

**REPORT OF ACTIVITIES
OF THE
DEPARTMENT OF WATER RESOURCES**

By

**Keith E. Swanson, Chief,
Division of Flood Management
Department of Water Resources
California Natural Resources Agency
State of California***

FUNCTIONAL AREA 1 FLOOD EMERGENCY RESPONSE

This functional area includes work to better prepare for, respond to, and recover from flood emergencies. A program for flood emergency response is a necessary part of flood management because California will always experience flood emergencies, even when system improvements reduce the frequency of flooding. Program activities include inspection and assessment of flood projects' integrity; reservoir operations and river forecasting; flood data collection, management, and dissemination; precipitation and runoff forecasting; Delta flood preparedness, response, and recovery; and statewide flood emergency response functions.

REAL-TIME FLOOD CONDITIONS, STATUS, AND WARNING

The purpose of this element is to provide information needed to manage floods as they are occurring. This element supports flood operations by 1) inspecting, documenting, and assessing the integrity of the State Plan of Flood Control Project levees, 2) storing and managing information so that it is accessible to flood managers and the general public, 3) providing emergency flood information and warnings based upon existing and forecasted conditions and field reports, and 4) developing information management tools to support emergency operations.

Inspections

Staff continues to conduct spring levee inspections. Inspections are scheduled to be complete by the end of May. Staff continues to work with Central Valley Flood Protection Board staff inspecting and coordinating encroachment permits. The Encroachment Permit database continues to be updated and levee alignments are being revised in coordination with the USACE to more accurately reflect actual alignments and to be used with a new levee mile calculator. Plans are being made to field verify the levee log data. Staff continues to coordinate with DWR, USACE, CVFPB, and LMA staff in a number of venues and have been participating in meetings regarding rodent abatement, regional plans, and unacceptable vegetation.

Flood Project Integrity/Vulnerability Assessment Activities

No new information this month.

Local Maintaining Agency Annual Reporting Program (CWC 9140-9141)

No new information this month.

CLIMATE DATA COLLECTION AND PRECIPITATION/RUNOFF FORECASTING

This Element supports Flood Emergency Response by providing information on current and forecasted water conditions, and by providing meteorological and climate information. Additionally, this Element includes evaluating and improving the data collection and exchange network and forecasting models, providing water supply and watershed runoff information and forecasting, and the development of a new generation of forecasting and data collection tools to improve the quality, timeliness, and length of watershed and river forecasts. Real-time data, its timely availability, and quantities and quality are all critical to improving forecasting quality and timeliness.

Snow Surveys and Snow Course Maintenance

As of April 8, 2014, the regional snow pack conditions as reported by the remote snow sensors are as follows:

- **Northern Sierra** –6” of snow water content (SWC) for 23% of April 1 Avg.
- **Central Sierra** - 12” of SWC for 39% of April 1 Avg.
- **Southern Sierra** - 8” of SWC for 30% of April 1 Avg.
- **Statewide** - 9” of SWC for 32% of April 1 Avg
- **Statewide** – Percent of normal to date = 33%

The April 1, 2014 Snow Survey Results from the courses near Echo Summit along Highway 50 indicate a gloomy snow pack condition. The results were:

Location	Elevation	Snow Depth	Water Content	% of Average
Alpha	7600'	42.5"	13.5"	40
Phillips Station	6800'	33.5"	8.0"	29
Lyons Creek	6700'	40.5"	10.5"	33
Tamarack Flat	6500'	48.5"	14.5"	51

From the 230 courses measured statewide around April 1, results show a snowpack at 25% of the April 1 long term average. A fair number of courses were measured prior to the end of March storm, so it not unreasonable to think the snowpack may be closer to 30% of average which would rank it the 3rd driest April 1 snowpack dating back to 1950. The additional snow is captured in the daily snow sensor information above.

Hydrologic Data Management

The Snow Surveys Section continues to collect, review, Quality Control, and enter Full Natural Flow (FNF), precipitation, snow, and reservoir storage data for thousands of locations statewide on a daily basis. With this data, staff continues to issue daily, monthly, and seasonal water condition reports on California Delta Exchange Center. The extreme dry conditions during 2013-14 have brought a lot of media attention and a lot of question from cooperating agencies. During the month Snow Surveys staff alone responded to at least 25 media requests.

Bulletin 120 and Water Supply Index Forecasts

The low flows this winter are a reflection of the lack of storm systems moving through California. Observed monthly flows from October through April have not exceeded 58% of normal for any forecasted river. Despite decent March storms, no major Sierra rivers flowed at a rate greater than 71% of normal and the statewide average was 66%. The March flows in the Sacramento River, San Joaquin River and Tulare Lake regions were 64%, 40% and 28% of average, respectively.

The April 1, 2014 Water Supply Index (WSI) and Bulletin 120 (B120) forecasts were issued on April 8. The forecasts include observed conditions through the end of March.

The projected median April-July runoff in the major Sierra river basins ranges from 13% on the Tule River to 58% on the Pit River. Forecasted median Water Year runoff ranges

from 11% for the Tule River to 48% for the Total Inflow to Shasta Lake. The WSI forecast can be summarized as follows:

Sacramento River Unimpaired Runoff Water Year Forecast	7.6MAF
(50% exceedance)	(50% of normal)
Sacramento Valley Index (SVI)	4.1
(50% exceedance)	(Critical)
San Joaquin Valley Index (SJI)	1.1
(75% exceedance)	(Critical)

A Bulletin 120 Update for conditions on April 8 will be available Thursday, April 10. The May 1, 2014 Bulletin 120 and Water Supply Index forecasts will be available on May 8, 2014.

Water Conditions

As of February 28, statewide hydrologic conditions were as follows: precipitation, 40% of average to date; runoff, 25% of average to date; snow water equivalent, 20% of average for the date (20% of the April 1 average); and reservoir storage, 65% of average for the date. Sacramento River Region unimpaired runoff, for Water Year 2014, observed through February 28, 2014 was about 2.5 million acre-feet (MAF), which is about 30% of average. In comparison to Water Year 2014, the observed Sacramento River Region unimpaired runoff through February 28, 2013 was about 6.8 MAF, or about 84% of average.

On February 28, the Northern Sierra 8-Station Precipitation Index Water Year total was 15.2 inches, which is about 44% of the seasonal average to date and 30% of an average water year (50.0 inches). During February, the total precipitation for the 8-Stations was 10.7 inches, or about 134% of average for the month. Last year on February 28, the Water Year 2013 seasonal total for the 8-Stations was 35.3 inches, or about 102% of average.

On February 28, the San Joaquin 5-Station Precipitation Index Water Year total was 10.3 inches, which is about 37% of the seasonal average to date and 25% of an average water year (40.8 inches). During February, the total precipitation for the 5-Stations was 5.6 inches, or about 81% of average for the month. Last year on February 28, the Water Year 2013 seasonal total for the 5-Stations was 21.1 inches, or about 77% of average.

Selected Cities Precipitation Accumulation as of 01/31/2014 (National Weather Service)					
City	July 1 to Date 2013 – 2014 (in inches)	% Average	July 1 to Date 2012 – 2013 (in inches)	% Average	% Avg “Water Year” July 1 to June 30 2013 - 2014
Eureka	12.50	43	25.18	86	31
Redding	11.34	45	20.67	82	33
Sacramento	6.05	44	12.61	92	33
San Francisco	7.92	44	14.44	80	33
Fresno	3.37	43	4.86	62	29
Bakersfield	1.51	34	2.22	50	23
Los Angeles	3.83	38	5.78	58	30
San Diego	3.12	41	5.01	66	30

Key Reservoir Storage (1,000) AF) as of 01/31/2014								
Reservoir	River	Storage	Average Storage	% Average	Capacity	% Capacity	Flood Control Encroachment	Total Space Available
Trinity Lake	Trinity	1,187	1,816	65	2,448	48	---	1,261
Shasta Lake	Sacrame	1,773	3,326	53	4,552	39	-2,480	2,779
Lake Oroville	Feather	1,407	2,466	57	3,538	40	-1,550	2,131
New Bullards Bar	Yuba	481	626	77	966	50	-315	485
Folsom Lake	American	305	543	56	977	31	-318	672
New Melones	Stanislaus	1,060	1,468	72	2,420	44	-910	1,360
Don Pedro Res	Tuolumn	1,058	1,442	73	2,030	52	-632	972
Lake McClure	Merced	216	534	41	1,025	21	-458	809
Millerton Lake	San	167	341	49	520	32	-268	353
Pine Flat Res	Kings	190	530	36	1,000	19	-629	810
Isabella	Kern	60	184	33	568	11	-185	508
San Luis Res	(Offstrea	676	1,738	39	2,039	33	---	1,363

The latest National Weather Service Climate Prediction Center (CPC) long-range 1-month precipitation outlook for March 2014, issued February 28, 2014, suggests average rainfall for almost all of California, except the extreme southeastern portion of the State where above average precipitation is indicated.

