



REGIONAL PRIORITIES WHITE PAPER

LOWER SAN JOAQUIN RIVER & DELTA SOUTH RFMP

2022 CENTRAL VALLEY FLOOD PROTECTION PLAN

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This white paper describes the regional flood management priorities developed by the Lower San Joaquin and Delta South (LSJ/DS) region as part of the third phase of the Department of Water Resources' (DWR) Regional Flood Management Plan (RFMP). The regional priorities will be considered by DWR during preparation of the 2022 Central Valley Flood Protection Plan (CVFPP).

Regional Context

The LSJ/DS region is composed of distinct urban and rural/agricultural areas. Approximately 25% of the land use acreage in the region is urban and about 75% is rural.

Responsible Agencies

The mission of the San Joaquin Area Flood Control Agency (SJAFCA) is to reduce and manage flood risk within most of San Joaquin County. While SJAFCA's jurisdiction covers all of the LSJ/DS region, the projects that the agency leads are primarily focused on the urban areas for its member agencies of the City of Stockton, City of Lathrop, City of Manteca, and San Joaquin County (urban areas only). The region has an urban population of about 400,000. The remaining area of the region is primarily rural, with flood management facilities maintained by 29 reclamation districts and by the San Joaquin County Flood Control and Water Conservation District acting as local maintaining agencies (LMAs). Many of these LMAs represent islands that are relatively independent of other areas of the region and have very localized interests. Figure 1 provides an overview of urban and rural areas within the LSJ/DS boundary.

Phases of the RFMP

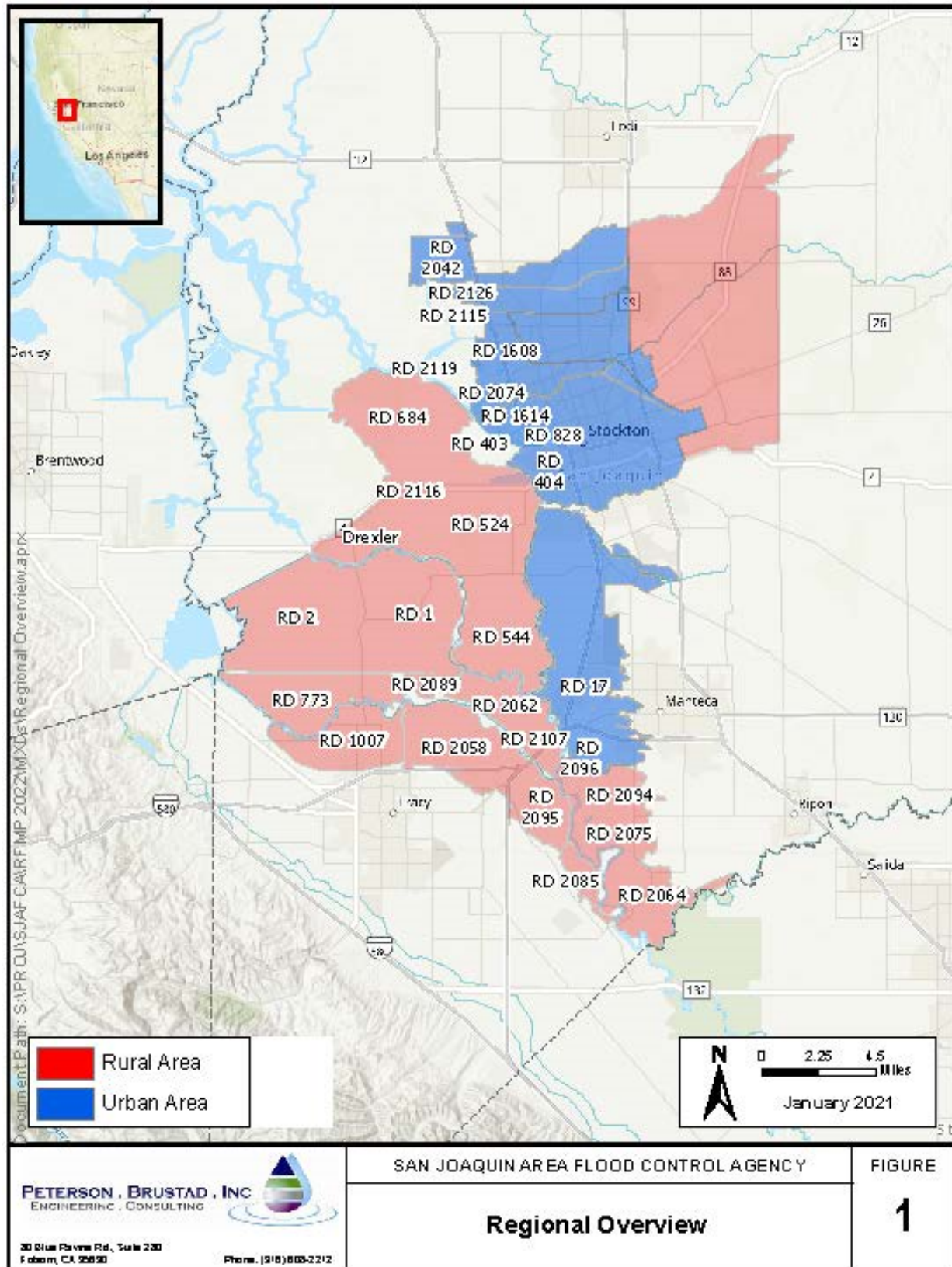
The original LSJ/DS RFMP was summarized in a 2014 report to DWR¹. The second phase of the RFMP continued regional coordination with DWR during preparation of the 2017 CVFPP. Currently, the third phase of the RFMP is providing specific updated information for use by DWR in preparation of the 2022 CVFPP update. This regional priorities white paper specifically addresses: (1) flood management accomplishments over the past five years; (2) challenges to regional flood management; and (3) the priority actions that the region would like to implement in the near future.

