

Madera County FCWCA Flood Fight History

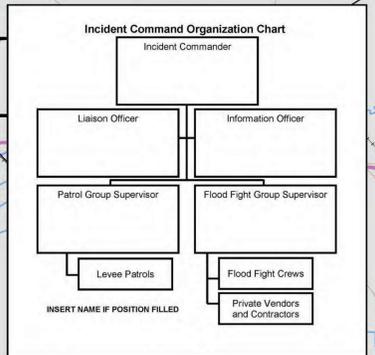
The Madera County Flood Control and Water Conservation Agency (MCFWCA) has jurisdiction for both the project and non-project levee segments along both banks of Ash Slough, Berenda Slough, the Fresno River. In addition, MCFWCA is responsible for emergency response of the entire channel segments beginning at their junction with the Eastside Bypass and Chowchilla Canal, up to the upstream reservoirs. These streams and their respective upstream dams include: Chowchilla River (Buchanan Dam/HV Eastman Lake), Ash Slough, Berenda Slough, Berenda Creek, Dry Creek, the Fresno River (Hidden Dam/Hensley Lake), Cottonwood Creek, and the unweirved segment of the San Joaquin River (Friant Dam/Millerton Lake). These have been under the jurisdiction of MCFWCA, but under an existing JPA (dated December 1977), the Chowchilla Water District (CWD) provides field flood fight and emergency response assistance to MCFWCA.

CWD monitors releases from Buchanan Dam/Eastman Lake at the "Headworks" in order to determine whether to divert flows at the "Diverter Calwalk" when they're expected to overwhelm Ash Slough, exceeding 5,000 cfs. There is a significant decrease in capacity west of HWY99 from 400 cfs to 40 cfs.

MID monitors releases from Hidden Dam/Hensley Lake into the Fresno River. Prepare to address channel erosion and overtopping if flow in the Fresno River is expected to exceed 5,000cfs. Most of the issues seen are seepage generally occurs along the Project Levee segment of the Fresno River. MID has historically addressed seepage issues with sandbag rings, and rock to stabilize the levee if available.

Historically, flood issues have been related to water escaping unweirved channel banks due to reduced capacity from overgrown vegetation, particularly at location where a sharp bend is located. Old breaches have been reported in areas where channels were modified for irrigation purposes and have sharper, abrupt corners as shown on the FCM. In 1997 MID and CWD monitored areas of known overtopping as shown on the flood contingency map. Efforts from the CWD and MID focus on anticipating locations of seepage and overtopping, and focus on armoring locations of known overtopping with rock, responding to developing boils with sandbag rings, and coordinating traffic control for streets that get impacted from overtopping.

The Wildwood Mobile Home Park located along the right bank of the San Joaquin River near HWY 41 was impacted by flooding in 1997, 2012, and 2017. MCFWCA has coordinated with Madera OES to consider evacuations.



Communications Plan

Field Command Post

MACP-01 MID, 12152 Rd 28 1/4 36° 55' 29" N 120° 02' 01" W
 MACP-02 OES, 2725 Falcon Dr 36° 59' 06" N 120° 06' 07" W
 MACP-03 CWD, 327 Chowchilla Blvd 37° 07' 24" N 120° 15' 16" W

Communications Equipment

Madera FCWCA - Staff equipped with cellular telephones
 Landline telephones and internet capability at offices
 Chowchilla Water District - Personnel will use cell phones to communicate internally
 Madera Irrigation District - Personnel will use cell phones to communicate internally

Internal Communication

Cell phones will be the primary means of communications between LMA staff and the Chowchilla Water District (CWD), Madera Irrigation District (MID), and Madera OES.
 Cellular phones will be the means of communications with private vendors or contractors acquired by LMAs to assist with emergency operations.

Communications with Outside Jurisdictions

Primary means of communications with outside jurisdictions will be personal cellular telephones. Secondary means of communications will be participation in the Madera - Floor Branch Unified Flood Fight Command and the Madera - Foothills Branch Unified Flood Fight Command.

Special Considerations

Localized Flooding

Localized flooding sometimes occurs in unproductive drainage patterns or in non-typical floodplains due to heavy rainfall, increased runoff, and insufficient drainage and stormwater facilities. These events are more likely to occur within the Cities of Madera and City of Chowchilla.