Hydro-Climate Analyses

No new information this month.

Real-Time Data Collection Network

No new information this month.

RESERVOIR OPERATIONS AND RIVER FORECASTING

This element supports Flood Emergency Response through a coordinated effort with various agencies' operating reservoirs in the system to enhance reservoir operations. The goal of coordinated operation of the reservoirs will be to reduce peak flood flows downstream of the reservoirs. Additionally, this Element supports Flood Emergency Response through river forecasting activities conducted in coordination with the National Weather Service River Forecast Center located at the Joint Operations Center in Sacramento. By conducting real-time and long-range hydrologic and watershed analyses, this Element provides accurate and timely runoff and river peak flow forecasts.

Reservoir Coordinated Operations

No new information this month.

River Forecasting

No new information this month.

FLOOD OPERATIONS EMERGENCY RESPONSE

This element includes all preparation and planning to execute flood fights, deploy teams, provide training, and coordinate local response needs and federal assistance in the event of a flood. This includes maintaining the readiness of the Flood Operations Center (FOC) and all the staff that may have to staff it in the event of an emergency and assuring local response efforts can be integrated into the State response system.

Flood Operations, Training and Exercises

The FOC will continue its monthly roster meetings to ensure operational readiness of its emergency rosters. Training this month will focus on information flow between the State Emergency Management System (SEMS) sections of Management, Operations, Planning, and Logistics.

Outreach

The FOC will facilitate a working group meeting in the Chowchilla Bypass area on April 29 to strengthen working relations among federal, state, and local stakeholders. The FOC's primary objective is to ensure local flood preparedness for Fresno, Merced, and Madera counties.

Flood System Analysis Section (FSAS)

The Section has executed five contract agreements with local emergency response agencies out of a planned fourteen. The contract agreements will use Proposition 84 money to help the local agencies improve planning, preparedness, readiness, and response to flood emergencies.

EMERGENCY RESPONSE SUPPORT

This element includes various efforts that will further the Departments understanding of the flood system interactions with water supply systems and conjunctive use programs. It also includes the update of the Central Valley hydrology for use in risk assessment and project development. Another component includes developing a comprehensive plan to respond to flood events in the Delta.

Hydraulic Analysis and Evaluation

In March 2014 the Hydraulic Analysis Section (HAS) continued to manage the hydraulic model development work under the CVFED program. The combined riverine and overland flow hydraulic models for the Upper and Lower Sacramento River System are 100% completed, and for the Upper and Lower San Joaquin River System 99.5% and 100%, respectively. In parallel, the section has also been working on activities related to the development of applications and tools using CVFED models and data to support FloodSAFE program. The CVFED combined channel model enhancement and expansion for the Sacramento and San Joaquin River systems are underway to support FOC and other Flood ER programs. In addition, HAS continued to plan, scope, design, and implement geospatial tools and applications for CVFED data management including inventory, update, visualization, and dissemination of CVFED program data and tools for FloodSAFE programs and DWR partner agencies.

Following the deliveries of the ULOP 200-year Informational Floodplain Maps (SB 1278 and AB 1965) for urban communities in July 2013, staff continues to respond to communities and legislators regarding maps, model, and data requests related to the 200-year informational maps during the month of March.

In March, HAS continued to populate the Library of Models (LOM) with CVFED models as they are completed and approved. Approximately 68% % of the comprehensive riverine and over land flow hydraulic models corresponding to the CVFED program are populated in LOM.

In March, HAS staff also processed five requests for data and transferred a total of 302 LIDAR tiles and 1,131 tiles of Aerial Imagery. Three of these requests also included bathymetric and field survey data. Two of the requests were from DWR and the other three were from outside public agencies. Approximately 170 GB of data were transferred covering a land area of approximately 270 square miles.

FUNCTIONAL AREA 2 - OPERATION AND MAINTENANCE

Operation and Maintenance is a functional area under FloodSAFE established to ensure project facilities are operated and maintained in good working condition. DFM's Flood Maintenance Office (FMO) has responsibility for operation and maintenance of the Sacramento River Flood Control Project as outlined in California Water Code sections 8361 and 12878. Routine operation and maintenance is performed by the Sacramento and Sutter Maintenance Yards (Yards). Outside contractors are sometimes given responsibility for non-routine operation and maintenance. Funding from FloodSAFE has expanded the program by providing additional funding for deferred maintenance and for new projects identified through a number of inspection programs. FMO also provides funds to cost share with the federal government and with local maintaining agencies for repair projects.

DWR is responsible for planning projects in a way that avoids or minimizes environmental impacts, and for obtaining State and federal environmental permits and clearances for projects within Functional Area 2. DWR works to conduct operation and maintenance in a manner that supports public safety while protecting, and where possible, enhancing the environment. As such, environmental stewardship is integrated into each of the other major elements rather than a stand-alone element. Also, with DWR's established open collaborative process, various local, State, and federal agencies examine issues together and develop integrated solutions to complex environmental compliance requirements and resource opportunities as flood control maintenance activities are undertaken.

FLOOD SYSTEM PREPAREDNESS


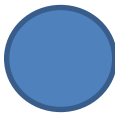
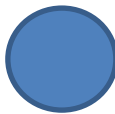
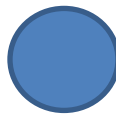
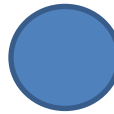
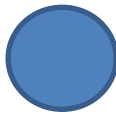
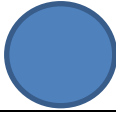
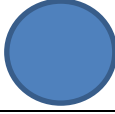
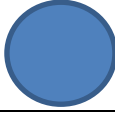
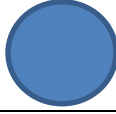
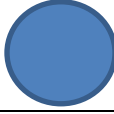
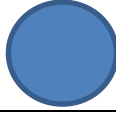
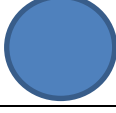
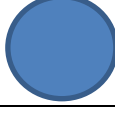
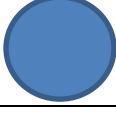
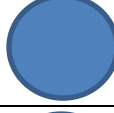
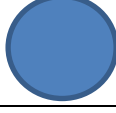
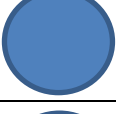
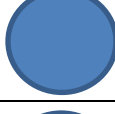
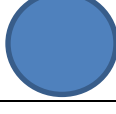
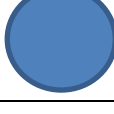
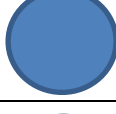
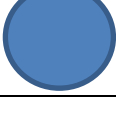
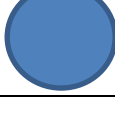
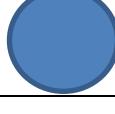
Routine maintenance of project facilities is an essential component of Flood System Preparedness and is conducted by the Yards. Routine annual maintenance of project levees, channels, and flood control facilities begins in March and continues until the beginning of the flood season in October. The project's operation and maintenance manuals and the criteria for evaluating maintenance practices developed by the United States Army Corps of Engineers (USACE) serve as a guide for establishing maintenance practices. The Yards focus on completing all routine maintenance activities (including





























repair of damage caused by previous flood season's high water events) and having adequate flood fighting supplies on hand before the onset of the next flood season.

Levee Maintenance

Maintenance of levees includes: mowing levees and managing vegetation to maintain visibility and accessibility for flood fighting, filling rodent holes, inspecting and repairing pipe penetrations, keeping levee crown roads in good condition, repairing damaged gates, and repairing slumping or eroded levee sections. Levees are inspected four times per year.

- The maintenance area formation on Cache Creek is underway with the completion of the flood benefit map prepared by Wood Rogers. DWR met with Yolo County and the City of Woodland about the upcoming public meeting. In the meeting we determined that a higher resolution was needed for the flood benefit map to isolate individual parcels within Woodland City limits and that is under way. Additionally the County is pursuing an amendment to Water Code 8361 to include this section of levee. That effort will not affect the formation of the State run maintenance area.
- Levee maintenance is mostly complete for the year. Most of the work that occurred last month was application of herbicides and some road grading.
- Levee gate repairs and installation is ongoing in the Sutter and Sacramento maintenance areas.
- Rodent hole grouting was limited this year due to trouble acquiring permits from the California Department of Fish and Wildlife. The few areas that received authorization are complete.
- The following figure shows the status of routine maintenance activities from April 1, 2013 to March 31, 2014.

