

Yolo County Flood Control & Water Conservation District

Board Meeting
34274 State Highway 16
Woodland, CA 95695
Tuesday, November 6, 2018
7:00 P.M.

Public documents relating to any open session item listed on this agenda that are distributed to all or a majority of the members of the Board of Directors less than 72 hours before the meeting are available for public inspection in the customer service area of the District's Administrative Office at the address listed above.

In compliance with the Americans with Disabilities Act, if you have a disability and need a disability-related modification or accommodation to participate in this meeting please contact Christina Cobey at (530) 662-0265 or info@ycfcwcd.org. Requests should be made as early as possible, and at least one full business day before the start of the meeting.

AGENDA

- 7:00 1. Consideration: Adoption of the October 2, 2018 Regular Board Meeting Minutes
- 7:02 2. Open forum (Limited to five minutes): Guest introductions, unscheduled appearances, opportunity for public comment on non-agenda items
- 7:07 3. Consideration: Adding Items to the Posted Agenda
In order to add an item to the agenda, it must fit one of the following categories:
a) A majority determination that an emergency (as defined by the Brown Act) exists; or
b) A 4/5ths determination that the need to take action that arose subsequent to the agenda being posted.
- 7:10 4. Consideration: Pawnee Fire Damages and Cost Recovery
- 7:15 5. Consideration: Adoption of Yolo County Hazard Mitigation Plan
- 7:25 6. Presentation: Review of the 2017/2018 Irrigation Season
- 7:55 7. Directors' Reports: Report on meetings and conferences attended during the prior month on behalf of the District

- 8:00 8. Attorney's Report: Report on legal matters of concern to the District
- 8:05 9. General Manager's Report: Report regarding current general activities and projects of the District
- a) Operations, Maintenance, and Water Conditions
 - b) Financial Report
 - c) General Activities
 - d) Upcoming Events
- 8:20 10. General Discussion: Opportunity for clarification or additional information request
- 8:25 11. Consideration: Consider the approval and the payment of bills
- 8:30 12. Adjourn

The public may address the Board concerning an agenda item either before or during the Board's consideration of that agenda item. Public comment on items within the Board's jurisdiction is welcome, subject to reasonable time limits for each speaker. Upon request, agenda items may be moved up to accommodate those in attendance wishing to address that item. Times listed for consideration of agenda items are approximate only. The Board may consider any agenda item at any time during the Board meeting.

I declare that the foregoing agenda was posted at the office of the Yolo County Flood Control & Water Conservation District, 34274 State Highway 16, Woodland, CA on November 2, 2018.

By: _____
Christina Cobey, Administrative Assistant

YOLO COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
AGENDA REPORT

MEETING DATE: November 6, 2018

ITEM #: 1

SUBJECT: Consideration: Adoption of the October 2, 2018 Regular Board Meeting Minutes

INITIATED OR BOARD
REQUESTED BY: STAFF
 OTHER _____

COORDINATED OR
APPROVED BY: Tim O'Halloran

ATTACHMENT YES NO
 DIRECTION

INFORMATION
 ACTION: MOTION
 RESOLUTION

BACKGROUND:

Pursuant to Section 54957.5 of the Brown Act, copies of the draft minutes are available to the public at the Board meeting prior to their approval.

Staff request the Directors call the Yolo County Flood Control & Water Conservation District (District) office if a correction is needed to be made to the draft minutes to clarify a substantial point or to correct content. Staff will then have time to make the appropriate change(s) and submit the revised draft for review to the Board and the public at the Board meeting.

RECOMMENDATION:

District staff recommend the adoption of the attached minutes with any corrections.



Y O L O C O U N T Y

FLOOD CONTROL &
WATER CONSERVATION
DISTRICT

BOARD MEETING MINUTES

Tuesday, October 2, 2018, 7:00 PM

**YCFCWCD Offices
34274 State Highway 16
Woodland, CA 95695**

The regular meeting of the Board of Directors of the Yolo County Flood Control & Water Conservation District (District) was held at 7:00 p.m. on Tuesday, October 2, 2018, at its regular place of business, 34274 State Highway 16, Woodland, California. Chair Kimball convened the meeting. The following people were in attendance:

District Board

Mary Kimball, Chair

Tom Barth

Jim Mayer

Bruce Rominger

Erik Vink

District Staff

Tim O'Halloran, General Manager

Kristin Sicke, Assistant General Manager

Max Stevenson, Assistant General Manager

Members of the Public

Jim Barrett

Duane Chamberlain

John McKean

Don Rominger

1. CONSIDERATION: Approval of Minutes

M/S/C approved the minutes of the September 4, 2018 regular Board meeting as submitted.

Ayes: Directors Barth, Kimball, Mayer, Rominger, and Vink

Noes: None

Absent: None

Abstain: None

2. OPEN FORUM

There were no comments.

3. CONSIDERATION: Adding Items to the Posted Agenda

There were no changes made to the agenda.

4. CONSIDERATION: Pawnee Fire Damages and Cost Recovery

Assistant General Manager Kristin Sicke provided an update on the timeline and cost for repairing the damaged transmission power lines at Indian Valley Reservoir.

District staff recommended the Board declare continuation of emergency conditions related to the Pawnee Fire damages and cost recovery.

M/S/C declared continuation of emergency conditions related to the Pawnee Fire damages and cost recovery.

Ayes: Directors Barth, Kimball, Mayer, Rominger, and Vink

Noes: None

Absent: None

Abstain: None

5. CONSIDERATION: Declaration of Surplus Assets and Authorization of Disposal

General Manager Tim O'Halloran reported that the District has several assets that staff believe are no longer viable for operations. These assets are listed on the District's Depreciation Schedule, and in order to be declared surplus assets, the item must be declared surplus to the needs of the District by the Board of Directors. O'Halloran stated that District staff are working on finding an appropriate auction for disposing of the following equipment:

1. 1999 Chevy Malibu
2. 2004 Chevy 1500
3. 2005 Ford F-150
4. 2006 Ford F-150 (x2)
5. 2007 Ford F-150
6. 1984 GMC 7000
7. 2000 Ford E-350

He recommended that the Board declare the proposed list of items as surplus to the needs of the District.