Regional Strategy

While this white paper focuses on the short-term (next 5 years), a broader regional strategy provides perspective on how this short-term focus fits within the long-term flood management strategy for the region. A long-term Strategic Plan was prepared by SJAFCA in October 2019² and is a living document that continues to be updated.

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¹ Lower San Joaquin and Delta South Regional Flood Management Plan (November 2014). <https://www.sjafca.com/lsjdsrfmp.php>

² SJAFCA Strategic Plan (October 2019). https://www.sjafca.com/documents/iZVh5tYNz1/SJAFCA_2019StrategicPlan_V7_web.pdf



Regional Accomplishments

During the past five years, the region has organized and accomplished a variety of projects and activities to reduce flood risk.

Changes in SJAFCA Governance

The SJAFCA Joint Powers Agreement was expanded in 2017 to include the Cities of Lathrop and Manteca along with the original member agencies of San Joaquin County and the City of Stockton. This action expanded SJAFCA's board of directors to nine members.

SJAFCA Climate Change Adaption Policy

SJAFCA adopted a climate change policy in 2019³ for use when funding and formulating new projects. The policy incorporates elements to address the uncertainty in climate change flood flow projections and in sea level rise. For example, levee improvements may initially use interim climate change projections for sizing, but SJAFCA plans to acquire the necessary real estate to support potential future levee raises and/or extensions based on the 2065 climate change hydrology presented in the 2017 CVFPP. The policy provides for periodic review and update as the state of the science progresses.

Bear Creek and Mormon Slough System SWIF Adoption

With direction from USACE, the San Joaquin County Flood Control and Water Conservation District has developed a System Wide Improvement Framework (SWIF) Plan for the Bear Creek and Mormon Slough levee systems. The SWIF Plan provides a mechanism for the systems to maintain PL 84-99 eligibility while the County is working to implement the actions needed to correct the identified deficiencies in the levee systems. The latest draft of the SWIF Plans were submitted in August 2020 and are currently under USACE review.