Maintenance Activities completed for Fiscal year 2013-2014						
	Veg control	Rodent grouting	Encroachment removal	Levee Restoration	Levee road	Minor Structures
MA 1						
MA 3						
MA 4		N/A				
MA 5		N/A				
MA 7		N/A		N/A	N/A	

Maintenance Activities completed for Fiscal year 2013-2014						
	Veg control	Rodent grouting	Encroachment removal	Levee Restoration	Levee road	Minor Structures
MA 9					N/A	
MA 12		N/A	N/A			
MA 13		0%*				
MA 16		N/A			N/A	
MA 17		N/A				
WC 8361 State maintained		 *		N/A		

* = Areas were restricted from grouting due to restrictions in Giant Garter Snake habitat.
 N/A = Not Applicable

CHANNEL MAINTENANCE

Channels are maintained to convey the design flood flow by removing and thinning vegetation, and by removing accumulated debris and sediment as necessary. Hydraulic models are developed and applied to analyze channel flow capacity and identify critical areas within channels where vegetation or sediment needs to be removed to maintain channel capacity. As the models are completed, channel-specific management plans are developed to support on-going maintenance activities in the channel. Approximately 20 % of the project channels will be modeled every year with priority given to channels with suspected deficiencies and every channel will be modeled no less than every 5 years.

Sacramento River Flood Control Project

- Channel maintenance is about 90% complete with respect to mowing, vegetation removal, and spraying. The dry winter has allowed for more work to be completed than originally planned.
- American River Channel Management – Department of Conservation’s Office of Mine Reclamation has contacted us to determine if we have any concerns that the Urrutia Pit site in its current condition has any impact on flood capacity. They would like to close the site as reclaimed under the Surface Mining and Reclamation Act (SMARA). We have extracted hydraulic data for the site from the 2-D model used by USACE for their Lower American River Erosion Study in 2004 and there doesn’t appear to be any flood

control issues. We will be doing a site inspection to compare current conditions in the area to conditions represented in the model.

- Butte Creek Hydraulic Model - Presented model results to internal Maintenance Support Branch team to determine if potential projects to restore channel capacity should be pursued at this time. Finalizing list of proposed projects for FMO management.
- Cherokee Canal Hydraulic Model - No new information this month.
- Chico Area Streams Hydraulic Model – Reviewed draft model report provided by the Northern Region Office (NRO) and provided comments. NRO is finalizing the report and beginning development of a Channel Management Plan for the Chico area streams based on the model results.
- Linda and Arcade Creek Hydraulic Model – No new information this month.
- Natomas Cross Channel (NCC) Hydraulic Model – No new information this month.
- East Side Canal (aka Coon Creek Interceptor) – No new information this month.
- Natomas East Main Drainage Canal (NEMDC) - FMO staff toured the lower NEMDC with staff from MBK Engineers (consultant for SAFCA) to discuss the channel maintenance that was completed last fall. He requested that we provide a copy of the NEMDC Channel Management Plan (CMP) documenting the proposed, completed, and future maintenance work that can be used to demonstrate to FEMA that the channel should meet flood control requirements for the National Flood Insurance Program. We will be preparing an updated version of the CMP in April 2014.
- Putah Creek Hydraulic Model – No new information this month.
- Sacramento River - Provided information on flood flow scour velocities for SERP site near Colusa.
- Tisdale Bypass Hydraulic Model – Model sent to DWR's Northern Region Office (NRO) for QA/QC review.
- Wadsworth Canal Hydraulic Model – Provided information on flood flow scour velocities for SERP sites.
- Willow Slough Bypass - Began evaluating low flow and flood flow scour velocities at each SERP site.

FLOOD CONTROL FACILITIES MAINTENANCE

DWR operates and maintains flood control structures such as weirs, pumping plants, fish ladders, and bridges. Routine activities, such as maintaining electrical and mechanical systems, removing debris from intakes, and inspecting facilities for deterioration, are performed so the facilities are ready for operation.

Facility maintenance is complete for the calendar year.

MAINTENANCE YARD FLOOD SEASON PREPAREDNESS

The Yards serve as first responders for State-operated Maintenance Areas (MA) and those areas where the State Legislature has given DWR levee maintenance responsibilities. By October, the Yards prepare for the next flood season by: restocking flood fighting supplies, conducting flood fight training that is needed for new staff, preparing schedules for high water patrolling or staking that may be conducted during the forthcoming flood season, inspecting and repairing communication equipment, and coordinating flood fighting activities with DWR's Flood Operations Center.

Sacramento Maintenance Yard

The Maintenance Support Branch of FMO, in agreement with the Project Geology Section of DOE, has completed a task order to procure and install an ozone-injection groundwater treatment pilot testing system at the site. The task order with Lettis Consultants, Inc. was fully executed on March 20, 2014, and will include installation and operation of a pilot test system designed to evaluate the feasibility of utilizing ozone injection to mitigate dissolved petroleum hydrocarbon impacts in the groundwater beneath the site. Procurement and installation of the pilot testing system is scheduled to commence during the week of April 21, 2014. Groundwater beneath the site has been impacted as a result of formerly leaking underground storage tanks associated with past fueling operations at the facility.

EMERGENCY RESPONSE

The Yards, when requested, respond to flood events as first responders in areas where they have maintenance responsibilities. They also provide support to other locally maintained areas for flood fighting when requested. No new information this month.

CENTRAL VALLEY FLOOD PROTECTION PLAN (CVFPP) – IMPLEMENTATION

In addition to the routine maintenance described above, FMO is using FloodSAFE bond funds to complete deferred non-routine maintenance projects (such as rehabilitation of pumping plants), and rehabilitation and repair of system facilities, such as removing accumulated channel sediment and repairing major levee and bank erosions sites. The CVFPP identified several near-term priority actions that are being implemented including: development of rural levee repair criteria, proactive erosion repair and stabilization, risk-prioritized repair of critical system problems, rehabilitation and maintenance of all-weather levee access roads, and participation in federal levee repair programs. Implementation of the rural levee projects will be consistent with the State System-wide Investment Approach (SSIA).

LEEVE REHABILITATION AND REPAIR

FMO is supporting the rehabilitation and repair of levees through a variety of cost-share programs with the federal government and local maintaining agencies. A key program for providing local cost-shared assistance in rural/agricultural areas is the Flood System Repair Project (FSRP) that repairs critical damage to flood control facilities. The State, in collaboration with the Central Valley Flood Protection Board (CVFPB) and members of the flood control community, is also developing the Rural Levee Repair Guidelines (RLRG) to provide guidance for repairs of smaller-scale levee deficiencies in rural/agricultural areas. Once developed, these criteria may be applied to repairs conducted under the FSRP.

Small Erosion Repair Program (SERP)

CVFPB staff presented responsible agency CEQA findings to the Board during the March 28, 2014 meeting. The Board approved the CEQA findings. Maintenance Environmental Support Branch staff provided the Board with an update that included identification of 13 potential SERP sites to be repaired this season.

Flood System Repair Project (FSRP)

To date, the Flood System Sustainability Branch has received Letters of Intent (LOIs) from 18 Levee Maintaining Agencies in the Sacramento and San Joaquin River Systems.

These LOIs indicate that the LMA has received FSRP critical sites information and pre-feasibility cost estimates, and is interested in developing project agreements for cost-shared levee repair and access road gravelling projects under the FSRP program.

Rural Levee Repair Guidelines (RLRG)

No new information this month.

Sacramento River Bank Protection Project

No new information this month.

PL 84-99

No new information this month.

CHANNELS – CORRIDOR MANAGEMENT STRATEGY (CMS)

CMS is a concept for planning, designing, and implementing projects for flood control features that DWR has responsibility for maintaining and repairing. It incorporates DWR's environmental stewardship and sustainability policies, and involves developing a vision, strategy, and Corridor Management Plan (CMP) for managing corridors that integrate public safety, environmental stewardship, and economic stability over a long-term (greater than 30 years) planning horizon. CMPs are a foundation for securing programmatic regulatory agency approvals for on-going maintenance activities and habitat restoration. CMPs effectively support the objectives of the CVFPP and Conservation Framework in establishing an integrated management plan to reduce flood risk, improve ecosystem function, and create a more sustainable flood management system that allows for on-going operation and maintenance of flood management facilities.

Lower Feather River Corridor Management Plan (LFRCMP)

The administrative draft LFRCMP with supporting appendices was revised by AECOM (the primary support services contractor) based on DWR review team comments. The revised draft LFRCMP was submitted to DWR CMP management team on March 24, 2014. The draft LFRCMP was distributed to key LMA stakeholders on March 24, 2014 for advance two-week review prior to submitting to the larger LFRCMP work group. The draft LFRCMP is planned to be distributed to the work group for review in early April 2014 and scheduled to return work group comments by early May 2014. A final LFRCMP is planned to be completed in June 2014.

Willow Slough Bypass Channel Rehabilitation Project

No new information this month.

Flood Control Facilities – Rehabilitation and Repair

DWR repairs or replaces flood control structures that are part of DWR responsibilities within the Sacramento River Flood Control Project. These facilities include weirs, pumping plants, fish ladders, outfall gates, and bridges.

Butte Slough Outfall Gates (BSOG)

Findings from the recently received BSOG Overwater Drilling Report have been incorporated into design, CEQA, and permitting efforts. The BSOG rehabilitation project description was finalized and staff is drafting the CEQA document and associated impact analysis. DOE engineers are working to complete the 95% design package which will be reviewed by FMO engineering, environmental, and Sutter Maintenance Yard staff.

