NWS.

Maricopa County Sheriff's Office

i. Advise staff and employees of the **RED ALERT.**
ii. Assist with monitoring and barricading roads if necessary.
iii. Provide status updates across the county trunk radio system on any current activities, actions and/or observations in the field.
iv. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.
v. Review weather information provided by FCDMC and NWS.

Maricopa County Parks and Recreation Department

i. Advise staff and employees of the **RED ALERT.**
ii. Monitor the Maricopa Trail (Scottsdale) along the Arizona and Sun Circle Trail (Sun Circle North and Sun Circle Maricopa Northeast). Restrict access if necessary.
iii. Monitor Sun Circle Trail from Baseline Road to Freestone Basin along Consolidated Canal.

iv. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map for exact locations listed above.
v. Review weather information provided by FCDMC and NWS.

Arizona Department of Transportation

i. Advise staff and employees of the **RED ALERT.**
ii. Monitor L101 Pima Freeway from Scottsdale Road to Doubletree Ranch Road.
iii. Coordinate with Scottsdale and MCDEM to close L101 if necessary.
iv. Refer to the SFRP North, Central and South Zone RED Flood Condition Maps, Flowcharts and Online Map.
v. Review weather information provided by FCDMC and NWS.

MARICOPA COUNTY FLOOD CONTROL DISTRICT

Scottsdale Flood Response Plan
North Zone YELLOW ALERT

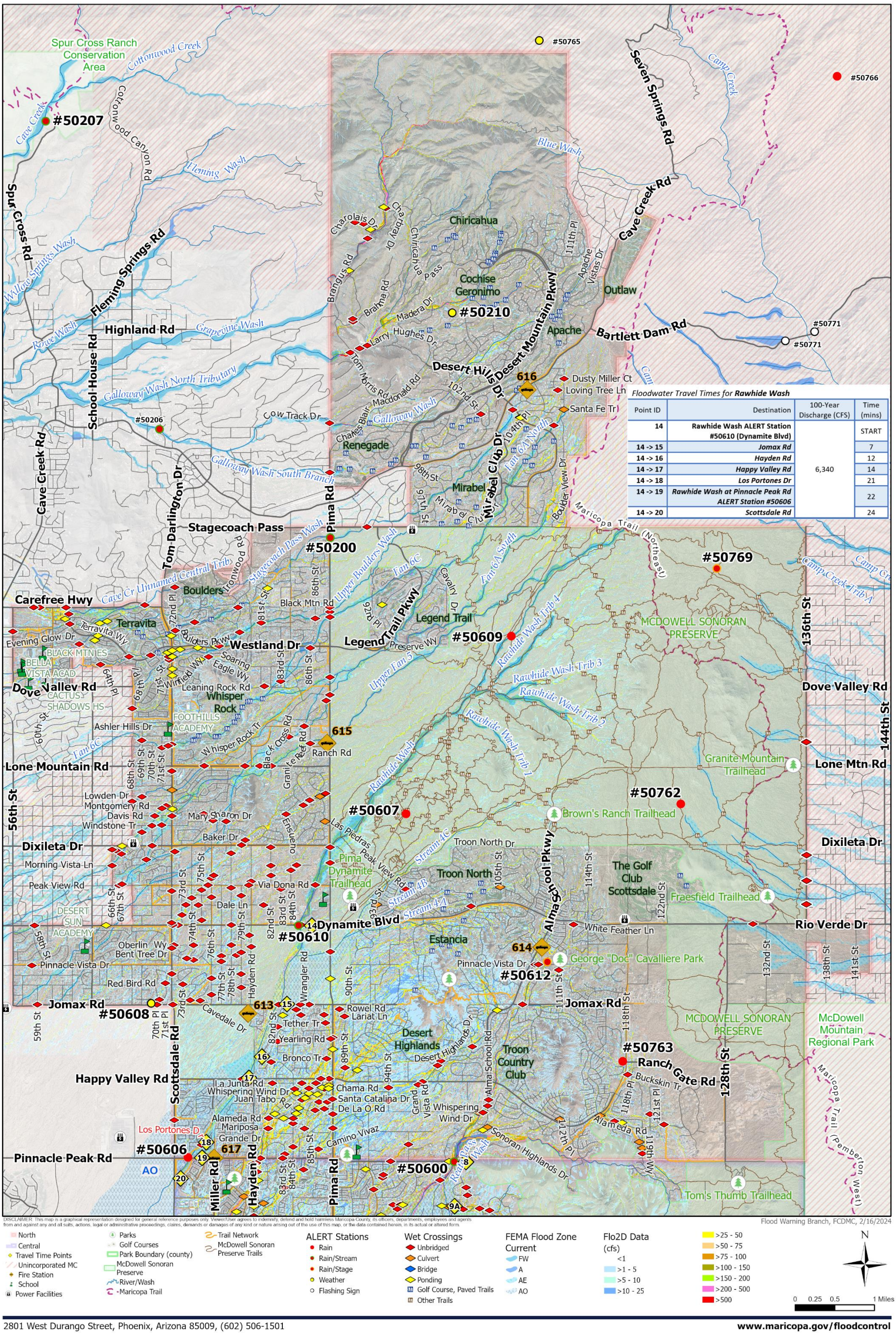

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Figure 26: North Zone YELLOW ALERT Flowchart