M/S/C declared the proposed list of items as surplus to the needs of the District and authorized General Manager O'Halloran to dispose of them as appropriate.

Ayes: Directors Barth, Kimball, Mayer, Rominger, and Vink

Noes: None

Absent: None

Abstain: None

6. PRESENTATION: Indian Valley Reservoir Spillway Inspection Update

Assistant General Manager Kristin Sicke discussed the District's efforts over the past year and a half to responsibly investigate the Indian Valley Reservoir Spillway. District staff have been working with the California Department of Water Resources' Division of Safety of Dams (DSOD) and the Federal Energy Regulatory Commission (FERC) staff to develop a scope of work and receive formal approval for inspecting the spillway. Since the February 2017 event at Oroville Dam, DSOD and FERC have been trying to determine the best path forward for inspecting California spillways. District staff proactively conducted an initial sounding and visual inspection in February 2017, which has resulted in the District being at the forefront of this new inspection process causing a significant delay in receiving approval from DSOD and FERC for inspecting the spillway.

Sicke informed the Board that the District recently received approval for performing a visual and sounding inspection along the entire spillway. This inspection occurred at the end of September. The next step is to receive approval for coring the upper portion of the spillway to determine whether delamination of the concrete has created a larger structural integrity issue. The District is optimistic that approval for coring will be given soon, and coring can hopefully occur in November 2018 (weather permitting).

Coring results will determine the future cost of necessary repairs to ensure the spillway can handle a large storm event when releases are necessary in the future.

7. DIRECTORS' REPORTS

Director Barth reported that he participated in the Water Resources Association of Yolo County (WRA) and Yolo Subbasin Groundwater Agency (YSGA) Board of Directors' meetings on September 17, 2018.

Director Vink reported that he participated in the Northern California Water Association (NCWA) Executive Committee meeting on September 19, 2018 since Director Mayer had a conflict.

Directors Kimball and Rominger reported that they attended the Yolo Land Trust's Day in the Country event on September 9, 2018.

Director Mayer reported that he attended the University of California Division of Agricultural and Natural Resources' Groundwater Recharge Symposium on September 6, 2018.

8. GENERAL MANAGER'S REPORT

General Manager O'Halloran provided reports on the following:

- a) Operations, Maintenance, and Water Conditions – The Water Conditions Report and hydrographs of real-time groundwater monitoring wells were reviewed. O'Halloran announced that the irrigation season would likely go until the first or second week of October 2018.
- b) Financial Report Summary – Highlights from the September 30, 2018 financial statements report were reviewed and the actual FY 2018/2019 Budget was compared to the projected FY 2018/2019 Budget.
- c) General Activities – A list of outreach activities and projects both in-house and coordinating with other agencies was reviewed.
- d) The following upcoming events were announced:
 1. October 4: WRA Technical Committee Meeting, District Boardroom
 2. October 11: NCWA's Water Foundation Sacramento Valley Tour, Conaway Ranch/Wallace Weir/Sutter Bypass/Montna Farms
 3. October 18: NCWA's Fall Reception, Matchbook Winery
 4. October 21: Taste of Capay, Full Belly Farm
 5. October 23: WRA/YSGA Executive Committee Meeting, District Boardroom
 6. November 2: District's Harvest BBQ, District Shop
 7. November 2: Bucks for Ducks 2018, The Pavilion at UC Davis
 8. November 15: ACWA Region 2/4 Joint Tour and Program, District Shop
 9. November 15-16: California Economic Summit, Santa Rosa
 10. November 27-29: ACWA Fall Conference 2018, San Diego
 11. December 10: NCWA Groundwater Management Task Force Meeting, Orland

9. GENERAL DISCUSSION

Chair Kimball reminded the Board that the District Planning meeting would need to be scheduled soon. She also reminded the Board and District staff of the interest in investigating whether the District should purchase water from the Sites Reservoir JPA to help farmers in the Yolo-Zamora area. General Manager O'Halloran stated he would work on scheduling a meeting with the Yolo-Zamora stakeholders to gauge their interest in purchasing water from Sites Reservoir JPA.

10. CONSIDERATION: Payment of Bills

M/S/C approved the following claims for payment – Yolo County Flood Control & Water Conservation District Checks # 056072 – 056084.

Ayes: Directors Barth, Kimball, Mayer, Rominger, and Vink

Noes: None

Absent: None

Abstain: None

Abstain: None

11. ADJOURNMENT

There being no further business to come before the Board, the meeting was adjourned.

Mary Kimball, Chair

ATTEST:

Tim O'Halloran, Secretary

YOLO COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT

AGENDA REPORT

MEETING DATE: November 6, 2018

ITEM #: 4

SUBJECT: Consideration: Pawnee Fire Impacts to Indian Valley Reservoir Facilities

INITIATED OR BOARD
REQUESTED BY: STAFF
 OTHER _____

COORDINATED OR
PREPARED BY: Kristin Sicke
APPROVED BY: Tim O'Halloran

ATTACHMENT YES NO
 DIRECTION

INFORMATION
 ACTION: MOTION
 RESOLUTION

BACKGROUND:

The Pawnee Fire started on June 23, 2018 in the Spring Valley area of Lake County and burned 15,185 acres. While largely sparing the facilities at Indian Valley Reservoir, the Pawnee Fire damaged 39 of the District's power poles, which provide electricity to and transmission from the Hydroelectric Facility (Facility). The Facility requires electric power to make operational changes to the penstock, hydropower turbines, 60" butterfly valve, 60" Hollow Jet Valve, spillway gates, accelerographs, water treatment plant, and critical infrastructure.

