

Upper San Joaquin River Regional Flood Management Plan

Regional Flood Protection
Now and in the Future

Final Workshop

Wednesday November 19th, 2014
Lower San Joaquin Levee District
11704 Henry Miller Ave
Dos Palos, CA 93620



Workshop Protocols

- Use Common Conversational Courtesy
- Humor Is Welcome
- Be Comfortable
- Spelling Doesn't Count
- Electronics Courtesy
- Avoid Editorials

Agenda

- Status Update
- RFMP Summary
- RFMP Recommendations
- Multi-benefit Projects
- RFMP Phase 2 Planning
- Next Steps

Status Update



Draft Report Development

- Series of 10 workshops to discuss major flood management related issues
- Individual draft chapters posted for review
- Stakeholder meetings
- Responded to comments
- Compiled chapters into draft report
- Draft Report posted Thursday November 13th
- Comments by Friday December 5th

Draft Report Outline

- Executive Summary
- Introduction
- Regional Setting
- Flood Management
- Proposed System Improvements
- Evaluation of System Improvements
- Regional Finance Plan
- Recommendations and Future Implementation

RFMP Development Process



Overall Strategy

- Sustainable flood management to support the local economy
- Develop a flood master plan for the region
 - Document critical flood issues
 - Identify potential solutions
 - Develop cost estimates
 - Align system improvements and multi-benefit projects with potential funding opportunities
 - Identify system Improvements ready for implementation as funding is available
 - Document emergency management (EM) procedures

Goals

- Restore system to original design capacity (where feasible and reasonable to do so)
- Preserve unique and historical agricultural community
- SB 5 urban 200-year
- SB 5 small communities 100-year
- Improve O&M and emergency management
- Expedite system improvement permitting
- Environmental enhancement

Proposed System Improvements

- All proposed system improvements must have:

- Local sponsor
- Willing participants
- Flood management nexus



- Short-term within 5 years (critical fixes)
- Long-term 5 to 10+ years
- Develop multi-benefit system improvements to improve funding opportunities

System Improvement Development

- Project proponents submitted system improvements
- Range from well defined to conceptual ideas
- Team worked with project proponents to refine project descriptions and define potential benefits
- Developed cost estimates or escalated estimates from previous studies to 2014 dollars

Range of System Improvements

RFMP includes a range of system improvements that:

- Identify short-term and long-term improvements to address regional issues
- Allow mixing of system improvements to match future funding guidelines
- Identify potential groupings of system improvements to promote development of multi-benefit projects and support DWR's IWM goals

System Improvement Projects

- 88 system improvement projects identified
- 57 short-term projects
- 31 long-term projects
- \$738 million in system improvements identified
 - \$81M short-term
 - \$657M long-term
 - 13 system improvements without enough information to develop a cost estimate

System Improvements Ranking

- Overall criteria weighting:
 - Public Safety: 40%
 - Environmental Stewardship: 25%
 - Economic Stability: 25%
 - Regional Issues: 10%
- 3 Tiered Ranking based on:
 - Qualitative evaluation
 - Limited information to define benefits