Sutter Bypass East Borrow Canal – Weir No. 2

No new information this month.

Pumping Plants

Pumping Plant testing is on-going.

FUNCTIONAL AREA 3 FLOODPLAIN RISK MANAGEMENT

The primary purpose of Floodplain Risk Management is to empower local communities through floodplain management program support and technical assistance to make wise land use decisions in flood prone areas that result in reduced flood risk and preservation of the beneficial uses of floodplains. FPM projects and programs work towards development of a statewide integrated approach for flood risk reduction and long term floodplain sustainability that reduces loss of life and property damage and minimizes the economic impacts associated with flooding.

FLOODPLAIN MANAGEMENT ASSISTANCE

Floodplain Management Assistance provides statewide technical support to federal, state and local agencies, and the public for flood hazard maps, levee data, and the National Flood Insurance Program activities including the Community Rating System (CRS). As part of the NFIP Community Assistance Program (CAP) grant-partnership with the Federal Emergency Management Agency, DWR conducts audits with communities participating in the NFIP, provides technical assistance to the public, and trains community officials.

- Staff hosted a 4-day E273 Managing Floodplain Development Through the National Flood Insurance Program class. The class was attended by 30 students, representing local communities and floodplain management staff throughout California and Nevada.
- Staff proctored the CFM exam on March 14. The exam was taken by 15 people seeking to become Certified Floodplain Managers (CFM)
- Community Assistance Visits have been completed for FY 2013.
- Coordination has started with FEMA to apply for the 2014 CAP grant.

STATEWIDE FLOODPLAIN EVALUATION AND DELINEATION

Floodplain Evaluation and Delineation works to estimate the frequency, depth, and limits of potential flooding throughout the state providing building blocks in terms of floodplain assessments, standards, methodologies, tools, and analyses supporting multiple applications including FloodSAFE programs and projects and FEMA's National Flood Insurance Program. No new information to report.

COASTAL FLOODPLAIN EVALUATION AND DELINEATION (CFED)

The Coastal Data Merge Project is a collaborative effort with the Ocean Protection Council (OPC) with the purpose of merging coastal California's topographic/ bathymetric data into one formatted data set to provide a consistent application for the entire coast of California. No new information this month.

ALLUVIAL FAN FLOODPLAIN EVALUATION AND DELINEATION (AFFED)

The AFFED project team reconvenes, when requested, to develop flood models and preliminary flood hazard delineation maps for California communities. Currently, there are no active AFFED projects. No new information to report.

FLOOD RISK NOTIFICATION

Flood Risk Notification focuses on communicating flood risk and risk mitigation strategies to the public and to local, state and federal agencies for areas protected by the facilities of the State Plan of Flood Control. No new information this month.

FLOOD RISK PLANNING

Flood Risk Planning is focused on incorporating flood risk management into statewide and local land use decision- making to identify potential flood hazards and mitigation strategies to reduce flood risks through creation of integrated planning approaches and datasets that help agencies, communities, and individuals make well informed decisions.

CVFPO staff continues to work on the Senate Bill 1278 (2012) General Plan Amendment Guidance document to assist cities and counties within the Sacramento-San Joaquin Valley amend their general plans. The general plan amendments must include data and analysis contained in the 2012 CVFPP, flood hazard zones, and goals, policies, objectives based on the CVFPP analysis. It is anticipated that the SB 1278 guidance document will be completed in July 2014.

FUNCTIONAL AREA 4 FLOOD PROJECTS AND GRANTS

Flood Protection Projects and Projects Grants has been a long-standing base program, and is expected to continue indefinitely, because of the ongoing need for system improvements and the long-lead time to implement federal flood control projects. The program is responsible for the majority of physical improvements to the flood management system and provides grant money in the Delta and Statewide. The State acknowledges the program need by continuing to be a significant partner in viable flood management projects in the Central Valley, Delta, and Statewide.

CENTRAL VALLEY FLOOD PROJECTS

This element is responsible for the review of flood projects and cost-sharing on federal feasibility studies. It contains three components: Feasibility Studies, Early Implementation Program (EIP) Projects, and Flood Control Projects.

USACE/CVFPB PROJECTS

The Central Valley Flood Protection Board continues to participate with the U.S. Army Corps of Engineers on project non-federal cost-share funding to upgrade the Central Valley's State-federal flood management.

American River Common Features (ARCF) Project

The ARCF project is improving the levee system along the American and Sacramento rivers.

- The non-federal sponsors and USACE are currently negotiating the award for fiscal year (FY) 14 construction projects, including sites R3A, L10, L7, and R7. The design is at 100% for the Northeast Main Drain Canal (NEMDC) North and NEMDC Extension with FY 14 award planned for June 2014.
- Relocation of Sacramento Municipal Utilities District utilities at the NEMDC North site is ongoing.
- USACE has requested a non-federal payment of \$1.1M for FY14 Quarter 4 design and construction.
- The ARCF site L5A initial study is ongoing with CVFPB approval expected in May 2014.
- The ARCF FY14 planned construction includes sites: L7, R7, R3A, L10, NEMDC North/Extension, L5A, Jacob Lane Reach C, and Mayhew Extension.

ARCF – Natomas Basin

The Natomas Basin Project is pending authorization in Congress in the Water Resources Development Act (WRDA) and includes significant improvements to the levees along the southern and eastern boundaries of the basin, and remaining work along parts of the north and western boundaries to improve flood protection to modern engineering standards.

- The U.S. Senate and House continue negotiations over the WRDA S. 601 and WRDA HR 3080 bills in congress. Passage is expected within the next three months and would allow for work to proceed on the Natomas Basin project as soon as State funds or credit are available.
- USACE recently funded the Natomas Basin Project with \$1 million for general investigation of the proposed work. The work will include writing agreements with non-federal sponsors, planning, and preliminary design efforts. The matching State share is approximately \$377,000.
- DWR staff is working closely with SAFCA staff to prepare crediting reports that will request credit from USACE for work that DWR and SAFCA funded along the northern and western boundaries of the basin. Despite efforts to complete these credit reports, the State will need to invest an additional \$630,000 to \$1,000,000 to proceed until credit is approved by USACE in late 2015 at the earliest.

Folsom Dam Raise

The Folsom Dam Raise Project will provide flood damage reduction by increasing the reservoir storage elevation 3.5 feet and performing structural modifications to the existing tainter gates for operational safety. In addition, improvements to the temperature shutters are also planned and ecosystem restoration along the lower American River will provide environmental benefits. The project partnership agreement (PPA) negotiation process with USACE is underway.

Folsom Dam Modifications Joint Federal Project (JFP)

The purpose of the Folsom Dam Modifications Project is to construct an auxiliary spillway at the Folsom Dam that will work in conjunction with the existing spillways to help the Sacramento region achieve a 200-year flood protection level. The estimated completion date for the JFP is October 2017.

Construction and Design – The project status as of February 15, 2014 is as follows:

Phases	Planning & Design	Construction
Pre-construction Engineering and Design	100%	N/A
Phase III – Control Structure	100%	72%
Phase IV – Approach Channel, Chute, and Stilling Basin	100%	15%
Phase V – Site Restoration	22%	0%
Project Overall	90%	41%

- The contractor placed 96,200 cubic yards of concrete equivalent to 89% of the control structure as of February 2014.
- The first gate components for the control structure arrived in February 2014 from Oregon. USACE is scheduling a media event for the gate arrival on April 26, 2014. CVFPB and DWR are invited to the media event.

Lake Kaweah Enlargement Project (Terminus Dam, Kaweah River Project)

The Lake Kaweah Enlargement Project was completed in 2006, and the remaining administrative, financial, and turnover work is planned to be complete by September 2014. No new information to report this month.

Marysville Ring Levee Improvement Project

The Marysville Ring Levee Project will provide a 200-year or greater flood protection level to the city of Marysville by constructing cut-off walls, levee strengthening, and reshaping of the existing levee systems surrounding Marysville.

- Phase 2A design is 90% complete with a construction award planned for summer 2015.
- Phase 2B design will begin in 2015.
- Phase 2C and 3 designs are at 30%.
- Phase 4A construction is planned for FY14 construction. Union Pacific Railroad (UPRR) rights are restricting the project award, and negotiations with UPRR are ongoing.
- The PPA amendment to allow \$23M in Section 221 credit for the future non-federal sponsor is ongoing.

South Sacramento Streams Project

The South Sacramento Streams Project will increase the flood protection level for a portion of the south Sacramento County’s urbanized area and an area to the south and east of the city of Sacramento.

- DWR staff participated in an open house held by the City of Sacramento staff on March 6, 2014 in south Sacramento. Over 20 residents attended the meeting along Florin Creek to discuss the City's encroachment removal process. County Supervisor Jimmy Yee and City Councilwoman Bonnie Pannell attended the meeting.
- USACE recently funded the South Sacramento Streams Project with an additional \$10.8 million in federal funds to complete all remaining work on the project. Remaining work includes construction of Florin Creek flood control improvements and final real estate closeout.