Scottsdale Flood Response Plan – North Scottsdale

YELLOW ALERT Operational Procedures Flowchart

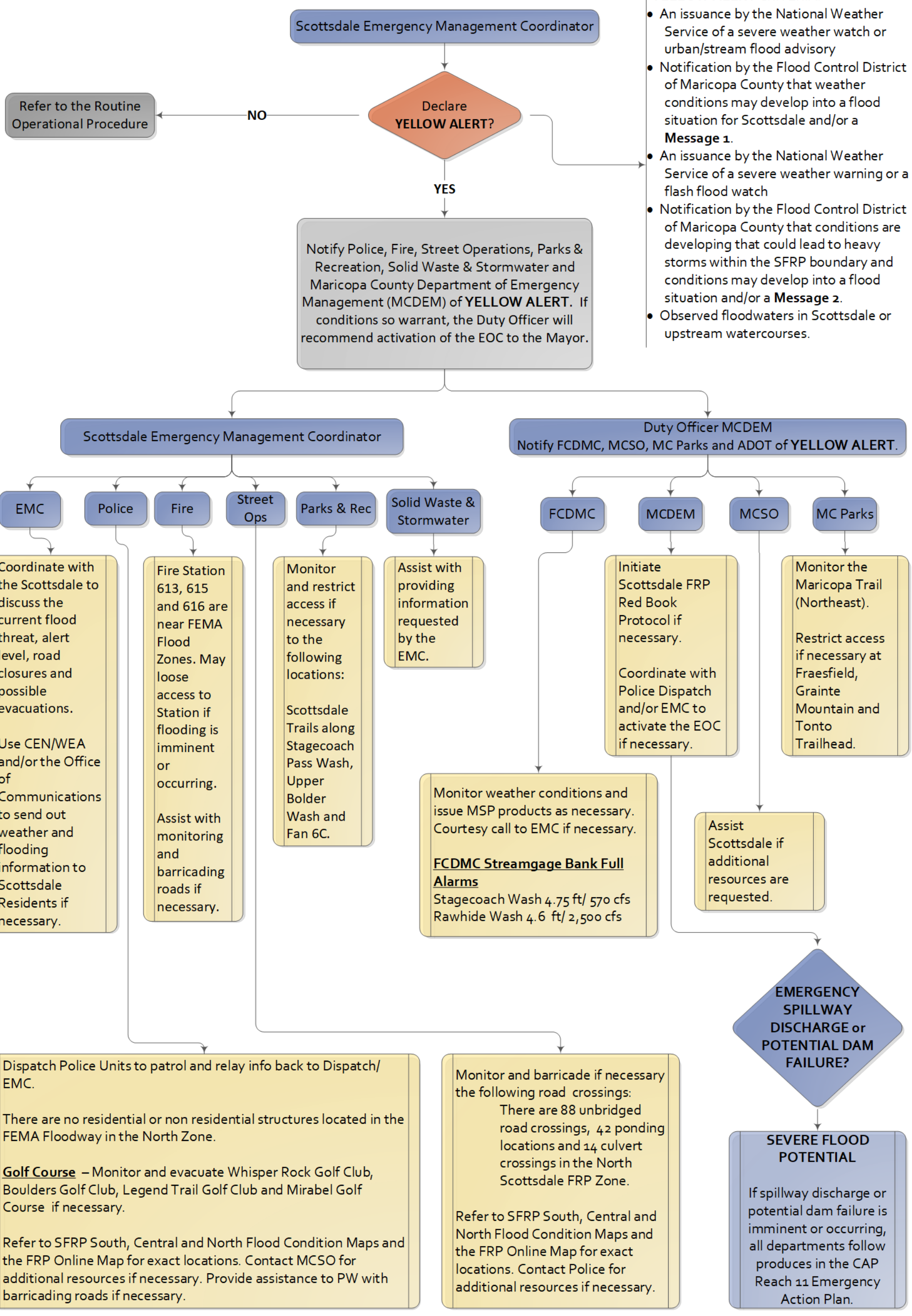

Figure 27 North Zone Yellow ALERT Flowchart

Scottsdale Flood Response Plan
North Zone RED ALERT

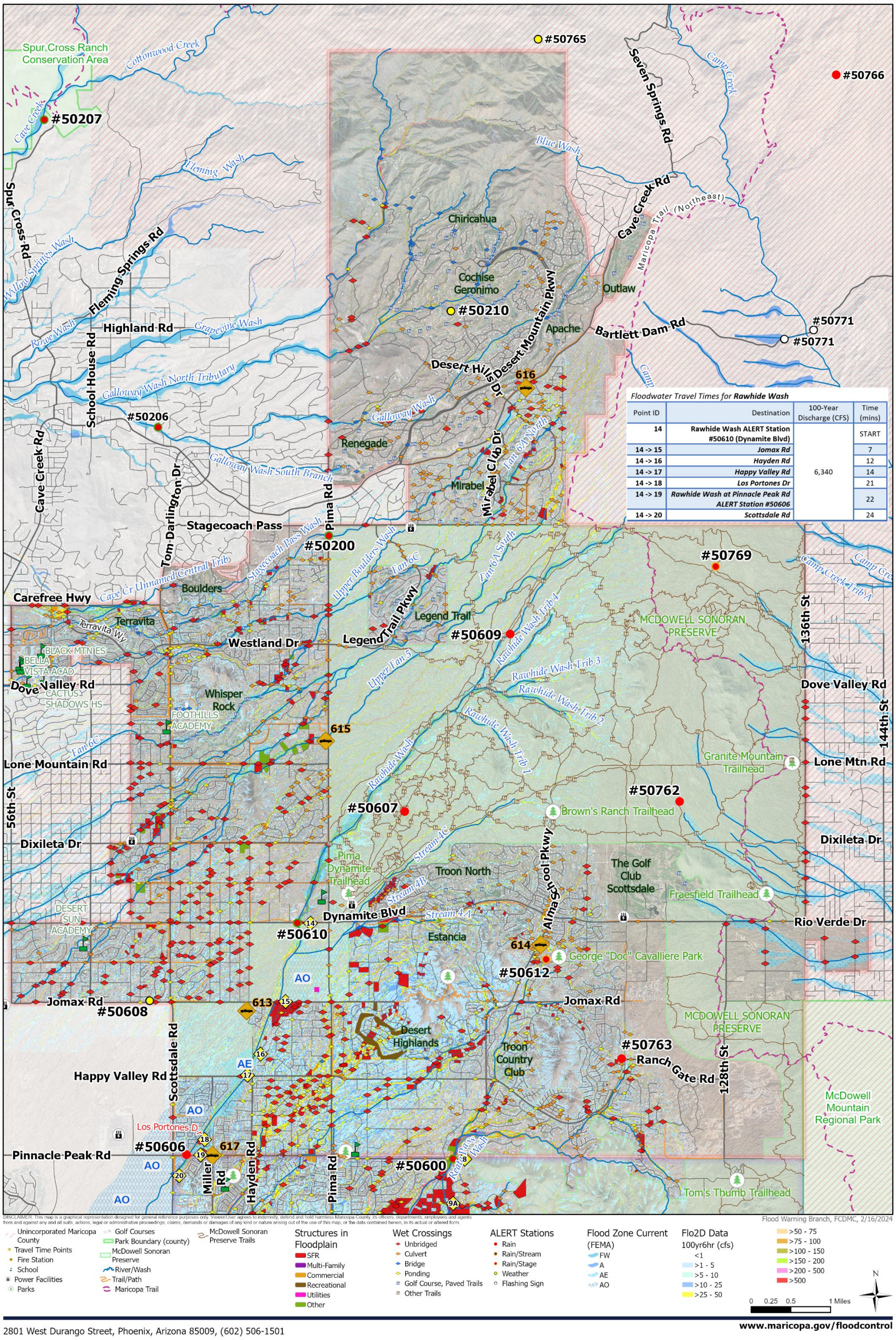

Figure 28 North Zone RED ALERT Map

