

# Flooding & Dam Failure Annex

## Section 1. Introduction

The Flooding and Dam Failure Annex provides strategies for the basic approach to flooding response procedures, overview of incident response functions, agency roles and responsibilities, and overall concept of operations. It is intended to address the response to flooding and dam failure events and the needs of the general population during these incidents. It is not intended to address specific standard operating procedures (SOPs) of one entity, rather provides support to a coordinated response.

## Section 2. Flood Considerations

When considering flooding or dam failure, it is essential to first determine the area and population at risk. During emergencies involving flooding or dam failure, local emergency responders or Incident Management Teams (IMT) may determine evacuation of all or part of an area to minimize loss of life.

La Plata County (LPC) has three major watersheds (Middle San Juan, Animas, and Upper San Juan) that produce varying volumes of water runoff from river drainages depending on weather conditions and precipitation accumulations in each watershed. Generally, the watersheds run north/south while many roads run east/west across the watersheds. Flooding in these watersheds may destroy private bridges, access roads, and structures that have been constructed across or adjacent to rivers, streams, and drainages. Significantly vulnerable areas include Vallecito Creek and the Animas River system, which pose the greatest threats to hundreds of homes. Sensitive drainage crossings and watersheds are identified in Figure 1.

### Dam Failure

Failure of Vallecito, Lemon, or Electra Dams would create a surge of water resulting in an inundation of the areas around their regular drainages via the Pine, Florida, and Animas Rivers; loss of property and lives may be expected. In total, LPC has seven Class I dams and four Class II dams which are situated on the river systems. Of those, the high hazard dams are Durango Terminal, Johnson, Lemon, Turner, Vallecito, and Haviland Lake. A dam-failure flood is a catastrophic failure of a dam gate release mechanism or spillway, resulting in the flooding of streams and the inundation of lands below that dam.

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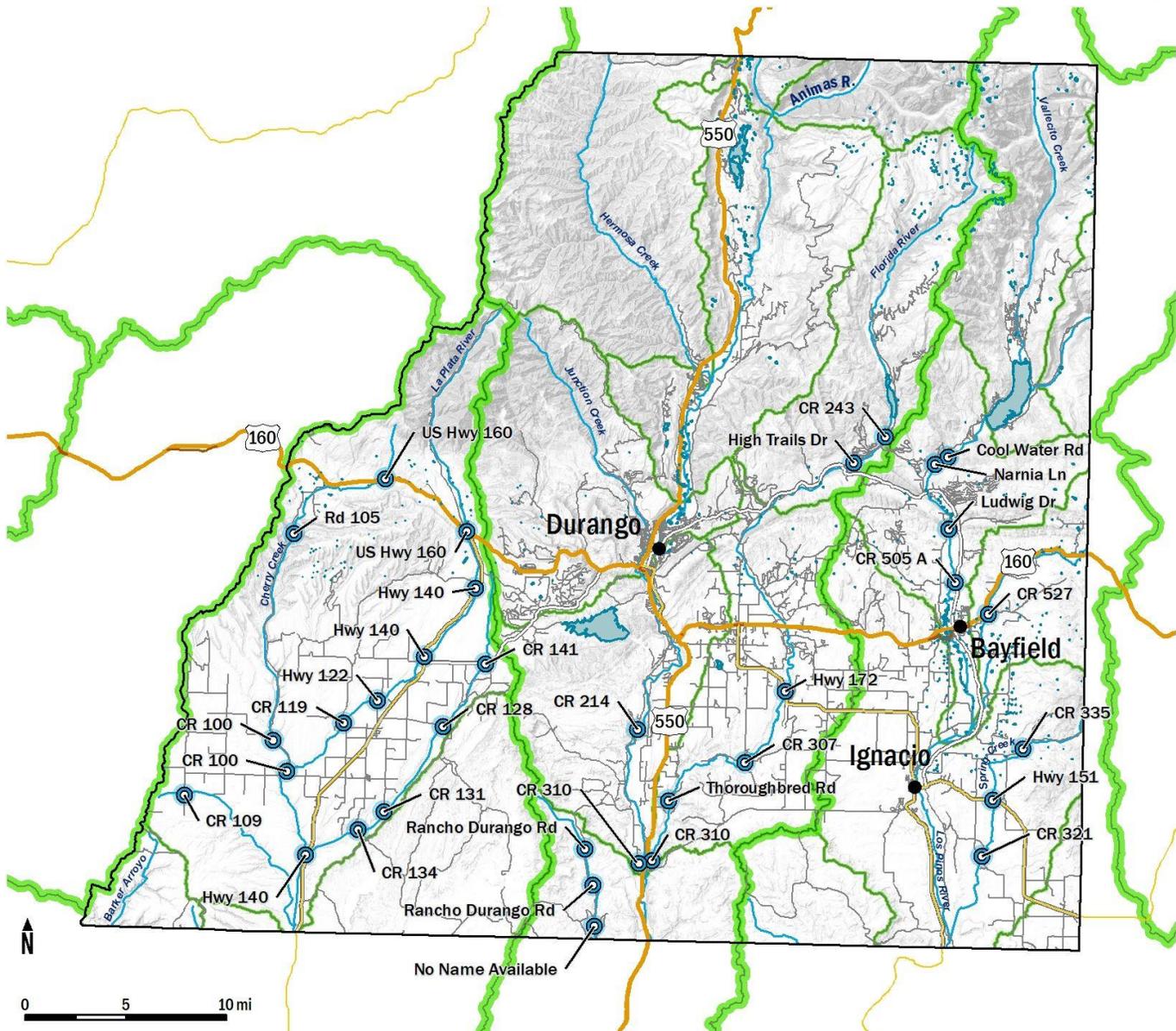
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**At Risk Road Crossings along Drainages within Watersheds**

