



COUNTY OF HUMBOLDT

AGENDA ITEM NO.

C-39

For the meeting of: June 28, 2016

Date: June 8, 2016
To: Board of Supervisors
From: Michael T. Downey, Director of Emergency Services
Subject: Adoption of County of Humboldt Dam Failure Contingency Plan

RECOMMENDATION(S):

That the Board of Supervisors:

- 1. Adopt the County of Humboldt Dam Failure Contingency Plan (Attachment 1); and
2. Direct Office of Emergency Services to track changes and update annually or as needed to keep plan current.

SOURCE OF FUNDING:

Emergency Management Performance Grant Program and General Fund

Prepared by D. Lanni
Dorie Lanni, Office of Emergency Services

CAO Approval Cheryl D. Simpson

REVIEW: Auditor County Counsel NAD Human Resources Other

TYPE OF ITEM:
[X] Consent
Departmental
Public Hearing
Other

PREVIOUS ACTION/REFERRAL:

Board Order No.
Meeting of:

BOARD OF SUPERVISORS, COUNTY OF HUMBOLDT

Upon motion of Supervisor Sundberg
Seconded by Supervisor Bass

Ayes Sundberg, Fennell, Lovdace, Bohn, Bass
Nays
Abstain
Absent

And carried by those members present, the Board hereby approves the recommended action contained in this report.

Dated: June 28, 2016

By: Kathy Hayes, Clerk of the Board

DISCUSSION:

During a significant incident or declared local emergency, the overall priority of the County and of emergency management agencies is to provide maximum protection to public safety and property. The County, acting as the lead local government entity under California's Standardized Emergency Management System, is responsible for coordinating the overall local government organized response to emergent hazard events. In support of that primary effort, as delineated in the Humboldt County Emergency Operations Plan, the Dam Failure Contingency Plan was developed to provide specific dam failure event impact-related information and recommended direction to Operational Area government entities to guide coordinated response efforts. Numerous Humboldt Operational Area government entities provided input to the new Plan development process. The new Plan also provides specific supplemental and related information to support the overall response efforts of Operational Area entities.

The Dam Failure Contingency Plan is completely new and replaces one originally developed in 1976 and last updated in 1993. While previous drafts were very detailed and complete enough to be used during an event, this new Plan has been in the development stage for about ten years. It is important to note that developing an effective comprehensive immediate response plan for a dam failure scenario is a very difficult and time-consuming process. Such an event almost always occurs with little or no warning and is catastrophic in its impacts. Plans must be immediately deployable so as not to waste time evacuating people from the areas impacted by the impending flood waters.

While the main body of the Plan contains actions applicable to all four river watercourses (Eel, Klamath, Mad, Trinity) that have a dam failure hazard in Humboldt County, there are specific detailed actions which must be delineated for the response agencies identified in each river's watercourse. Therefore, the Dam Failure Contingency Plan contains an additional annex for each river and further assigns specific and detailed response activities to individual responder agencies. It should be noted that only an annex for the Mad River is contained in the current Plan. The other three annexes for the Eel, Klamath, and Trinity Rivers must be developed with dam operators and the response agencies. The main body of the proposed Plan addresses in detail the general actions needed for response to an event affecting any of those rivers.

Included in the Humboldt County Disaster Council duties, as defined in Ordinance 2447, is the responsibility "...to develop and recommend for adoption by the Board of Supervisors, emergency and mutual aid plans..." The Disaster Council guided the Dam Failure Contingency Plan preparation efforts of the Sheriff's Office of Emergency Services. In May, 2016, the Disaster Council reviewed the final Plan draft and directed the Sheriff's Office of Emergency Services to submit the Plan to the Board of Supervisors for final review and adoption. The attached Dam Failure Contingency Plan Final Draft version (Attachment 1) is the result of that effort and is hereby submitted to the Board.

FINANCIAL IMPACT:

Staff costs for updating the Humboldt County Emergency Operations Plan are covered by grant funding provided by the Emergency Management Performance Grant Program (EMPG). The grant match for EMPG is covered by the General Fund allocation in budget unit 274 for fiscal year 2015-16.

The Humboldt County Emergency Operations Plan meets the Board of Supervisors Strategic Framework Plan by ensuring sustainability of services and promoting a safe and healthy community.

OTHER AGENCY INVOLVEMENT:

Humboldt County Disaster Council

ALTERNATIVES TO STAFF RECOMMENDATIONS:

The Board may deny the request to adopt the Dam Failure Contingency Plan and return the draft plan to the Disaster Council and the Sheriff's Office of Emergency Services for additional action. This is not recommended as the County would fail to provide maximum protection to public safety.

ATTACHMENTS:

Attachment 1 Proposed Humboldt County Dam Failure Contingency Plan

ATTACHMENT 1

County of Humboldt Draft Dam Failure Contingency Plan

County of Humboldt

DAM FAILURE CONTINGENCY PLAN

TO THE
EMERGENCY OPERATIONS PLAN



HUMBOLDT OPERATIONAL AREA

Humboldt County Sheriff's Office
Office of Emergency Services
826 Fourth Street
Eureka, CA 95501

June 2016

DAM FAILURE CONTINGENCY PLAN

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 - 5.4 TBA - Projected Leading Edge Arrival Times
 - 5.5 TBA - Observation Points
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GENERAL INFORMATION

2 FORWARD

2.1 Plan Scope and Purpose

The Dam Failure Contingency Plan primarily addresses the Humboldt Operational Area's planned response to a dam failure situation affecting Humboldt County. This Plan establishes detailed procedures for response to areas which may be jeopardized by a dam failure event. The purpose of this Plan is to minimize the loss of life and property through an organized notification and evacuation process and to provide for re-entry into areas that may have been evacuated and/or damaged.

2.2 Plan Authority and Activation

This Plan will be used in conjunction with, and under the authority of, the County of Humboldt Emergency Operations Plan. The Dam Failure Contingency Plan will be implemented upon the decision of the Director of Emergency Services (Humboldt County Sheriff), or the Director's designated representative, when a river dam's integrity is threatened. If official notification is received that a potentially hazardous situation is developing, the Emergency Operations Center will be activated to the appropriate level, per procedure established in the Humboldt County Emergency Operations Center (EOC). If official notification is received that a river dam failure is imminent or has occurred, the EOC will be fully activated. The Humboldt County Sheriff's Office, Office of Emergency Services (OES) will ensure the Dam Failure Contingency Plan is current and will advise the Director on response procedures. The OES will coordinate Humboldt County emergency operations with those of adjacent counties. The County of Humboldt's Dam Failure Contingency Plan was adopted by the Humboldt County Board of Supervisors on June 28, 2016 (see Section 13).

2.3 Plan Priority Use and Organization

The most important operational information in this Dam Failure Contingency Plan is contained in Sections 5, 6, & 7, RESPONSE OPERATIONS, which details specific dam failure-related actions to be undertaken by county departments and by allied Operational Area agencies during a recognized river dam threat event. Each dam annex delineates specific additional activities to be undertaken. **The RESPONSE OPERATIONS sections, and the appropriate dam annex, should be immediately consulted at the onset of a dam failure flooding event.**

The Plan's Section 3, SITUATION, provides interesting and useful information pertaining to the dam failure issue in Humboldt County. Projected vulnerabilities and impacts, specific river issues, and historic events are discussed.

Section 4 of the Plan, PREPARATIONS, details the normal ongoing planning and organization in support of probable future dam failure-related operations actions. Mitigation measures, dam failure-related notification/information pathways, alerting systems, and flood- and river-specific issues are reviewed.

2.4 Supporting Plans

One or more of the below listed plans supplied by dam operators shall be used concurrently with this Plan and with the County Emergency Operations Plan to best respond to the particular situation. Copies of the most current plan version for all four rivers in Humboldt County which could be affected by an upstream dam failure are located in the County Emergency Operations Center. Governmental response entities downstream of each dam also maintain copies of that dam's projected inundation impacts. These plans all contain detailed inundation maps covering the full length and breadth of the watercourse. Other adjacent and affected counties are also listed below.

AFFECTED RIVER & DAM

Mad: R. W. Matthews Dam (Trinity County)

Trinity: Trinity Dam and Lewiston Dam (Trinity County)

Eel: Scott Dam – Potter Valley Project (Lake, Mendocino, and Trinity Counties)

Klamath: Copco Dam and Iron Gate Dam – Klamath River Hydroelectric Project (Siskiyou and Del Norte Counties)

2.5 Public Access to Plan

As a public document, this Plan, the County Emergency Operations Plan, and other specific event contingency plans are accessible via the Humboldt County website (<http://www.humboldt.gov/356/Office-of-Emergency-Services>). All "Contacts" lists (Section 14) containing phone numbers and email addresses are redacted and not available to the public.