System Improvement Prioritization



Public Safety – Short-Term

ID	System Improvement	Estimated Cost	System Improvement Time-frame Short-term <5 years Long-term >5 years	System Improvement Category	Tier
1	Bear Creek Diversion Structure	\$ 260,000	Short-term	Rural	1
2	Levee Breaches Unit 1, LM 9.90 ; Unit 5, LM 0.25	\$ 535,000	Short-term	Rural	1
4	Modernize Electrical Controls, Level Sensors & SCADA for Control Structures	\$ 1,885,000	Short-term	Rural	1
5A	Rehabilitation of San Joaquin River Control Structure	\$ 340,000	Short-term	Rural	1
6	Sediment Removal Chowchilla Canal Bypass Control Structure	\$ 175,000	Short-term	Rural	1
7	Levee Improvements in Subsidence Area	\$ -	Short-term	Rural	1
8	Sediment Removal in the Eastside Bypass	\$ 12,850,000	Short-term	Rural	1
12	Great Valley Grassland State Park (GVGSP) Levee De-Authorization	\$ 4,930,000	Short-term	Environmental	1
13	Bridge Enlargement over Eastside Bypass at Sandy Mush Road	\$ 1,610,000	Short-term	Rural	1
14	Install New Gaging Stations	\$ 330,000	Short-term	Rural	1
15	Western Madera and Merced County Subsidence Solution	\$ 19,600,000	Short-term	Groundwater Recharge / Conjunctive Use / Water Supply	1
17	Update San Joaquin River Flood Control Project Operations and Maintenance Manual	\$ 500,000	Short-term	O&M	1
19	Fresno Slough South Levee Repair and Floodplain Enhancement Project	\$ 1,340,000	Short-term	Rural	1
20	Fresno Slough Sediment Removal	\$ 720,000	Short-term	O&M	1
21	Upper San Joaquin Sediment Study	\$ 100,000	Short-term	Rural	1
22	Bear Creek Diversion Channel Feasibility Study	\$ 100,000	Short-term	Urban	1
23	Le Grande/Planada Flood Control/Conjunctive Use Expansion Study	\$ 240,000	Short-term	Urban	1
24	Le Grand Canal Flood Control Structure at Black Rascal Creek	\$ 490,000	Short-term	Urban	1
44	San Joaquin River Levee at Firebaugh Waste Water Treatment Plant	\$ 1,280,000	Short-term	Small Community/DAC	1
45	San Joaquin River Bank Stabilization at Firebaugh	\$ 1,800,000	Short-term	Small Community/DAC	1
46	San Joaquin River Levee at Firebaugh Rodeo Grounds	\$ 1,450,000	Short-term	Small Community/DAC	1
10	Gravelly Ford Madera Ranch Recharge Project	\$ 1,970,000	Short-term	Groundwater Recharge / Conjunctive Use / Water Supply	2
16	Los Banos Creek Recharge and Recovery	\$ 5,000,000	Short-term	Groundwater Recharge / Conjunctive Use / Water Supply	2
33	Channel Dredging and/or Vegetation Removal	\$ 2,200,000	Short-term	O&M	2
38	Develop Emergency Response Plans	\$ 100,000	Short-term	Emergency Management	2
42	Windmill Ditch Drainage	\$ 1,900,000	Short-term	Small Community/DAC	2
43	McCullough Road Drainage Project	\$ 2,700,000	Short-term	Small Community/DAC	2