On June 25, 2018, Governor Jerry Brown issued an emergency proclamation for Lake County due to the effects of the Pawnee Fire and allowed Federal Emergency Management Agency's Fire Management Assistant Grant (FMAG) to assist with mitigation, management, and control of the Pawnee Fire. At the July 3, 2018, Board meeting the Board confirmed and ratified the local emergency and authorized General Manager O'Halloran to represent the District as needed for state and federal cost recovery, if available. At the August 7, September 4, and October 2, 2018, Board meetings the Board declared the continuation of the emergency.

The power poles and associated power lines need to be restored as soon as possible to bring power and hydropower back online. District staff will provide the Board with an update on the timeline for repair and replacement of the damaged infrastructure.

RECOMMENDATION:

District staff recommend the Board declare continuation of emergency conditions related to the Pawnee Fire damages and cost recovery.

YOLO COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
AGENDA REPORT

MEETING DATE: November 6, 2018

ITEM #: 5

SUBJECT: Consideration: Adoption of Yolo County Hazard Mitigation Plan

INITIATED OR BOARD
REQUESTED BY: STAFF
 OTHER _____

COORDINATED OR
PREPARED BY: Kristin Sicke
APPROVED BY: Tim O'Halloran

ATTACHMENT YES NO
 DIRECTION

INFORMATION
 ACTION: MOTION
 RESOLUTION

BACKGROUND:

In coordination with other local agencies, Yolo County Office of Emergency Services has developed a 2018 Yolo County Operational Area Multi-Jurisdictional Hazard Mitigation Plan (Yolo County Hazard Mitigation Plan), which can be found at the following link: <https://www.dropbox.com/s/93ac24rrh1k53no/2018%20Yolo%20County%20HMP%20-%20Draft%203.pdf?dl=0>. The Yolo County Hazard Mitigation Plan identifies the hazard risks and vulnerabilities within Yolo County and identifies mitigation projects and actions to help reduce those risks.

Included in the Yolo County Hazard Mitigation Plan is a Special District Profile for each jurisdiction that identifies hazards and lists potential mitigation projects. The District's Special District Profile is attached.

The Yolo County Hazard Mitigation Plan is eligible for final approval by the Federal Emergency Management Agency (FEMA) pending its adoption by Yolo County and all participating jurisdictions. Upon adoption of the Yolo County Hazard Mitigation Plan, the District is eligible for hazard mitigation funding from FEMA.

RECOMMENDATION:

Staff recommend the Board adopt the Yolo County Hazard Mitigation Plan.



Y O L O C O U N T Y
F L O O D C O N T R O L &
W A T E R C O N S E R V A T I O N
D I S T R I C T

Yolo County Flood Control & Water Conservation District

Special District Profile Information

Addendum to the 2018 Yolo County Operational Area Multi-Jurisdictional Hazard Mitigation Plan

December 2018

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A1.b. & A1.c. PARTICIPATION IN THE HAZARD MITIGATION PLAN

The jurisdictions participating in the Yolo County Hazard Mitigation Plan include:

County of Yolo

David M. Block, OES Emergency Services Planner, Office of Emergency Services, County of Yolo

City of Davis

Daryl C. Arbuthnott, Fire Chief, Fire Department, City of Davis

City of West Sacramento

Bryan Jonson, Fire Marshal, Fire Department, City of West Sacramento

City of Winters

Dan McGuire, Executive Assistant, City Manager's Office, City of Winters

City of Woodland

Becky Ramirez, Fire Chief, Woodland Fire Department, City of Woodland

Yocha Dehe Wintun Nation

Gary Fredericksen, Fire Chief, Yocha Dehe Fire Department, Yocha Dehe Wintun Nation

Housing Authority of Yolo County

Janis Holt, General Managing Director, Housing Authority of Yolo County

Reclamation District 108 (including Sacramento West Side Levee District and Knights Landing Ridge Drainage District)

Meegan Nagy, Deputy Manager, RD 108

Reclamation District 900

Kenric Jameson, District Manager, RD 900

Reclamation District 2035

Mike Hall, CPG Farm Manager, RD 2035

Yolo County Flood Control & Water Conservation District

Kristin Sicke, Assistant General Manager, YCFCWCD

For those Special Districts that were unable to physically be present at meetings, the Yolo County Office of Emergency Services talked with each of them throughout the planning process on their mitigation strategies. They provided information directly to help build and update their respective profiles.

B1.a. & B3.b. HAZARD DESCRIPTION and VULNERABILITY

The Yolo County Flood Control & Water Conservation District (YCFCWCD) identified hazards that affect District based upon the countywide risk assessment, past events and their impacts.

Definitions for the rankings and a detailed explanation of the hazards can be found in Element B: Hazard Identification and Risk Assessment of the Yolo County MHMP Base Plan.

YFCWCWD—Hazard Profiles

Hazard	Probability of Occurrence	Geographic Extent & Potential Magnitude
Dam Failure	Unlikely	Catastrophic
Flood	Likely	Catastrophic
Levee Failure	Unlikely	Catastrophic
Wildfire	Likely	Critical
Drought	Likely	Critical

Dam Failure

Dams are manmade structures built for a variety of uses including flood protection, power generation, agriculture, water supply, and recreation. When dams are constructed for flood protection, they are usually engineered to withstand a flood with a computed risk of occurrence. For example, a dam may be designed to contain a flood at a location on a stream that has a certain probability of occurring in any one year. If prolonged periods of rainfall and flooding occur that exceed the design requirements, that structure may be overtopped and fail. Overtopping is the primary cause of earthen dam failure in the United States.