2.6 Humboldt County Map



2.7 **Map of Dams**

****Fold out map of Mad River course to be included in final published version****

3 SITUATION

3.1 Dam Failure Vulnerability

Portions of Humboldt County would be affected by the failure of one or more of six dams – all of which are located outside the County. Those dams, the rivers they affect, and the volume of water impounded behind them with a full reservoir are as follows:

<u>Dam</u>	<u>River</u>	<u>Storage Capacity (acre-ft)</u>
Copco	Klamath	77,000
Iron Gate	Klamath	58,000
Lewiston	Trinity	14,660
Trinity	Trinity	2,448,000
Matthews	Mad	48,000
Scott	Eel	94,000

Warning time from dam failure until the resulting flood waters reach a significant populated area in the County would be about 5.5 hours on the Mad River, about 6 hours on the Eel River, and about 7 hours on the Trinity River (the Trinity empties into the Klamath). The number of people to be alerted and evacuated can vary tremendously. There may be fewer people along the river in the winter months when only permanent residents are present. Many people may be present in the summer months when seasonal cabins are occupied, and there is more recreational fishing and camping all along the rivers. Another factor that must be considered is the initial flow in the river when the failure occurs. This initial flow is normally very low on all the rivers during the period May through October. During winter months, the initial flow is much higher and, at times, may even be equal to or greater than flood stage. This wide variation in initial flow has a significant impact on the areas that must be evacuated, particularly in the deltas.

3.2 Inundation and Affected Areas

NOTE: Please review the inundation maps contained in the Supporting Plans for inundation projections and the time lapse from dam failure to the higher water flow arrival at specific locations (refer to Section 2.4).

Humboldt County communities that may be fully or partially affected are as follows:

Matthews Dam (Mad River) – Maple Creek, Butler Valley, Korbek, Blue Lake, Glendale, Arcata bottoms, and portions of the City of Arcata and Humboldt Bay.

Lewiston and Trinity Dams (Trinity River/Klamath River) – Sandy Bar, China Flat, Willow Creek, Sugar Bowl, Hoopa Valley, Weitchpec, Martin's Ferry, Cappell Flat, Pecwan, Johnsons, and Blue Creek.

Scott Dam (Eel River) – Alderpoint, Fort Seward, Eel Rock, McCann, Camp Grant, South Fork, Weott, Burlington, Myers Flat, Miranda, Larabee, Holmes, Shively, Pepperwood, Elinor, Stafford, Scotia, Rio Dell, Metropolitan, Fortuna, Fernbridge, Loleta bottoms, Ferndale, and Ferndale bottoms.

Copco and Iron Gate Dams (Klamath River) – Orleans, Bluff Creek, Weitchpec, Martin's Ferry, Cappell Flat, Pecwan, Johnsons, and Blue Creek.

The actual inundation water depth cannot be accurately predicted. Inundation water depth is dependent on a variety of factors which affect water flow. The most probable scenario for a dam failure occurs during a peak-flood event. Historic maximum recorded flood data is used in conjunction with data from a catastrophic dam failure event projection to predict water flow. Maximum water depth, water arrival time, and peak flow based on the maximum flood/catastrophic dam failure event have been projected for specific points along a particular watercourse. This prediction is a "worst-case scenario" and is used as a basis for dam-failure emergency response planning. The actual inundation water affects for specific events and at specific locations may be different from the worst case scenario planning model.

4 PREPARATIONS

4.1 Dam Failure Event Mitigation and Response Planning

The Humboldt County Emergency Operations Plan (EOP) addresses the planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies in or affecting Humboldt County. The EOP guides the overall actions of emergency responders and provides a framework into which this Dam Failure Contingency Plan will address specific flood-related response issues.

Mitigation actions involving dam failure incidents will normally be broken down into two categories: 1) Pre-event readiness, and 2) Emergency response. The extent to which any mitigation operations are conducted will be predicated on the actual situation and the need for government response and actions.

(1) Pre-Event Readiness Actions

In this phase, a dam failure has not occurred, but, there are indicators which show the possibility of an occurrence could take place within a short time period.

- EOC activation
- Close monitoring of physical dam condition and associated information such as weather forecasts and water levels
- Dissemination of dam failure awareness and preparedness information to Operational Area first responders, response partners, and the public
- Mobilization of response resources
- Preparatory actions for possible evacuation orders

(2) Dam Failure Emergency Response Actions

In this condition, the dam failure will occur soon or has occurred and immediate mitigation and emergency response measures are required.

- EOC activation (Level 3) – Level 3 means the full staffing of all EOC positions
- Evacuation orders for projected flood impact areas
- Deployment of flood fighting and public safety resources throughout impacted areas
- Rescue of persons imperiled or trapped by flood conditions
- Appropriate public information broadcasts
- Protection of essential services and critical infrastructure

4.2 Pre-Event Public Education

The public's best defense against the catastrophic flooding effects of a dam failure is knowledge of the procedures to follow when notice is given of the event. Dam operators have provided inundation maps and dam failure affect projections to municipalities downstream for planning purposes. The primary procedure to follow is evacuation to higher ground above the inundation zone. Fortunately, with initial warning notice, the time of the initial water flow can be accurately predicted which greatly assists in evacuation planning – several hours of notice can usually be

provided to Humboldt County residents. However, the expected inundation level at any given point along the river watercourse is totally dependent on the current situation – it may not be possible to project the expected high water level with any certainty. Therefore, all persons should evacuate to elevations higher than “worst-case scenario” projections. Currently, no dam failure-specific public education programs are in place in Humboldt County. It is important that the public take proactive mitigation measures by building a family emergency kit, making a family communications plan, and practicing various evacuation procedures and emergency response-related activities to support their well-being.

4.3 Public Alerting and Warning Systems

Fortunately, the arrival time of flood waters from an upstream dam failure can be predicted with sufficient reliability to provide early warning to people in projected inundation areas. Each dam operator is responsible for initial warnings to official agencies. That notice arrives via a variety of official sources and is very timely. Local alerting and emergency procedures are then the responsibility of state and local government. Should the situation require local alerting and warning of the public, the Emergency Alert System and public mass notification system will be activated. Other agency-specific alerting and warning procedures including loudspeaker announcements via emergency vehicle and low-flying aircraft will be implemented where possible.

Emergency Alert System

The Emergency Alert System (EAS) allows real-time emergency event notifications to the public via radio and television broadcasts. All local radio and television broadcast stations participate in the EAS.

NOAA Weather Radio

NOAA Weather Radio (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest NWS office. NWR broadcasts official Weather Service warnings, watches, forecasts, and other hazard information 24 hours a day, 7 days a week.

Working with the Federal Communication Commission (FCC) EAS, NWR is an “All Hazards” radio network which makes it a single source for comprehensive weather and emergency information. It is provided as a public service by NOAA. NWR requires a special radio receiver or scanner capable of picking up the signal.

Public Mass Notification System

The county-wide mass notification system can be utilized for emergency notifications to the public regarding flood conditions. The system has the ability to call and deliver a short recorded message to all publicly-listed land line telephones in the Operational Area, as well as registered cell phones, and can also contact registered residents via text message and email. Messaging may be issued to geographically-targeted areas in the event of an emergency flood situation that requires immediate action.

Responding Agencies

Emergency responders may do a sweep of the affected area using loudspeakers and personal contact.

Local Media

Normal broadcast media (radio/television) can be utilized to inform the public of anticipated threats or possible emergency actions in the near future.

Social Media

The county Office of Emergency Services, Sheriff's Office, and Humboldt County maintain social media accounts to provide information on current and potential emergency conditions, in addition to advance preparedness information. The EOC will use social media to release information, monitor media, perform rumor control, and respond to inquiries. When releasing information (news releases, information bulletins, etc.), regarding emergency conditions, all messaging must be coordinated through the EOC, Joint Information Center (JIC), and response entities, and approved by the EOC Director or Incident Commander. When possible, JIC personnel will document social media coverage of the event to identify and respond to misinformation, rumors, and trends.

4.4 Public Information Access

The Federal Emergency Management Agency publication, "Are You Ready? Guide", gives in-depth preparedness information to citizens (<http://www.ready.gov/floods>).

The American Red Cross web site provides excellent "Flood Safety" information at (<http://www.redcross.org/prepare/disaster/flood>).

During a flood event in which the Emergency Operations Center is activated, the Public Information Officer may activate a public information line. This line would have a pre-recorded message regarding flood event information.

See Section 12 for press release samples.

4.5 Dam Operator Notification Systems

Each dam operator's plan details the local and regional emergency notification procedures for that dam (refer to Supporting Plans, Section 2.4). All plans include direct notification of Humboldt County Sheriff's Dispatch which acts as a Warning Point for other county dispatch centers. Notification of the Dispatch Center and other selected local response agencies would also occur through standard procedures implemented by State and Federal agencies in the warning system hierarchy.

All dam operator plans incorporate two separate situation-driven scenarios to guide the immediate notification of response agencies.