Overbank Flooding

Overbank flooding is a common occurrence along the unweirved portions of the Fresno, San Joaquin Rivers as well as Berenda Creek (not to be confused with Berenda Slough), and Cottonwood Creek. Areas most prone to overtopping are there where changes in drainage activities have caused abrupt turns. These areas are identified the map and should be closely monitored. Patrol Group Supervisors to coordinate with the impacted cities or unincorporated areas for traffic control and road closures.

Operational Relationship between Chowchilla Water District and Madera County

MCFWCA bears the legal responsibility in the event of a flood or emergency but is not the agency that has historically provided the staff and manpower to carry out field activities such as flood fight and/or levee patrols. MCFWCA relies on agreements with MID and CWD to carryout field emergency response activities.

The levee maintaining agencies in the MCFWCA Jurisdiction are as follows:
 Chowchilla Water District:
 - Levees surrounding Ash Slough leading up to Buchanan Dam.
 - Levees surrounding Berenda Slough leading up to Buchanan Dam.
 Madera Irrigation District:
 - Levees surrounding Fresno River leading up to Hidden Dam.
 If a flood event occurs, the respective Levee Maintaining Agencies will provide flood emergency response support.

Evacuation Plan

Responsible Agencies

The following agencies are responsible for alert and warning and evacuation within the District:
 - The Madera County Sheriff's Department
 - Madera County Office of Emergency Services

Public Safety Agencies Evacuation Plan

Public Safety Agency evacuation plans and procedures available at Madera OES. Plans for conducting warning, evacuation and rescue within Districts maintained by responsible agencies. Implementation coordinated with Districts through Madera County Unified Flood Fight Command.

Special Levee Breach Procedures

See map for alternate LMA Staff Staging Area/Command Post if LMA field command post is flooded. Refer to the City of Chowchilla Public Safety Map and City of Madera Public Safety Map for detailed evacuation routes, places of interest and Rally Points for residents or LMA staff to receive assistance if unable to leave impacted area after a breach.

Map Version

0 9,000 18,000 27,000 Feet
 1 inch = 6,250 feet

Legend

- 100 Year Flood Elevation
- Camp
- Logistics Base
- Delivery Point
- Supply Staging Area
- Water Resource Launch
- Helibase
- Command Post
- Historic Seepage
- Historic Breach
- Historic Erosion
- Slope Stability
- Historic Levee Event Limit
- Historic Problem Area
- Levee Access
- Levee Gate
- Dam
- Levee
- Levee Critical Section
- Dryland Levee
- Dryland Levee Critical Section
- Levee Segment (Color varies by LMA)
- Patrol Sector
- L.C. EL+10 - Levee Crown Elevation
- Ground EL+10 - Spot Elevation
- Levee Mile-River Mile Station
- Pump Station - Rural
- Pump Station - Municipal Storm
- Pump Station - Municipal Sanitary
- Pump Station - Site for Emergency
- Flood Control Structure ("*" - Action Required, "**" - No Action Required)
- Weir
- Structure (A-Agricultural, R-Residence, H-Hospital, S-School, F-Fire Station, P-Police Station)
- Gas Well
- Water Well
- Sanitary Sewer Lines
- Storm Drain Lines
- Water Lines
- Underground Lines
- Underground Fiber Optics
- Overhead Transmission Line
- Elevation Contour
- County Boundary
- District Boundary
- Evacuation Route
- City Limits
- Waterways/Channels
- CDEC Stations
- Staff Gage
- Bridge

Dewatering Plan

General Dewatering Situation

A very shallow gradient of approximately 75-ft over 10 miles exists from the bifurcation of Ash Slough and Berenda to the Chowchilla Canal. A similarly shallow gradient exists along the Fresno River upstream of the City of Madera to the Eastside Bypass. In general, floodwaters will pool and the dewatering strategy will be to facilitate movement of waters into existing drainage facilities. Restoration of pre-event storm water drainage systems so that pooled flood water can be removed by pumping stations used by Partner Agencies of MCFWCA, such as Chowchilla Water District and Madera Irrigation District. Emergency pumping stations will be placed where needed to facilitate the movement of pooled flood water into the normal drainage system.