Environmental Stewardship – Short-Term

ID	System Improvement	Estimated Cost	System Improvement Time-frame Short-term <5 years Long-term >5 years)	System Improvement Category	Tier
12	Great Valley Grassland State Park (GVGSP) Levee De-Authorization	\$ 4,930,000	Short-term	Environmental	1
19	Fresno Slough South Levee Repair and Floodplain Enhancement Project	\$ 1,340,000	Short-term	Rural	1
44	San Joaquin River Levee at Firebaugh Waste Water Treatment Plant	\$ 1,280,000	Short-term	Small Community/DAC	1
45	San Joaquin River Bank Stabilization at Firebaugh	\$ 1,800,000	Short-term	Small Community/DAC	1
46	San Joaquin River Levee at Firebaugh Rodeo Grounds	\$ 1,450,000	Short-term	Small Community/DAC	1
47	Three Rivers Ranch Study	\$ 100,000	Short-term	Environmental	1
48	Cinnamon Slough Study (Merced Wildlife Refuge)	\$ 100,000	Short-term	Environmental	1
49	Sunrise Ranch Study	\$ 100,000	Short-term	Environmental	1
50	SJRRP Seepage Management Projects	\$ 51,000,000	Short-term, Long-term	SJRRP	1
60	Modify water intake structures at selected refuge units	\$ 1,540,000	Short-term	Environmental	1
61	San Luis NWR East Bear Creek Unit Install lift pumps to divert water onto 1000 acres of wetland basins during flood flows	\$ 1,260,000	Short-term	Environmental	1
62	San Luis NWR East Bear Creek Unit Restore a wetland swale to divert floodwaters onto 1000 acres of wetland basins during flood flows	\$ 340,000	Short-term	Environmental	1
63	San Luis NWR East Bear Creek Unit Enhance existing wetland depth and configuration to provide additional habitat and flood water storage on approximately 500 acres of wetland basins	\$ 1,150,000	Short-term	Environmental	1
64	San Luis NWR Freitas Unit – restore anabranches of Salt Slough	\$ 50,000	Short-term	Environmental	1
65	San Luis NWR West Bear Creek Unit Restore wetland slough channel connectivity with the San Joaquin River to accommodate flood flows	\$ 354,000	Short-term	Environmental	1
66	Merced NWR Merced Unit Enhance infrastructure to divert flood flows onto 1200 acres of existing wetlands and other refuge lands	\$ 235,000	Short-term	Environmental	1
67	Merced NWR - Modify water intake structures at selected refuge units	\$ 580,000	Short-term	Environmental	1
68	Merced NWR Sno-Bird Unit – Construct diversions off Eastside Canal	\$ 263,000	Short-term	Environmental	1
6	Sediment Removal Chowchilla Canal Bypass Control Structure	\$ 175,000	Short-term	Rural	2
8	Sediment Removal in the Eastside Bypass	\$ 12,850,000	Short-term	Rural	2
15	Western Madera and Merced County Subsidence Solution	\$ 19,600,000	Short-term	Groundwater Recharge / Conjunctive Use / Water Supply	2
20	Fresno Slough Sediment Removal	\$ 720,000	Short-term	O&M	2
21	Upper San Joaquin Sediment Study	\$ 100,000	Short-term	Rural	2
22	Bear Creek Diversion Channel Feasibility Study	\$ 100,000	Short-term	Urban	2
69	Ash Slough Arrundo and Channel Cleaning	\$ 1,500,000	Short-term	O&M	2
70	Berenda Slough Arrundo and Channel Clearing	\$ 1,300,000	Short-term	O&M	2
72	Levee Patrol Road Repair	\$ 500,000	Short-term	O&M	2
73	Berenda Creek Arrundo Removal and Channel Clearing	\$ 500,000	Short-term	O&M	2

Economic Stability – Short-Term

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2	Levee Breaches Unit 1, LM 9.90 ; Unit 5, LM 0.25	\$ 535,000	Short-term	Rural	1
4	Modernize Electrical Controls, Level Sensors & SCADA for Control Structures	\$ 1,885,000	Short-term	Rural	1
5A	Rehabilitation of San Joaquin River Control Structure	\$ 340,000	Short-term	Rural	1
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13	Bridge Enlargement over Eastside Bypass at Sandy Mush Road	\$ 1,610,000	Short-term	Rural	1
14	Install New Gaging Stations	\$ 330,000	Short-term	Rural	1
15	Western Madera and Merced County Subsidence Solution	\$ 19,600,000	Short-term	Groundwater Recharge / Conjunctive Use / Water Supply	1
17	Update San Joaquin River Flood Control Project Operations and Maintenance Manual	\$ 500,000	Short-term	O&M	1
19	Fresno Slough South Levee Repair and Floodplain Enhancement Project	\$ 1,340,000	Short-term	Rural	1
21	Upper San Joaquin Sediment Study	\$ 100,000	Short-term	Rural	1
22	Bear Creek Diversion Channel Feasibility Study	\$ 100,000	Short-term	Urban	1
23	Le Grande/Planada Flood Control/Conjunctive Use Expansion Study	\$ 240,000	Short-term	Urban	1
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45	San Joaquin River Bank Stabilization at Firebaugh	\$ 1,800,000	Short-term	Small Community/DAC	1
46	San Joaquin River Levee at Firebaugh Rodeo Grounds	\$ 1,450,000	Short-term	Small Community/DAC	1
52	Levee Improvements in Reach 2A, 3, 4A, Eastside Bypass, Mariposa Bypass, and Reach 5	\$ 235,000,000	Short-term, Long-term	SJRRP	1
16	Los Banos Creek Recharge and Recovery	\$ 5,000,000	Short-term	Groundwater Recharge / Conjunctive Use / Water Supply	2
20	Fresno Slough Sediment Removal	\$ 720,000	Short-term	O&M	2
33	Channel Dredging and/or Vegetation Removal	\$ 2,200,000	Short-term	O&M	2
38	Develop Emergency Response Plans	\$ 100,000	Short-term	Emergency Management	2
43	McCullough Road Drainage Project	\$ 2,700,000	Short-term	Small Community/DAC	2
47	Three Rivers Ranch Study	\$ 100,000	Short-term	Environmental	2
48	Cinnamon Slough Study (Merced Wildlife Refuge)	\$ 100,000	Short-term	Environmental	2
49	Sunrise Ranch Study	\$ 100,000	Short-term	Environmental	2
50	SJRRP Seepage Management Projects	\$ 51,000,000	Short-term, Long-term	SJRRP	2
60	Modify water intake structures at selected refuge units	\$ 1,540,000	Short-term	Environmental	2