1. The "Potentially Hazardous Situation is Developing" scenario is a "heads-up" notification that an impact event could occur and that downstream entities should increase awareness and preparation levels for a potential failure or other dangerous situation. If acted upon immediately, this scenario could allow additional time for responders to implement

planned response activities. Given that most past dam failure occurrences were the result of escalating events such as high water or physical dam issues, this scenario is most likely to be used. Notification is first provided to the entities nearest the dam. It would be followed-up by the second notification scenario should the dam be expected to fail or actually fails.

2. The "Failure is Imminent or Has Occurred" scenario is notification of an actual catastrophic dam failure event. Notification is first provided to the entities nearest the dam.

RESPONSE OPERATIONS

The RESPONSE OPERATIONS section should be immediately consulted at the onset of a dam failure flooding event.

5 CONCEPT OF OPERATIONS

5.1 Emergency Response Objectives

- Notify first responders and residents of the impending dam failure and flood conditions
- Assist in mobilizing community resources to respond to the flood conditions and impacts
- Evacuate individuals from threatened areas as needed
- Initiate rescue operations and mobilize resources
- Establish perimeter control and limit non-resident access to the area
- Provide appropriate security to evacuated areas
- Limit damage to property through salvage and security
- Integrate fire, law enforcement, and emergency medical services to optimize performance under flood conditions
- Expedite the restoration of normal functions in the areas subject to inundation from flooding

5.2 Emergency – Contingency Plan Activation

This Dam Failure Contingency Plan will be activated by the Director of Emergency Services (Humboldt County Sheriff) or the Director's designated representative when notice of a possible or confirmed dam failure has been received and verified over official channels (see Section 2.2). The Director may also officially declare a local emergency at the time of Plan activation.

The Joint Information Center (JIC) Plan shall also be implemented to coordinate public outreach activities during the dam failure response. Other plans may also be implemented as needed during high water events.

All emergency actions in response to dam failure effects will be in accordance with those procedures established in the Humboldt County Emergency Operations Plan.

5.3 “Time-Minus” Concept Implementation

Cooperating response agencies should implement the “Time-Minus” concept to ensure prioritized, critical field operations are conducted at time intervals which allow for their completion. The “T-Minus” times can be used in conjunction with a practical checklist for what to accomplish when. Overall Command-level response operations “T-minus” benchmarks will be coordinated through the County Emergency Operations Center (EOC).

The below is a simple example of a “T-minus” implementation for a dam failure event:

T-zero:	Projected time of initial wave arrival at specific locations
T-30 min:	All responder personnel leave inundation zones
T-1 hour:	All identified roads closed
T-x hours:	Dam Failure Warning Bulletin issued with periodic updates

The implementation of the T-Minus concept is dependent on how distant is the source of the dam failure and must be adjusted for each watercourse location. Since the wave leading edge travel times at various points along each watercourse are known with some certainty, it is possible to establish the likely wave impact times for identified locations. The closer the source of a dam failure event, the more T-Minus tasks which will require immediate implementation.

The Time-Zero mark is the arrival of the initial water surge or leading edge at a specific location. The water surge level increases at a slower rate until the maximum flood level is reached. That time difference between leading edge and maximum flood could be several hours at farther downstream locations. Therefore, there will likely be more time available than is implied by the Time Zero announcement for responders to assist evacuation and warning activities at those higher elevations near the river before they become inundated.

5.4 Projected Leading Edge Arrival / Maximum Flood Times

The arrival time of the leading edge of the flood wave can be predicted based on mathematical calculations and computer modeling. The times listed below are based on a “worst-case scenario” event (refer to Inundation and Affected Areas, Section 3.2), and should be used as approximations. Other factors can influence the exact wave arrival time at any location. The time of maximum flooding will follow the initial wave arrival and varies by location. The farther from the dam, the longer the time interval between the initial wave and maximum flood. The applicable dam operator Supporting Plan should be referenced for more accurate information.

*****NOTE: It is extremely important that accurate leading edge location and time information be ascertained during the event response. Real-time**

leading edge locations can be compared to modeled projections to provide accurate initial impact information to responders and to the public.***

*****SEE APPROPRIATE ANNEX FOR SPECIFIC RIVER TIMES.*****

5.5 Observation Points

Observation points will be established for real-time reports of flooding impacts to those viewable areas. It is critical that observers are in place and reporting when the initial leading edge arrives. Personnel assigned to observation locations must have direct communications capabilities with the EOC and with any established Incident Command Post(s). Required reports include any observable flooding actions (or lack thereof) and damage reports (especially infrastructure such as roads and bridges). Any reports of observed human life-threatening situations take priority. Observers will send video of changing conditions to the EOC. Credentialed media personnel are permitted access to any restricted observation point locations.

Additional observation points may be established as needed, in locations deemed safe from potential flooding impacts..

*****SEE APPROPRIATE ANNEX FOR SPECIFIC RIVER POINTS.*****

5.6 Agency Responsibilities During Dam Failure Operations

*****NOTE: Specific agency warning area notification/evacuation traffic control assignments are listed in the appropriate Annex Section 7.3.*****

Many agencies with operational responsibilities within the Humboldt Operational Area have specific duties to perform during a dam failure event. This section provides a listing of those duties in bullet format. The listings are organized into sections for Humboldt County Departments, local government fire, law, and emergency medical entities, other local government entities, non-governmental organizations, state entities, and federal entities.

*****Note: The scope of responsibilities in this emergent event may well be beyond the immediate capability of many agencies given their limited personnel and resources. All agencies should consider implementing mutual aid compacts very early in the response process.*****

See the Humboldt County Emergency Operations Plan for expanded responsibilities.

5.6.1 Humboldt County Departments

Sheriff's Office

- Alert and evacuate people in the areas subject to inundation
- Assist various agencies in search and light rescue
- Maintain law and order in evacuated areas
- Provide security for facilities and resources
- Coordinate traffic control with the California Highway Patrol

- Collect information and report it to the EOC

Office of Emergency Services

- Activate the Emergency Operations Center to the level necessary
- Coordinate and support the operations of the Emergency Operations Center
- Maintain liaison with:
 - National Weather Service Office Eureka
 - Department of Water Resources/Flood Center
 - California Office of Emergency Services, Coastal Region
 - City and community EOCs
 - All responding agencies and organizations
- Request and coordinate mutual aid
- Issue advisory and alerting information to the public, in coordination with the JIC, and to OES Deputy Coordinators in cities and communities
- Prepare emergency proclamation as directed
- Prepare situation reports

Coroner

- Perform body recovery operations
- Establish morgue operations as needed
- Process personal belongings
- Coordinate with appropriate agencies
- Collect information and report it to the EOC

Public Works

- Maintain and/or restore County roads
- Coordinate with the California Department of Transportation (Caltrans) for the maintenance of state highways
- Clear debris
- Coordinate rapid damage assessment of public roads and facilities
- Maintain public facilities
- Provide technical supervision over emergency construction
- Provide transportation for personnel and materials to assist flood-fight operations
- Provide damage estimates for County facilities
- Assist in heavy rescue
- Maintain an inventory of facilities and equipment at airports throughout the County
- Plan for aerial reconnaissance and resupply in support of emergency operations
- Support air operations in the field as needed, included allocation of equipment and facilities at airports and other locations
- Coordinate with the Roads department and the Sheriff's Office the use of highways and roads as emergency landing strips for rotary wing and light fixed wing aircraft
- Collect information and report it to the EOC

Department of Health and Human Services

Public Health

- Maintain an inventory of health and medical resources; plan for their emergency allocation
- Determine public health hazards

- Mitigate public health hazards
- Provide technical guidance and supervise activities to control public health hazards
- Coordinate medical treatment for sick and injured persons
- Coordinate with care and shelter agencies on health and medical support in mass care facilities
- Manage the identification and disposition of the deceased in coordination with the Coroner
- Collect information and report it to the EOC
- Issue Public Health related information to the public, in coordination with the JIC

Environmental Health

- Determine operational condition of public water and sewer systems
- Dispatch teams to survey potable water systems and determine status of potable water
- Dispatch teams to survey sewage and wastewater treatment systems
- Ensure both water and sanitation systems are continually monitored
- Develop a transportation and distribution strategy for potable water
- Coordinate the disposition of dead livestock with the communities and the Agricultural Commissioner
- Collect information and report it to the EOC

Social Services

- Coordinate mass care facilities in communities subject to inundation, in coordination with the American Red Cross and Voluntary Organizations Active in Disaster (VOAD)
- Supervise the operations of mass care facilities throughout the County in conjunction with the American Red Cross
- Assist agencies with inquiries and registration services to reunite families and friends
- Assist displaced persons in finding temporary housing
- Provide public assistance as eligible and referrals to other resources as appropriate
- Collect information and report it to the EOC
- Coordinate Critical Incident Stress Management support and counseling services for the public and first responders with Mental Health

Mental Health

- Identify and assess levels of mental health care needed
- Assess status of Mental Health facilities
- Inspect and assess the status of medications and other consumables for availability and usability
- Plan and coordinate deployment of clinical and support staff to establish sites as needed
- Collect information and report it to the EOC