Scottsdale Flood Response Plan – North Scottsdale

RED ALERT Operational Procedures Flowchart

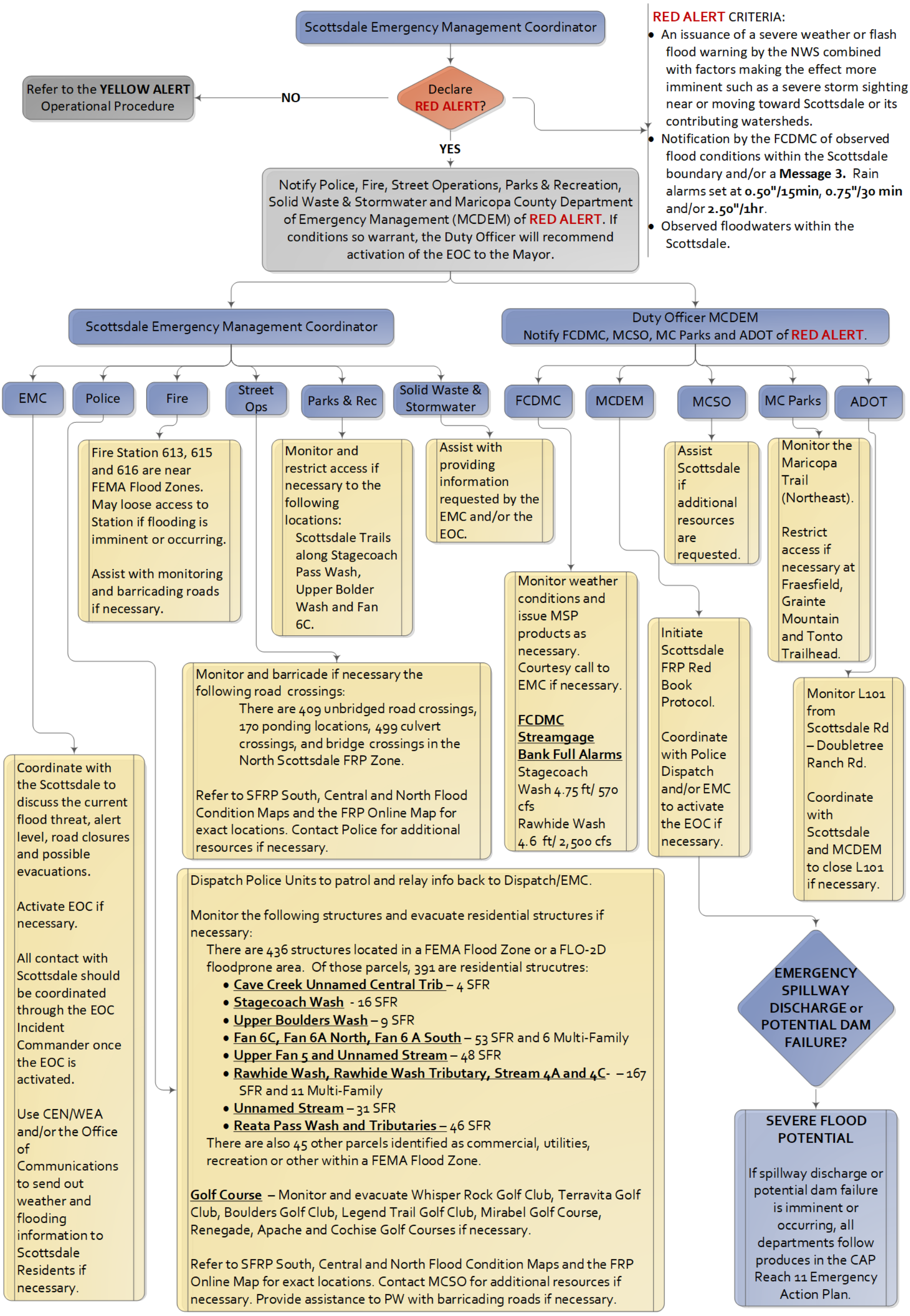

Figure 29 North Zone RED ALERT Flowchart

Scottsdale Flood Condition Map
Central Zone YELLOW ALERT

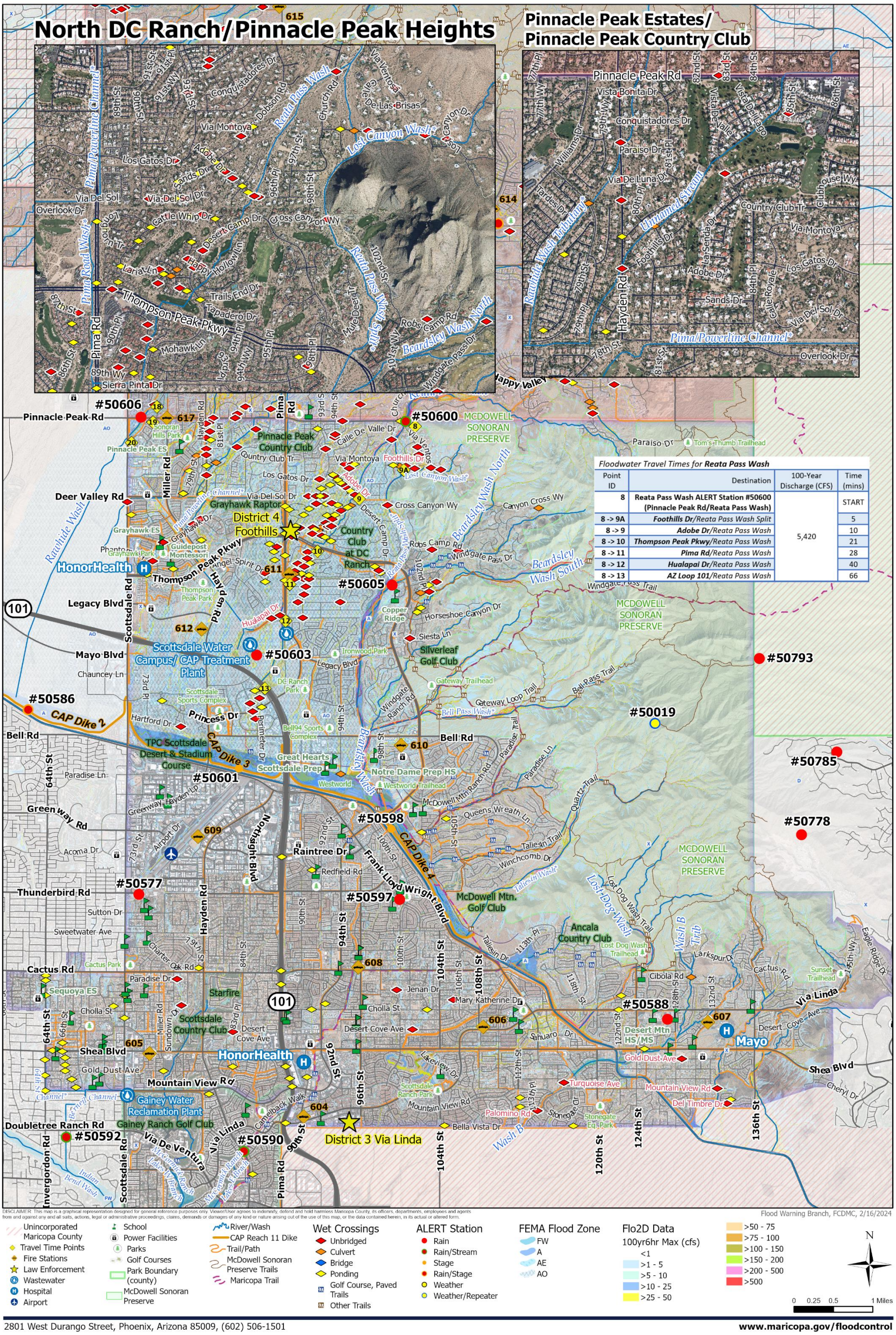

Figure 30 Central Zone YELLOW ALERT Map

Scottsdale Flood Response Plan – Central Scottsdale