Construction of Smith Canal Closure Structure

Since the last RFMP update, design of the Smith Canal Gate project was successfully completed, all right of way issues were resolved, and the Conditional Letter of Map Revision (CLOMR) was submitted and approved by FEMA. Construction began in 2020 and is expected to be completed by 2022.

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³ SJAFCA Climate Change Policy (February 2019). https://stockton.granicus.com/MetaViewer.php?view_id=70&clip_id=6398&meta_id=571613

RD17 Levee Seepage Repair Project

The RD17 Levee Seepage Repair Project (LSRP) is an ongoing effort which includes geotechnical improvements to the RD17 levee system and will resolve USACE under- and through-seepage issues to bring the system into compliance with 100-year standards. This \$70 million project is underway and is receiving funding assistance through the DWR Early Implementation Program (EIP). The project is expected to be completed by December 2022.

Mossdale Tract UFRR Study

The Mossdale Tract Area Urban Flood Risk Reduction (UFRR) Study is an ongoing study that is being led by SJAFCA with funding from DWR. The primary study objective is to develop a plan acceptable to both local and State sponsors to achieve a 200-year urban level of protection (ULOP) for the Mossdale Tract Area and meet the requirements of Senate Bill 5 (2007). Although the preferred plan has not been fully developed, feasibility study findings point to the levee improvements that are necessary to meet ULDC criteria for 2040 climate change hydrologic conditions. Subsequent analysis by the USACE to gauge Federal interest in a flood risk reduction project for the Mossdale Tract area has begun.

Adequate Progress reports have been created annually since 2016 to document advancement toward achieving an ULOP in accordance with SB5 requirements. A key element of these reports is the local financing plan and schedule for achieving an ULOP. A governance plan was prepared to identify a lead agency for financing and project delivery. The Cities of Lathrop and Manteca initially served as local flood management agencies in the reports, but following SJAFCA's incorporation of Lathrop and Manteca in 2017, SJAFCA was established as the local flood management agency for the project.

USACE Preconstruction, Engineering, and Design of the Lower San Joaquin River Project

USACE published the Lower San Joaquin River Feasibility Study (LSJRFS) and its accompanying Environmental Impact Statement/ Environmental Impact Report in January 2018. The report identified a recommended plan to mitigate flooding in the commingled floodplains for the North and Central Stockton areas from three sources of flooding: the Delta Front, Calaveras River and San Joaquin River. Implementation of the recommended project will greatly reduce flood risk to people and property in the City of Stockton, revitalizing local levees that were built to reduce the chance of hazardous flooding in the area, affecting 122,000 residents.

Reach TS_30_L is one of six (6) reaches in the Delta Front and was selected as the first reach to move forward into the USACE Preconstruction, Engineering, and Design (PED) phase. The objective of this project is to construct seepage/stability improvements along the TS_30_L Levee to improve levee safety. The main components of this project include:

- Construction of soil bentonite (SB) slurry cutoff wall to mitigate under seepage
- Minor fill along the water side levee to meet minimum slope requirements
- Rock revetment placement for stability improvements

The Project Participation Agreement (PPA) has been signed and design began in 2020. Design of TS30L is scheduled to be completed by the end of 2021 and construction is scheduled to begin in 2022.

Rural Area Accomplishments

Accomplishments in the rural areas of the LSJ/DS Region primarily focused on annual levee maintenance activities and critical repairs. Letters of Intent (LOI) are currently being developed for RD 2096, 2094, 2075 and 2064. Ultimately these RDs will complete a USACE System Wide Improvement Framework (SWIF) Plan.

Larger-scale improvement projects recently completed in the rural area includes a \$12 million USACE improvement project which rehabilitated a RD 2075 levee that breached during the 2017 high water event.