Agricultural Commissioner

- Initiate request for Secretarial Disaster Designation for agricultural losses
- Establish a food inventory survey with emphasis on isolated areas and those subject to isolation and coordinate procurement and distribution of livestock feed with the California Department of Food and Agriculture
- Initiate emergency procurement of food and its delivery to isolated areas
- Allocate and distribute USDA donated food to mass care centers
- Estimate damage to livestock and other agricultural resources
- Prevent and/or control outbreak of plant or animal diseases
- Collect information and report it to the EOC

5.6.2

Local Government Fire, Law, EMS

Fire Agencies

- Coordinate search and rescue operations with the Sheriff's Office and among the various fire agencies in the County
- Coordinate fire suppression with particular emphasis in evacuated areas
- Coordinate emergency first aid and triage in the field as needed
- Assist with protection of property
- Collect information and report it to the EOC

Law Enforcement Agencies

- Assist in alerting and evacuating people
- Direct people to mass care centers when necessary
- Assist with flood-related traffic control
- Assist with evacuation operations
- Maintain law and order during evacuation operations and in evacuated areas
- Provide security for facilities and resources
- Collect information and report it to the EOC

Emergency Medical Services

- Provide first aid and field treatment as needed
- Provide transportation of injured persons to the hospital
- Collect information and report it to the EOC

5.6.3

Other Non-Governmental Organizations

HAM Radio Operators

- Facilitate information flow between locations within the OA and the EOC
- Collect information and report it to the EOC

Office of Emergency Services Deputy Coordinators

- Provide warning information to rural communities
- Provide response and recovery services to rural communities
- Act as contact point between Humboldt County OES and his or her community
- Collect information and report it to the EOC

5.6.4

State Government Entities

California Conservation Corps

- Provide evacuation assistance
- Provide debris removal
- Collect information and report it to the EOC

California Department of Forestry and Fire Protection

- Provide operational and logistical support as requested and where needed
- Coordinate and assist local agency emergency response through the Fortuna Interagency Command Center
- Provide ground based support with personnel and equipment as requested and where needed (fire engines, heavy equipment, CDCR fire crews, support vehicles).
- Provide aerial support as requested where needed (fixed and rotor wing, air rescue).
- Provide staff to support operational and logistical structure as requested and where needed (Command and General Staff positions).

California Department of Transportation (Caltrans)

- Respond to specific incidents
- Deploy road advisory signs and road closed signs
- Deploy barricades
- Remove or repair blocked sections of the highway
- Assist the California Highway Patrol in traffic control
- Coordinate local road damage estimates
- Collect information and report it to the EOC

California Department of Water Resources (DWR)

- Support local emergency response
- Activate State-Federal Flood Operations Centers in Sacramento and/or Eureka to monitor/evaluate flood event and provide centralized source of information and technical expertise regarding flood conditions and forecasts
- In cooperation with NWS and USGS, operate and maintain precipitation and river gaging stations to provide real-time information to support river forecasts and emergency response agencies
- Ensure public access to water and flood-related information through the maintenance of the CDEC website
- As part of a joint State-Federal river forecasting program with the CNRFC – produce, analyze, and issue joint river forecasts and guidance documents
- As part of a joint State-Federal warning program with the NWS – disseminate weather and hydrologic advisories, warnings, and other high water notification products
- Maintain and manage stockpile of flood fight materials for use by local agencies by request
- Request U. S. Army Corps of Engineers flood assistance on behalf of local agencies under Public Law 84-99 when the emergency exceeds the resources of both the local agency and the State

California Office of Emergency Services (Cal OES)

- Coordinate mission tasking, resource, and emergency management mutual aid requests from Operational Area
- Process emergency proclamation documents, damage assessment reports, and assist with state and federal disaster declarations
- Coordinate state and/or federal recovery activities if state and/or federal assistance is made available

California Highway Patrol

- Provide primary responsibility for traffic supervision and control on all state highways in unincorporated areas of the state
- Assist in moving vehicles and pedestrians from hazard areas
- Assist local law enforcement agencies in establishing evacuation routes and traffic control procedures
- Assist in preventing traffic from reentering hazard areas
- Provide traffic control in and around evacuation areas and mass care shelters
- Collect information and report it to the EOC

5.6.5

Federal Government Entities

United States Army Corps of Engineers

- Support immediate emergency response priorities
- Sustain lives with critical commodities, temporary emergency power and other needs
- Initiate recovery efforts by assessing and restoring critical infrastructure
- Provide technical assistance, supplies, and equipment
- Flood fight and rescue operations
- Emergency repair and restoration of flood control works
- Post-flood response
- Collect information and report it to the EOC

United States Coast Guard

- Assist in search and rescue
- Alert water traffic outside and near Humboldt Bar
- Collect information and report it to the EOC

National Weather Service Office Eureka

- Issue and disseminate weather forecasts, hydrologic warning, and statements
- In conjugation with the California-Nevada River Forecast Center, analyze and issue river forecasts and guidance products
- Ensure public access to weather and flood-related information through the maintenance of the NWS Eureka website and Facebook
- In collaboration with the Eureka Flood Center, provide centralized source of information and technical expertise regarding flood conditions and forecasts
- Maintain liaison with other involved city, tribal, and community agencies or organizations
- Provide weather forecasts and hydrologic information to the EOC

United States NWS California-Nevada River Forecast Center

- As part of a joint State-Federal river forecasting program with the CA DWR – produce, analyze, and issue joint river forecasts and guidance products
- In conjunction with the NWS office in Eureka, analyze and issue river forecasts and guidance products
- Ensure public access to water and flood-related information through the maintenance of their website

5.7 Multi-Agency Aircraft Operations

All aircraft operations occurring during a dam failure event will be coordinated between the agencies operating the aircraft. The primary role of any agency's air asset is to locate and warn people of the impending danger and to provide real-time status reports to the EOC and emergency responders. Agencies with aircraft immediately available in the Operational Area are the United States Coast Guard, the California Highway Patrol, and the California Department of Forestry & Fire Protection. These agencies will follow a pre-arranged asset allocation, altitude guidance, and communications plan. Any additional air assets from other agencies coming into the OA will immediately follow the same plan.

Multiagency logistical or administrative support requests should be made by the Air Operations Unit to the Cal OES State Operations Center (SOC). The SOC maintains the capability to activate Cal OES's Air Coordination Group (ACG). The emergency aviation liaisons that make-up the ACG can be activated at the scale necessary to support field operations.

5.7.1 Controlled Air Space

A previously approved Multiagency Air Operations Plan will be activated upon the request and concurrence of the agencies involved. If needed, the Cal Fire Fortuna Interagency Command Center will notify the Federal Aviation Administration (FAA) and establish a Temporary Flight Restriction (TFR) surrounding the area. The Cal Fire Fortuna Interagency Command Center will also file a Notice to Airmen (NOTAM) through the FAA warning all pilots about the heavy air traffic which will be operating in the area and request them to stay clear.

There are two Class E airfields with light commercial traffic operating within Humboldt and Del Norte Counties. A TFR may not be able to restrict those aircraft. The "See and Avoid" doctrine will be in effect at all times. The FAA may also assist field commanders with the assembly and distribution of airspace deconfliction plans to avoid mutual interference. The FAA will advise of any conflicts with published civil or military airspace procedures.

5.7.2

Air Space Coordinator

To direct response, civilian, and media air traffic, when available (see note below), the Fortuna Interagency Command Center will dispatch an Air Tactical Group Supervisor (ATGS) in a Cal Fire aircraft to circle in the vicinity of the incident at a minimum of 2,500 feet AGL (Above Ground Level). The ATGS's call sign will be "Air Attack", or as assigned, and will monitor both Tactical (Air-to-Air) and Command (Air-to-Ground) frequencies. Aircraft arriving to assist in the multi-agency effort will check-in with "**Air Attack**" 12 miles from the control area and must receive clearance prior to 7 miles from the control area to enter. Altitudes, airspeed restrictions, current barometric pressure in use by all aircraft, and an advisory of other traffic in the area will be issued to the arriving aircraft.

Depending on other operational priorities, Cal Fire may not have available aircraft, or personnel to serve as Air Space Coordinator. In these instances, CHP may provide a Cessna 206 aircraft hangared at Benton Field in Redding, to fill this role (40 minute ETA). The call sign for this aircraft will be identified upon confirmation of dispatch and relayed to all responding aircraft dispatch centers by the Fortuna Interagency Command Center, with the most qualified available personnel from a partner response agency assigned as Air Space Coordinator.

5.7.3

Aircraft Radio Communications Frequencies

The Fortuna Interagency Command Center (call sign "**Fortuna**") will serve as the air coordinator until the ATGS arrives on scene. Prior to launch, all air assets will contact the Fortuna Interagency Command Center via land-line to receive patrol tasking and to provide aircraft identifiers.

