# **Regional Priorities White Paper**

# Upper San Joaquin River

# **Regional Flood Management Planning**



# April 2021

Upper San Joaquin River Regional Flood Management Plan



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The Upper San Joaquin River (USJR) Region has historically experienced major losses as a result of flooding events. Significant improvements are needed to reduce the risk of flooding, and substantial funding is needed to support these investments. The Region is one of six regional flood management planning areas included in the Central Valley Flood Protection Plan (CVFPP). The Region prepared its first Regional Flood Management Plan (RFMP) in 2015.<sup>1</sup>

## Introduction

The purpose of this paper is to outline the most critical regional issues, identify regional implementation priorities, and articulate the significant funding needed to reduce flood risk within the Region. The regional priorities identify significant project funding needs to be considered by Department of Water Resources (DWR) during preparation of the 2022 CVFPP Update.

The San Joaquin River Flood Control Project Agency (SJRFCPA) is a joint powers authority created to lead the USJR RFMP and to represent local agency and landowner interests. The SJRFCPA consists of the Lower San Joaquin Levee District (LSJLD) and San Joaquin River Exchange Contractors Water Authority (SJRECWA). The Region includes a diverse set of stakeholder groups that includes counties, cities, small communities, local maintaining agencies (LMAs), nongovernmental entities, landowners, wildlife refuges, State of California (State) and federal agencies, and other interested parties.

The Region covers approximately 660 square miles of the San Joaquin Valley, and encompasses areas protected by State Plan of Flood Control (SPFC) facilities along the San Joaquin River; Ash Slough, Berenda Slough, and Fresno River; and Black Rascal Creek, Owens Creek, and Bear Creek. The Region is home to some of the most productive agricultural land found in California and accounts for a large portion of its economy. Just over one-third of the Region (145,000 acres) is native vegetation/riparian habitat with contiguous wetland complexes that support more than 550 identified species of birds, animals, and plants.

Almost all the communities (more than 10) in the Region are considered disadvantaged communities (DACs) based on income level and need significant financial support. The major cities within the Region include the Cities of Firebaugh, Mendota, Dos Palos, Merced, and Los Banos. The City of Merced is the only city within the Region facing 200-year urban level of flood protection requirements per Senate Bill (SB) 5. No known tribal lands are located within the Region.

Flood management issues include subsidence, insufficient or aging infrastructure, seepage, loss of hydraulic capacity due to sedimentation and vegetation encroachment, complex system operations, and lack of adequate funding. Complex, institutional, and onerous permitting and

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<sup>&</sup>lt;sup>1</sup> Upper San Joaquin Regional Flood Management Plan (February 2015), <u>https://usirflood.org/2015/03/09/final-rfmp/</u>.

compliance issues make the implementation of flood management actions, and even routine operations and maintenance (O&M), difficult if not impossible. These issues and deficiencies challenge the function and reliability of the flood management system.

# **Regional Accomplishments**

Implementation of needed flood risk reduction projects and improvements have been historically slow due to limited State and federal financial investment. However, there have been some recent accomplishments that provide positive momentum for the Region going forward. These accomplishments include:

- Black Rascal Creek Flood Control Project: This project contributes toward a 200-year urban level of flood protection for the City of Merced and a 100-year level of protection for the small community of Franklin-Beachwood. Merced Streams Group (MSG) secured approximately \$10 million in federal funding from the Natural Resources Conservation Service.
- Small community of Franklin-Beachwood: MSG applied for and received \$500,000 to perform a feasibility study under Phase 1 of the Small Communities Flood Risk Reduction Program (SCFRRP). The recommended flood reduction alternative was the Black Rascal Creek Flood Control Project. Additionally, MSG was successful in securing approximately \$9.7 million in State implementation funding in 2020 from DWR's SCFRRP. Project design is in progress and the necessary permits are underway.
- Decreasing deferred maintenance: Madera County Flood Control and Water Conservation Agency (MCFCWCA) received \$5.1 million in funding from DWR's Proposition 84 program that allowed over 450,000 tons of sediment and extensive Arundo infestation to be removed in both the Ash and Berenda Sloughs. Additionally, funding for the last 3 fiscal years from DWR's Flood Maintenance Assistance Program (FMAP) has helped MCFCWCA purchase necessary equipment, mow vegetation, and begin ground rodent abatement, among other maintenance activities. Finally, Deferred Maintenance Program funding of \$311,000 allowed LSJLD to perform video inspections of approximately 190 levee pipe penetrations and funding of \$46,080 allowed MCFCWCA to perform the same inspections on 28 levee pipe penetrations.
- Decreasing deferred maintenance: In Madera County, \$9.4 million in funding from DWR's Proposition 84 program allowed 300,000 tons of sediment and extensive *Arundo* infestation to be removed in Ash Slough. Additionally, funding for the last 3 fiscal years from DWR's FMAP program has helped Madera County address permitting requirements for vegetation removal and ground rodent abatement, among other maintenance activities. Finally, Deferred Maintenance Program funding of \$311,000 allowed LSJLD to perform video inspections of approximately 190 levee pipe penetrations.
- Great Valley Grasslands Floodplain Restoration Project: This project is progressing with Permit 19513 recently approved by the Central Valley Flood Protection Board (CVFPB), to breach the existing left (southwest) bank levee of the San Joaquin River at three locations to