Regional Issues – Short-Term

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53	Sediment Removal in Reach 4A and Eastside Bypass	\$ -	Short-term	SJRRP	2
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Overall – Short-Term

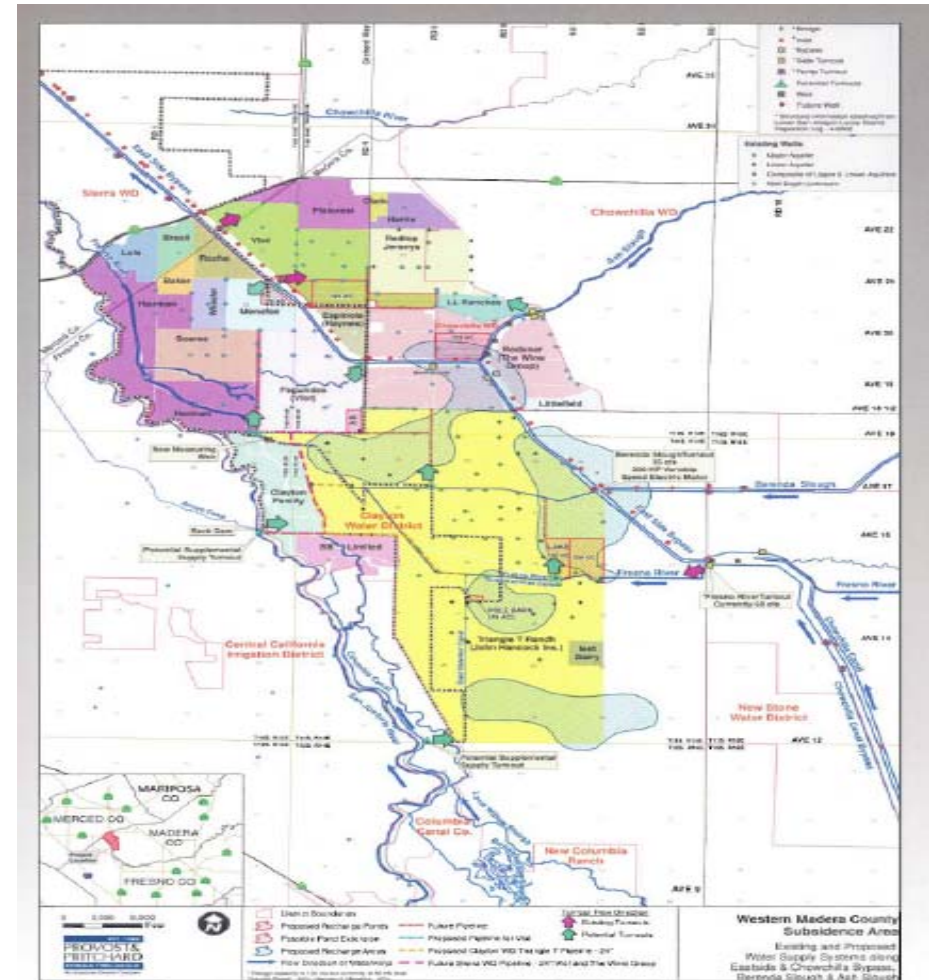
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49	Sunrise Ranch Study	\$ 100,000	Short-term	Environmental	2