Aircraft will maintain inter-aircraft communications and will self-announce on the Air-to-Air frequency listed below as needed. The Air-to-Air frequency will also be used to maintain communications with "**Air Attack.**"

Air-to-Air (Tactical):	122.925 VHF
Air/Ground-to-Ground (Command):	151.220 VHF

If the Air Operations Unit requests support from Cal OES's ACG, a communications plan outlining aviation frequencies used for the incident will need to be submitted to the ACG.

5.7.4

Altitude Assignments

Multiagency aircraft patrolling the coast in a defined control area will fly at the following assigned altitudes (AGL is "Above Ground Level"). The Air Tactical Group Supervisor will assign the altimeter setting to use at aircraft

check-in upon arrival to the control area. These altitudes must be identified in the airspace deconfliction plan submitted to the FAA and to the ACG if so activated.

Air Attack:

Orbits in vicinity of incident at 2,500 feet AGL and above to coordinate aviation air operations.

Rotor Wing Aircraft:

500 feet AGL and below

All general flight rules will apply – see and avoid. Flight course rules by the FAA will be established by TFR.

5.7.5 Fuel Availability Locations

Jet aircraft fuel is available at the following locations:

JP-8 Fuel					
<u>ID</u>	<u>Name</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Distance to Mouth of Mad River (NM)</u>	<u>Distance to Matthews Dam (NM)</u>
KACV	USCG Sector Humboldt Bay	N40° 58.6	W124° 06.5	1	48
	***USCG Point Arena Fuel Farm	N38° 57.5	W123° 44.4	123	87
Jet A Fuel					
O19	Cal Fire Kneeland Helitack Base	N40° 42.1	W123° 55.6	17	31
KFOT	Cal Fire Rohnerville Air Attack Base	N40° 33.2	W124° 08.0	24	34
KACV	Arcata Airport	N40° 58.6	W124° 06.5	1	48
O85	Benton Airpark	N40° 34.4	W122° 24.4	82	49
KRDD	Redding Airport	N40° 30.5	W122° 17.6	88	53
KRBL	Red Bluff Airport	N40° 09.0	W122° 15.1	98	56
O46	Weed Airport	N41° 28.8	W122° 27.3	82	80
KCIC	Chico Airport	N39° 47.7	W121° 51.5	125	80
	***Cal Fire Howard Forest Helitack Base	N39° 20.8	W123° 19.0	100	82
KCEC	Crescent City Airport	N41° 46.8	W124° 14.2	50	92
KSIY	Siskiyou Airport	N41° 46.9	W122° 28.1	90	95
KBOK	Brookings Airport	N42° 04.4	W124° 17.4	68	109
Note: ***rotary-wing only					

5.8 **Radio Communications Shared Channels**

Cal OES has licensed the following VHF High Band voice radio channels for use by public safety agencies in California. The listed "VTAC" channels are also authorized for use by the U. S. Department of Homeland Security. The available channels are meant for use during emergent events - they are not for everyday use. The appropriate below listed channels should be installed in all public safety radios to be available for use as needed.

As noted in Section 5.7.3 (Aircraft Radio Communications Frequencies), if the AOBD requests support from Cal OES's ACG, a communication plan including the aviation frequencies will also need to be submitted to the ACG.

DISPLAY	PURPOSE	RX FREQUENCY
CALAW1	California LE Mutual-Aid	154.92000 N
CALAW2	California LE Mutual-Aid	154.93500 N
VLAW31	National LE Mutual-Aid	155.47500 N
CALCORD	California On-Scene Coordination	156.07500 N
VFIRE21	California Fire Mutual-Aid	154.28000 N
VFIRE22	California Fire Mutual-Aid	154.26500 N
VFIRE23	California Fire Mutual-Aid	154.29500 N
VMED28	EMS-Medical Interoperability	155.34000 N
SAR	National SAR Common Channel	155.16000 N
VCALL10	Any Public Safety Interoperability	155.75250 N
VTAC11	Any Public Safety Interoperability	151.13750 N
VTAC12	Any Public Safety Interoperability	154.45250 N
VTAC13	Any Public Safety Interoperability	158.73750 N
VTAC14	Any Public Safety Interoperability	159.47250 N

N = Narrow Band

6 NOTIFICATION PROCEDURES

Dam operators are responsible for sounding the initial alarm in case of potential breach. The language used in the plans of each dam operator for describing the current and/or projected situation is not standardized. However, they are similar and can be classified into two general categories: (1) a potentially hazardous condition is developing, and; (2) dam failure is imminent or has occurred. The first category includes situations which, if they worsened, could result in dam failure.

Since any potential dam failure affecting Humboldt County originates in another county, the Humboldt County Office of Emergency Services (OES) will maintain contact with the OES in the applicable adjacent county to coordinate notification and response actions. (Refer to other county OES contacts listed in Section 14.)

Should the Director of Emergency Services (Sheriff) order the implementation of dam failure notification procedures, Operational Area (OA) response agencies will coordinate their operations through the Humboldt County EOC. All public outreach activities by area response agencies shall be coordinated through the Joint Information Center (JIC).

Emergency response agencies will use all means available to notify the public within and adjacent to their jurisdictions. Notification methods include activation of the Emergency Alert System, NOAA Weather Radio, public mass notification systems, social media, and using surface, air, and water assets to visually alert and to sound both verbal and noise alarms (see Section 4.4). There are no areas of Humboldt County which are currently covered by a fixed siren warning system for a dam failure event.

6.1 Message Verification

Care must be taken to ensure the authenticity of a dam failure event message, as the implementation of local area dam failure response actions will immediately affect many agencies and a large portion of the area population. Initial notification messages received through secure channels shall be acted upon immediately. Any messages received through non-secure channels such as the telephone shall be verified prior to taking action.

Dam operator contact information for individual sites is provided in Section 14.

6.2 Dam Failure Emergency Contact Procedure

Upon receipt of an official possible or confirmed dam failure notice, Sheriff's Dispatch will immediately notify the Director of Emergency Services (Sheriff) or the Director's designated representative and the Emergency Services Manager. Sheriff's Dispatch will implement its Warning Point responsibilities and notify other

local area agencies listed in this Plan's Emergency Contact List. Upon activation, the EOC will follow established notification protocols to staff Command, Operations, Planning, Logistics, and Finance Sections.

6.3 Warning Areas and Agency Responsibilities

Under this Plan, all agencies have assigned warning notification areas and evacuation traffic control assignments (see appropriate Annex Section 7.3). Public emergency response agencies with responsibilities adjacent to the applicable river watercourse will share and coordinate notification and evacuation to ensure the safety of the public.

*****SEE APPROPRIATE ANNEX FOR SPECIFIC AGENCY RESPONSIBILITIES.*****

ANNEX A: Mad River (Matthews Dam)

ANNEX B: Trinity River (Lewiston and Trinity Dams)

ANNEX C: Eel River (Scott Dam)

ANNEX D: Klamath River (Copco and Iron Gate Dams)

6.4 Public Notification Procedure

The EOC will coordinate the activation of the Emergency Alert System (EAS) and other emergency notification systems for those areas downstream of the affected dam and coordinate those announcements with the National Weather Service Eureka Forecast Office. Information promulgated shall, if possible, include amplifying information such as leading edge arrival time and minimum evacuation instructions. Subsequent notifications will include updated information as it becomes available. Additional public notification pathways will be accessed (see Section 4.3). Other agency-specific alerting and warning procedures including loudspeaker announcements via emergency vehicle and low-flying aircraft will be implemented. The Joint Information Center (JIC) will be activated to support area response entity public outreach efforts.

While it is imperative that individual response entities immediately notify the public of the impending emergency and implement evacuation activities, the public messaging content must be coordinated through the JIC to ensure consistency and accuracy. Refer to Section 13 for sample press releases.

7 EVACUATION PROCEDURES

Should the Sheriff order evacuation of projected inundation areas, all Operational Area (OA) response agencies will coordinate their evacuation operations through the Humboldt County Emergency Operations Center (EOC). The applicable Dam Failure Supporting Plan listed in Section 2.4 shall be referenced for all response evolutions. All areas to be evacuated shall be based on a "worst-case scenario" event (refer to Inundation and Affected Areas, Section 3.2). All operations shall be in accordance with those procedures established in the Humboldt County Emergency Operations Plan (EOP).

7.1 Agency Communications

Radio

Specific frequencies will be designated for multiagency command and tactical usage, and documented in the EOC Communications Plan for distribution to all responding agencies. See Section 5.8 for a specific available interoperable frequencies listing.

Phone

Interagency landline, cell, and satellite phone numbers will be designated for use between responding agencies and the Humboldt County EOC, and provided to all responding agencies.

Internet / Email

Email address lists and online operational document sharing links will be shared among participating entities as needed during the event.

7.2 Agency Traffic Control Responsibilities

Designated federal, state, and local agencies will assume responsibility for establishing and manning roadblocks at selected traffic control points along the affected river watercourse. Each agency will ensure contingency plans are in effect and personnel are trained for their roadblock assignments. Coordination of those agencies' emergency response actions will be through the Humboldt County EOC.