re-establish a hydraulic connection with the San Joaquin River. Initial project development was funded by a Proposition 1 grant from California Department of Fish and Wildlife (CDFW), with additional technical support provided by DWR. Implementation funding is still needed for a total estimated project cost of \$4.93 million.

- Increasing collaboration between flood and groundwater sectors: Recent collaboration has stimulated opportunities for multi-benefit solutions for Flood Managed Aquifer Recharge (Flood-MAR) projects. As of October 2020, \$800,000 has been invested by Merced Irrigation District (MID) and its partners to secure water rights to implement these types of Flood-MAR projects for the basin.
- **DWR Flood System Repair Program (FSRP):** FSRP funded graveling of 30.5 miles of levee roads and rehabilitation of the electrical equipment and wiring upgrades for four flood control structures with 22 radial gates on the flood bypasses. Additionally, \$2.4 million in FSRP funds were awarded to MCFCWCA to address sites of historic flood events by constructing seepage berms.

## **Regional Challenges**

The Region has a long history of flooding with events in the 1980s, 1990s, 2000s, and 2010s. Notably, a 1997 event, levee breaches on the San Joaquin River inundated agricultural lands and attenuated flood flows to the downstream City of Firebaugh. In 2006, flooding forced the evacuation of more than 3,400 citizens in the City of Merced and sparked numerous lawsuits over residential damage.

Flood management issues include land subsidence, insufficient or aging infrastructure, seepage, loss of hydraulic capacity due to sedimentation and vegetation

Black Rascal Creek Flooding, 2006

encroachment, complex system operations, and lack of adequate funding. Complex, institutional, and onerous permitting and compliance issues make implementation of flood management actions, and even routine O&M, difficult if not impossible. The LSJLD, MSG, and MCFCWCA are the primary agencies responsible for flood management and for O&M of flood facilities in the Region. The following primary challenges face the Region:

 Deauthorization of San Joaquin River Flood Control Project (SJRFCP) from the SPFC. The July 2015 letter from the U.S. Army Corps of Engineers (USACE) resulted in 192 miles of levees being deauthorized and ineligible for assistance from the USACE Public Law (PL) 84-99 disaster assistance and rehabilitation program. The State (DWR and CVFPB) has yet to formally respond to the 2015 letter from the USACE, leaving the LSJLD without PL 84-99 federal emergency funding.

- Limited ability to fund flood management infrastructure and O&M. The rising costs of permitting, labor, and materials pose a major financial challenge for implementing agencies and DACs, which already have limited local funding capacity and limited O&M budgets to maintain existing facilities.
- Extreme subsidence/sedimentation are reducing channel conveyance. Subsidence due to deep well groundwater pumping has caused a significant decrease in flood bypass conveyance capacity and damage to local infrastructure. Channel erosion and sedimentation also pose significant issues for the Region and contribute to further loss of channel conveyance capacity.
- Increasing permitting restrictions reduce ability to conduct routine maintenance. New
  permitting requirements have increased maintenance costs and significantly delayed
  maintenance activities, creating a major backlog of deferred maintenance. Recent flooding
  events have resulted in lawsuits for flood damages and considerable expense to responsible
  LMAs. In addition, LMAs have limited funding and staff resources to maintain existing
  facilities and deal with this increasing maintenance backlog.
- Lack of sustainable funding due to State action. MCFCWCA depends entirely on its portion of property tax revenue collected by Madera County. Beginning in 1993, approximately 75% of the tax revenue for MCFCWCA has been taken each year and transferred to the Education Revenue Augmentation Fund to support local schools. This action was mandated by the State to reduce its obligation to fund education. In addition to the Education Revenue Augmentation Fund mandate, in 1993 the State abolished the Special District Augmentation Fund, which provided supplemental funding to special districts following the passage of Proposition 13. As a result of the State's actions, approximately \$700,000 of tax revenue is diverted each year, leaving MCFCWCA with insufficient funds to meet its O&M obligations.