YELLOW ALERT Operational Procedures Flowchart

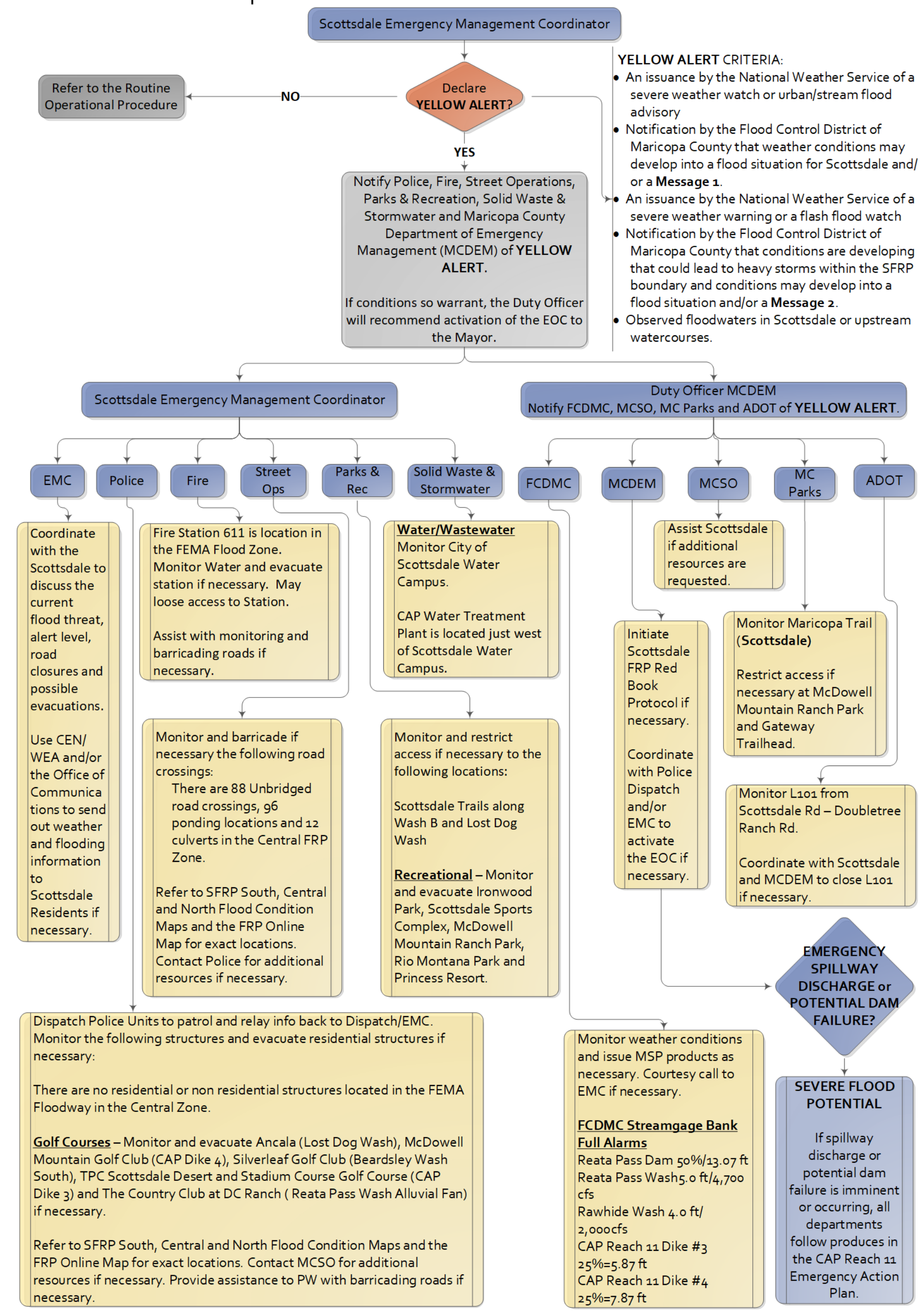

Figure 31 Central Zone YELLOW ALERT Flowchart

Scottsdale Flood Condition Map
Central Scottsdale RED ALERT

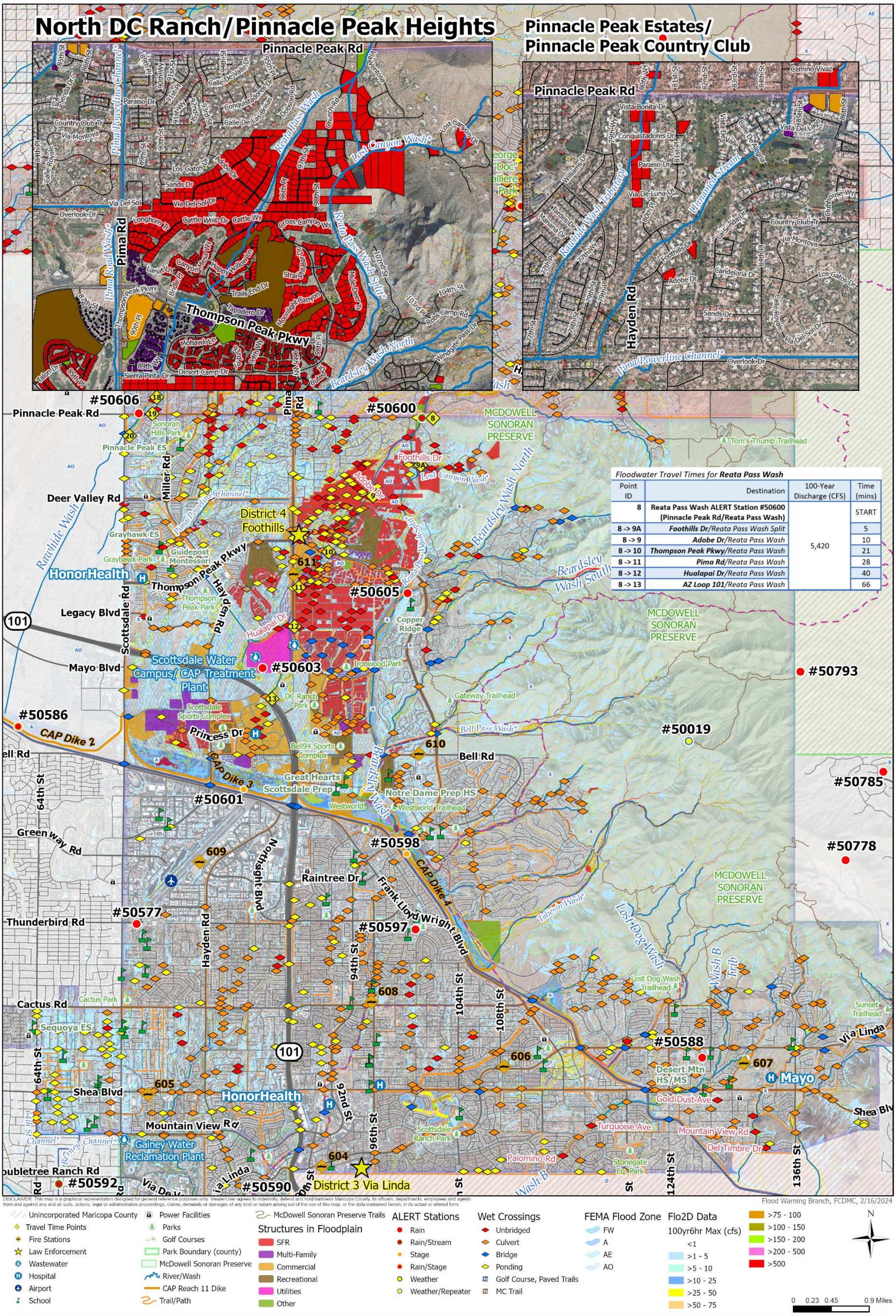

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Figure 32 Central Zone RED ALERT Map