Dewatering Strategy

It is a common occurrence for waters to escape the banks of unweirved systems. In this instance, the dewatering strategy will be to armor the ends of the uncontrolled break to prevent further expansion of its ends. If possible and allow it to channel back into natural drainage systems. Floodwaters will be contained or rerouted away from existing roads, if feasible, until waters recede.

Levee Break

General dewatering strategy will be to first armor the ends of the uncontrolled break to prevent further expansion of its ends if possible. MCFWCA will then protect interior slopes with vegetation for levees downstream of the levee breach/floodwaters. Close breach as safely feasible. Evaluate appropriate locations to place emergency pumps. If found to be appropriate, emergency pumps and operable existing pump stations may then be used to complete dewatering of impacted areas within the area of protection. Then, restore drainage systems as possible to facilitate movement of impounded water to pumping locations where it can be transferred to exterior waterways.

The calculations below, determined by DWR Logistics, provides guidelines to determine the total number of days required to pump out the inundated area.
 NOTE: this calculation assumes no additional water enters the system and the pumps in operation remain constant.

- Start with the known area (acres), and multiply Area by average depth (feet).
 $Area (acres) \times average depth (ft) = Volume (ac-ft)$
- Multiply the Volume (ac-ft) of water by 43,560 to convert units (cubic feet, ft³).
 $Volume (ac-ft) \times 43,560 = Volume (ft^3)$
- Multiply the value (cubic feet, ft³) by 7.48 to convert to gallons (gal).
 $Volume (ft^3) \times 7.48 = Volume (gal)$
- Divide the value in gallons by the total pumping capacity (gallons/minute, gpm).
 $Volume (gal) / gpm = Total Time (minutes)$
 This produces the value of total time needed to dewater the site (minutes).
- Divide the total time to dewater (minutes) by 1,440 to convert units to days.
 $Total Time (minutes) / 1,440 = Total Time (days)$
 This produces the total number of days required to pump out the area.

Flood Contingency Options

High Water Event

The flood fight strategy will be to implement Madera FCWCA Flood Safety Plan and prepare to implement potential flood contingency options.

For Flows in Ash Slough greater than 5,000 cfs.

Actions

- Establish patrols and staging areas in accordance with Madera FCWCA Flood Safety Plan.
- Establish communications with outside agencies in accordance Madera FCWCA Flood Safety Plan.
- Monitor flow at the "Headworks" on Ash Slough and Berenda Slough bifurcation.
- Flows will be diverted at the "Diverter Calwalk" if they are expected to overwhelm Ash Slough.
- Confirm access points and develop a movement plan for materials (sandbags), heavy equipment, and/or trucks to potential problem locations on levees or ends of known areas vulnerable to levee breaches or overtopping.
- Review plans for protecting roads and/or critical infrastructure within protected area.
- Participate in Madera Unified Flood Fight Command if activated.

For Flows in Berenda Slough greater than 2,000 cfs.

Actions

- Establish patrols and staging areas in accordance with Madera FCWCA Flood Safety Plan.
- Establish communications with outside agencies in accordance Madera FCWCA Flood Safety Plan.
- Monitor flow at the "Headworks" on Ash Slough and Berenda Slough bifurcation.
- Confirm access points and develop a movement plan for materials (sandbags), heavy equipment, and/or trucks to potential problem locations on levees or ends of known areas vulnerable to levee breaches or overtopping.
- Review plans for protecting roads and/or critical infrastructure within protected area.
- Participate in Madera Unified Flood Fight Command if activated.

For Flows in the Fresno River greater than 5,000 cfs.

Actions

- Establish patrols and staging areas in accordance with Madera FCWCA Flood Safety Plan.
- Establish communications with outside agencies in accordance Madera FCWCA Flood Safety Plan.
- Confirm access points and develop a movement plan for materials (sandbags), heavy equipment, and/or trucks to potential problem locations on levees or ends of known areas vulnerable to levee breaches or overtopping.
- Review plans for protecting roads and/or critical infrastructure within protected area.
- Participate in Madera Unified Flood Fight Command if activated.