# **Regional Priorities and Opportunities**

The Region's priorities include the following:

- Restore federal authorization for the SJRFCP.
- Improve O&M and ability to obtain permits.
- Restore the flood system to the original design capacity or increased capacity where it is feasible and reasonable to do so.
- Provide 200-year flood protection per SB 5 for urban areas (Merced).
- Provide 100-year flood protection per SB 5 for small communities of Franklin-Beachwood, Firebaugh, and Dos Palos.
- Facilitate the modification or removal of levees from the SPFC.
- Preserve the unique and historical agricultural community.
- Expedite the permitting and construction of infrastructure improvements.

Several Region-wide opportunities and basin-wide studies that offer benefits to the Region and both other RFMP regions in the San Joaquin basin.

#### Region-wide Opportunities

The 2015 RFMP identified structural and nonstructural projects and actions that address a range of critical flood-related problems. When taken holistically, these improvements will reduce residual flood risk in the Region and in some cases provide multiple benefits.

The potential multi-benefit opportunities in the Region involve diversion of flood flows onto adjacent lands through levee modification or removal, levee breaching, operable gates, pumps, and improved conveyance between the floodplains and the main river channel or bypass system. Proposed multi-benefit opportunities in the Region that should be considered for funding are included in Table 1. Table 1 also includes proposed studies identified by local stakeholders that are recommended for further evaluation.

Proposed Multi-benefit Opportunities	Recommended Basin-wide Studies
1. Great Valley Grasslands State Park Project	1. Forecast-coordinated operations
2. City of Firebaugh 100-year level of flood protection	2. Forecast-based operations
3. Merced and Western Madera County Subsidence Groundwater Recharge projects	3. Evaluation of upstream storage
4. San Luis National Wildlife Refuge West Bear Creek Project	4. Regional sediment study
5. Invasive Vegetation Monitoring and Treatment	5. Improved O&M permitting
	6. Improved governance and sustainable funding

Table 1. Multi-benefit Opportunities and Recommended Studies of Basin-wide Importance

The section below indicates priorities for each of the five major flood planning entities within the Region. These priorities are the focus for the next five years of implementation for the respective areas. State and federal support for these priorities and financial assistance will be critical to their success.

#### Lower San Joaquin Levee District

The LSJLD was formed in 1955 by a special act of the legislature to operate, maintain, and perform minor repairs on levees, bypasses, and other facilities built in connection with the SJRFCP, which includes 192 miles of levees that protect more than 300,000 acres of prime agricultural land. LSJLD's highest priorities include the following:

• DWR and CVFPB need to respond to the USACE's letter that deauthorized the SJRFCP and request the USACE to reauthorize federal recognition of the SJRFCP to make it eligible for PL 84-99 funding.

- The State should establish a protocol and funding for future emergency assistance to the SJRFCP if the USACE will not reconsider federal authorization of the SJRFCP.
- Direct-assistance rehabilitation funding for projects that will mitigate the loss of conveyance capacity due to extreme subsidence that has occurred in the Region. The program should also include funding for local Sustainable Groundwater Management Act groundwater recharge projects that will stop further loss of channel capacity due to subsidence.
- DWR and CVFPB establish a funding and maintenance agreement with the federal San Joaquin River Restoration Program for the maintenance of flood bypass infrastructure and vegetation management under wetted conditions.

Table 2 provides the highest priority projects for the LSJLD.

No.	Project Name	Estimated Cost (\$M)	Timeframe <sup>a</sup>	Current Status
1	Great Valley Grassland State Park Project	\$4.93	Short-term	In progress
2	Bridge Enlargement over Eastside Bypass at Sandy Mush Road	\$1.61	Short-term	Not yet started
3	Enlarge Chowchilla Canal Bypass Control Structure	\$3.38	Short-term	Not yet started
4	<ul> <li>Conveyance and Subsidence Rehabilitation Projects</li> <li>Raise part of Left Bank Levee Unit 6</li> <li>Rehabilitation of San Joaquin River Control Structure</li> <li>Sediment removal in the Eastside Bypass</li> </ul>	\$17.62	Long-term	Not yet started

#### Table 2. LSJLD's Highest Priority Projects

<sup>a</sup> Short-term is if project construction is feasible within the next 5 years; long-term is if project construction is feasible with a timeframe >5 years.