Tier 1 Project Examples



Merced/Western Madera County Subsidence Solution

- Significant subsidence in area
- Red Top area growers planning to develop 740-acres of recharge ponds
- Potential existing/new turnouts from the San Joaquin River



Chowchilla Bypass Structure Enlargement and Repair



Sandy Mush Road 1997 Flood

1997 Flood Event



Merced Streams Group Proposed Improvements

- Black Rascal Creek flood control reservoir
- Reservoir enlargement and downstream levee & channel improvements
 - Bear Creek
 - Mariposa Creek
 - Owens Creek
 - Burns Creek
- Bear Creek diversion channel feasibility study



Finance Plan



Potential Funding Opportunities

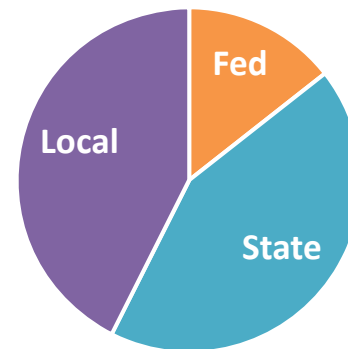
- 13 Federal grant programs
- 14 State grant programs
- DWR Programs
 - Flood System Repair Program (July 2013)
 - Urban flood Risk Reduction (July 2014)
 - Small Communities Flood Risk Reduction (Nov 2014)
 - Systemwide Flood Risk Reduction
 - Flood Emergency Response Planning

Funding Sources Scenarios

Three Scenarios to represent likely outcomes:

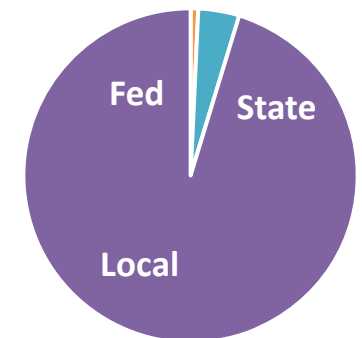
- Continuation of Past Practices

- Federal and State Support, low local obligations



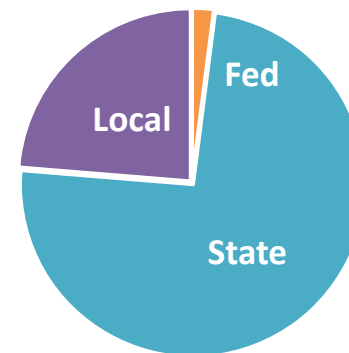
- Decreased Federal Funding

- Low Federal Funds and high State contribution



- Increased Local Participation

- Low Federal and State funds, largely local contributions



Tier 1 Rural Scenario Summary

Tier 1 Rural Scenario Summary

Total USJR Tier 1 Rural System Improvement Costs: \$46,745,000

Total Local Obligation \$300,000-\$6,505,500

Scenario	Total Federal Contribution	Total State Contribution	Total Local Contribution
Past Practices	\$21,892,000	\$24,553,000	\$300,000
Decreased Federal Funding	\$5,357,500	\$38,370,000	\$3,017,500
Increased Local Participation	\$3,674,500	\$36,565,000	\$6,505,500

Tier 1 Urban Scenario Summary

USJR Tier 1 Urban Scenario Summary

Total USJR Tier 1 Urban System Improvement Costs: \$396,550,000

Total Local Obligation \$31,180,000 - \$370,560,000

Scenario	Total Federal Contribution	Total State Contribution	Total Local Contribution
Past Practices	\$183,555,000	\$181,815,000	\$31,180,000
Decreased Federal Funding	\$18,490,000	\$323,811,000	\$54,249,000
Increased Local Participation	\$1,500,000	\$24,490,000	\$370,560,000

Recommendations



Recommendations

- Short term and long system Tier 1 improvements for funding and inclusion in the DWR Basin Feasibility Plan
- Secure state and Federal funds to advance regional improvements and assist disadvantaged communities
- Promote implementation of multi-benefit projects
- Conduct proposed evaluation studies
- Future implementation to promote regional coordination and improved flood management