Dam failure is the uncontrolled release of impounded water from behind a dam. Flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation, poor construction, vandalism, and terrorism can all cause a dam to fail. Dam failure causes downstream flooding that can affect life and property. Dam failures can result from any one or a combination of the following causes:

- Earthquake
- Inadequate spillway capacity resulting in excess overtopping flows
- Internal erosion caused by embankment or foundation leakage, or piping or rodent activity
- Improper design
- Improper maintenance
- Negligent operation
- Failure of upstream dams on the same waterway

Water released by a failed dam generates tremendous energy and can cause a flood that is catastrophic to life and property. A catastrophic dam failure could challenge local response capabilities and require evacuations to save lives. Impacts to life safety will depend on the warning time and the resources available to notify and evacuate the public. Major loss of life could result as well as potentially catastrophic effects to roads, bridges, and homes. Electric generating facilities and transmission lines could also be damaged and affect life support systems in communities outside the immediate hazard area. Associated water supply, water quality and health concerns could also be an issue. Factors that influence the potential severity of a full or partial dam failure

are the amount of water impounded; the density, type, and value of development and infrastructure located downstream; and the speed of failure.

In general, there are three types of dams: concrete arch or hydraulic fill, earth and rockfill, and concrete gravity. Each type of dam has different failure characteristics. A concrete arch or hydraulic fill dam can fail almost instantaneously; the flood wave builds up rapidly to a peak then gradually declines. An earth-rockfill dam fails gradually due to erosion of the breach; a flood wave will build gradually to a peak and then decline until the reservoir is empty. And, a concrete gravity dam can fail instantaneously or gradually with a corresponding buildup and decline of the flood wave.

The California Department of Water Resources (DWR) Division of Safety of Dams (DSOD) has jurisdiction over impoundments that meet certain capacity and height criteria. Embankments that are less than six feet high and impoundments that can store less than 15 acre-feet are non-jurisdictional. Additionally, dams that are less than 25 feet high can impound up to 50 acre-feet without being jurisdictional. The Cal DWR DSOD assigns hazard ratings to large dams within the State. The following two factors are considered when assigning hazard ratings: existing land use and land use controls (zoning) downstream of the dam. Dams are classified in three categories that identify the potential hazard to life and property:

High hazard indicates that a failure would most probably result in the loss of life

Significant hazard indicates that a failure could result in appreciable property damage

Low hazard indicates that failure would result in only minimal property damage and loss of life is unlikely

Since 1929, the state has supervised all non-federal dams in California to prevent failure for the purpose of safeguarding life and protecting property. Supervision is carried out through the state's Dam Safety Program under the jurisdiction of DWR. The legislation requiring state supervision was passed in response to the St. Francis Dam failure and concerns about the potential risks to the general populace from a number of water storage dams. The law requires:

Examination and approval or repair of dams completed prior to August 14, 1929, the effective date of the statute.

Approval of plans and specifications for and supervision of construction of new dams and the enlargement, alteration, repair, or removal of existing dams.

Supervision of maintenance and operation of all dams under the state's jurisdiction.

The 1963 failure of the Baldwin Hills Dam in Southern California led the Legislature to amend the California Water Code to include within state jurisdiction both new and existing off-stream storage facilities.

Dams and reservoirs subject to state supervision are defined in California Water Code §6002 through §6004, with exemptions defined in §6004 and §6025. In administering the Dam Safety Program, DWR must comply with the provisions of the California Environmental Quality Act

(CEQA). As such, all formal dam approval and revocation actions must be preceded by appropriate environmental documentation.

In 1972, Congress moved to reduce the hazards from the 28,000 non-federal dams in the country by passing Public Law 92-367, the National Dam Inspection Act. With the passage of this law, Congress authorized the U.S. Army Corps of Engineers (USACE) to inventory dams located in the United States. The action was spurred by two disastrous earthen dam failures during the year, in West Virginia and South Dakota that caused a total of 300 deaths.

The Water Resources Development Act of 1986 (P.L. 99-662) authorized USACE to maintain and periodically publish an updated National Inventory of Dams (NID). The Water Resources Development Act of 1996 (P.L. 104-303), Section 215, re-authorized periodic updates of the NID by USACE.

Flooding

Flooding is the rising and overflowing of a body of water onto normally dry land. History clearly highlights floods as the most frequent natural hazard impacting Yolo County. Floods are among the costliest natural disasters in terms of human hardship and economic loss nationwide. Floods can cause substantial damage to structures, landscapes, and utilities as well as life safety issues. Floodwaters can transport large objects downstream, which can damage or remove stationary structures. Ground saturation can result in instability, collapse, or other damage. Objects can also be buried or destroyed through sediment deposition. Floodwaters can also break utilities lines and interrupt services. Standing water can cause damage to crops, roads, foundations, and electrical circuits. Certain health hazards are also common to flood events. Standing water can also cause septic tank failure and well contamination. Standing water and wet structures can become breeding grounds for microorganisms such as bacteria, mold, and viruses. This can cause disease, trigger allergic reactions, and damage materials long after the flood. When floodwaters contain sewage or decaying animal carcasses, infections become a concern. Direct impacts, such as drowning, can be limited with adequate warning and public education about what to do during floods. Where flooding occurs in populated areas, warning and evacuation will be of critical importance to reduce life and safety impacts from any type of flooding.

Certain health hazards are also common to flood events. While such problems are often not reported, three general types of health hazards accompany floods. The first comes from the water itself. Floodwaters carry anything that was on the ground that the upstream runoff picked up, including dirt, oil, animal waste, and lawn, farm and industrial chemicals. Pastures and areas where cattle and other livestock are kept, or their wastes are stored can contribute polluted waters to the receiving streams. Floodwaters also saturate the ground, which leads to infiltration into sanitary sewer lines. When wastewater treatment plants are flooded, there is nowhere for the sewage to flow. Infiltration and lack of treatment can lead to overloaded sewer lines that can back up into low-lying areas and homes. Even when it is diluted by flood waters, raw sewage can be a breeding ground for bacteria such as e. coli and other disease-causing agents.