Regional Challenges

There are several challenges that impact future improvements in regional flood management. These could delay, complicate, or prevent flood management progress. Some of these issues have already slowed or otherwise impacted progress on the accomplishments listed above.

Raising Local Revenues

The ability of the region to raise local revenues is an ongoing problem. Historically, funding to support the operations and maintenance of levees and local funding for capital projects have come from assessments on benefitting properties (Prop 218). Currently, a number of flood management projects and initiatives that require increases in such funding are moving forward in the Region. These proposed assessments may compete with one another or create the perception among property owners that assessments are being layered on top of others at unsustainable levels.

As part of this RFMP, the LSJR/DS Region is preparing a benefit assessment feasibility study to support the funding and financing of Lower San Joaquin River flood risk reduction projects. The purpose of the proposed special district is to fund the construction and maintenance of new levees and/or levee improvements within SJAFCA's jurisdictional boundaries that directly impact portions of northern and central Stockton.

Reclamation Districts and SJAFCA partner agencies are also struggling with local revenues needed to support their ongoing maintenance activities. San Joaquin County intended on conducting its "FloodCALM" benefit assessment balloting process in May 2020 to raise local funding for levee maintenance that is needed to be in compliance with the standards of the OMRRR manual. This initiative was delayed due to Covid-19 and has yet to be rescheduled.

Beyond local revenues needed for maintenance and capital projects, the ability to secure cost sharing from potential State and federal partners is uncertain, which always has the potential to delay projects.

Planning for Climate Change

Climate change and sea level rise predictions have created a unique challenge when looking to design projects that are resilient to these future climate predictions, but also financially feasible.

DWR's climate change analyses that were developed as part of the 2017 CVFPP show the greatest potential increase in flood flows for the Lower San Joaquin and Delta South region than for any other region. For the San Joaquin River at Vernalis, a key index point at the upstream end of the Region, the CVFPP analyses projected that 200-year flood flows could triple by 2065.

Although these projections are intended for planning purposes, this leaves great uncertainty in how the implementing agencies should design projects that are moving forward today. On the

one hand, there is a large degree of uncertainty in the magnitude and timing of climate change impacts to LSJR hydrology, but on the other hand these analyses represent the best available information and need to be considered when designing projects that are intended to have a 50+ year life span.

For the interim, this challenge required SJAFCA to adopt its Climate Change Adaption Policy mentioned above in the Accomplishments section. This policy outlines the implementation of no-, low-, or medium-regret actions when considering future climate change hydrology in project design.

Refining the USACE Lower San Joaquin River Project

USACE identified the LSJRP (aka the Stockton Metro Project) as the Recommended Plan stemming from its 2018 completion of the Lower San Joaquin River Feasibility Study (LSJRFS). The Project totals \$1.3 billion in flood risk reduction projects which are scheduled to be implemented over the next 10+ years. The Project reaches were developed to a conceptual, feasibility-level of detail and may have opportunities for improvements as the design phase progresses. In particular, there is a specific need to revise this project to reduce costs and to reduce right of way and ecosystem impacts in order to make the project feasible and implementable.

Resolving Issues with the Mossdale Project

As described above, there has been significant progress made on the Mossdale UFRR Study, but several issues remain to be resolved prior to selection and implementation of a preferred alternative. SJAFCA and DWR are working together to assess and resolve any transfer of risk issues to downstream areas, right of way issues for extension of the dryland levee, and incorporation of suitable ecosystem restoration components. These challenges face a very tight schedule which is driven by requirements to meet ULOP deadlines.

Developing Multi-benefit Projects

Given the configuration of the flood management system and the adjacent land uses in the region, it is often a challenge to develop multi-benefit projects, especially in the urban areas. The levees are relatively straight without significant meanders and many abut established housing areas, thus minimizing opportunities to efficiently set levees back as part of a project. Recreation such as trails on levees can create a conflict with required maintenance activities.