Roadblocks are not to stop traffic until one hour prior to the projected estimated time of arrival (ETA) of the water surge leading edge at each location. Some major roadblocks may require the presence of uniformed law enforcement officers.

Each agency will ensure that personnel manning roadblocks understand that no entry by anyone is to be made into the flooded area until after the water begins to recede at that specific location AND after a law enforcement or fire official has granted public access for that location.

*****NOTE: All emergency response agency personnel participating in ground notification efforts shall leave all evacuation areas 30 minutes prior to the ETA of the projected initial wave arrival time for the specific location.*****

7.3 Warning Areas Notification/Evacuation Traffic Control Assignments

The following agency warning notification areas and evacuation traffic control assignments are listed by the applicable dam and river watercourse.

*****SEE APPROPRIATE ANNEX FOR SPECIFIC AGENCY ASSIGNMENTS.*****

ANNEX A: Mad River (Matthews Dam)

ANNEX B: Trinity River (Lewiston and Trinity Dams)

ANNEX C: Eel River (Scott Dam)

ANNEX D: Klamath River (Copco and Iron Gate Dams)

8 SEARCH AND RESCUE PROCEDURES

All search and rescue operations shall be in accordance with the standard operating procedures of the agency involved. All search and rescue operations shall be coordinated with the Humboldt County EOC to ensure any required additional resource assignments are prioritized and based on need.

9 INITIAL RECONNAISSANCE/ASSESSMENT PROCEDURES

Until access is available after the inundation waters begin to recede, initial reconnaissance/assessment operations will be via airborne assets and reports from safe locations such as Observation Points. All initial reconnaissance/assessment operations shall be conducted by the agency responsible for field notifications for that area. Initial reconnaissance/assessment results shall be immediately communicated to the Humboldt County Emergency Operations Center for accounting and for response prioritization planning.

10 POST-DAM FAILURE EVENT ACTIONS

After confirmation of the peak wave height occurrence/receding flooding, and, during the "Restricted Access" phase of response operations, emergency management operations will begin transition from the Response Phase into the Recovery Phase. All Recovery Phase actions will be guided by the Humboldt County Emergency Operations Plan, Part 4.

Long-term recovery operations, including requests for state and federal recovery assistance and damage assessment reporting and validation, are coordinated with Cal OES Recovery.

SUPPLEMENTS

11 ACRONYMS

AGL	Above Ground Level
ATGS	Air Tactical Group Supervisor
CalFire/CDF	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CDEC	California Data Exchange Center
CHP	California Highway Patrol
CNRFC	California-Nevada River Forecast Center
DHHS	(Humboldt County) Department of Health and Human Services
DWR	(California) Department of Water Resources
EAS	Emergency Alert System
EOC	Emergency Operations Center
ETA	Estimated Time of Arrival
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
NOAA	National Oceanic and Atmospheric Administration
NOTAM	Notice to Airmen
NWS	National Weather Service
OA	Operational Area
OES	Office of Emergency Services
TFR	Temporary Flight Restriction
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VOAD	Voluntary Organizations Active in Disaster

12 PRESS RELEASE SAMPLES

NOTE: These are sample message notes that may be used in any order or modified to suit the specific situation for a public announcement. All announcements should be timely and updated as the situation changes.

- a. A dam failure has occurred at _____ Dam on the _____ River at _____ Pacific (Std./Daylight) Time. Extreme flooding is expected along the river watercourse. The anticipated times for the high water leading edge to arrive at various locations are as follows:

LOCATION	TIME OF DAY

As a result, the Sheriff has declared a Local Emergency and ordered the immediate evacuation of areas in and adjacent to the _____ River watercourse. Area law enforcement, fire, and other emergency response personnel are now contacting individuals in the areas potentially threatened by floodwaters.

The river water depth will rise over several hours before reaching a peak and then beginning to recede. The water crest could be higher than at any point in recorded history. All persons should seek high-ground well away from the river prior to the expected arrival of the floodwater leading edge.

Stay tuned to your Emergency Alert System station or the following news sources for further information and instructions, including _____.

- b. The NWS office in Eureka has issued a flood warning for the _____ River at (insert forecast point). If you live in the area of _____ (give boundaries) near the _____ River, you are advised to (take precautions to protect yourself and your property) (evacuate). Owners of livestock should take appropriate action to protect livestock from rising river levels.
- c. Please check on your neighbors to make sure they have received this flood warning. If you are physically unable to evacuate on your own, ask a neighbor to help or call _____.
- d. Be sure to take essential items: medicine, special foods, personal items, baby supplies, clothing, money, and valuable papers. Do not overload your car. Secure your home before you leave.

- e. Never drive through flooded roadways. Do not bypass or go around barricades.
- f. If you cannot stay with relatives or friends, temporary evacuation shelter(s) are being established at _____.
- g. Pets are not allowed in the shelter. The following facilities have been established to temporarily shelter pets: _____. If you cannot make arrangements for your large animals, (*give instructions*).
- h. The Humboldt County Sheriff/Board of Supervisors has declared a Local Emergency due to the flooding conditions that have occurred/are expected on _____.
- i. Stay tuned to your local radio stations or NOAA Weather Radio for current information.
- j. The _____ Road is closed and will remain closed for an undetermined period. (Always pair this note with the road information note below.)
- k. For information on County road conditions and closures, call _____. For information on all State highways, call 1-800-427-7623.
- l. **PREPAREDNESS/PROTECTIVE ACTION RECOMMENDATIONS:**
North Coast residents should consider taking the following preventive measures in case of future flooding.
- Prepare by collecting a supply of food, water, clothing, bedding, toiletries, and emergency equipment such as a flashlight, extra batteries, portable radio, and first aid kit. Collect any special needs such as diapers, baby food, formula, pet food, and drug prescriptions.
 - Individuals should make sure that storage facilities are filled and that backup emergency power is available when possible.
 - Farmers and ranchers should obtain animal feed and be prepared to move animals to higher ground in case of additional flooding.
 - If you are on high ground, stay inside and listen to local radio/TV for evacuation routes and instructions. If you need to evacuate, lock your windows and doors.
 - Watch out for washouts, fallen wires, fallen trees, etc. Do not cross flowing water (on foot or in a car).
 - Be prepared for flash floods, which can happen with little or no warning. Have a plan and act at once when authorities give you information.

- m. Ranchers with livestock losses should contact the Agriculture Department at _____ for proper disposal procedures. Ranchers who need assistance with stranded cattle or emergency feeding should contact _____ at the _____, at _____.
- n. All municipal water supplies in Humboldt County are safe/_____. The Public Health Department cautions residents in flood areas that may have contaminated wells or springs to cook with boiled water only. Discard any food which has been in contact with flood water. Wells that are flooded should be disinfected prior to use. Contact Environmental Health for assistance at _____.

13 DAM FAILURE CONTINGENCY PLAN ADOPTION

****To be added upon adoption of Plan by Board of Supervisors****

14 EMERGENCY CONTACT LIST

This contact list contains restricted information and is redacted from any public access copy of the Dam Failure Contingency Plan.

14.1 Dam Operator Initial Contacts

This telephone listing is a quick reference for pertinent dam operators. For expanded specific dam location contact information, refer to the applicable dam operator Emergency Action Plan.

Matthews (Mad River)	707-822-2918	Essex Control operator (24 hrs)
Lewiston/Trinity (Trinity River)	916-979-3002	Central Valley Control Center (24 hrs)
Scott (Eel River)	530-283-4990	Caribou Switching Center (24 hrs)
Copco/Iron Gate (Klamath River)	877-562-9928	Hydro Control Center (24 hrs)

14.2 Expanded Dam Failure Contact List

****Confidential contact list redacted from public plan****

ANNEXES

ANNEXES to be developed:

- B: Trinity River (Lewiston and Trinity Dams)
- C: Eel River (Scott Dam)
- D: Klamath River (Copco and Iron Gate Dams)

ANNEX A: Mad River (Matthews Dam)

A5.4 Mad River Projected Leading Edge Arrival / Maximum Flood Times

The arrival time of the leading edge of the flood wave can be predicted based on mathematical calculations and computer modeling. The times listed below are based on a "worst-case scenario" event (refer to Inundation and Affected Areas, Section 3.2), and should be used as approximations; other factors can influence the exact wave arrival time at any location. The time of maximum flooding will follow the initial wave arrival and varies by location; the farther from the dam, the longer the time interval between the initial wave and maximum flood. The EMERGENCY ACTION PLAN for the R. W. Matthews Dam (provided by the dam operator, the Humboldt Bay Municipal Water District) should be referenced for additional flood inundation information and used in conjunction with this response plan.

NOTE: It is extremely important that accurate leading edge location and time information be ascertained during the event response. Real-time leading edge locations can be compared to modeled projections to provide accurate initial impact information to responders and to the public.