Scottsdale Flood Response Plan – Central Scottsdale

RED ALERT Operational Procedures Flowchart

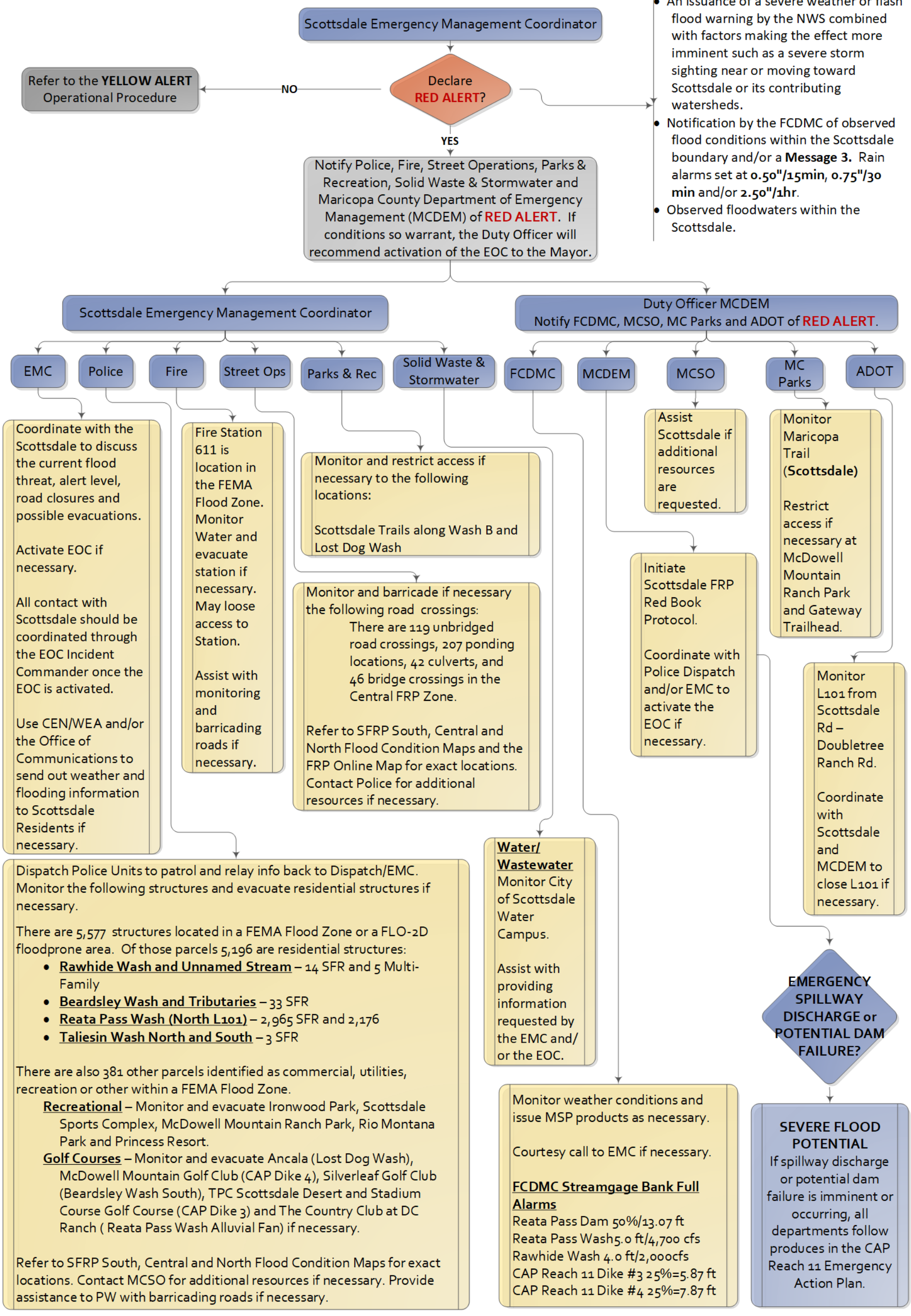

Figure 33 Central Zone RED ALERT Flowchart

Scottsdale Flood Condition Map
South Scottsdale YELLOW ALERT

Floodwater Travel Times for ***Indian Bend Wash***

Point ID	Section	100-Year Discharge (CFS)	Time (mins)
1	**IBW at Sweetwater Ave ALERT Station #50583**	6,000	-
1 -> 2	ALERT Station #50583 -> ***IBW at Shea Blvd ALERT Station #50595***	16,000	38
2 -> 3	ALERT Station #50595 -> ***IBW at Indian Bend Rd ALERT Station #50563***	17,000	72
3 -> 4	ALERT Station #50563 -> ***IBW at McDonald Dr ALERT Station #50572***		12
4 -> 5	ALERT Station #50572 -> ***IBW at Indian School Rd ALERT Station #50565***	20,000	37
5 -> 6	ALERT Station #50565 -> ***El Dorado Park ALERT Station #50566***		26
6 -> 7	ALERT Station #50566 -> ***IBW at McKellips Rd ALERT Station #50577***		18

McCormick Lakes Via Camello Del Sur: McCormick Pkwy to Via Del Valle

Granite Reef Wash 87th St: Thomas Rd to Roosevelt St

DISCLAIMER: This map is a graphical representation designed for general reference purposes only. Viewer/User agrees to indemnify, defend and hold harmless Maricopa County, its officers, departments, employees and agents from and against any and all suits, actions, legal or administrative proceedings, claims, demands or damages of any kind or nature arising out of the use of this map, or the data contained herein, in its actual or altered form.

Flood Warning Branch, FCDMC, 2/16/2024

Unincorporated Maricopa County; Travel Time Points; Fire Stations; Law Enforcement; Hospital; Wastewater; School; Power Facilities; Parks; Golf Courses; River/Wash; Channel (FCD Maint.); Channel (Scottsdale); Storm Drain (FCD); Levee (FCD); Stucture in Floodplain [FW]: Other; Trail Network: Trail/Path, Sun Circle Trail, Maricopa Trail; ALERT Stations: Rain, Stream, Rain/Stream, Stage, Rain/Stage, Weather; Scottsdale Flashers; Wet Crossings: Unbridged, Culvert, Bridge, Ponding, Golf Course, Paved Trails; Other Trails; Flood Zone Current (FEMA): FW, A, AE, AH; Flo2D Data 100yr6hr Max (cfs): <1, >1 - 5, >5 - 10, >10 - 25, >25 - 50, >50 - 75, >75 - 100, >100 - 150, >150 - 200, >200 - 500, >500

0 0.25 0.5 1 Miles

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Figure 34 South Zone YELLOW ALERT Map

