Hazard Specific Annex # 1: Flooding

County of Riverside
Riverside County Operational Area (OA)

August 2024 Update

County of Riverside
Emergency Management Department

Portions of this document may contain sensitive information pertaining to the deployment, mobilization, and tactical operations of the County of Riverside in response to emergencies and disasters. Most of this annex is available for public review. Refer any request for a copy of this document to the County of Riverside Emergency Management Department (EMD) by calling (951) 358-7100.

Riverside County EOP Hazard Specific Annex #1: *Flooding*

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1.1 Leading and Supporting Departments

Lead Agencies	Supporting Agencies
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1.2 Hazard Specific Annex Responsibilities

County Departments

Department	Responsibilities
Riverside County Flood Control Conservation District	▪ Monitors flood basins and storm water channels within jurisdiction ▪ Collaborates with other municipalities to monitor facilities and notify the County if a flood danger exists. Each water district is responsible for monitoring their reservoirs Identify risks within the flood plain and help provide subject matter expertise to first responders ▪ Utilize burn scar dashboards and safety thresholds to provide critical decision-making points to responders

Department	Responsibilities
Emergency Management Department	▪ Obtain situational awareness information from department resources ▪ Direct staff in collecting and consolidating ongoing information from field units, the Incident Command Post (ICP), and other available information sources ▪ If the situation warrants, provide a representative to the ICP ▪ Work with other County departments to determine the scope of the incident and its impact on residents, as well as City functions and facilities ▪ Facilitate information sharing between departments ▪ Assist in the coordination with Riverside Sheriff's Office (RSO) to initiate an AlertRivCo message to the public if an evacuation is necessary ▪ The Operational Area Emergency Operations Center (OA EOC) will be activated as necessary per County Ordinance 533.7
CalFire/Riverside County Fire Department	▪ Initial information reports will originate from field resources to Battalion Chiefs as a result of the preliminary assessment in the immediate area ▪ CalFire Riverside stations may conduct vehicle "windshield" surveys of local area ▪ Information will be forwarded to CalFire Department Operations Center (DOC), and OA EOC, if activated, concerning the following situations: ○ Structural Damage: Buildings, bridges, and dams ○ Physical Rescue: Evaluation, technical assistance required, evacuation needs ○ Hazardous Materials: Life threatening incidents, product, and potential need for evacuations ○ Utility Supply Damages: Broken water mains, gas leaks and lines down ○ Access Routes: Impassable streets or essential routes that can be cleared

Department	Responsibilities
Riverside Sheriff's Office (RSO)	▪ Determine the size of the incident and the potential scope of the impacted area; this assessment will be used to determine field resources and perimeter control ▪ Assess the potential need of personnel to respond to the incident ▪ Establish communications between field officers and Incident Command to report damages ▪ Provide information to the DOC and/or EOC, as appropriate, as it is received from field personnel ▪ Select and establish an Incident Command Post (ICP) and staging location(s) ▪ Work in Unified Command with CalFire Riverside to monitor areas that are threatened by flooding ▪ Determine the ingress/egress routes for emergency vehicles and evacuation routes
Department of Animal Services	▪ Shelter animals as necessary ▪ Open local animal care facilities for the intake of evacuated animals/livestock as necessary ▪ Provide animals with food, water, and other supplies as necessary ▪ Continuously update the EOC on the capacity of facilities and the types of open cage space available ▪ Will utilize an established reunification system for animals and owners
Riverside County Transportation, Land Management Agency (TLMA)	▪ Field resources o Gather and disseminate information on areas of damage, road closures, and high-risk security areas o Communicate information to the OA EOC in order to update inspectors and the Safety Assessment Taskforce o Conduct surveys along the pre-established map route or through windshield surveys within each district ▪ Code Enforcement o Enforce emergency building regulations o Provide inspection staff for damage assessment