West Sacramento Area Project Slip Repair

The West Sacramento Slip Repair Project was completed in 2011 and is awaiting close-out by USACE. On September 4, 2013, Flood Projects Office staff made a request to the Project Leadership Board to provide the State with a schedule to complete the project closeout and final accounting as soon as possible. No new information to report this month.

USACE/CVFPB STUDIES SECTION

The State, represented by the Central Valley Flood Protection Board, participates and provides cost-share for feasibility studies with the United States Army Corps of Engineers and local partners. Several studies are underway.

American River Common Features (ARCF) General Reevaluation Report (GRR) This study will provide a 200-year level of flood protection for the lower American River, downstream of the Folsom Dam, the Sacramento River (downstream of the Natomas Cross Canal), and the Natomas Cross Canal.

The Sacramento Area Flood Control Agency approved the local feasibility cost share agreement (LFCSA) with the CVFPB on March 20, 2014. CVFPB approved the LFCSA and feasibility cost share agreement (FCSA) between the USACE and CVFPB on March 28, 2014. The LFCSA and FCSA are needed to move forward with the GRR.

Lower San Joaquin River Feasibility Study

This study is a coordinated effort by the State, USACE, and the San Joaquin Area Flood Control Agency to investigate feasible 200-year level flood protection and risk reduction alternatives and opportunities for floodplain restoration, recreational enhancements, and ecosystem restoration and enhancement for the City of Stockton and surrounding areas. No new information this month

Merced County Streams Project-Bear Creek GRR

This project will evaluate options to increase the Merced urban area level of flood protection from a 50-year to 200-year event. No new information this month

Rock Creek/Keefer Slough Feasibility Study

This study will generate an environmental impact statement/environmental impact report (EIS/EIR) and feasibility study to evaluate federal, State, and local interests in planning, designing, mitigating, and improving Rock Creek and the Keefer Slough levee systems in

Butte County. No new information this month

Sutter Basin Feasibility Study

This multipurpose study will address levee improvement measures for existing levee systems protecting Yuba City and the surrounding communities in the Butte/Sutter basin, as well as environmental restoration and recreation opportunities. No new information this month.

West Sacramento GRR

The GRR is being conducted to study future work necessary to provide a minimum 200-year level of flood protection for the City of West Sacramento.

On March 28, 2014, the CVFPB approved amendment No. 2 to the feasibility cost share agreement that increased the total study cost from \$5,700,000 to \$7,800,000. The increase in the study cost was due to additional analysis due to the deep water ship channel closure structure, and other unexpected problems associated with the Sacramento Weir and Bypass widening and the I-Street diversion structure.

West Stanislaus County - Orestimba Creek Feasibility Study

This study will evaluate feasible flood protection alternatives for the city of Newman and the surrounding agricultural areas to achieve a 200-year level of flood protection. No new information this month.

White River/Deer Creek Feasibility Study

This study will generate an EIS/EIR and feasibility study to evaluate federal, State, and local interests in planning, designing, mitigating, and improving existing levee system of White River and Deer Creek in Tulare County. No new information this month.

Woodland/Lower Cache Creek Feasibility Study

This study is a State, USACE, and the City of Woodland coordinated effort to investigate feasible 200-year level flood protection and risk reduction alternatives and opportunities for floodplain restoration, recreational enhancements, and ecosystem restoration for the City of Woodland and surrounding areas. The study will continue efforts initiated during the original study which was suspended in 2004 due to significant local resistance to the USACE-selected flood barrier alternative.

DWR was informed that the study was included in the President's proposed FY15 budget for \$800,000. This is significant because the study has not been included in the federal budget in previous years.

Cache Creek Settling Basin

This settling basin was initially constructed in 1937 and modifications were completed in 1993. As a part of the federal authorization for the most recent improvements completed in 1993, the project authorization specified additional improvements to be considered at year 25 (2018) or when the sediment trapping efficiency falls below 30%. No new information this month.

Yuba River Basin Project GRR

The Yuba River Basin Project GRR consists of increasing the Yuba River Basin flood protection level in Marysville, Linda, Olivehurst, and Arboga. No new information this month.

CENTRAL VALLEY FLOOD PROJECTS

This element is responsible for flood projects review and federal feasibility studies cost-sharing. It contains three components: feasibility studies, Early Implementation Program (EIP) projects, and flood control projects.

EIP PROJECTS

EIP includes projects ready to proceed in advance of the Central Valley Flood Protection Plan. An approval element for these projects ensures they do not eliminate opportunities or prejudice the flood risk reduction alternatives that would provide regional or system-wide benefits.

Knights Landing Levee Repair Project

This project will repair 3.4 miles of levee along the left (east) bank of the Knights Landing ridge cut back to the USACE 1957 design profile. No new information this month.

Levee District 1 (LD-1) – Setback Levee at Star Bend Feather River

LD-1 constructed a 3,400-foot-long setback levee at Star Bend near river mile (RM) 18.0 on the right bank of the Feather River to provide increased flood protection for Yuba City. No new information this month.

Reclamation District 17 (RD-17) – 100-Year Seepage Area Project

RD-17 levees have unacceptably low safety factors due to under-seepage and through-seepage. These issues are being addressed by constructing seepage berms, slurry walls, and a setback levee to increase the flood protection level for south Stockton, Lathrop, and Manteca. No new information this month.

Three Rivers Levee Improvement Authority (TRLIA) – Feather River

This project will result in a 200-year flood protection level for Highway 65 and 70, and will also improve flood protection for Olivehurst, Linda, Plumas Lake, Marysville, and Yuba City. This project includes one of the largest setback levees west of the Mississippi River, and creates 1600 acres for on-site mitigation, agricultural use, and habitat.

The program is evaluating a request from TRLIA to allow the agricultural lease proceeds to be used as endowment for mitigation site in the Feather River setback area. Proposition funding does not allow use of bond funds for endowment.

TRLIA – Upper Yuba River

This project will result in a 200-year level of flood protection for Highway 65 and 70, and will also improve flood protection for Olivehurst, Linda, Plumas Lake, Marysville, and Yuba

City. This project includes a portion of the Yuba River's south levee. No new information this month.

SAFCA – Natomas Cross Canal

This Natomas Levee Improvement Program project will install cutoff walls to prevent seepage, under-seepage, and raise the levee to improve the Natomas Basin's flood protection, and create a 200-year minimum flood protection level. Closeout of the Natomas Cross Canal levee improvements continue.

SAFCA – Sacramento River East Levee

This Natomas Levee Improvement Program project will install cutoff walls to prevent seepage, under-seepage, and raise the levee to improve the Natomas Basin's flood protection, and create a 200-year minimum flood protection level. SAFCA plans to complete components to element 12A (RM 67) along the Sacramento River and have USACE complete the remaining work.

A contract for the reconstruction of the Pritchard Lake Pumping Plant was bid for \$6.4 million and DWR's share will amount to approximately \$1.9M. Total cost will be shared by Northwest Mutual Water Company, USF&W, US Bureau of Reclamation, and SAFCA. Construction is expected to start in April 2014.

SJAFCA – Smith Canal Closure Structure

The Smith Canal Closure Structure Project will construct an Obermeyer gate at the mouth of the Smith Canal on the San Joaquin River/Stockton Deep Water Ship Channel. The cost to design the structure is \$2,412,500. No new information this month.

West Sacramento Area Flood Control Agency (WSAFCA) – North and Southport Improvement

The California Highway Patrol Academy, Rivers, and I-Street Bridge projects are part of the North Area Plan. All construction is complete for these sites. These projects correct through-seepage and foundation under-seepage that have excessive hydraulic gradients, embankment instability, and erosion problems. All three projects are designed to provide a 200-year flood protection level for about 47,000 residents.

The Southport area project is being designed and may include a large setback levee. WSAFCA submitted their funding application for the Southport Setback Levee Project. The project will cover 6 miles of levee improvements, including 4 miles of setback levee, at an estimated total cost of \$183 million.

Sutter Butte Flood Control Agency (SBFCA) – Feather River West Levee Project (FRWLP)

FRWLP is designed to repair approximately 35 miles of levee along the west bank of the Feather River from the Thermalito Afterbay to the north end of Star Bend. The design will include slurry walls and seepage berms to protect Gridley, Biggs, Live Oak, Yuba City, and parts of Sutter and Butte counties. FRWLP's highest priority segment was identified as Project Area C. DWR has decided to pursue this project area as the first construction contract.

- The program is working on a funding commitment letter which will be sent to SBFCA shortly.
- SBFCA received one bid for Project Areas B and D construction. The bid is a joint venture led by Nordic and Magnus Pacific for \$98.9 million and is 3.9% higher than the engineer's estimate.