#### Merced Area

MSG is a nonbinding partnership between the City of Merced, County of Merced, and MID to conduct O&M on approximately 107 miles of natural channels within Merced County. MSG's highest priorities include the following:

- Assistance from DWR and CVFPB to facilitate a successful and timely 408 permit process for the Black Rascal Creek Flood Control Project.
- Evaluate options to create a formal joint powers authority agreement for partner agencies to support improved operation and maintenance.
- Assistance with a major amendment to the County California Department of Fish and Wildlife O&M permit that is currently in development. Propose revisions to the

draft agreement measures to protect fish and wildlife resources and requirements for additional environment review.

- Promote synergies between flood and groundwater management through Flood-MAR partnerships with MID and DWR.
- Improve existing flood facilities to provide the required 100-year and 200-year levels of flood protection.

Table 3 provides the highest priority projects for MSG.

Table 3. MSG's Highest Priority Projects
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No.	Project Name	Estimated Cost (\$M)	Timeframe <sup>a</sup>	Current Status
1	Black Rascal Creek Flood Control Project	\$32.98	Short-term	In progress
2	Le Grand Canal Flood Control Structure at Black Rascal Creek	\$1.60	Short-term	In progress
3	Flood-MAR Water Right	\$40.00	Short-term	In progress
4	<ul> <li>Increase local storage for flood capacity</li> <li>Burns Reservoir enlargement</li> <li>Bear Reservoir enlargement</li> <li>Mariposa Reservoir enlargement</li> <li>Owens Reservoir enlargement</li> </ul>	\$363.5	Long-term	Not yet started

<sup>a</sup> Short-term is if project construction is feasible within the next 5 years; long-term is if project construction is feasible with a timeframe >5 years.

#### Madera Area

The MCFCWCA was formed in 1969 to be responsible for flood control planning in the county. MCFCWCA is responsible for the maintenance of 75 miles of channels and 26.33 miles of SPFC levees on Ash Slough and Berenda Slough, as well as on the Fresno and Chowchilla river systems. MCFCWCA's highest priorities include the following:

- Regain sustainable funding to meet O&M obligations.
- Maintain existing system, including sediment removal from channels, vegetation removal from channels and levees, and rodent abatement.
- Coordinate regionally with permitting agencies to develop a streamlined cost-reimbursable permitting program to reduce the time and costs associated with routine maintenance actions.
- Support to develop Systemwide Improvement Frameworks for Ash Slough, Berenda Slough, and the Fresno River levees.

Table 4 provides the highest priority projects for MCFCWCA.

No.	Project Name	Estimated Cost (\$M)	Timeframe <sup>a</sup>	Current Status
1	Development of Sustainable Funding Mechanisms	\$1.00	Short-term	In progress
2	Vegetation removal	\$1.00	Short-term	In progress
3	Sediment removal	\$1.30	Short-term	In progress
4	Divert excess water from flood bypasses for recharge opportunities (identified in GSPs)	\$303.9	Short-term	In progress

#### Table 4. MCFCWCA's Highest Priority Projects

<sup>a</sup> Short-term is if project construction is feasible within the next 5 years; long-term is if project construction is feasible with a timeframe >5 years.

#### Exchange Contractors

The San Joaquin River Water Exchange Contractors were established in 1939 and hold some of the oldest water rights in California. The SJRECWA services approximately 240,000 acres of prime agricultural land along the San Joaquin River and is made up of the following San Joaquin River Water Exchange Contractors: Central California Irrigation District, San Luis Canal Company, Firebaugh Canal Water District, and Columbia Canal Company. The SJRECWA plays a critical role in San Joaquin River flood operations, water supply management, and addressing groundwater and subsidence issues.

SJRECWA's highest priorities include the following:

- Develop and implement multi-benefit project opportunities for regional self-sufficiency and diversification of water supplies by the diversion of flood waters for storage and groundwater recharge to reverse the deterioration of facilities due to land subsidence
- Implementation of Sustainable Groundwater Management Act projects consistent with local groundwater sustainability plans in collaboration with regional partners

Table 5 provides the highest priority projects for SJRECWA.