Department	Responsibilities
	○ Provide support staff as needed ▪ Engineering ○ Provide engineers for damage assessment ○ Perform safety evaluation and report findings ○ Prepare damage report. ○ Establish procedures to secure and repair damaged properties ▪ Building & Safety ○ Provide inspection staff for damage assessment ○ Provide support staff as needed ○ Provide staff for the OA EOC; activate the Department Operations Center (DOC) ○ Perform safety evaluation and report findings ○ Prepare damage reports ○ Evaluate resources and staffing needs ▪ Update Department status on WebEOC
County Parks and Open Spaces	▪ Deploy inspection teams to gather information ▪ Determine impact of flooding/dam/reservoir failure on properties and structures ▪ Determine which nearby facilities may be used as incident command staging areas or as shelters ▪ Report information to EOC Operations Section ▪ Provide support staff as needed ▪ Provide situation assessment to the EOC
Riverside County Transportation Commission (RCTC)	▪ Conduct windshield surveys in the field to report damage ▪ Determine if the incident has disrupted railways or rail service in the County ▪ Assess department facilities for damage and determine status of essential services and public services, if in an affected area ▪ Assess status of departmental equipment, material, and supplies for damage

Department	Responsibilities
	▪ RCTC will conduct initial damage/safety assessment of the transportation infrastructure including freeways, streets, bridges, and railroads ▪ Communicate to other departments, stakeholders, and the public any road closures or route alterations ▪ Work with other agencies to identify, deploy, and manage locations to be controlled, closed, or barricaded ▪ Assist RSO, TLMA and California Department of Transportation (Caltrans) with traffic route planning and staffing key traffic control points

1.3 State of California

Department	Responsibilities
California Department of Transportation (Caltrans)	▪ Planning, construction, and maintenance for highway, bridge, and rail transportation
California Governor's Office of Emergency Services (Cal OES)	▪ Enhance safety and preparedness in California to protect lives and property by effectively preparing for, preventing, responding to, and recovering from all threats, crimes, hazards, and emergencies
California Highway Patrol (CHP)	▪ Provides safety, service, and security by minimizing the loss of life, personal injury, and property damage ▪ Services the public ▪ Assists other public agencies when appropriate ▪ Manages traffic and emergency incidents ▪ Protects public and state assets

1.4 Federal Agencies

Department	Responsibilities
National Oceanic and Atmospheric Administration (NOAA)	▪ Provides the single federal atmospheric prediction of hazardous material concentration to all levels of the Incident Command ○ The Interagency Modeling and Atmospheric Assessment Center (IMAAC) is an off-site resource that supports the incident response remotely
United States Army Corps of Engineers (USACE)	▪ The United States Army Corps of Engineers are responsible for vital infrastructure within Riverside County such as Prado Dam and Lake Perris Dam. ▪ In the event of a severe rain event, the USACE will inform the County of any danger that its dams will overtop or the event of increased water release

2. Background

Flooding is an accumulation of water within an area that has insufficient drainage capacity to accommodate the volume of water entering the area. Flooding can be separated into several types:

- Riverine (overflow from a river, channel, flash floods, alluvial fan floods)
- Local drainage or high groundwater levels
- Fluctuating lake levels
- Subsidence
- Dam overtopping
- Severe rainfall
- Dam failure

Depending on the magnitude of the event, flood events can cause the loss of human life, animal life, damage to structures, utility service disruptions, and road / travel route closures. Historical records indicate that large floods occur infrequently in Riverside

County, however they have the potential to have significant impact or disrupt a community's daily life.

The major causes of flooding in Riverside County are short-duration, high-intensity storms. These storms include but are not limited to atmospheric rivers, tropical storms, tropical depressions, and El Niño weather pattern.

The following are noteworthy storm incidents that occurred in Riverside County:

- March 1938, multiple bridges across the Santa Ana River were destroyed, including the Pedley (Van Buren), the Riverside, and the Norco bridges. Major flooding from Tachevah Creek also occurred through downtown Palm Springs.
- November 1965, Cottonwood Creek overflowed Interstate 10, east of the Highway 111 junction, causing freeway closures, community isolation, and death.
- January 1993, at least 10 inches of rain fell over a two-week period in western Riverside County. The subsequent flooding took seven lives and caused more than $10 million in damage. Murrieta Creek had record water flow, causing it to overflow its banks. Old Town Temecula flooded at depths up to 5 feet. On February 3rd, President Clinton issued a disaster declaration.
- February 14, 2019, a 12-hour storm event occurred in the Palm Springs area receiving 5 inches of rain. This storm caused the Tahquitz Debris Basin to reach capacity and overtop the emergency spillway resulting in damages exceeding $73 million.
- December 2010, December storms caused Mockingbird Canyon Road to wash out at several locations, the Corona Main Street dam spillway to overtop, and the spillway at Sycamore Dam to overtop . President Obama issued a Major Disaster Declaration.
- August 2023, Tropical Storm Hilary caused multiple freeway and roadway closures as well as impacted businesses and residents with damages exceeded $126 million throughout Riverside County.

3. Purpose

This Hazard Specific Annex (HSA) is developed in support of the County of Riverside Emergency Operations Plan (EOP) to facilitate response to a flooding event. The HSA was developed with input from all applicable County of Riverside departments and allied stakeholders to meet the following objectives:

- Provide a concept of operations and identify roles and responsibilities specific to the hazard for each appropriate department within the County of Riverside
- Define methodologies and procedures necessary for the rapid notification of County departments and the public in the event of flooding
- Identify actions that can realistically be accomplished within a few hours to a few days to mitigate any adverse impact

4. Concept of Operations (ConOps)

Terminology

- **Closed-basin flooding** – Occurs when a lake has no outlet or a relatively small outlet. Seasonal rainfall and storm systems can cause the lake level to rise faster than it can empty. Floodwaters in closed-basin lakes accumulate over long periods of time and may stay for weeks, months, or years.
- **Flash flooding** –The rapid flooding of low-lying areas, usually caused by intense rainfall and can flood an area in less than six hours.
- **River and stream flooding** – May be triggered by heavy rains, melting snows, and storm surge. River and stream flooding can also occur when a dam breaks, producing effects similar to flash flooding in minutes.
- **Early Warning** – Most urban flooding is caused by rainstorms. The amount and duration of precipitation can be predicted by the National Weather Service (NWS). During severe rainstorms, the Riverside County Flood Control Department will monitor flood basins and reservoirs and will report if a basin is at risk of overflow or if a controlled release is likely. Jurisdictions in the County also monitor their flood basins/reservoirs and report if overtopping may occur or a controlled released is planned. Emergency response and emergency management personnel can pre-deploy response assets to threatened areas. Residents can then take their own precautionary measures such as sand bagging or preparing to evacuate. Residents can receive direct emergency notifications and early warnings through the County of Riverside's mass notification system – AlertRivCo.
- **Evacuation** – In the event of flooding, evacuations can be necessary to ensure safety. Evacuations will be managed as outlined in the Evacuation and Re-Entry ESF.
- **Rescue** – In the event that a rescue is needed, the responsible jurisdiction will utilize Swift Water Rescue Teams to rescue people from flood water and flood water areas.
- **Notification and Activation** – Information gathering and sharing will happen in all phases of a flooding event. The Riverside County Flood Control Department, in partnership with local water districts will monitor flood basins, roadways, and storm water channels under their jurisdiction. Each agency is responsible for monitoring its reservoirs. Other municipalities will monitor their facilities and notify the County if flood dangers exist. EMD will be the primary agency responsible for activating the EOC. Representatives will be requested from the agencies that are deemed necessary by the EOC Director. Incident Command Post(s) will share information with the Department Operations Centers (DOCs) and the County EOC. The EOC will manage the coordination effort among all agencies involved.
- **Damage Assessments** – Building and Safety may expedite assessments and

permit issuance for damaged buildings after flood waters recede and when it is safe to do so. The safety assessment taskforce may assist in inspections of structures within the flood zone and tag inspected buildings. This process will utilize the Applied Technology Council Procedures (ATC-20) for Post-Earthquake Safety Evaluation of Buildings placarding system and all reports of damaged buildings will be directed to EOC if activated.

- **Debris Removal** – During the recovery phase, prioritization of debris removal will be directed from the EOC in conjunction with the Debris Management ESF