The area adjacent to a channel is the floodplain. Floodplains are illustrated on inundation maps, which show areas of potential flooding and water depths. In its common usage, the floodplain most often refers to that area that is inundated by the 100-year flood, the flood that has a one percent chance in any given year of being equaled or exceeded. The 100-year flood is the national minimum standard to which communities regulate their floodplains through the National Flood Insurance

Program. The 200-year flood is one that has 0.5% chance of being equaled or exceeded each year. The 500-year flood is the flood that has a 0.2 percent chance of being equaled or exceeded in any given year. The potential for flooding can change and increase through various land use changes and changes to land surface, which result in a change to the floodplain. A change in environment can create localized flooding problems inside and outside of natural floodplains by altering or confining natural drainage channels. These changes are most often created by human activity.

Yolo County and its Water Conservation Districts are susceptible to various types of flood events:

Riverine flooding – Riverine flooding, defined as when a watercourse exceeds its “bank-full” capacity, generally occurs as a result of prolonged rainfall, or rainfall that is combined with snowmelt and/or already saturated soils from previous rain events. This type of flood occurs in river systems whose tributaries may drain large geographic areas and include one or more independent river basins. The onset and duration of riverine floods may vary from a few hours to many days and is often characterized by high peak flows combined with a large volume of runoff. Factors that directly affect the amount of flood runoff include precipitation amount, intensity and distribution, the amount of soil moisture, seasonal variation in vegetation, snow depth, and water-resistance of the surface due to urbanization. In Yolo County, riverine flooding can occur anytime from November through April and is largely caused by heavy and continued rains, sometimes combined with snowmelt, increased outflows from upstream dams, and heavy flow from tributary streams. These intense storms can overwhelm the local waterways as well as the integrity of flood control structures. Flooding is more severe when antecedent rainfall has resulted in saturated ground conditions. The warning time associated with slow rise riverine floods assists in life and property protection

Flash flooding – Flash flooding describes localized floods of great volume and short duration. This type of flood usually results from a heavy rainfall on a relatively small drainage area. Precipitation of this sort usually occurs in the winter and spring. Flash floods often require immediate evacuation within the hour and thus early threat identification and warning is critical for saving lives.

Localized/Stormwater flooding – Localized flooding problems are often caused by flash flooding, severe weather, or an unusual amount of rainfall. Flooding from these intense weather events usually occurs in areas experiencing an increase in runoff from impervious surfaces associated with development and urbanization as well as inadequate storm drainage systems.

A weather pattern called the “Atmospheric River” contributes to the flooding potential of the area. An Atmospheric River brings warm air and rain to West. A relatively common weather pattern brings southwest winds to the Pacific Northwest or California, along with warm, moist air. The moisture sometimes produces many days of heavy rain, which can cause extensive flooding. The warm air also can melt the snow pack in the mountains, which further aggravates the flooding potential. In the colder parts of the year, the warm air can be cooled enough to produce heavy, upslope snow as it rises into the higher elevations of the Sierra Nevada or Cascades. Forecasters and others on the West Coast often used to refer to this warm, moist air as the “Pineapple Express” because it comes from around Hawaii where pineapples are grown.

YCFCWCD’s 160 miles of canals can become damaged in flooding events from farm fields draining into canals, canals overtopping, and sediment and debris deposits accumulating and attenuating through the canal system. In February and March 2017, YCFCWCD’s canal systems sustained significant damage to canal banks, culverts, and conveyance infrastructure.

Additionally, in the 2017 storm events, a tree jammed into the Capay Diversion Dam apron and north bank of Cache Creek just downstream of the Dam eroded significantly threatening YCFCWCD's West Adams Canal (the north diversion off the Dam that delivers a third of the District's surface water supplies to farmers). The financial impact of large storm events continues to challenge YCFCWCD's economic sustainability.

Levee Failure

Levee failure flooding can occur as the result of partial or complete collapse or underseepage of an impoundment, and often results from prolonged rainfall and flooding. The primary danger associated with dam or levee failure is the high velocity flooding of those properties downstream of the breach.

A levee failure can range from a small, uncontrolled release to a catastrophic failure. Vulnerability to levee failures is generally confined to the areas subject to inundation downstream of the facility. Secondary losses would include loss of the multi-use functions of the facility and associated revenues that accompany those functions.

Approximately 150 years ago, the levees of the Sacramento-San Joaquin Delta were raised to prevent flooding on what remains some of the most fertile farmland in the nation. While the peat soils were excellent for agriculture, they were not the best choice to create strong foundations for levee barriers meant to contain a constant flow of river water. Nevertheless, it was these native soils that were primarily used to create the levee system.

Levee failure flooding would vary in the County depending on which structure fails and the nature and extent of the failure and associated flooding. This flooding presents a threat to life and property, including buildings, their contents, and their use. Large flood events can affect lifeline utilities (e.g., water, sewerage, and power), transportation, jobs, tourism, the environment, agricultural industry, and the local and regional economies.

Lands within the Levee Flood Protection Zones may be subject to flooding due to various factors, including the failure or overtopping of project or non-project levees, flows that exceed the design capacity of project or non-project levees, and flows from water sources not specifically protected against by project levees. Project levees are part of the Federal Flood Control Project and are built to higher standards that comply with U.S. Army Corps of Engineers guidelines. Lands not mapped within a Levee Flood Protection Zone are not invulnerable to flood risk, and some may also experience flooding from these or other related events.

As discovered in the March and April 2017 storm events, YCFCWCD's West Adams Canal is vulnerable to high flow events in Cache Creek. Bank erosion can threaten the West Adams Canal road and the Canal directly. Road access to the headworks of the West Adams Canal is important because the Canal is responsible for conveying a third of YCFCWCD's surface water flows to agricultural users. Creek erosion can encroach on the Canal road and cause a safety issue for YCFCWCD staff. Additionally, levees along Cache Creek that provide protection to agricultural users and residential property is of importance to YCFCWCD and the community at large.