STATEWIDE FLOOD PROGRAMS

The Statewide Flood Programs provide local entities financial support for State-wide flood and ecosystem restoration related projects. These programs include the Flood Control Subventions Program (FCSP), the Flood Corridor Program (FCP), the Local Levee Assistance Program (LLAP), and the Yuba-Feather Flood Protection Program (YFFPP).

Yuba-Feather Flood Protection Program (YFFPP)

YFFPP provides Proposition 13 financial assistance to local entities that can demonstrate non-structural flood management projects that show a peak flood flow reduction, flood stage, and flood risk in the Yuba and Feather River (including wildlife habitat enhancement and/or agricultural land preservation). No new information this month.

Flood Corridor Program (FCP)

FCP provides local assistance grants to local governments, special districts, and non-profit organizations for flood risk reduction projects using non-structural methods. Each project must also include an ecosystem restoration or agricultural land conservation component. No new information this month.

DELTA FLOOD PROJECTS

This is a grants program that works with more than 60 reclamation districts in the Delta and Suisun Marsh to maintain and improve the flood control system and provide protection to public and private investments in the Delta, including water supply, habitat, and wildlife. The program, through its two major components; Delta Levees Maintenance Subventions Program and Delta Levees Special Flood Control Projects, works with the local agencies to maintain, plan, and complete levee rehabilitation projects. One of the requirements to qualify for available funds is for the project to result in no Delta habitat net loss. Additional Bay-Delta Levees Branch responsibilities are to support the levee system and habitat development; improve Delta flood fight capability through planning, cooperative efforts, encouraging the emergency response plan development for each Delta island; and conducting necessary program studies and contract efforts.

Delta Levees Maintenance Subvention Program

DWR staff, on behalf of CVFPB, initiates and manages work agreements to fund levee maintenance and rehabilitation. The current status of work agreements is as follows:

Work Agreements for FY 2012-2013.

- The CVFPB's executive officer executed 65 work agreements.

- Staff received 60 final claims by the November 1, 2013 deadline totaling approximately \$12 million worth of work.
- DWR staff has conducted 60 joint levee inspections with the California Department of Fish and Wildlife and the local agencies.
- Claims are currently being reviewed for eligibility and completeness. The eligible amounts will be reimbursed to the local agencies after the review.
- Staff has initiated the reimbursement process for 31 final claims totaling \$2.64 million in reimbursements.

Work Agreements for FY 2013-2014.

- On September 13, 2013, the Board approved the FY 2013-14 funding plan for \$12 million dollars. Work Agreements have been mailed to the 67 local agencies for signature.
- 40 signed work agreements have been received which will be routed to the CVFPB's executive officer for execution. Signed work agreements must be received by June 30, 2014.

DELTA LEVEES SPECIAL FLOOD CONTROL PROJECTS

DWR initiates and manages project funding agreements in support of local agency levee rehabilitation, habitat, or other projects. DWR executes agreements under project solicitation packages to authorize the proposed work.

Current information can be found at: <http://www.water.ca.gov/floodmgmt/dsmo/bdlb/spp/>.

FUNCTIONAL AREA 5 EVALUATION AND ENGINEERING

Evaluation and Engineering is a FloodSAFE Functional Area established to address assessments of existing flood management facilities to identify deficiencies and needed improvements. This is a new Functional Area that is expected to continue after the FloodSAFE foundational objectives are met. Functional Area activities are performed in partnership with the USACE, which prior to FloodSAFE, conducted most evaluations and engineering for existing facilities. This Functional Area is based on the acknowledgement that changing conditions, new knowledge about system performance, and eventual facility deterioration will demand continued evaluation and engineering services.

URBAN LEVEE EVALUATION (ULE)

DWR is required to evaluate the current level of performance of the State-Federal flood protection system in the Central Valley. Urban levees are levees that provide protection to developed areas with a population of at least 10,000 people. The evaluation of current urban levee performance is to include an estimate of the risk of levee failure, a discussion of the inspection and reviews performed, and recommendations regarding the levees and future work activities. The geotechnical engineering being performed will help flood managers understand the overall flood risks to populated areas in the Central Valley and consider alternative changes to the flood management system to better manage the risks.

ULE is evaluating 470 miles of urban levees that include State-Federal project levees, as well as appurtenant non-project levees that provide protection to urban areas receiving

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some protection from the State-Federal flood system. Urban levees are being evaluated to determine whether they meet defined geotechnical criteria for landside and waterside slope stability, under- and through-seepage, erosion, freeboard, seismic and, where needed, to identify remedial measures and cost estimates to achieve the defined geotechnical criteria. The information developed to date has been used in support of the Central Valley Flood Management Planning Program to inform development of two required 2012 documents: the Flood Control System Status Report and the Central Valley Flood Protection Plan. Information currently shown in the table below is in process or pending, and will be used to support the 2017 updates to these documents.

The final analyses and Geotechnical Evaluation Report (GER) is the end result of a five-step process that includes the following steps: historical data collection, initial field investigation, preliminary analysis, supplemental field investigation, and final analyses and reporting. Each of these five steps results in the below listed deliverables.

The overall status of the ULE program intermediate and final deliverables for the 27 urban levee study areas are shown in the table below.

No.	Urban Study Area	Historic Data Collection (TRM)	Initial Field Investigations (P1GDR)	Preliminary Analyses	Supplemental Field Investigations (SGDR)	Final Analyses & Report (GER)
1	Chico	Done	Done	Done	Done	In Progress
2	Marysville	Done	Done	Done	Done	Draft volume 1 under DWR/ICB review
3	RD 784	Done	Done	Done	Done	Volume 1 Done
4	Feather River West Levee	Done	Done	Done	Done	Draft volume 1 in preparation
5	Sutter Bypass Wadsworth	Done	Done	Done	Done	Draft volume 1 under review by DWR and ICB
6	American River	Done	Done	Done	Done	Draft volume 1 and 2 in preparation
7	Sacramento River	Done	Done	Done	Done	Draft volume 1 under review by stake holders
8	Davis	Done	Done	Done	Done	Draft volume 1 in preparation
9	Woodland	Done	Done	Done	Done	Draft volume 1 in preparation

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No.	Urban Study Area	Historic Data Collection (TRM)	Initial Field Investigations (P1GDR)	Preliminary Analyses	Supplemental Field Investigations (SGDR)	Final Analyses & Report (GER)
10	NEMDC East	Done	Done	Done	Done	Draft volume 1 in preparation
11	NEMDC West	Done	Done	Done	Done	Draft volume 1 in preparation
12	Natomas North	Done	Done	Done	Done	Draft volume 1 and 2 in preparation
13	Natomas South	Done	Done	Done	Done	Volume 1 draft 2 under preparation
14	West Sacramento	Done	Done	Done	Done	Done
15	DWSC	Done	N/A	N/A	Done	Draft volume 1 in preparation
16	South Sac Streams	Done	N/A	Done	Done	In Progress
17	RD 404	Done	Done	Done	Done	Final volume 1 in preparation
18	RD 17	Done	Done	Done	Done	Draft volume 1 in preparation
19	Bear Creek	Done	Done	Done	Done	Draft volume 1 in preparation
20	Calaveras River	Done	Done	Done	Done	Draft volume 1 in preparation
21	Lincoln Village	Done	N/A	N/A	Draft GDR Complete	In Progress
22	Brookside	Done	N/A	N/A	Draft GDR Complete	In Progress
23	Rough and Ready	Done	N/A	N/A	In Progress	In Progress
24	Boggs Tract	Done	N/A	N/A	Draft GDR Complete	In Progress
25	Shima Tract	Done	N/A	N/A	Draft GDR Complete	In Progress
26	Smith Canal	Done	N/A	N/A	Draft GDR Complete	In Progress
27	Walthall Slough	Done	N/A	N/A	Draft GDR Complete	In Progress

ULE Summary

- Overall, ULE is 89% complete.
- The current date for completion of all GERs is planned for the end of 2014.

- Independent Consulting Board (ICB) Meeting/Teleconference 22 tentatively scheduled for April 17, 2014 (presenting responses to comments from meeting 21 and other technical topics as needed).

NON-URBAN LEVEE EVALUATION (NULE)

DWR is required to evaluate the current level of performance of the State-Federal flood protection system in the Central Valley. Non-urban levees are levees that provide protection to agricultural areas and developed areas with a population of fewer than 10,000 people. The evaluation of current system performance includes an estimate of the risk of levee failure, a discussion of the inspection and reviews performed, and recommendations regarding the levees and future work activities. The geotechnical engineering being performed will help flood managers understand the overall flood risks to populated areas in the Central Valley and consider alternative changes to the flood management system to better manage the risks.

NULE is evaluating approximately 1,500 miles of non-urban levees that include State-Federal project levees and appurtenant non-project levees that also provide protection to non-urban areas receiving some protection from the State-Federal flood protection system. Non-urban levees are being evaluated to determine whether they meet defined geotechnical design criteria at the 55/57 design water surface for slope stability, under- and through-seepage, erosion, and, where needed, identify remedial measures and cost estimates to achieve the defined geotechnical design criteria. The information being developed will be used in support of the Central Valley Flood Management Planning Program to inform development of the six regional plans.