As part of this RFMP effort, the LSJ/DS Region plans to conduct an assessment of multi-benefit opportunities in the Region. This effort will look to highlight the most viable multi-benefit opportunities that could work well with potential future projects, including the projects included in our Regional Portfolio.

Addressing Land Rights Issues & Encroachments

Making improvements to the existing flood management system generally requires special effort to resolve land rights issues. In some places, land uses adjacent to levees have

significantly changed since the flood management system was formalized many decades ago. Flood management system improvements generally require larger footprints and new rights of way. Politically, it is often difficult to proceed with eminent domain if needed.

In addition, encroachments along the landside of existing levees are a significant issue in the highly developed area of Stockton. This is the primary issue that threatens PL84-99 eligibility for the Bear Creek and Mormon Slough systems. The County has taken action and submitted a SWIF Plan to USACE, but a significant amount of administrative and permitting efforts lie ahead to resolve these issues.

Addressing Transfer of Risk

Potential flood system improvements necessary to better protect urban areas typically result in more resilient levees that have less chance of failure. These improvements provide a substantial reduction in flood risk for existing population centers, but also have the potential to result in a transfer of risk to downstream rural areas. Even if increases in downstream flood stages are relatively small, mitigating downstream impacts can present a difficult challenge for flood risk reduction projects in the LSJR/DS Region.

Evolving Standards for Levee Maintenance

Keeping up with increasingly strict standards for levee maintenance is an ongoing challenge for LMAs. Erosion protection and animal control activities are examples of areas where regulatory agencies have recently issued additional environmental restrictions for these routine maintenance activities. With changing standards often comes increase cost of maintenance which is a challenge for LMAs who are already struggling to finance their operations and maintenance activities.

Increased Transient Population

Particularly in urban areas, the increasing transient population has led to a variety of operations and maintenance challenges for the region. Greater amounts of trash and waste has increased pollution in the channels. The camps that consist of tents, tarps, vehicles, and general collection of materials have made inspections more difficult. In some locations, there is damage from holes and steps being dug into the levee banks and the floodplains. Funding opportunities do not exist to combat the impacts and repairs to the urban levee systems that stem from this issue.

Securing Adequate Staffing and Equipment

The lack of staffing and resources is a continuous challenge for the LMAs within the region, especially for those in rural areas. Increased funding for staffing and equipment would allow LMAs to make progress on deferred maintenance, efficiently continue routine maintenance, and help support other ongoing flood management activities. Funding assistance such as DWR's Flood Maintenance Assistance Program (FMAP) is helpful to LMAs who are responsible for maintaining State Plan of Flood Control (SPFC) facilities.

Regional Priorities

The actions listed below are LSJ/DS regional priorities for near-term implementation over the next five years.

Mossdale Tract ULOP Improvements

Continuing to make progress towards achieving an ULOP for the Mossdale Tract area is essential in reducing risk for the existing population of 50,000 and the critical infrastructure valued in excess of \$5.0 Billion that is protected by these levees. Adequate Progress will need to continue with the deadline of achieving an ULOP by 2028. The priority work will entail completion of the Mossdale UFRR Study, initiation and completion of a federal feasibility study (described below), completion of the ULOP project design (Dryland Levee extension design is underway), completion of permitting, acquiring ROW, and acquisition of local financing along with State/federal funding.

Mossdale Federal Feasibility Study

A key finding of the LSJRFS was the necessity of a tieback levee extension to protect the Reclamation District (RD) 17 basin. Policy concerns regarding Executive Order 11988 (wise use of floodplains), could not be resolved within the scope, schedule, and budget of the study, so the final array of alternatives excluded features affecting the Mossdale Tract area. Instead, the report called for a future Phase 2 LSJRFS to further study the Mossdale Tract area. For that reason, the January 2018 report included the word “Interim” in the title. The Phase 2 LSJRFS is expected to follow completion of this UFRR study in order to gauge Federal interest, if any, in a flood risk reduction project for the Mossdale Tract area.