Wildfire

A wildfire is a fire that occurs in an area of combustible vegetation. The three conditions necessary for a wildfire to burn are fuel, heat, and oxygen. Fuel is any flammable material that can burn, including vegetation, structures, and cars. The more fuel that exists and the drier that fuel is, the more intense the fire can be. Wildfires can be started naturally through lightning or combustion or can be set by humans. There are many sources of human-caused wildfires including arson, power

lines, a burning campfire, an idling vehicle, trains, and escaped controlled burns. On average, four out of five wildfires are started by humans. Uncontrolled wildfires fueled by wind and weather can burn acres of land and everything in their path in mere minutes and can reach speeds up to 15 miles per hour. On average, more than 100,000 wildfires burn 4 to 5 million acres of land in the United States every year. Although wildfires can occur in any state, they are most common in the Western states including California where heat, drought, and thunderstorms create perfect wildfire conditions.

Wildfires are of primary concern when they occur in the Wildland Urban Interface (WUI), which is defined as areas where homes are built near or among lands prone to wildfire. Most structures in the WUI are not destroyed from direct flame impingement, but from embers carried by wind. With continued growth in the WUI throughout California, wildfire risk will only increase.

The Indian Valley Dam and Cache Creek Dam infrastructure is highly susceptible to wildfire; YCFWCWCD has had to replace its power poles numerous times due to damage from wildfire in Lake County. YCFWCWCD has a hydroelectric facility at Indian Valley Dam, which relies on the power lines for controlling the outlet works and hydropower turbines and for transmission of power to PG&E's grid. Consistent power is important for daily operational changes at Indian Valley and Cache Creek Dams and for ensuring remote emergency operations can be performed.

Drought

A drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. It is a normal recurrent feature of climate that occurs in virtually all climate zones, from very wet to very dry. Drought is a temporary aberration from normal climatic conditions and can thus vary significantly from one region to another. Droughts occur slowly, over a multi-year period, and it is often not obvious or easy to quantify when a drought begins and ends. Drought is a complex issue involving many factors—it occurs when a normal amount of moisture is not available to satisfy an area's usual water-consuming activities.

There are several types of drought which can often be defined regionally based on its effects:

- Meteorological drought is usually defined by a period of below average water supply, based on the degree of dryness (in comparison to normal or average) and the duration of the dry period. Drought onset generally occurs with a meteorological drought.
- Agricultural drought occurs when there is an inadequate water supply to meet the needs of the state's crops and other agricultural operations such as livestock. Agricultural drought links various characteristics of meteorological (or hydrological) drought to agricultural impacts, focusing on precipitation shortages, soil water deficits, reduced ground water or reservoir levels needed for irrigation.
- Hydrological drought is defined as deficiencies in surface and subsurface water supplies. It is generally measured as stream flow, snowpack, and as lake, reservoir, and groundwater levels. Hydrological drought usually occurs following periods of extended precipitation shortfalls.
- Socioeconomic drought occurs when a drought impacts health, well-being, and quality of life, or when a drought starts to have an adverse economic impact on a region.

In drought years, YCFWCWCD cannot provide surface water supplies to the agricultural community of Yolo County; during drought years farmers must rely completely on groundwater supplies. The multi-year droughts can cause significant decline of groundwater levels and can ultimately result in

subsidence or sinking of the nearby land. YCFCWCD monitors 14 real-time groundwater wells to track groundwater levels and to better understand local patterns and correlations between drought and wet years in Yolo County. Droughts place a significant financial strain on YCFCWCD's economic sustainability and can affect YCFCWCD's ability to implement necessary maintenance and improvement projects for continued operations and surface water deliveries.

In Yolo County, the Yolo Subbasin Groundwater Agency (YSGA) is the Groundwater Sustainability Agency under the Sustainable Groundwater Management Act (SGMA). The YSGA is comprised of 24 members and was created to plan for and guarantee sustainable groundwater resources in the future. YCFCWCD is assisting the YSGA in developing a Yolo Subbasin Groundwater Sustainability Plan (GSP) to comply with the State's January 31, 2022 deadline. The Yolo Subbasin GSP will outline sustainability management criteria necessary for conjunctive management of water resources in Yolo County, and will list projects and management actions for YSGA and stakeholder's implementation to ensure drought resiliency.

B.4. & C.2. PARTICIPATION IN THE NATIONAL FLOOD INSURANCE PROGRAM

Yolo County has participated in the National Flood Insurance Program (NFIP) since December 16, 1980 but there are no National Flood Insurance Program insured structures within YCFCWCD that are managed by the District.

To address participation and continued compliance with the NFIP the participating jurisdictions in the Yolo County HMP will continue to enforce and adopt floodplain management requirements, regulate new construction in special flood hazard areas, update maps for better identification of floodplains and floodplain management programs and activities.

C.1.a. & C.1.b. EXISTING AUTHORITIES, POLICIES, PROGRAMS, AND RESOURCES

A number of federal, state and local regulations and policies form the legal framework to implement Yolo County's and its participating jurisdictions hazard mitigation goals and projects.

Federal Laws

- "The Federal Civil Defense Act of 1950"
- Public Law 96-342 "The Improved Civil Defense Act of 1980"
- Public Law 91-606 "Disaster Relief Act"
- Public Law 93-288 "The Robert T. Stafford Disaster Relief Act of 1974"
- Section 322, Mitigation Planning of the Robert T. Stafford Disaster Relief and Emergency Assistance Act
- Public Law 106-390 enacted by Section 104 of the Disaster Mitigation Act of 2000 (DMA)
- Interim Final Rule for DMA 2002 as published in the February 26, 2002, at 44 CFR Part 201

State Laws & Plans

California Government Code, Section 3100, Title 1, Division 4, Chapter 4. States those public employees are disaster service workers, subject to such disaster service activities as may be assigned to them by their superiors or by law. The term "public employees" includes all persons employed by the state or any county, city, city and county, state agency or public district, excluding aliens legally employed. The law applies when:

- A local emergency has been proclaimed.
- A state of emergency has been proclaimed.
- A federal disaster declaration has been made.