Recommended Studies

Studies

- Coordinated upstream reservoir operations
- Forecast based upstream reservoir operations
- Evaluation of upstream storage
- Regional sediment study
- Regional O&M permitting
- Improved governance and sustainable funding
- San Joaquin River Restoration Program

Future Implementation

- Continue regional coordination and collaboration
- Participate in DWR San Joaquin Basin-wide Feasibility Study
- Promote and develop multi-benefit and IWM projects
- Monitor future funding opportunities
- Coordinate with Mid and Lower San Joaquin RFMP planning efforts

Multi-benefit Opportunities



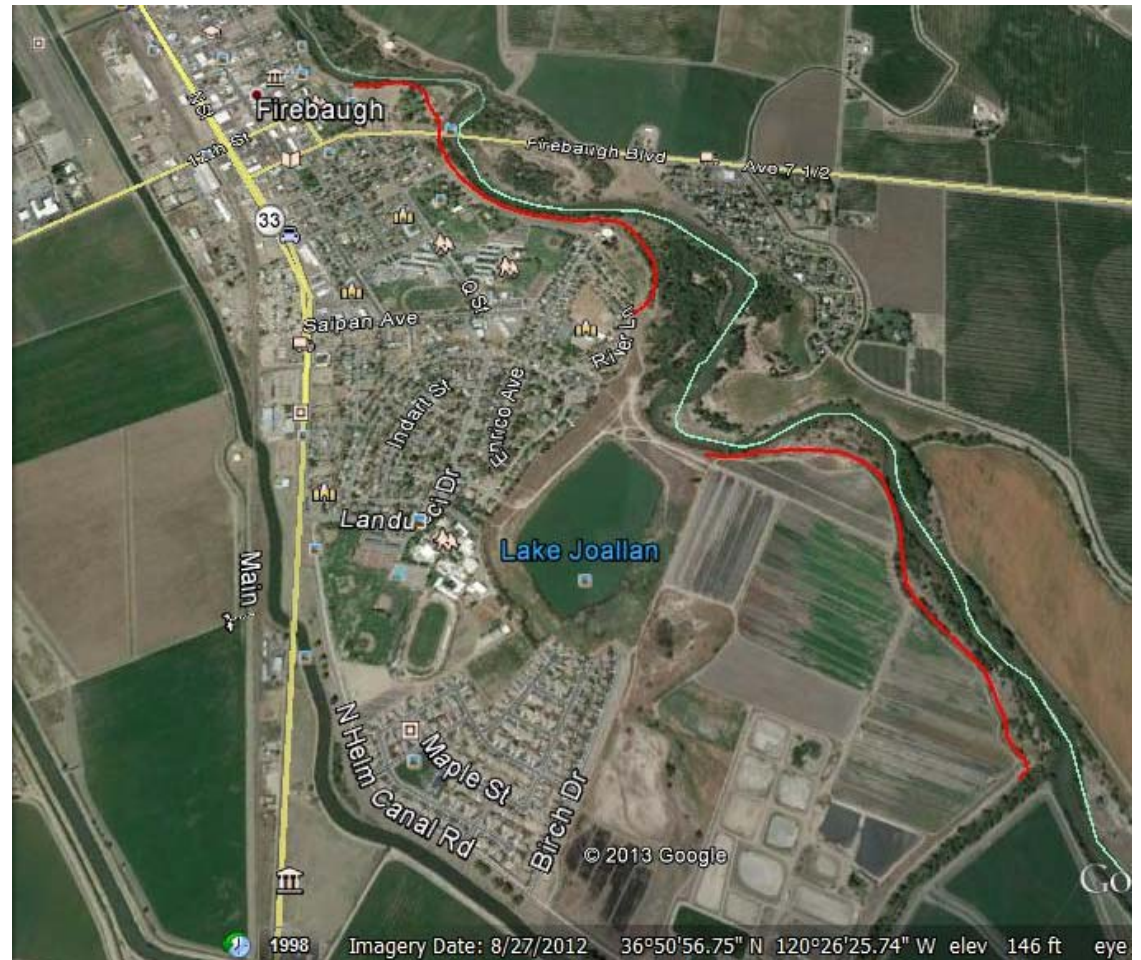
Multi-benefit Opportunities

- Washington Ave/Redtop Subsidence Solution
- City of Firebaugh
- Great Valley Grasslands State Park
- USFWS transitory storage
- Enhance floodplain connectivity
 - Three Rivers Ranch
 - Cinnamon Slough
 - Sunrise Ranch
- San Joaquin River Restoration Program