The overall status of the NULE program intermediate and final deliverables for the 21 non-urban levee study areas are shown in the table below.

No	Non-Urban Study Area	Geotechnical Assessment Report (GAR)	Remedial Alternatives and Cost Estimate Report (RACER)	Geotechnical Data Report (GDR)	Geotechnical Overview Report (GOR)
1	Chico/North/South	Done	Done	Done	In Progress
2	Clarksburg	Done	Done	Done	Volume 1 Done , Final volume 2 in Progress
3	Colusa Drain	Done	Done	Done	Final volume 1 in Progress; Draft volume 2 in Progress
4	Colusa North	Done	Done	Done	Draft volume 1 under review by DWR
5	Colusa South	Done	Done	Done	Draft volume 1 revision in Progress

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No	Non-Urban Study Area	Geotechnical Assessment Report (GAR)	Remedial Alternatives and Cost Estimate Report (RACER)	Geotechnical Data Report (GDR)	Geotechnical Overview Report (GOR)
6	Gerber	Done	Done	Done	Volume 1 Done , Draft volume 2 in Progress
7	Knights Landing	Done	Done	Done	Final volume 1 in preparation
8	Sutter	Done	Done	Done	Final volume 1 in preparation, Draft volume 2 in Progress
9	Wheatland	Done	Done	Done	Final volume 1 in preparation
10	Woodland South	Done	Done	Done	Volume 1 Done , Draft volume 2 under review by DWR
11	Ash Slough	Done	Done	Done	Analyses Completed
12	Berenda Slough	Done	Done	Done	Analyses Completed
13	Black Rascal/Fairfield	Done	Done	Done	Draft volume 1 in Progress
14	Diverting Canal/Mormon	Done	Done	Done	Analyses Completed
15	ESB/Chowchilla	Done	Done	Done	Analyses complete
16	Fresno River	Done	Done	Done	Analyses Completed
17	Gravelly Ford	Done	Done	Done	Draft GOR Volume 1 under review by DWR
18	RD 2064	Done	Done	Done	Analyses Completed
19	RD 2075	Done	Done	Done	Analyses Completed
20	RD 2095	Done	Done	Done	Analyses Completed
21	SJRRP/CCID	Done	Done	Done	Draft volume 1 in Progress
22	SJAFCA orphan levees (upper Bear Creek)	Draft GAR under DWR review	NA	NA	NA

NULE Summary

- Overall, Non-Urban Levee Evaluations are 90% complete.

- Preparation of Geotechnical Overview Reports (GORs) is continuing, with the current delivery dates scheduled for mid-late 2014. The results presented in the GORs will support FMO, regional plans, and SJRRP studies.
- Three volume 1 GORs have been completed: Woodland South; Gerber; and Clarksburg.
- A geotechnical assessment of non-urban levees in upper Bear Creek is underway. The draft Geotechnical Assessment Report is under review by DWR.
- An effort is underway to transfer ULE/NULE data to the California Data Exchange Center. The goal of this effort is to make ULE/NULE data available to other potential users at DWR (e.g., maintenance and inspections personnel). Data exchange requirements are being developed. This effort will be completed in parallel with the completion of the ULE/NULE projects.
- An additional effort is underway to add an interface to the DWR web site to make final documents available to the public.
- ICB Meeting/Teleconference 22 tentatively scheduled for April 17, 2014 (presenting responses to comments from meeting 21 and other technical topics as needed).
- Planning is underway for a field investigation in the Knights Landing area. Additional field and lab data will support the LMA's geotechnical evaluation of potential remediation alternatives.

SUPPORT OF OTHER DWR AND USACE PROGRAMS:

Central Valley Flood Planning Program (CVFPP)

In support of CVFPP, ULE and NULE data and preliminary analyses were used to define levee reaches requiring remediation to bring them up to appropriate design standards; develop corresponding conceptual cost estimates; and prepare levee reliability curves and maps showing limits of deficiencies by failure mode (e.g., seepage, stability, erosion). New levee reliability curves, based on analyses completed since 2011, are currently being developed to support the 2017 Central Valley Flood Protection Plan update.

Flood System Repair Project (FSRP)

In support of the FSRP, NULE and ULE information is being used to perform detailed assessment of potential repair sites in 74 Leveed Areas in the Central Valley. The 8000 records and 7000 points of interest collected for NULE were used as a basis for FSRP. Information and processes developed under NULE and ULE have been used to screen, assess and estimate the initial remediation costs of specific repair sites. In addition, FSRP repair sites undergoing further feasibility and design studies will use field investigation and analyses data being performed under the NULE project. Field reconnaissance for the FSRP project was completed by eight teams comprised of a combination of DWR and contractor staff. The Field Reconnaissance Summary Reports for the Sacramento River Basin and the San Joaquin River Basin have been finalized. The Pre-feasibility Cost Estimate Reports for north and south leveed areas have been finalized.

In addition to supporting the FSRP, NULE project information is being used to support development of the Rural Levee Repair Guidelines (RLRG) including preparation of templates for typical repairs. Development of the RLRG involves a collaborative effort with

input from the U.S. Army Corps of Engineers, the Central Valley Flood Protection Board, DWR, local maintaining agencies, subject matter experts, and interested parties. The RLRG have been finalized and are available for LMA use in their project planning process.

San Joaquin River Restoration Program

The ULE/NULE team is supporting the San Joaquin River Restoration Project's efforts to meet the requirement of the settlement to increase the flow in the upper San Joaquin River. This support consists of providing to the Bureau of Reclamation and local maintaining agencies analyses of the geotechnical conditions of levees so that they can manage increases in flow with an understanding of the potential increased risk of flood. Standard geotechnical criteria (factor of safety, exit gradient) are being used. The first phase of field explorations has been completed. Additional geomorphic mapping is complete. Laboratory testing is complete for soil samples from these explorations. Analyses for areas with significant channel fill have been completed and a summary technical memorandum was prepared. A geophysical resistivity study is underway, scheduled to be completed early March, to identify potential anomalous levee conditions between existing exploration locations. The geophysical data will aid in the planning for other Phase 2 field activities. Phase 2 field work will be completed during the summer of 2014.

USACE Lower San Joaquin General Reevaluation Report (LSJGRR)

Remediation cost estimating support – protocol developed for ULE/NULE levee repair cost estimating has been provided to USACE to assist their GRR program for the lower San Joaquin system.

TECHNICAL REVIEW

Geotechnical analyses are being conducting on behalf of the CVFPB on an "as-needed" basis and to support proposed and ongoing capital improvement projects. Collaboration with the USACE is occurring with on-going geotechnical studies, including review of associated documents that may impact the CVFPP.

- ULE/NULE continues providing additional supporting data to USACE for the LSJFS.
- ULE/NULE is providing support for the California Central Valley Coalition.
- ULE continues to review/provide construction support the SBFCA Feather River West design project.

TECHNICAL POLICY SUPPORT

A statewide seismic policy was developed for levee performance, emergency levee remediation, and long-term levee remediation. Urban Levee Design Criteria (ULDC) was developed to guide local urban levee improvement projects. Research is being conducted to resolve gaps in knowledge associated with the effects that woody vegetation growing on or near levees and animal burrowing activities have on levee integrity; and to provide technical support for the development of management policies as part of the CVFPP.

- For vegetation issues, joint research with Sacramento Area Flood Control Agency (SAFCA) continues with ULE/NULE logistical and technical support. The following studies have been or are nearly completed:
 - Tree Root Architecture – How and where do tree roots grow on and near levees?

- Levee Slurry Wall Investigations – Do tree roots penetrate slurry walls? What are their effects?
- How Trees affect Seepage and Stability of Levees – Do tree roots become preferential seepage pathways through a levee and do trees contribute to levee slope instability?
- Tree Windthrow – What are the forces necessary to topple trees on California Levees?
- Forensics – Has woody vegetation affected historic levee performance?
- An effort is being undertaken to conduct research, including records research and interviews, about points of interest for which the impact of vegetation on levee performance could not be ascertained based on currently available information.
- In support of the Flood Maintenance Office, a study is under way to assess the impact of burrowing mammals on the geotechnical performance of levees. The Technical Memorandum describing this study is scheduled to be completed in April 2014.
- In addition to the static evaluation process, two seismic studies are being performed for the ULE project. The objective of the first study is to develop conceptual seismic remediation alternatives and associated costs for areas of urban levees that have been identified as being potentially compromised by earthquake loading in the GER. The second seismic study focuses on West Sacramento as a prototype to perform economic analyses and to develop a cost/benefit assessment for seismic remediation. As part of this effort, a draft Seismic Remediation Alternative Report and a prototype seismic remediation cost/benefit study reports for the West Sacramento study area were prepared.
- Participated in various FloodSAFE FAXCTs (Functional Area Cross Coordination Teams).