Leading Edge Time (hr, min)	Peak Flow Time (hr, min)	Distance From Dam (miles)	Location Notes
0, 00		0	Dam – Observation Point 1 (OP1)
0, 20	0, 45	3.41	
0, 25	0, 55	4.74	
0, 30	1, 05	6.14	
0, 40	1, 20	7.82	near OP2
1, 05	1, 35	9.52	near OP2
1, 20	2, 15	13.17	near Nelson Flat; county line
1, 30	2, 45	17.20	
1, 40	3, 00	18.75	near Bear Creek
2, 10	3, 30	23.26	
2, 20	3, 40	25.00	near Olsen Crossing
2, 25	3, 50	27.27	
2, 35	3, 55	30.93	
2, 40	4, 00	32.00	
2, 55	4, 15	35.00	
3, 00	4, 30	36.50	near Big Bend
3, 05	4, 40	38.00	near OP3; Jack Shaw Road
3, 15	4, 50	40.00	
3, 40	5, 05	44.00	near upper end Butler Valley
3, 55	5, 20	46.59	near Maple Creek
4, 05	5, 30	48.10	near OP4; Butler Valley Road at bridge
4, 15	5, 45	50.00	near lower end Butler Valley
4, 40	6, 15	54.50	
4, 50	6, 25	56.00	
5, 00	6, 45	58.73	
5, 15	7, 15	63.57	near Fish Hatchery
5, 25	7, 20	64.01	near Fish Hatchery; Korbelt
5, 30	7, 35	65.24	near OP5; Blue Lake
5, 55	7, 50	66.71	
6, 10	9, 00	67.67	near Glendale
6, 35	10, 05	69.61	near Essex
6, 40	10, 10	70.15	near OP9; HWY 299 bridge
7, 05	11, 00	72.50	near OP6; OP8; HWY 101
7, 15	11, 15	73.07	near OP6
8, 00	15, 00	74.78	near OP7

A5.5 Mad River Observation Points

Observation points will be staffed for real-time reports of flooding impacts to those viewable areas. It is critical that observers are in place and functioning when the initial leading edge arrives and that the time of wave arrival information is immediately communicated to authorities. Personnel assigned to observation locations shall have direct communications capabilities with the OA Emergency Operations Center and with any applicable local Command Post. Required reports include any observable flooding actions (or lack thereof) and damage reports (especially infrastructure such as roads and bridges). Any reports of observed human life-threatening situations shall take priority. Observers will transmit video to the EOC to provide current situational information and validate projections. Credentialed media personnel are permitted access to any restricted observation point locations.

Trinity County response observation point activities are included in this section for reference and coordination, as individual responsibility areas for some upriver entities reach into both Humboldt and Trinity Counties.

Matthews Dam (Mad River)

The following observation points will be staffed and current information provided to the EOC (dam to downstream):

<u>Observation Point and Location</u>	<u>Responsible Agency</u>
OP1 Matthews Dam MP 0.00	Southern Trinity VFD
OP2 SR36 road closure near MP 7.82	Southern Trinity VFD
Don Straw's shop overlook MP 8.25	Southern Trinity VFD
Nelson Flat MP 13.17	Southern Trinity VFD
Bear Creek MP 18.00	Southern Trinity VFD
OP3 Jack Shaw Rd near MP 38	* see note 1
OP4 Butler Valley Rd near MP 48.1	* see note 1
OP5 Hwy 101 above Blue Lake	Blue Lake VFD
OP6 Central Ave above Hwy 101	* see note 2
OP7 Fischer Ave above Mad R. bottoms	* see note 2
OP8 Arlington Overhead on Hwy 101	City of Arcata
OP9 West End Road at Pipeline Road	City of Arcata

- Note 1: Unassigned (To Be Determined) – both OP3 and OP4 are critical information status locations, and observers will be assigned from any available agency (probably Kneeland VFD, Blue Lake VFD, HCPW, or HCSO)
- Note 2: Unassigned – both OP6 and OP7 are unassigned but will be used as needed by area agencies

A6.3 Mad River Warning Areas and Agency Responsibilities

Under this Plan, all agencies have assigned warning notification areas and evacuation traffic control assignments (see also Section 7.3). Public emergency

response agencies with adjacent responsibilities shall share and coordinate notification and evacuation duties to ensure all persons are protected.

Trinity County response entity warning and responsibility activities are included in this section for reference and coordination, as individual responsibility areas for some upriver entities reach into both Humboldt and Trinity Counties.

Responsible Agency

Warning Area

Arcata Fire Protection District

Assist law enforcement personnel to warn and evacuate City of Arcata and fire district residents; Personnel and equipment support for roadblocks on roadways (coordinate with Caltrans, CHP, County Public Works, and Sheriff)

Arcata Police Department

(Includes other City of Arcata departments and HSU PD) Personnel and equipment to warn and evacuate City of Arcata residents; Personnel and equipment support for roadblocks on city roadways (coordinate with HSU PD, Caltrans, CHP, and Sheriff); Personnel to staff Observation Points 8 and 9

City of Blue Lake

Assist law enforcement personnel to warn and evacuate city residents; Personnel and equipment support for roadblocks on city roadways (coordinate with Caltrans, CHP, County Public Works, and Sheriff)

Blue Lake Volunteer Fire Dept.

Assist law enforcement personnel to warn and evacuate City of Blue Lake and fire district residents; Personnel and equipment support for roadblocks on roadways (coordinate with Caltrans, CHP, County Public Works, and Sheriff); Personnel to staff Observation Point 5

Blue Lake Rancheria

Personnel and equipment support for Blue Lake trust lands (coordinate with Blue Lake Fire, City of Blue Lake, and Sheriff)

Caltrans

Personnel and materials support for roadblocks on state roadways (coordinate

	with Arcata Fire, APD, BLVFD, CHP, and Sheriff)
Cal Fire	Airborne surveillance of Mad River watercourse and airborne search and rescue activities (coordinate with CHP and USCG); Provide personnel and materials support to warn and evacuate residents
California Highway Patrol	Personnel and materials support for roadblocks on state roadways (coordinate with Arcata Fire, APD, Caltrans, and Sheriff); Airborne surveillance of Mad River watercourse and airborne search and rescue activities (coordinate with Cal Fire and USCG)
Fieldbrook Volunteer Fire Dept.	Provide personnel and materials support to Arcata Fire, Blue Lake Fire, CHP, and Sheriff to warn and evacuate residents.
HSU Police Dept.	see Arcata Police Department
Humboldt Bay Municipal Waster Dist.	Matthews Dam immediate downstream Trinity County and Humboldt County environs and all local, state, and federal agencies in the EAP Notification Flowchart
Humboldt County Public Works Dept.	Personnel and materials support for roadblocks (coordinate with Caltrans, Arcata Fire, Arcata PD and Public Works, and Blue Lake Public Works)
Humboldt County Sheriff's Office	Personnel and equipment to warn and evacuate residents in the City of Blue Lake and County unincorporated areas (coordinate with County Public Works, City of Blue Lake, Arcata Fire and PD, BLVFD, Blue Lake Rancheria, CHP, and Caltrans)
Kneeland Fire Protection District	Maple Creek and Lower Butler Valley (Response assignment is outside jurisdictional area and personnel may not

	be available – coordinate with BLVFD, County Public Works, and Sheriff)
National Weather Service	Emergency Alert System notifications (coordinate with Sheriff's OES); NOAA Weather Radio information
Southern Trinity Volunteer Fire Dept.	(Trinity County) – Provide Personnel and equipment to support warning and evacuation of residents downstream of Matthews Dam; Personnel to staff Observation Points in Trinity County; (coordinate with CHP, Trinity County OES, Van Duzen VFD)
U.S. Coast Guard	Air surveillance of Mad River watercourse and airborne search and rescue activities (coordinate with Cal Fire and CHP)
U.S. Forest Service	Provide personnel and materials support to warn and evacuate residents
Van Duzen Volunteer Fire Dept.	Assist law enforcement personnel to warn and evacuate residents downstream of Matthews Dam in Humboldt County (Bear Creek Road area); Personnel and materials support for roadblocks (coordinate with Southern Trinity VFD and Trinity County OES).

A7.3 Mad River Traffic Control Assignments

Under this Plan, all agencies have assigned traffic control assignments (see also Section 6.3). Public emergency response agencies in adjacent jurisdiction will share and coordinate traffic control duties.

Trinity County traffic control activities are included in this section for reference and coordination, as individual responsibility areas for some upriver entities reach into both Humboldt and Trinity Counties.