This Section: Provides the basic authorities for conducting emergency operations following a proclamation of *Local Emergency*, *State of Emergency*, or *State of War Emergency*, by the Governor and/or appropriate local authorities, consistent with the provisions of this Act.

The California Emergency Plan - Revised

Promulgated by the Governor, and published in accordance with the Emergency Services Act, the Plan provides overall statewide authorities and responsibilities, and describes the functions and operations of government at all levels during extraordinary emergencies, including wartime. Section 8568 of the Act states, in part, that "...the State Emergency Plan shall be in effect in each political subdivision of the state, and the governing body of each political subdivision shall take such action as may be necessary to carry out the provisions thereof." Local emergency plans are, therefore, considered to be extensions of the California Emergency Plan.

California Civil Code, Chapter 9, Section 1799.102

This section of the California Civil Code provides for "Good Samaritan Liability" for those providing emergency care at the scene of an emergency. Specifically: "No person, who, in good faith and not for compensation, renders emergency care at the scene of an emergency, shall be liable for any civil damages resulting from any act or omission. The scene of an emergency shall not include emergency departments and other places where medical care is usually offered."

Operational Area Governmental Authorities - Local Codes and Ordinances

Local and tribal government codes, ordinances, and executive policies are identified within individual community information profiles. Reclamation Districts are covered under Division 15 of the California Water Code.

The County CAO and jurisdictional City Managers noted in this document serve as the Directors of Emergency Services for their respective areas by law, ordinance and Municipal Code. The Board of Supervisors, City Councils, Tribal Council or Special District Board of Directors serve as the administering agency and the promulgation authority for all plans, policies and procedures within Yolo County and its member jurisdictions. The county and participating jurisdictions recognizes the enhanced Hazard Mitigation Plan of the State of California, the California Emergency Services Act, and the appropriate Federal Regulations including 44 CFR 201. Yolo County is subject to the State of California Uniformed Building Code (UBC), which dictates standards on all current and future construction within Yolo County.

In support of expanding on and improving their existing policies and programs, Yolo County and each of its participating jurisdictions will continue to review and assess local hazard mitigation needs and capacities in conjunction with this plan and other supporting documents and information. YCFCWCD will work with the Yolo County HMP Steering Committee to identify new hazard mitigation strategies to be pursued on an operational area and local basis, and to review the progress and implementation of those policies and programs already identified. Yolo County and each of its participating jurisdictions will continue to process supplemental and supporting hazard mitigation reference information and guidance as released by the state and/or FEMA in support of its hazard mitigation goals and objectives.

C.6.a., C6.b., & C6.c. REVIEW and INCORPORATION of EXISTING PLANS

Yolo County planning efforts are supportive of each other. Information from the Yolo County HMP is incorporated into and used to support the Yolo County General Plan, Yolo County Climate Action Plan, Yolo County Emergency Operations Plan, and the continuity plans for each County and jurisdictional department. Many of these planning efforts incorporate all Yolo County jurisdictions and special districts (i.e. flood response plans for each city and Reclamation District with their input). Yolo County provides emergency planning services to all four cities in Yolo County, the Yocha Dehe Wintun Nation, and the Housing Authority of Yolo County; information from the HMP (including the risk assessment) is incorporated into each of their Emergency Operations Plans and accompanying annexes as well as their continuity plans. Information from several of these plans were used to support the Yolo County HMP as well.

State Hazard Mitigation Plan (SHMP) - 2018

The State Hazard Mitigation Plan (SHMP) identifies policy, establishes goals, and stipulates actions associated with the implementation of enhanced hazard mitigation strategies for California. The SHMP is foundational for local government hazard mitigation planning efforts, and provides inter-organizational guidance and direction based upon established state agency actions and principles.

Yolo County Operational Area Governmental Plans

The Yolo County HMP will be used to focus project prioritization. Mitigation projects will be considered for funding through federal and state grant programs, and when other funds are made available through the County and or federal government. The Yolo County OES will be the coordinating agency for project implementation. Individual jurisdictions have the capacity to organize resources, prepare grant applications, and oversee project implementation, monitoring, and evaluation. Coordinating organizations may include local, county, or regional agencies that are capable of, or responsible for, implementing activities and programs. Yolo County OES will be responsible for mitigation project administration with Yolo County and will assist each submitting jurisdiction named in this plan with their mitigation project administration.

2030 General Plan

The 2030 General Plan provides comprehensive and long-term policies for the physical development of the county and is often referred to as “the constitution” for local government. This is only the third time in the county’s history that the General Plan has been comprehensively updated, and the first time since 1983. While the fundamental goals of promoting agriculture, enhancing open space, and creating sustainable communities are the same as they have been over the past 50 years, the circumstances facing the county have changed. Issues such as the global economy, climate change, and the role of local government create new challenges to maintaining the county’s historic vision. The 2030 General Plan charts a course for the county over the next twenty years that will achieve its goals and address these concerns. The General Plan separates action items that will implement the variety of programs needed to realize the county’s vision, this plan works in coordination with the 2012 revision of the Operational Area Multi-Jurisdictional Hazard Mitigation Plan.

Climate Change Action Plan

The Climate Action Plan represents a significant milestone for Yolo County, which has a long history of being in the forefront of the green movement with land use policies that emphasize growth management, open space preservation and agricultural protection. In 1982, Yolo County adopted an Energy Plan, which was one of the first of its kind. In 1985, the county landfill completed a gas-to-

energy facility, which generates 20,000 kilowatt hours per year and captures 90% of methane emissions.