FUNCTIONAL AREA 6 FLOOD MANAGEMENT PLANNING AND CONSERVATION STRATEGY

The Flood Management Planning and Conservation Strategy Functional Area refer to the planning and analysis necessary to evaluate flood systems as complete systems consistent with the intent of the FloodSAFE Implementation Plan rather than a set of individual, isolated projects. This functional area consists of three elements: Central Valley Flood Management Planning (CVFMP) Program, Statewide Integrated Flood Management Planning, and Conservation Strategies.

CENTRAL VALLEY FLOOD MANAGEMENT PLANNING (CVFMP)

The CVFMP Program is one of several programs being managed within FloodSAFE California. The CVFMP Program addresses most of the flood-related planning activities that were authorized by the Legislature during the 2007/2008 session within much of the Central Valley. The CVFMP Program consists of two primary projects - State Plan of Flood Control (SPFC) and the Central Valley Flood Protection Plan (CVFPP).

State Plan of Flood Control (SPFC)

The SPFC primarily includes: (1) SPFC Descriptive Document and (2) Flood Control Systems Status Report (FCSSR), which were completed and provided to Central Valley Flood Protection Board (Board) in November 2010 and December 2011, respectively.

The SPFC Descriptive Document is to be updated as the SPFC is modified. The FCSSR is to be updated in 2016, and in subsequent years ending in 1 and 6.

Central Valley Flood Protection Plan (CVFPP)

The CVFPP reflects a system-wide approach to protecting lands currently protected from flooding by the SPFC. The Board adopted the 2012 CVFPP on June 29, 2012. The CVFPP is to be updated in 2017, and in subsequent years ending in 2 and 7. The 2012 CVFPP presents a State Systemwide Investment Approach (SSIA) for making improvements to the SPFC over time through five flood management programs: (1) Flood Emergency Response Program, (2) Flood System Operations and Maintenance Program, (3) Floodplain Risk Management Program, (4) Flood System Assessment, Engineering, Feasibility, and Permitting Program, and (5) Flood Risk Reduction Program. Two important components in further refining flood system improvements include developing Regional Flood Management Plans (RFMP) and two State-led Basin-wide Feasibility Studies (BWFS).

Regional Flood Management Planning (RFMP)

RFMP is a DWR sponsored and locally led planning process to develop a long-term vision of flood management in six regions in the Central Valley. Initial elements of the RFMPs include a Regional Flood Atlas, information on Regional Flood Management Priorities, and a Regional Financial Plan. RFMPs are being coordinated with the two BWFS led by DWR. DWR staff continues to support RFMP efforts. DWR staff and SPFC Coordinators have participated in locally led workgroups and meetings to help with identifying regional problems, financial planning, flood emergency response, and small community protection strategies.

Monthly progress reports and RFMP activities are provided directly to the Board by Kim Floyd.

Basin-Wide Feasibility Studies (BWFS)

The two BWFS (Sacramento River Basin and San Joaquin River Basin) are being conducted to describe the State's flood management objectives in each river basin, refine the scale and location of system elements in connection with regional improvements in the SSIA, inform development of the CVFPP financing plan, and integrate a system-wide environmental conservation strategy. To support development efforts of the BWFS, major work efforts are divided into Plan Formulation, Technical Evaluations, and Communication and Engagement and Coordination.

Plan Formulation

CVFPO staff is conducting necessary analysis and developing documentation for completion of Milestone 2. With an anticipated completion date of April 2014, Milestone 2 will document the plan formulation approach for a range of SSIA consistent system configurations. The identified system configurations will undergo robust technical analysis including a trade-off analysis after the completion of Milestone 2.

Technical Evaluations

The Central Valley Flood Planning Office (CVFPO) continues to work on a number of tasks to support the Sacramento River and San Joaquin River Basin-wide Feasibility Studies. Some of these tasks include assessing potential bypass system modifications to the State Plan of Flood Control (SPFC) to improve flood conveyance, and developing economic analysis procedures for flood management studies. The technical evaluation being undertaken for the feasibility studies utilizes the following tools: No new information this month.

Communication, Engagement, and Coordination

No new information this month.

STATEWIDE INTEGRATED FLOOD MANAGEMENT PLANNING

The Statewide Integrated Flood Management Planning Program (SFMP) is intended to address flood risk to life and property statewide, and develop recommendations to guide the state's flood risk management strategic policies and investment decisions. The program inventoried existing and future flood management needs in the state's regions, identified opportunities for integrated flood management, and formulated potential integrated flood management solutions. The program published the report titled "Report on Flood Future: Recommendations for Managing California's Flood Risk" (Flood Future Report). In addition, SFMP includes integration of flood management into the California Water Plan.

Flood Future Report

- The final draft of the Flood Future Report was produced on November 4, 2013.
- Work is beginning on the development of a Phase 2 effort which includes development of a Water Management Investment Strategy, of which a draft is to be completed in January 2015.
- An effort to gather information from agencies responsible for water management throughout the State is currently in the initial stage. Information to be gathered will include: capital and O&M needs; permitting and alignment opportunities; challenges; and financing options.

Integrated Flood Management in the California Water Plan

Work is ongoing to finalize flood content into the final version of all the Water Plan Update 2013 volumes.

CONSERVATION STRATEGIES

The Conservation Strategies Element is designed to provide support and integrate environmental stewardship into the CVFMP Program. Therefore, major progress, such as the status of key documents, progress on major milestones, and upcoming events, is described under the Central Valley Flood Management Planning section above.

Conservation Strategy Document

The Internal Administrative Draft Conservation Strategy (CS) will be released within DWR on April 7th, with comments due April 18th. DWR staff will meet with the Interagency Advisory Committee on May 8th to focus on key changes in the document, prior to release

of the revised Administrative Draft CS to IAC agencies and selected stakeholders on May 14th. DWR will meet with the IAC again on June 12th for a discussion of agency comments. A CVFPB briefing is planned for July 25, with the release of the public draft document following soon afterwards.

Basin-Wide Feasibility Studies Alignment and Integration

Staff continues to work closely with CVFPO to integrate ecosystem elements with flood system improvement options as CVFPO moves forward in 2014 with modeling potential configurations for the Sacramento BWFS and San Joaquin BWFS elements on a more detailed level.

Integrated Flood and Restoration Projects

- *Salmonid Advanced Mitigation Bank* - The contract is ready for final signature by Westervelt, and then will be sent to DWR and DGS for final approval.
- *TRLIA Levee Setback* - DWR and TRLIA are in discussions about how to establish an endowment and move forward with the project.
- *1000 Acre Ranch* - DWR is working on the process and requirements for transferring the 1000 Acre Ranch title and a conservation easement to facilitate DWR's acquisition of the property.

Regional Permitting – Feather River HCP/2081

Staff initiated outreach to local interests, including meeting with Farm Bureau and RCD representatives to discuss the Feather River Regional Permitting Program. The HCP Development Team meeting is scheduled for Thursday April 10th. A Terrestrial Technical Advisory Committee meeting is scheduled for Wednesday April 30th to discuss species needs and goals/objectives for conservation of covered terrestrial species.

Regional Flood Management Plan (RFMP) Environmental Support

Meetings to discuss the Conservation Strategy and potential opportunities for integrated flood management projects with remaining RFMP leads are being scheduled for April. Staff continues to attend RFMP meetings to provide information about the Conservation Strategy. They have provided all regions with important environmental data and other information useful for RFMP planning.

Permitting Of Advance Mitigation in the Floodway

DWR provided support for a CVFPB staff presentation to the CVFPB on March 28th, which included basic background information and proposed next steps.

Refinement Of Levee Vegetation Management Approach

Staff has been working to refine the systemwide approach to managing levee vegetation. Based on a robust synthesis of research and in consultation with key interests, staff has developed an improved approach that focuses on inspection visibility and accessibility, as well as targeting potentially hazardous trees. In March, staff presented this approach to the Floodplain Managers Association on March 20th. Staff will present the approach to the full CVFPB in May.

The primary goal of the Legislation, Budget, and Communication functional area is to facilitate legislation, budget, and communication matters to aid the efficient work of all functional areas in improving flood safety. This functional area will work to secure sustainable funding to implement the FloodSAFE initiative and to secure legislative support for all other functional areas that must continue indefinitely into the future. It is also responsible for coordination and public outreach consistency.

Communication and Briefing Materials

In March 2014, the FloodSAFE Program Management Office completed the 2013 California FloodSAFE Annual Report. The Annual Report highlights 55 accomplishments achieved during 2013 and categorizes these accomplishments in the five FloodSAFE Mega Programs. Over \$460 million in State funds were expended to achieve the FloodSAFE goals of public safety, economic stability and environmental stewardship. The report is available at: http://www.water.ca.gov/floodsafe/docs/2013-FloodSAFE-AnnualReport_March2014.pdf.

Funding Advocacy and Agencies' Alignment

No new information to report this month.