Scottsdale Flood Response Plan – South Scottsdale

YELLOW ALERT Operational Procedures Flowchart

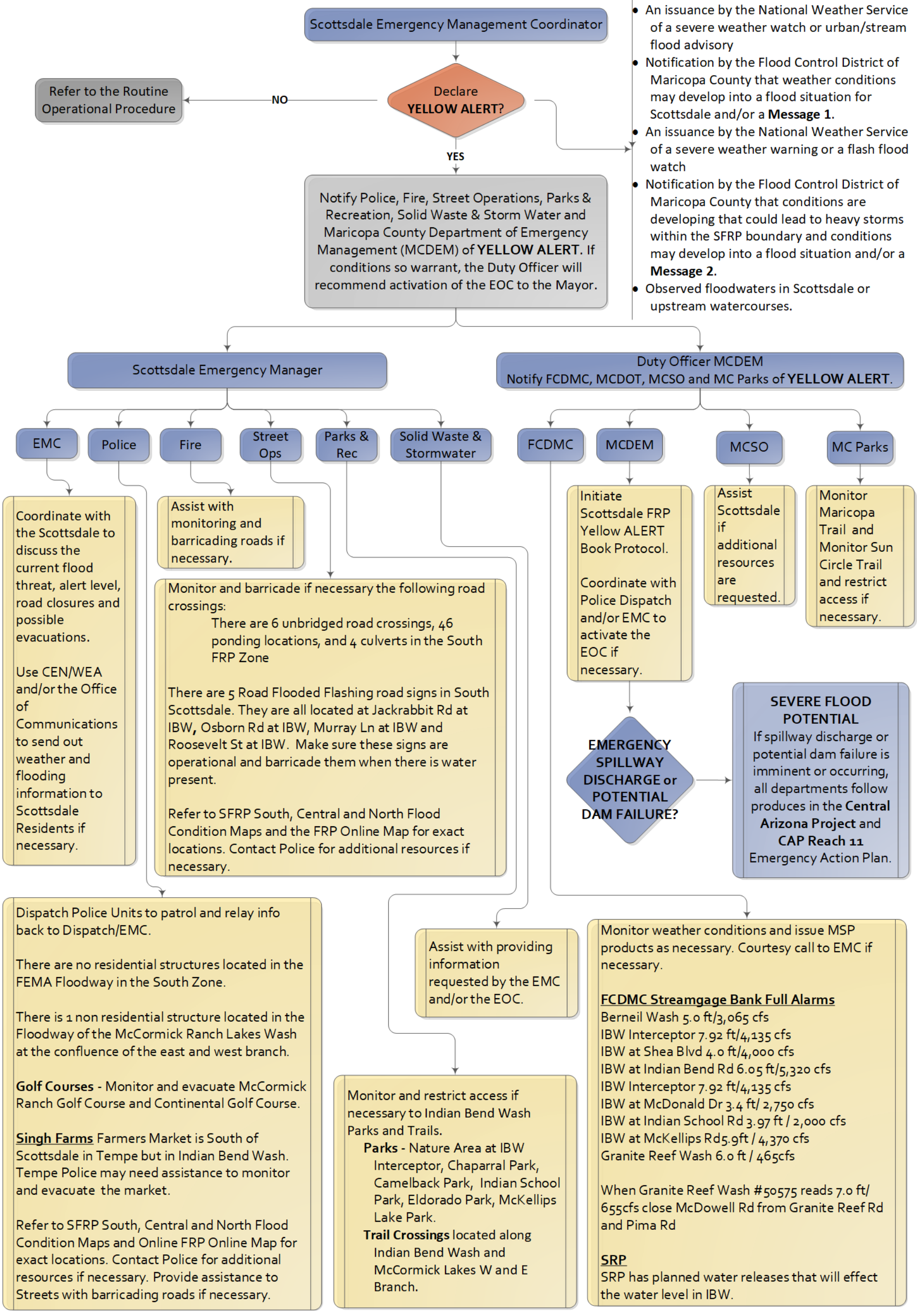

Figure 35 South Zone YELLOW ALERT Flowchart

Scottsdale Flood Condition Map
South Zone RED ALERT

Floodwater Travel Times for ***Indian Bend Wash***

Point ID	Section	100-Year Discharge (CFS)	Time (mins)
1	**IBW at Sweetwater Ave ALERT Station #50583**	6,000	-
1 -> 2	ALERT Station #50583 -> ***IBW at Shea Blvd ALERT Station #50595***	16,000	38
2 -> 3	ALERT Station #50595 -> ***IBW at Indian Bend Rd ALERT Station #50563***	17,000	72
3 -> 4	ALERT Station #50563 -> ***IBW at McDonald Dr ALERT Station #50572***		12
4 -> 5	ALERT Station #50572 -> ***IBW at Indian School Rd ALERT Station #50565***	20,000	37
5 -> 6	ALERT Station #50565 -> ***El Dorado Park ALERT Station #50566***		26
6 -> 7	ALERT Station #50566 -> ***IBW at McKellips Rd ALERT Station #50577***		18

McCormick Lakes Via Camello Del Sur: McCormick Pkwy to Via Del Valle

Granite Reef Wash 87th St: Thomas Rd to McDowell Rd

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Flood Warning Branch, FCDMC, 2/16/2024

Unincorporated Maricopa County; Travel Time Points; Fire Stations; Law_Enforcement; Hospital; Wastewater; School; Power Facilities; Parks; Golf Courses; River/Wash; Channel (FCD Maint.); Channel (Scottsdale); Storm Drain; Levee; Trail/Path; Sun Circle Trail; Maricopa Trail

Structure in Floodplain: SFR; Multi-Family; Commercial; Recreational; Utilities; Mobile Home Park; Other

ALERT Stations: Rain; Stream; Rain/Stream; Stage; Rain/Stage; Weather; Scottsdale Flashers

Wet Crossings: Unbridged; Culvert; Bridge; Ponding; Trail; MC Trail

Flood Zone Current (FEMA): FW; A; AE; AH

Flo2D Data 100yr6hr Max (cfs): <1; >1 - 5; >5 - 10; >10 - 25; >25 - 50; >50 - 75; >75 - 100; >100 - 150; >150 - 200; >200 - 500; >500

0 0.25 0.5 1 Miles

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Figure 36 South Zone RED ALERT Map

Scottsdale Flood Response Plan – South Scottsdale

RED ALERT Operational Procedures Flowchart

Scottsdale Emergency Management Coordinator

Declare RED ALERT?

NO → Refer to the **YELLOW ALERT** Operational Procedure

YES → Notify Police, Fire, Street Operations, Parks & Recreation, Solid Waste & Storm Water and Maricopa County Department of Emergency Management (MCDEM) of RED ALERT. If conditions so warrant, the Duty Officer will recommend activation of the EOC to the Mayor.

RED ALERT CRITERIA:

- An issuance of a severe weather or flash flood warning by the NWS combined with factors making the effect more imminent such as a severe storm sighting near or moving toward Scottsdale or its contributing watersheds.
- Notification by the FCDMC of observed flood conditions within the Scottsdale boundary and/or a **Message 3.** Rain alarms set at **0.50"/15min**, **0.75"/30 min** and/or **2.50"/ 1hr**.
- Observed floodwaters within the Scottsdale.

Scottsdale Emergency Management Coordinator

EMC | Police | Fire | Street Ops | Parks & Rec | Solid Waste & Stormwater

- **EMC:** Coordinate with the Scottsdale to discuss the current flood threat, alert level, road closures and possible evacuations.

  Activate EOC if necessary.

  All contact with Scottsdale should be coordinated through the EOC Incident Commander once the EOC is activated.

  Use CEN/WEA and/or the Office of Communications to send out weather and flooding information to Scottsdale Residents if necessary.
- **Fire:** Assist with monitoring and barricading roads if necessary.
- **Solid Waste & Stormwater:** Monitor Wastewater Treatment Facilities: Central Groundwater Treatment Plant, Chaparal Water Treatment Plant and NIBW Groundwater Treatment Plant

  Assist with providing information requested by the EMC and/or the EOC.
- **Parks & Rec:** Monitor and restrict access if necessary to Indian Bend Wash Parks and Trails.
  - **Parks** – Nature Area at IBW Interceptor, Chaparral Park, Camelback Park, Indian School Park, Eldorado Park, McKellips Lake Park.
  - **Trail Crossings** - Located along Indian Bend Wash and McCormick Lakes W and E Branch.
- **Police:** Dispatch Police Units to patrol and relay info back to Dispatch/EMC. Monitor the following structures and evacuate residential structures if necessary.
  There are 460 structures located in the FEMA Flood Zone or a FLO-2D floodprone area. OF those parcels, 460 are residential structures:
  - **Indian Bend Wash**- 2 SFR and 4 Multi-Family
  - **McCormick Lake** – 9 Multi-Family
  - **IBW Interceptor Channel** – 3 SFR
  - **Granite Reef Wash**- 196 SFR and 234 Multi-Family

  There are also 12 other parcels identified as commercial, utilities, recreation or other within a FEMA Flood Zone.