- Sensitive Drainage Crossings
- ▭ Watersheds (HUC 8)
- ▭ Watersheds (HUC 10)

*Data source: Sensitive drainage crossings are highlighted areas created manually during stakeholder interaction and observation of the geospatial data. HUC boundaries from NHD.*

**Figure 1: At Risk Road Crossings along Drainages within Watersheds**

## Section 3. Concept of Operations

### 3.1 Pre-Response/Initial Actions

The county Office of Emergency Management (OEM) will work with county agencies and non-governmental partners and stakeholders to determine the support required for anticipated flooding or dam failure scenarios. If practical, evacuation decisions will be implemented before an actual event occurs. Those with access and functional needs (AFN) may require extended time to evacuate and need as much advanced warning as possible.

This Annex is designed around four levels of severity and alert (section 3.1.1). The flood condition may terminate at any one of these levels or move up or down from one level to another depending on how the incident progresses. Criteria for each Alert Level dictate involvement of resources and support agencies and whether the Multi-Agency Coordination Group (MACG) and Emergency Operations Center (EOC) shall be activated.

#### Local

The extent of the initial response will depend upon warning lead-time, the severity and location of the occurrence, the number of people and structures impacted, and the ability of the local jurisdiction to aid. Unlike some other types of incidents, other governmental resources may be involved in response to a flood or dam failure incident. Due to the nature of flooding and dam failure incidents, multiple annexes may be necessary to formulate a proper response.

#### State

The state supports local governments by providing necessary support dependent upon the incident. The LPC OEM director can coordinate with their Department of Homeland Security and Emergency Management (DHSEM) regional field manager who will work to determine the state's role in the situation and additional need for Federal support.

#### Federal Response

Requesting, or determining the need to request, Federal support should be coordinated through the DHSEM regional field manager and documented through the EOC.

### 3.1.1 Level of Severity and Response

#### Alert 1 represents a “Get Ready” posture of watching

- Potential for flooding exists and shall be monitored.
- The reporting party shall notify the Durango La Plata 9-1-1 Communications Center and the OEM director.
- This level represents a routine response under the direction and control of each agency’s supervisor or incident commander (IC).
- Level 1 requires little or no interaction among agencies to complete the response.

#### Alert 2 represents a “Get Set” posture.

- Private bridges, access roads, irrigation structures, and individual structures near rivers, streams, and drainages could be affected.
- Prepare to warn residents. Monitor conditions and identify an evacuation plan to implement if the situation worsens.
- Notify appropriate parties, e.g., National Weather Service (NWS), gate personnel at dams, Road & Bridge (for county roads), Colorado State Patrol (for state highways).
- When events exceed the internal capability of the primary response agency, mutual aid resources will be mobilized.
- The MACG may be partially activated to assist in press releases, radio communications, and emergency notifications.

#### Alert 3 represents a “Go” posture.

- This is the most serious level of flooding with certain or high probability of damage to people and property.
- County infrastructure will be impaired and combined mutual aid resources are insufficient. Outside help is needed.
- Full mobilization of the jurisdiction’s regional resources is required and the MACG and EOC is fully staffed.
- Evacuations are imminent, requiring implementation of emergency notification and full support by ESF 15.