Formation of Local Funding Programs

The implementation of the Region’s priority projects hinge on securing local financing. Several financing programs have been initiated and will need to follow through with execution in the near future, including: benefit assessment district to fund the USACE LSJRP Phase 1 Implementation; Mossdale Overlay Assessment, and an Enhanced Infrastructure Financing District (EIFD); FloodCALM assessment to support operations and maintenance of levees maintained by San Joaquin County; and, potentially assessment increases initiated by any of the 29 reclamation districts.

USACE Lower San Joaquin River Project Implementation

The USACE Lower San Joaquin River Project (LSJRP) made significant strides toward implementation recently with the signing of a PPA and the acquisition of a federal “New Start” construction designation. Design of the first increment of the LSJRP (Ten Mile Slough) has begun and continuing this momentum with the LSJRP is a high priority for the Region. As described previously, securing local, State, and federal funding for this important project is essential in moving forward with implementation.

Future increments of the LSJRP include:

- 2nd Increment – Shima Tract (cutoff wall and erosion protection)
- 3rd Increment – RD404 (cutoff wall and levee reshaping)
- 4th Increment – Brookside (erosion protection, levee reshaping, and seismic improvements)
- 5th Increment – Fourteen Mile Slough (cutoff wall, erosion protection, and closure structure)

In addition, the Smith Canal Gate project is part of the LSJRP and began construction in 2020. Construction is scheduled for completion in 2022.

Mormon Slough Bank Repair and Channel Restoration

The Mormon Slough Channel has experienced significant bank erosion from several past flood events. The area between the Stockton Diverting Canal and Escalon-Bellota Road remains a problem reach for erosion issues. Through funding assistance from DWR, a Flood System Repair Project (FSRP) has been initiated to design erosion repairs and bank stabilization for an initial section of Mormon Slough in the area one mile downstream of Escalon Bellota Road. Continuation of bank repair and channel restoration work is needed for the downstream areas of Mormon Slough.

Improve Analyses and Planning for Climate Change

The 2017 CVFPP analyses projected that climate change will have a significant impact on the LSJ/DS region. For the Region’s flood risk reduction projects to find an effective balance between climate change resilience and financial feasibility, further advancement of State and federal studies is needed to help improve future hydrologic climate change projections to a level that will support design decisions being made by local implementing agencies.

Additional planning and analyses will be needed to inform regional solutions to this climate change issue. The current climate change projections in the LSJ/DS Region would require solutions well beyond basic levee improvements. The Region needs to conduct coordinated planning exercises to consider large-scale and integrated solutions including major bypass channels, reservoir reoperation and increased storage, transitory storage opportunities, and other systemwide improvements.

Feasibility-level Studies

The LSJ/DS Region has several priority initiatives that are currently in need of feasibility-level investigations to prepare projects for future implementation. These include evaluations to assess:

- Expansion of Paradise Cut Bypass
- New Hogan Reservoir storage modifications
- Mormon Channel Bypass
- Levee Improvements for tributary streams
- FloodMAR projects

These studies are further detailed in the Region's RFMP Project Portfolio.

Improved Emergency Preparedness

The San Joaquin County Office of Emergency Services (OES) continually seeks ways to improve their preparation and response to flood emergencies. Obtaining funding and advancing improvements to ALERT stream/rainfall gage systems, emergency response plans, and floodplain mapping are priorities for County OES.

Conclusion

Since the 2017 CVFPP, the LSJ/DS Region has made huge strides toward reducing flood risk to its local communities. Significant challenges lie ahead and need to be addressed in order to continue this progress. The Region's near-term priorities range from implementing large-scale capital improvement projects, to securing local financing along with State/federal funding to implement these projects, to advancing refinements to climate change projections on the San Joaquin River. Making significant progress with our regional priorities will require an extraordinary amount of support and coordination amongst our partners at the local, State, and federal level and is a challenge that this Region is equipped to successfully manage.