  Golf Courses - Monitor and evacuate McCormick Ranch Golf Course and Continental Golf Course.

  Singh Farms Farmers Market is South of Scottsdale in Tempe but in Indian Bend Wash. Tempe Police may need assistance to monitor and evacuate the market.

  Refer to SFRP South, Central and North Flood Condition Maps and the FRP Online Map for exact locations.
  Contact Police for additional resources if necessary.
  Provide assistance to Streets with barricading roads if necessary.
- **Street Ops:** Monitor and barricade if necessary the following road crossings:
  There are 6 unbridged road crossings, 82 ponding locations, 30 culverts, and 25 bridge crossings in the South FRP Zone.

  There are 5 Road Flooded Flashing road signs on IBW. They are all located at Jackrabbit Rd, Osborn Rd, Murray Ln and Roosevelt St. Make sure these signs are operational and barricade them when there is water present.

  When Granite Reef Wash #50575 reads 7.0 ft/655cfs close McDowell Rd from Granite Reef Rd and Pima Rd

  Refer to SFRP South, Central and North Flood Condition Maps and the FRP Online Map for exact locations.
  Contact Police for additional resources if necessary.

Duty Officer MCDEM

Notify FCDMC, MCDOT, MCSO and MC Parks of RED ALERT.

FCDMC | MCDEM | MCSO | MC Parks

- **MCDEM:** Initiate Scottsdale FRP Red Book Protocol.

  Coordinate with Police Dispatch and/or EMC to activate the EOC if necessary.
- **MCSO:** Assist Scottsdale if additional resources are requested.
- **MC Parks:** Monitor the Maricopa Trail and Monitor Sun Circle Trail and restrict access if necessary.
- **FCDMC:** Monitor weather conditions and issue MSP products as necessary. Courtesy call to EMC if necessary.

  FCDMC Streamgage Bank Full Alarms
  Berneil Wash 5..0 ft/3,065 cfs
  IBW Interceptor 7.92 ft/4,135 cfs
  IBW at Shea Blvd 4.0 ft/4,000 cfs
  IBW at Indian Bend Rd 6.05 ft/5,320 cfs
  IBW Interceptor 7.92 ft/4,135 cfs
  IBW at McDonald Dr 3.4 ft/ 2,750 cfs
  IBW at Indian School Rd 3.97 ft / 2,000 cfs
  IBW at McKellips Rd5.9ft / 4,370 cfs
  Granite Reef Wash 6.0 ft / 465cfs

  SRP
  SRP has planned water releases that will effect the water level in IBW.

EMERGENCY SPILLWAY DISCHARGE or POTENTIAL DAM FAILURE?

SEVERE FLOOD POTENTIAL
If spillway discharge or potential dam failure is imminent or occurring, all departments follow produces in the CAP Reach 11 Emergency Action Plan.

Figure 37 South Zone RED ALERT Flowchart

ALL CLEAR Procedures

Upon an **ALL CLEAR** (Message 4) notification by the Flood Control District of Maricopa County that a flood threat has ended or the expiration of a National Weather Service product, the following tasks shall be performed (Figure 38):

City of Scottsdale Emergency Management Coordinator

i. Work with Scottsdale Departments to determine whether the flood threat has passed, if there are any modifications in the Flood Condition and if there has been and expiration time set on the Flood Condition in place.
ii. Notify Office of Emergency Management, Parks and Recreations, Police, Fire, Public Works of the **ALL-CLEAR** status when applicable.
iii. Help notify Parks and Recreations, Development Services, Police, Fire, Public Works of the **ALL-CLEAR** status when applicable.
iv. Provide assistance if necessary.
v. Monitor daily weather information.

City of Scottsdale Police Department

i. Determine whether the flood threat has passed, if there are any modifications in the Flood Condition and if there has been and expiration time set on the Flood Condition in place.
ii. Dispatch an observer and/or get confirmation from MCSO Dispatch unit that a flood threat has passed.
iii. Review weather information provided by the Emergency Management Coordinator.
iv. Review weather information provided by MCSO Dispatch, FCDMC and NWS.

City of Scottsdale Fire Department

i. Review weather information provided by the Scottsdale Emergency Manager.
ii. Monitor daily weather information.

City of Scottsdale Street Operations and Public Works Department

i. Review weather information provided by the Scottsdale Emergency Manager.
ii. Provide assistance if necessary.
iii. Monitor daily weather information.

City of Scottsdale Parks and Recreation Department

i. Review weather information provided by the Scottsdale Emergency Manager.

ii. Monitor daily weather information.

City of Scottsdale Solid Waste Department

i. Review weather information provided by the Scottsdale Emergency Manager.
ii. Convey information to the Storm Water Manager.
iii. Monitor daily weather information.

Flood Control District of Maricopa County

i. Advise staff and employees of the **ALL-CLEAR** status**.**

Maricopa County Department of Transportation

i. Advise MCDOT personnel of the **ALL-CLEAR** status.
ii. Remove any barricades and debris from streets, except as needed to barricade hazardous areas.
iii. Follow the existing procedure of post-event inspections.
iv. Review weather information provided by FCDMC and NWS

Maricopa County Sheriff's Office

i. Advise staff and employees of the **ALL-CLEAR** status.
ii. Dispatch sheriff units and verify that the flood threat has passed.
iii. Provide status updates across the county trunk radio system on any current activities, actions and/or observations in the field.
iv. Review weather information provided by FCDMC and NWS.

Maricopa County Parks and Recreation Department

i. Review weather information provided by the Scottsdale Emergency Manager.
ii. Monitor daily weather information.

Maricopa County Department of Emergency Management

i. Notify MCDEM personnel of the elevated **ALL CLEAR** status.
ii. If RED ALERT or YELLOW ALERT notification have been sent out, send the ALL-CLEAR message to all agencies in the RED Book.
iii. Review weather information provided by FCDMC and NWS.