No.	Project Name	Estimated Cost (\$M)	Timeframe <sup>a</sup>	Current Status
1	Los Banos Creek Detention Reservoir Regulation and Storage	\$3.50	Short-term	In progress

#### Table 5. SJRECWA's Highest Priority Projects

2	Los Banos Creek Storage and Recapture Project	\$10.00	Short-term	Not yet started
3	Western Madera and Merced County Subsidence Solution (Red Top Joint Banking Project)	\$13.90	Short-term	In progress

<sup>a</sup> Short-term is if project construction is feasible within the next 5 years; long-term is if project construction is feasible with a timeframe >5 years.

#### City of Firebaugh

The City of Firebaugh is within the 100-year floodplain. Historically, flood fighting in the City of Firebaugh has been undertaken by DWR because the City does not have adequate resources. The State's and the LSJLD's responsibility for O&M in the Region includes the channel bottom of the San Joaquin River adjacent to the City of Firebaugh but does not include the non-project levees adjacent to the City of Firebaugh on the San Joaquin River. The City of Firebaugh's highest priorities include the following:

- City of Firebaugh requests funding from State and federal partners for implementation of flood risk reduction measures identified in the 2015 RFMP and under further evaluation in the current DWR funded feasibility study
- City of Firebaugh requests technical and financial support from State and federal partners to incrementally work toward a 100-year level of protection

Table 6 provides the highest priority projects for City of Firebaugh.

No.	Project Name	Estimated Cost (\$M)	Timeframe <sup>a</sup>	Current Status
1	San Joaquin River Levee at Firebaugh Wastewater Treatment Plant	\$1.28	Short-term	Plan Formulation
2	San Joaquin Riverbank Stabilization at Firebaugh	\$1.8	Short-term	Plan Formulation
3	San Joaquin River Levee at Firebaugh Rodeo Grounds	\$1.45	Short-term	Plan Formulation

#### Table 6. City of Firebaugh's Highest Priority Projects

<sup>a</sup> Short-term is if project construction is feasible within the next 5 years; long-term is if project construction is feasible with a timeframe >5 years.

#### San Luis National Wildlife Refuge

The San Luis National Wildlife Refuge (SLNWR) provides habitat for a wide array of wildlife, including waterfowl, shorebirds, and other wetland-dependent wildlife, songbirds, uplands-

associated wildlife, and endangered species. There were many potential projects identified in the 2015 RFMP to use flood waters for refuge management and habitat enhancement. The SLNWR focuses on floodplain projects through the San Joaquin River Restoration Program which is strategic in the overall management of floodplains and natural resources.

The West Bear Creek Project is one of the largest opportunities that has been considered by the US Fish and Wildlife Service (USFWS). This floodplain restoration project would allow for the diversion of floodwater into a naturally existing basin that is currently cutoff from the San Joaquin River. An initial study of the project concept was conducted in July 2000.

The USFWS is also coordinating with the San Joaquin River Restoration Program to identify additional opportunities for restoration.

### Conclusion

The Region has made progress toward reducing flood risk to its local communities despite the financial hardships facing many of its disadvantaged communities. With assistance from the RFMP process and acquisition of State and federal funding, a number of critical projects are in the feasibility and design stages of implementation, including Great Valley Grasslands State Park Project, Black Rascal Creek Flood Control Project, and the City of Firebaugh Feasibility Study. The current RFMP process provides crucial regional support to continue to facilitate, develop, and acquire funding to implement the Region's priority projects and promote better collaboration and flood management.

However, significant challenges lie ahead and need to be surmounted to address flood management issues including subsidence, insufficient or aging infrastructure, seepage, loss of hydraulic capacity due to sedimentation and vegetation encroachment, complex system operations, onerous permitting and compliance issues, and lack of adequate funding. These issues and deficiencies challenge the function and reliability of the flood management system.

Near-term priorities for the Region include addressing both policy-related and project implementation priorities that are critical to alleviating these challenges. Addressing these priorities will require significant levels of support from the Region's State and federal partners. Many of these challenges can be addressed with the development and implementation of multi-benefit projects that reduce flood risk, promote sustainable agriculture, enhance wildlife habitat, improve water supply reliability, address subsidence, and provide recreational opportunities.

Development of these multi-benefit projects is critical to the preservation of highly productive agricultural lands and the variety of habitats that support fish and wildlife species in the Region. The Region supports environmental and agricultural stewardship and is a strong advocate for the synergies between flood, water supply, ecosystem, and groundwater management. Multi-benefit projects promote and utilize creative operations, partnerships, and funding opportunities that optimize the limited resources available. The Region has identified a series of priorities and projects in this white paper that address a range of critical flood-related

challenges. When taken holistically, these priorities and projects will work to reduce flood risk and preserve and enhance the agricultural economy and environmental resources of the Region.