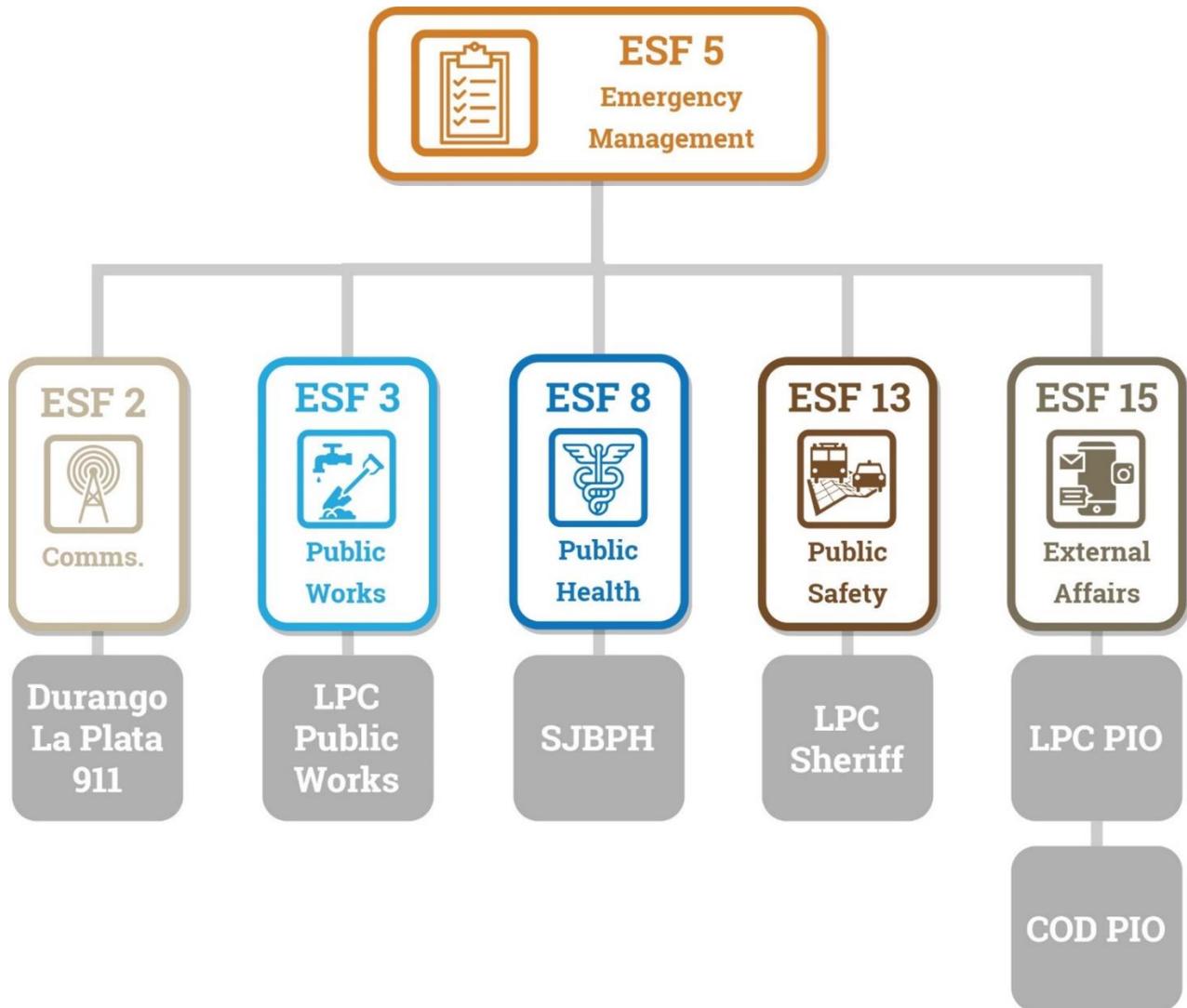
#### Alert 4 represents a “Get More Help” posture.

- State and federal assistance or involvement is required because of the severity or magnitude of the incident or event.

# Section 4. Roles and Responsibilities

## 4.1 Roles and Responsibilities

The following shows the primary and support ESF that will be involved with the response to flooding and dam failure incidents; it is not inclusive of all the possible entities that could be involved. In a large regional disaster, other county entities as well as the state and Federal Government may be needed to provide resources.