Scottsdale Flood Response Plan

ALL CLEAR Operational Procedures Flowchart

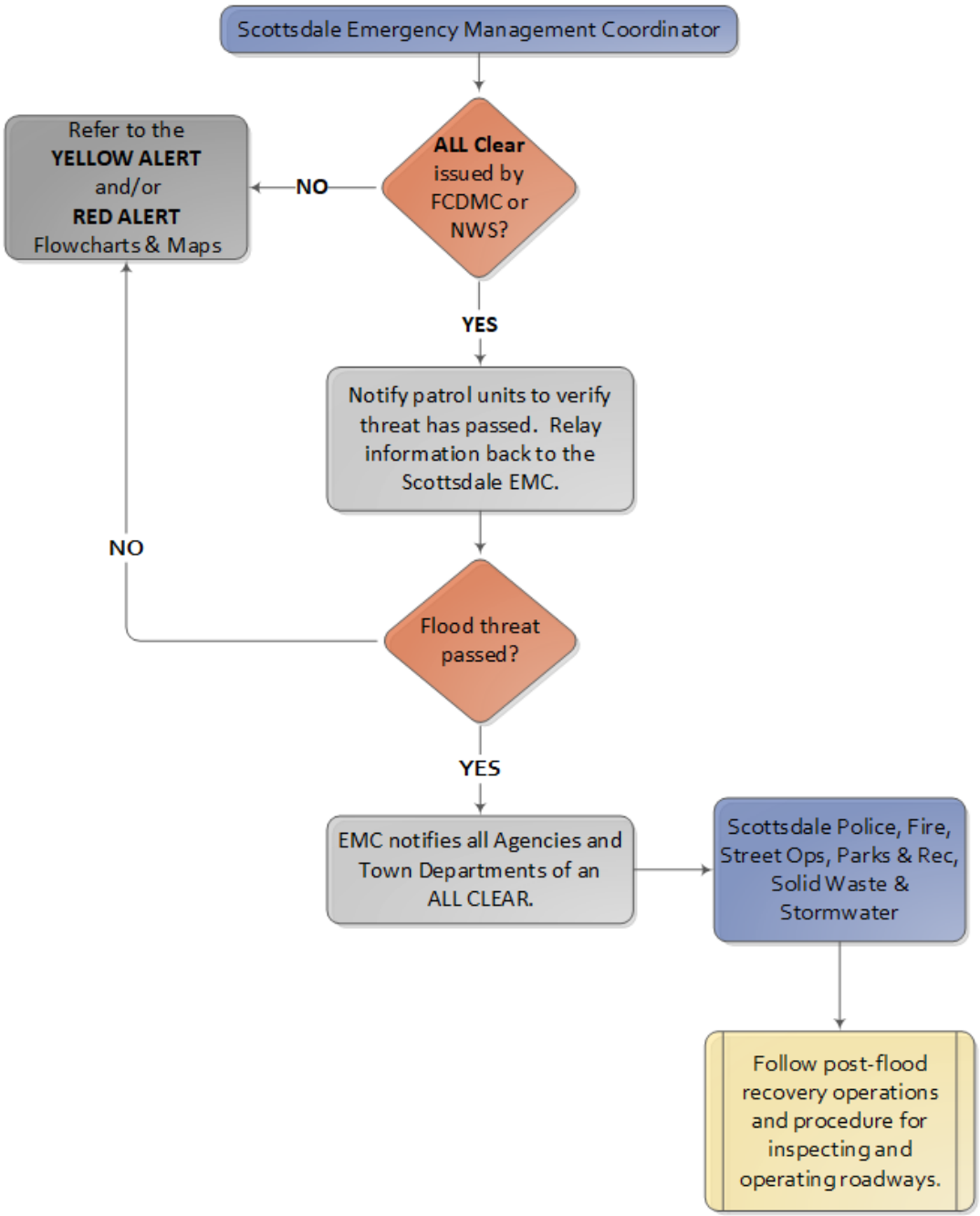

Figure 38 All Clear Flow Chart

POST FLOOD ACTIONS

After a flood has passed and an **ALL CLEAR** has been issued, each agency needs to refer to its post-flood recovery operations and procedures.

TRAINING, EXERCISES, and UPDATES

A successful FRP is a result of the preparedness and coordination of all its participants. The following tasks should be performed routinely to ensure that the SFRP is effective in the event of a real emergency.

Training

An initial training/review session with all agencies involved in the FRP is recommended. Training would include an overview of the FRP which would cover flood detection, flood threat recognition, dissemination of information, emergency response action and post flood actions. This overview would also include specific notification protocols, geographic coverage (watercourses included within the drainage area), locations of concern and an overview of any maps or custom products that were created for this FRP.

Exercises

It is recommended that a tabletop exercise be conducted annually prior to the start of monsoon season. All departments and agencies within this FRP should participate. Within two weeks after the exercise, hold a post-drill critique meeting with all departments and agencies within this FRP to review procedures and identify any necessary improvements to the SFRP.

FRP Updates

The SFRP is reviewed annually by the District and modifications are made accordingly, which includes notification data. These revisions are distributed to all participating departments and agencies by the District.

FLOOD DECTECTION and OUTREACH

On top of the FCDMC ALERT gage network there are additional flood detection within Scottsdale which include observation points, staff gages and flood warning devices.

ALERT Gage Network

The Flood Control District of Maricopa County operates a 24-hour rain, stream and weather gage network which provides “real-time” information to the County and many other agencies about rainfall, floods, and weather conditions in Maricopa County. This network operates in the

National Weather Service ALERT (Automated Local Evaluation in Real Time) format and is commonly referred to as an ALERT system.

Early detection of a storm event and closely monitoring a storm can reduce the risk of injury, loss of life and property damage from flooding. To improve the usefulness of warnings it is recommended that additional precipitation, stream, crest, and staff gages be installed. Actual locations of gages will be dependent on land ownership and availability, site access, vulnerability to vandalism, absence of obstructions and an accessible radio path.

Although some stream gage sites have limited ability to enhance lead time, they remain an important component in the FRP because they can provide additional information. Crest gages are used to gather data from streams and washes that are subject to infrequent, but severe flooding. A crest gage is a cost-effective way of gathering peak flow data which can be used in emergency planning, emergency design and hydrologic analysis.

The District has observation points along Indian Bend was at Indian Bend Road, Camelback Road and IBW Outlet at Salt River. These locations all have staff gages, and the individual webpages have additional information.

Scottsdale currently has exceptionally good ALERT station coverage for its high traffic parks and Indian Bend Wash. Many of the trouble areas for structures and roads are within the Pinnacle Peak West Fan 5/6 and Reata Pass/Beardsley Wash Pima Floodplain. These locations are alluvial fans and have limitations on stream gauge locations. Rainfall intensity from gages can drive response alarms in these areas. Reata Pass has one stream gage near the top of the floodplain, but many structures and unbridged road crossing are within the floodplain. Fan 5 and Fan 6 have recently been re-delineated. By re-delineating these two Fans, two hundred eight two (282) single family residential structures, four (4) commercial properties and one (1) accessory building were removed from the FEMA Floodplain Delineation.

Figure 39 Jackrabbit Road at Indian Bend Wash 10/2/2018

Indian Bend Wash also has five (5) flood warning devices located along Indian Bend Wash. These warning devices incorporate solar powered yellow flashers that activate when the water level reaches four inches in depth (Figure 39). These devices are operated and maintained by Scottsdale Street Operations and Public Works Department. More information is available at https://www.scottsdaleaz.gov/transportation/streets/flood-warning.

Staff Gages

A staff gage can be installed near a roadway or pedestrian crossing to provide an estimate of the amount of water flowing over the road or walkway. In order for the staff gages to read properly during an event, the sediment deposited would need to be removed prior to the barricades being removed from the roadway after a flow event. Once inspected and cleared of debris they would be able to display water level accurately during the next storm event. If these aren't cleared of debris the staff gages will not give accurate measurements and may cause motorists to become overly confident when the condition is in fact unsafe (Figure 40).

Figure 40 IBW at Interceptor 10/2/2018

Public Education

It is critical that the residents and community leaders within Scottsdale be educated and reminded of the inherent flood hazards around them. New residents may be unfamiliar and current residents may not have experienced a severe flash flood. It is important to let residents know if there may be potential for a flood event so they can avoid driving which will eliminate vehicle traffic and loss of access on the roadways. The District broadcasts commercials and advertisements that are seen throughout the Maricopa County area to help educate and make residents aware of the inherent danger of flooding. The District's website is a public website which has all the ALERT gage data. The District encourages participating agencies and the public to observe and monitor their ALERT gage data in the event of a flood.

The District has provided the SFRP, a wall map and field maps to the departments and agencies involved. This will enable emergency response teams to become more familiar with the areas of concern and in return the community will benefit. It is recommended that Scottsdale develop pamphlets or other printed materials which explain the dangers of flooding within Scottsdale, general flood response procedures, and what residents and motorists should do if notified of a potential flood.

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