Levee Overtop on Madera FCWCA Levees

The flood fight strategy will be to armor ends of breach as soon as possible to prevent expansion of breach width, monitor flow to attempt to minimize damage to existing drainage systems and critical infrastructure, and protect interior slopes of impacted levees.

Actions

- Armor ends of breach and repair breach as possible.
- Initiate patrols to monitor extension of flood waters to identify opportunities to protect property or contain impounded waters.
- Notify Madera OES and Madera and Chowchilla City Police Department to consider evacuation.
- Protect interior slopes of levees impacted by impounded flood waters by laying vegetation.
- Review and Prepare to initiate dewatering plan if appropriate.

Madera-FCWCA Project Levees

40 cfs
 400 cfs
 5,000 cfs
 10,000 cfs
 15,000 cfs
 20,000 cfs
 2,500 cfs
 8,000 cfs (4,000 at toe)

Madera-FCWCA Non-Project Levees

40 cfs
 400 cfs
 5,000 cfs
 10,000 cfs
 15,000 cfs
 20,000 cfs
 2,500 cfs
 8,000 cfs (4,000 at toe)

EMERGENCY CONTACT INFORMATION

Agency	Phone Number
Madera County Sheriff's Dept.	(530) 458-0200
Madera County OES	(530) 458-0200
Chowchilla Water District (CWD)	(559) 665-3747
Madera Irrigation District (MID)	(559) 673-3514
City of Madera PD	(559) 675-4200
DWR - Sutter Maintenance Yard	(530) 755-0071
DWR - Flood Ops Center (24-hr)	(916) 574-2619

Levee Patrol Plan

Patrol Group Supervisor:
 Chowchilla Water District - CWD Director or assignee
 Madera Irrigation District - MID Director or assignee

Patrol Group Staging Areas:
 Madera FCWCA - Sheriff's Headquarters, 2725 Falcon Drive, Madera CA

Organization:
 LMA patrol staff will receive a basic Emergency Levee Worker Course accessed via www.mcflood.org. If needed which includes DWR Levee Threat Monitoring and Marking Protocols.

A two-person patrol authorized vehicle will be organized for each designated patrol sector per District Standard Operating Procedures (SOP). Patrols will pick up equipment, receive pre-shift briefing and post-shift debriefing at the CDEC Command Post or MID Command Post as appropriate.

Patrol Plan:
 Stage I Monitor: Initiate Patrols to 2x per day per individual system (Ash Slough, Berenda Slough, Fresno River, and Cottonwood Creek)
 Stage II Flood: Initiate patrols to 3x per day per individual system (Ash Slough, Berenda Slough, Fresno River, and Cottonwood Creek)
 Stage III Danger: Increase patrols to 24-hrs per day.

Levee and Staging Protocol - Per DWR Levee Threat Monitoring Guidelines, which can be accessed via www.mcflood.org. Patrols will maintain records of observations, take photographs, documenting progression of problem areas.

Response Activation Triggers

Level	CDEC Gauge	Flow Rate (cfs)	Action
1	BUC Buchanan Dam, Eastman Lake Chowchilla River	5,000	MONITOR
	"The Headworks" @ Bifurcation of Ash Slough and Berenda Slough	4,000	
	HID Hidden Dam, Hensley Lake Fresno River	4,000	
2	BUC Buchanan Dam, Eastman Lake Chowchilla River	5,500	FLOOD
	HID Hidden Dam, Hensley Lake Fresno River	4,500	
	SJF San Joaquin River Below Friant Millerton Lake	5,000	
3	BUC Buchanan Dam, Eastman Lake Chowchilla River	7,000	DANGER
	HID Hidden Dam, Hensley Lake Fresno River	5,000	
	SJF San Joaquin River Below Friant Millerton Lake	8,000	

Command Posts

MACP-01 Madera Irrigation District (MID) 36° 55' 29" N 120° 02' 01" W
 MACP-02 Madera County Sheriff's Headquarters 36° 59' 06" N 120° 06' 07" W
 MACP-03 Chowchilla Water District (CWD) 37° 07' 24" N 120° 15' 16" W

Supply Staging Areas

MASA-02 Private Ag Field 37° 05' 27" N 120° 18' 39" W

Tactical Facilities

Wildwood Mobile Home Park Area Prone to Flooding
 Jesus Staff Gage