**Acronyms:**

San Juan Basin Public Health (SJBPH)

La Plata County (LPC)

Public Information Officer (PIO)

City of Durango (COD)

## 4.2 Local Government Entities

### 4.2.1 Primary ESF

#### ESF 5 - Emergency Management



OEM is responsible for maintaining situational awareness of threats that may necessitate an evacuation of citizens. OEM will coordinate the county government’s role in response to and recovery from the disaster. OEM will work in partnership with the Emergency Manager (EM) of the municipalities within the county to provide overall coordination at the EOC.

#### ESF 5 - Coordination List

STATUS	ACTION
<input type="checkbox"/> Initiated <input type="checkbox"/> In-Progress <input type="checkbox"/> Completed <input type="checkbox"/> N/A	With the support of <b>ESF 2</b> and at the request of the Sheriff or Incident Commander (IC), coordinate public alert and warnings, see alert and warning annex. Provide support to <b>ESF 15</b> . Provide early notification to agencies that would be first affected or would become involved in the first phases of response to the event. Work closely with the National Weather Service (NWS) to predict storms and precipitation content. Develop an inventory and mapping of high-risk areas along streams, rivers, and tributaries. Determine and monitor emergency response capability in flood affected areas. Coordinate response of utility providers.

#### ESF 5 – Road & Bridge (R&B) Department

STATUS	ACTION
<input type="checkbox"/> Initiated <input type="checkbox"/> In-Progress <input type="checkbox"/> Completed <input type="checkbox"/> N/A	Determine vital routes that must be maintained. Determine alternate routes for traffic. Clear roads and close roads, as necessary. Monitor debris movement and accumulation of debris at bridges and culverts. R&B to hire private contractors and equipment for flood flights, they will log contract information and time of operation to assure payment and accurate documentation for disaster payment or reimbursement.

#### ESF 5 – EOC Activation

STATUS	ACTION
<input type="checkbox"/> Initiated <input type="checkbox"/> In-Progress <input type="checkbox"/> Completed <input type="checkbox"/> N/A	Notify staff of pending EOC activation and/or to current activation levels, coordinate staffing of all needed positions. Activate the MACG for coordination and decision-making. Maintain coordination and communication between the EOC and support agencies, including direct communication with the Incident Command Post (ICP). Communicate with DHSEM keeping the state apprised of local situation.

## 4.2.2 Support ESF

### ESF 2 – Communications



The Durango La Plata 9-1-1 Communications Center gathers basic information from the reporting party and notifies appropriate personnel through radio broadcast. The 9-1-1 Communications Center queries the reporting party, and others on or near the scene, to describe the location of the flood. Request for mutual aid as appropriate.

### ESF 2 - Coordination List

STATUS	ACTION
<input type="checkbox"/> Initiated	
<input type="checkbox"/> In-Progress	Through simulcast broadcasting, notify: the appropriate fire districts, the shift commander and patrol deputies, and the OEM Director.
<input type="checkbox"/> Completed	
<input type="checkbox"/> N/A	
<input type="checkbox"/> Initiated	
<input type="checkbox"/> In-Progress	
<input type="checkbox"/> Completed	
<input type="checkbox"/> N/A	

## ESF 3 – Public Works



Public Works and Engineering coordinate and organize the resources necessary to facilitate the delivery of multiple core capabilities. During flooding and dam failure incidents, public works can provide materials, equipment, and personnel for the emergency maintenance and restoration of basic services to the public.

### ESF 3 - Coordination List

STATUS	ACTION
<input type="checkbox"/> Initiated	Establish an agency checklist that includes: stock, inventory, and testing of all equipment and facilities, giving special attention to fuel, potable water, chain saws, emergency generators, batteries, communications systems, vehicles, etc. Assist with debris removal as requested, refer to the debris management annex.
<input type="checkbox"/> In-Progress	
<input type="checkbox"/> Completed	
<input type="checkbox"/> N/A	
<input type="checkbox"/> Initiated	Provide information on road situations to include open/closed data, bridge status, and general damage. Assist in necessary road closures and detours. Activate and coordinate road signs such as variable message signboards and trailblazer signs
<input type="checkbox"/> In-Progress	
<input type="checkbox"/> Completed	
<input type="checkbox"/> N/A	

## ESF 8 – Public Health & Medical



Public Health identifies the health and medical needs of those impacted by the emergency, including patients evacuating medical care facilities, hospitals, hospices, and nursing homes.