In 2007, Yolo County became one of 12 charter members from throughout the country to sponsor the Cool Counties Initiative, which pledges each county collectively to reduce greenhouse gas emissions by 80% by 2050. That same year, the county organized local cities, special districts and UC Davis to form the Yolo County Climate Change Compact, providing an ongoing forum for exchanging information on how best to analyze and address greenhouse gas emissions.

In 2009, Yolo County adopted its 2030 General Plan, which contains more than 350 policies that deal with climate change, including the requirement to develop a Climate Action Plan. In addition to implementing General Plan policy, the Climate Action Plan also fulfills the requirements of state legislation, including Assembly Bill 32, Senate Bills 97 and 375, and Executive Order S-3-05.

The Climate Action Plan estimates that in 2008, the unincorporated area (excluding UC Davis, the Yocha Dehe Wintun Nation and special districts) produced 651,470 metric tons of carbon dioxide equivalents, or greenhouse gasses. Approximately 48% of those emissions are created by agriculture. Transportation and energy account for an additional 47%, with the remainder made up by such sectors as the landfill, wastewater treatment, construction, mining and stationary sources.

A target is established in the Climate Action Plan to reduce the 2008 emissions back to the levels estimated for 1990, or 613,651 metric tons. To achieve this target, 15 programs are proposed, including such measures as increasing renewable energy production, enhancing energy and water conservation, expanding alternative transportation, planting trees and reducing fertilizer application. In order to meet the reductions envisioned in the Cool Counties Initiative and state legislation, the Climate Action Plan also includes voluntary goals to reduce greenhouse emissions to 447,965 metric tons by 2030, and 122,730 metric tons by 2050.

C.4.a., C.5.b., & D.2 PROJECT LIST

The Yolo County HMP was revised to reflect progress in local mitigation efforts. Mitigation projects were selected for each hazard and for each jurisdiction based off the hazard risk assessment. The projects are supported by the mitigation goals and objectives, and are ranked using the following criteria; approximate cost, timeframe of completion, whether the project requires Board of Supervisors regulatory action, and an assumption as to whether or not the project would be subject to CEQA or NEPA requirements. Funding sources are identified for all projects. All projects consider new, future, and existing development.

A cost benefit review process will be completed for each project that will be submitted during a given fiscal year. The general priorities of the cost benefit risk analysis will focus on projects that are lifesaving, life safety, property protection and lastly environmental protection. A ratio of at least two dollars of benefit for each dollar invested will be considered the minimum cost benefit ratio for any projects submitted within Yolo County and its participating jurisdictions.

Full descriptions of each mitigation project are found in the table below.

MITIGATION PROJECTS					
Mitigation Project	Jurisdiction/ Responsible Agency	New/ Existing or Completed/ Deleted	Estimated Cost and Potential Funding Source	Timeframe of Completion	Comments/ Progress
DAM FAILURE					
Indian Valley Dam Upgrades	Yolo County / YFCWCD	NEW (2017)	PDM, HMGP	Ongoing	Ongoing
Capay Valley Diversion Dam (West Adam and Winters Headworks) Upgrades	Yolo County / YFCWCD	EXISTING (2018)	YFCWCD Capital Job Funding	October 2018	Ongoing
FLOODING					
Forbes Ranch Regulating Pond*	Yolo County/ YFCWCD	NEW (2018)	PDM, HMGP	Ongoing	Ongoing
North Winters Retention Pond*	Yolo County/ YFCWCD/ City of Winters	NEW (2018)	PDM, HMGP	Ongoing	Ongoing
LEVEE FAILURE					
West Adams Canal Road and Cache Creek Bank Erosion Emergency Repair Project	Yolo County/ YFCWCD	COMPLETED (2017)	\$250,000 CDAA/FEMA Funding and YFCWCD Capital Job Funding	June 2017	
WILDFIRE					
Indian Valley Dam Power Pole Upgrade	Yolo County / YFCWCD	NEW (2018)	PDM, HMGP	Ongoing	Ongoing
DROUGHT					
Forbes Ranch Regulating Pond*	Yolo County/ YFCWCD	NEW (2018)	PDM, HMGP	Ongoing	Ongoing
North Winters Retention Pond*	Yolo County/ YFCWCD/ City of Winters	NEW (2018)	PDM, HMGP	Ongoing	Ongoing
*Multi-benefit project – assists with slowing storm flow conveyance and capturing water for recharge					

MAP

The YFCWCD territory encompasses approximately 200,000 acres, nearly 40 percent of the valley lands in Yolo County, including the cities of Woodland, Davis and Winters, and the towns of Capay, Esparto, Madison and other small communities within the Capay Valley. The distribution system is

comprised of over 160 miles of canals and laterals. Three dams, Cache Creek Dam, Indian Valley Dam and the Capay Diversion Dam are managed by the District.



YOLO COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT

AGENDA REPORT

MEETING DATE: November 6, 2018

ITEM #: 6

SUBJECT: Presentation: Review of the 2017/2018 Irrigation Season

INITIATED OR BOARD
REQUESTED BY: STAFF
 OTHER _____

COORDINATED OR
PREPARED BY: Tim O'Halloran
APPROVED BY: Tim O'Halloran

ATTACHMENT YES NO
 DIRECTION

INFORMATION
 ACTION: MOTION
 RESOLUTION

BACKGROUND:

District staff will review the recently concluded irrigation season, highlighting the following items:

1. length of the season,
2. total water sales,
3. system and canal efficiencies,
4. groundwater usage,
5. SCADA operations,
6. Pawnee fire impacts,
7. Lopac gate operations,
8. aquatic and terrestrial weed control,
9. organic spray policy,
10. SBX 7-7 (flow measurement) compliance,
11. end of season protocol, and
12. development of the annual water report.

RECOMMENDATION:

This agenda item is for informational purposes only. No Board action is required.