Matthews Dam (Mad River)

Arcata Police Department (includes other City of Arcata departments); Arcata Fire Protection District; HSU Police Department – Provide response vehicles and uniformed law enforcement and fire personnel to warn and/or evacuate all endangered persons to higher ground. The general warning notification and evacuation area includes the entire Mad River delta/Arcata Bottoms and watercourse from Essex (east) to the

ocean (west) to Humboldt Bay (south). Significant low-elevation portions of Arcata proper are included in the warning and evacuation area. Coordinate with the Sheriff for the Mad River delta/Arcata Bottoms area and watercourse and north Humboldt Bay area and with the CHP for the Hwy 101 and 299 areas. Place signs and barricades and establish and man roadblocks at the following locations:

<u>Control Point</u>	<u>Stop Traffic</u>
West End Rd at Ericson Way	Eastbound
West End Rd at Spear Ave roundabout	to Aldergrove area
Alliance Rd at Spear Ave	to Valley West area
Alliance Rd at Foster Ave	to Westwood area

Blue Lake Volunteer Fire Department (includes other City of Blue Lake departments) – Provide response vehicles and fire personnel to warn and/or evacuate all endangered persons to higher ground. The general warning notification and evacuation area includes the entire Mad River watercourse from the Fish Hatchery and Korbel (east) to Glendale and Essex (west). Significant low-elevation portions of Blue Lake proper in the warning and evacuation area – generally, it includes all areas to the west of Glenwood Ave. and southwest of First Ave. Coordinate with CHP for Hwy 101 area and Sheriff for areas in and adjacent to the watercourse. Place signs and barricades and establish and man roadblocks at the following locations:

<u>Control Point</u>	<u>Stop Traffic</u>
Blue Lake Blvd at Chartin Rd (roundabout)	Eastbound Blue Lake Blvd
Roundabout	Southbound Chartin
Blue Lake Blvd at Railroad Ave and Maple Creek Rd (tri-intersection)	Southbound Blue Lake Blvd and Maple Creek Rd

Blue Lake Rancheria – provide personnel to warn and/or evacuate all endangered persons to higher ground within the general area of the Rancheria. Place signs and barricades and establish and man roadblocks at the following locations:

<u>Control Point</u>	<u>Stop Traffic</u>
Rancheria Rd at Chartin Rd	Westbound Rancheria
Chartin Rd (east/west) at Casino Way	Westbound Chartin
Chartin Rd (south) at Chartin Rd (east/west)	Southbound Chartin

Chartin Rd at South Railroad Ave

Southbound Railroad

California Dept. of Transportation (Caltrans) – provide personnel to place signs (including activation of fixed and portable electronic warning notice signs) and barricades and to establish and man roadblocks at the following locations:

Control Point

Stop Traffic

Hwy 299 at Blue Lake On-ramp

Westbound 299

Hwy 299 at Glendale Dr

Westbound 299 & Glendale

Hwy 299 at Glendale Dr

Eastbound Glendale
Westbound 299

Hwy 299 at Essex

Eastbound 299

Hwy 299 at North Bank Rd

Westbound 299
Eastbound 299
Westbound North Bank

Hwy 101 at North Bank Rd

Southbound 101
Eastbound North Bank
Westbound Silva

Hwy 101 at School Rd

Southbound

Hwy 101 at Central Ave Interchange

Southbound

Hwy 101 at Sunset Ave

Northbound

Hwy 101 at Samoa Blvd

Southbound

Hwy 255 at Pacheco Ln

Westbound 255
Northbound Pacheco

Hwy 255 at Peninsula Dr (Manila)

Eastbound 255

Provide/position one piece of heavy equipment (front end loader, backhoe, etc.) with crew at each of the following locations to be available to remove obstacles from evacuation routes:

Hwy 101 at North Bank Rd

Hwy 101 at Hwy 299

California Dept. of Forestry (Cal Fire) – Provide available aircraft to patrol the Mad River watercourse and to advise persons in danger zones via loud haler to seek higher ground. Coordinate airborne operations with CHP and USCG. Provide response vehicles and uniformed personnel to assist allied agencies with warning notification and evacuation responsibilities.

Cal Fire normally has significant field resources available which can be accessed via mutual aid systems. Available Cal Fire personnel and equipment will be assigned to various field response locations as needed to support the evacuation function and follow-up activities.

California Highway Patrol – Provide aircraft to patrol the Mad River watercourse and to advise persons in danger zones via loud haler to seek higher ground. Coordinate airborne operations with Cal Fire and USCG. Provide response vehicles and uniformed law enforcement personnel to establish and man roadblocks at the following locations:

<u>Control Point</u>	<u>Stop Traffic</u>
Hwy 299 at Blue Lake	Westbound 299
Hwy 299 at Essex	Eastbound 299
Hwy 299 at North Bank Rd	Westbound 299
Hwy 101 at School Rd	Southbound 299
Hwy 101 at Central Ave Interchange	Southbound 299
Hwy 101 at Sunset Ave	Northbound 299
Hwy 101 at Samoa Blvd	Southbound 299

Fieldbrook Volunteer Fire Dept. – Assist Arcata Fire, Blue Lake Fire, CHP, and Sheriff in the lower Fieldbrook Road, Glendale, and areas on the north side of the Mad River.

HSU Police Dept. – Assist Arcata Police Dept.

Humboldt Bay Municipal Water District – Immediately notify all downstream Trinity County and Humboldt County environs and all appropriate agencies in the EAP Notification Flowchart regarding the Matthews Dam status. Coordinate with Observation Point teams, continually monitor location of flood leading edge, compare actual observations to projections, and communicate differences to EOC.

Humboldt County Public Works Dept. – provide personnel to place signs and barricades and to establish and man roadblocks at the following locations:

Control Point

Stop Traffic

Fieldbrook Rd at Glendale Dr	Eastbound Glendale Westbound Glendale
Anderson Rd at Stapp Rd	Southbound Anderson Westbound Stapp
School Rd at Fisher Rd	Southbound Fisher
Hatchery Rd at West End Rd	Northbound Hatchery Westbound West End
West End Rd at Leggit Creek	Eastbound West End
Lanphere Rd at Mad River Rd	Northbound Mad River
Lanphere Rd at Seidel Rd	Northbound Seidel Westbound Lanphere
Foster Avenue at Polaris Ln	Westbound Foster Southbound Polaris
Bay School Rd at Polaris Ln	Westbound Bay School Northbound Polaris
Vassaide Rd at Pacheco Ln	Westbound Vassaide Southbound Pacheco
Old Samoa Rd at Pacheco Ln	Westbound Old Samoa Northbound Pacheco
Butler Valley Rd both sides of river	Eastbound and Westbound

Provide/position one piece of heavy equipment (front end loader, backhoe, etc.) with crew at each of the following locations to be available to remove obstacles from evacuation routes:

Bay School Rd at Moxon Ln
Lanphere Rd at Mad River Rd
Hwy 299 at Blue Lake On-ramp

Humboldt County Sheriff's Office – provide response vehicles and uniformed law enforcement personnel to warn and/or evacuate all endangered persons to higher ground. The general evacuation area is along the Mad River watercourse from the Trinity County line to the Pacific Ocean. There are specific locations along that route which are

within the jurisdictions of other government entities. Prior coordination with all those governmental entities is needed to ensure full geographic coverage.

Kneeland Fire Protection District – Provide available response vehicles and uniformed fire personnel to warn and/or evacuate all endangered persons in the Butler Valley area and along the river watercourse to higher ground. Coordinate with County PW to ensure placement of signs and barricades at the following locations:

Control Point

Butler Valley Rd both sides of river

Stop Traffic

Eastbound and Westbound

National Weather Service – ensure Emergency Alert System is activated and appropriate messages are transmitted via all local broadcast media, in coordination with EOC and JIC

Southern Trinity Volunteer Fire Dept. (located in Trinity County) – Provide response vehicles and uniformed fire personnel to warn and/or evacuate endangered persons from Matthews Dam downstream into Humboldt County to higher ground. Coordinate with Trinity County Sheriff, Humboldt County Sheriff, CHP, Caltrans, and Van Duzen VFD. In addition, the STVFD will coordinate the supporting mutual aid activities of other local Trinity County entities such as Hetten VFD, Post Mountain VFD, Mad River VFD, and Ruth VFD. Place signs and barricades and man roadblocks at the following locations:

FS Route 1 at Straw's driveway
Hwy 36 East at Trinity County 501
Lamb Creek Road
County Line Creek Road
Hwy 36 West at Low Gap
Trinity County 501 (Lower Mad River at Dam)
Hwy 36 East (South Fork Summit)

U.S. Coast Guard – Provide aircraft to patrol the Mad River watercourse and to advise persons in danger zones to seek higher ground. Coordinate airborne operations with CDF, CHP, and Civil Air Patrol.

U.S. Forest Service – Provide response vehicles and uniformed personnel to assist allied agencies with warning notification and evacuation responsibilities.

NOTE: There is no pre-assignment of USFS resources. The USFS normally has significant field resources available which can be accessed through mutual aid system. USFS personnel and equipment will be assigned to various field response locations as needed to support the evacuation function and follow-up activities.

Van Duzen Volunteer Fire Dept. – provide response vehicles and uniformed fire personnel to warn and/or evacuate all endangered persons downstream of Matthews Dam in Humboldt County (Bear Creek Road area) to higher ground. Coordinate with Trinity County Sheriff, Southern Trinity VFD, Humboldt County Sheriff, CHP, and Caltrans.