### ESF 8 – Coordination List

STATUS	ACTION
<input type="checkbox"/> Initiated <input type="checkbox"/> In-Progress <input type="checkbox"/> Completed <input type="checkbox"/> N/A	Coordinate specialized transportation for evacuees with medical and functional needs. Coordinate care for evacuees whose needs cannot be accommodated in general population shelters. Direct the testing of water systems for pollution in areas directly or indirectly affected by the flooding. Arrange for potable water in areas adversely affected by water system pollution. Address failed septic system issues. Instruct public on disinfection procedures.
<input type="checkbox"/> Initiated <input type="checkbox"/> In-Progress <input type="checkbox"/> Completed <input type="checkbox"/> N/A	Monitor support for individuals at pickup points and provide medical support at designated evacuation assembly areas and pickup points to perform triage of citizens prior to evacuation, if evacuation is warranted.

## ESF 13 - Sheriff's Office



Law Enforcement supports the EOC when activated as the lead of the law enforcement branch of the operations sections. Primary lead agency for the evacuation movement unit; is responsible for the overall evacuation and movement of citizens throughout the operational area when needed. Law enforcement agencies will be integral in the tactical ICP in evacuating people from the impacted area.

### ESF 13 Coordination List

STATUS	ACTION
<input type="checkbox"/> Initiated	Assume role of IC if the flood is in unincorporated lands. Coordinate with <b>ESF 5</b> to determine if any evacuations are needed. Coordinate with <b>ESF 5</b> and <b>ESF 6</b> to establish evacuation center or shelter as appropriate. Coordinate the re-entry movement of evacuees back to their homes when safe to do so.
<input type="checkbox"/> In-Progress	
<input type="checkbox"/> Completed	
<input type="checkbox"/> N/A	

### ESF 13 - Public Alert and Warning

STATUS	ACTION
<input type="checkbox"/> Initiated	Use loudspeakers to alert the public in immediately threatened areas. Coordinate with <b>ESF 2</b> and <b>ESF 5</b> to develop emergency notifications as necessary see alert & warning annex.
<input type="checkbox"/> In-Progress	
<input type="checkbox"/> Completed	
<input type="checkbox"/> N/A	

### ESF 13 - Traffic Control

STATUS	ACTION
<input type="checkbox"/> Initiated	Pre-identify evacuation routes. Major evacuation routes are state highways HWY 160, HWY 550, and HWY 172. Facilitate the movement of emergency vehicles with local police and the Colorado State Patrol. Coordinate the routes for movement of motorists toward designated/safest evacuation routes. Maintain direct communication with EOC and ICP.
<input type="checkbox"/> In-Progress	
<input type="checkbox"/> Completed	
<input type="checkbox"/> N/A	

## ESF 15 – External Affairs



External Affairs/public information officers/public affairs officer provides accurate, coordinated, timely, and accessible information to affected populations. Audiences may include governments, media, the private sector, and the public, including children, people with disabilities and/or AFN, and individuals with limited English proficiency.

### ESF 15 Coordination List

STATUS	ACTION
<input type="checkbox"/> Initiated	Provide emergency public information. Provide continuous and accessible public incident info. Ensure that information is authentic and valid and informs individuals with sensory, intellectual, or cognitive disabilities; individuals with limited English proficiency; and people with AFN. Coordinate the actions for public information releases. Inform responding stakeholders how to, or when not to interact with the media during an emergency.
<input type="checkbox"/> In-Progress	
<input type="checkbox"/> Completed	
<input type="checkbox"/> N/A	

## Boards of County Commissioners (BOCC) & ADMIN



The BOCC may cooperate and coordinate with the governing bodies of organized stakeholders to appropriately manage the flood or dam failure incident and develop disaster declarations as warranted.

### BOCC & ADMIN - Coordination List

STATUS	ACTION
<input type="checkbox"/> Initiated	
<input type="checkbox"/> In-Progress	Communicate with <b>ESF 5</b> to receive incident status updates, including its effects on people and property. Coordinate with <b>ESF 15</b> to help elected officials prepare statements regarding the incident. Issue emergency declarations as the situation escalates beyond the Local Government's capacity.
<input type="checkbox"/> Completed	
<input type="checkbox"/> N/A	
<input type="checkbox"/> Initiated	
<input type="checkbox"/> In-Progress	Monitor the MACG's process of tracking damage caused by the flood. Determine flood response efforts on private land and resources commitments to save private home and property. Issue emergency declarations.
<input type="checkbox"/> Completed	
<input type="checkbox"/> N/A	