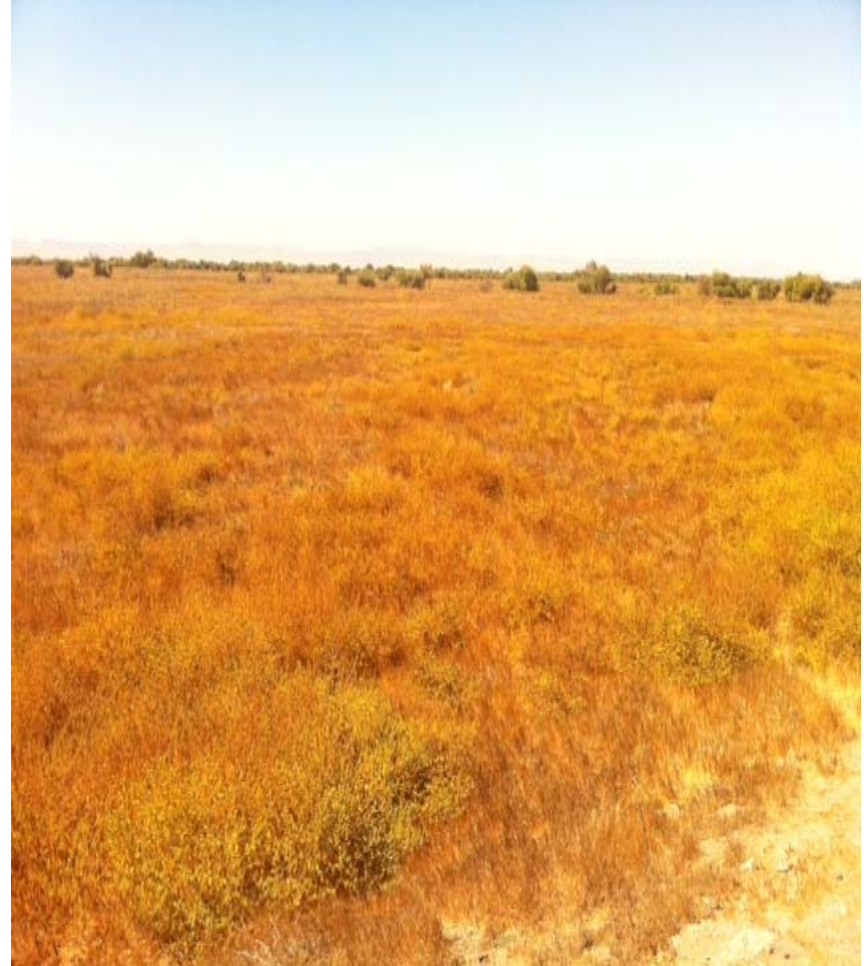


City of Firebaugh Proposed Improvements

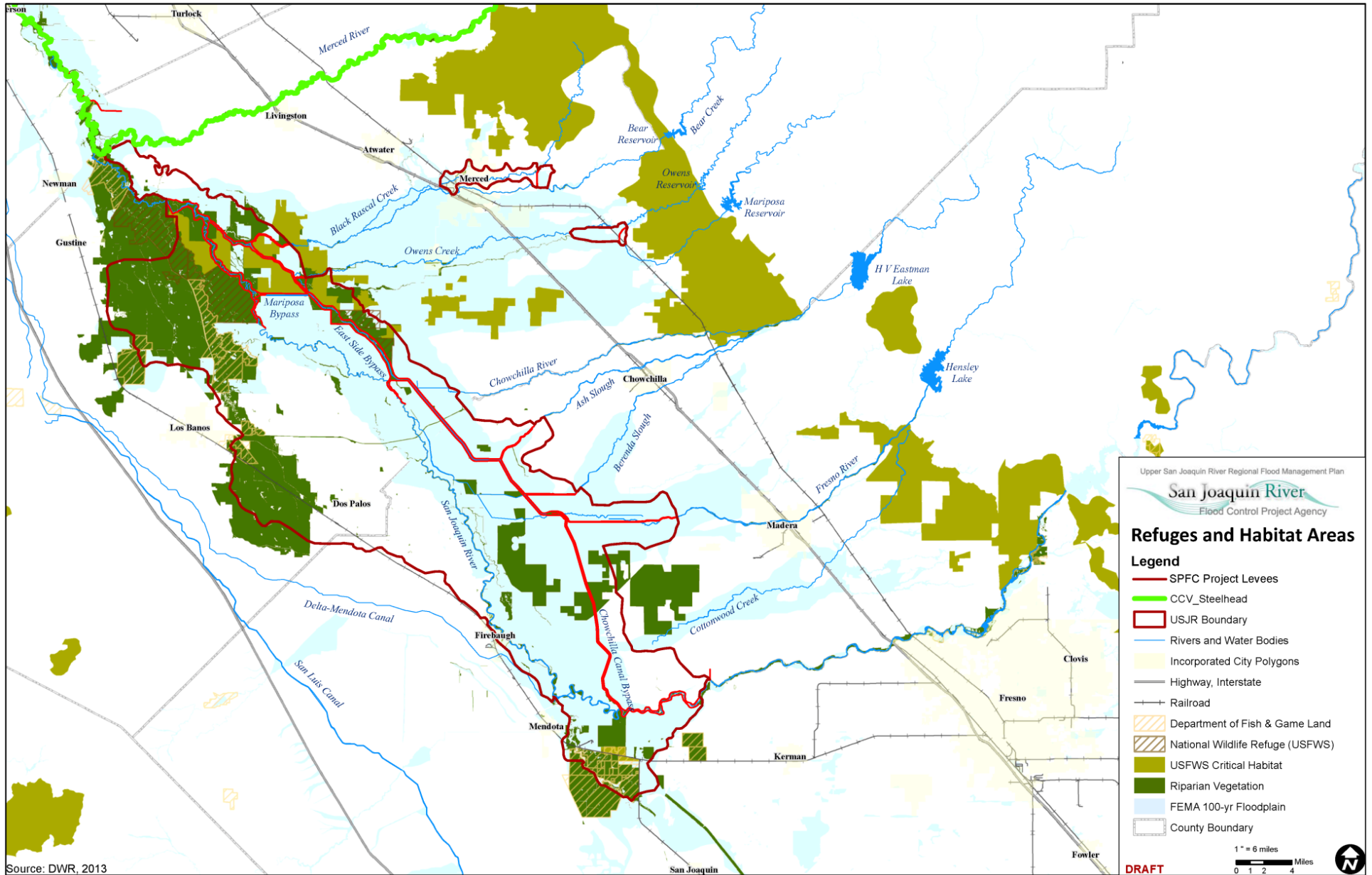
- New San Joaquin River levee at WWTP
- New San Joaquin River levee at WTP/rodeo grounds
- Stabilize left bank of River (near intersection of 9th and Q Streets)



Great Valley Grasslands



Refuges and Habitat Areas



Source: DWR, 2013

Pilot Projects

- ▶ **Three Rivers Ranch** private wetland – 205 acres
- ▶ **Cinnamon Slough/Lonetree units**, Merced National Wildlife Refuge – 900 acres
- ▶ **Sunrise Ranch** private cattle operation – 1750 acres





San Joaquin River Restoration Projects

- Seepage management projects
- Levee improvements
- Sediment removal Reach 4A and Eastside Bypass
- Firebaugh habitat projects
- Reach 2B and Mendota Pool Bypass
- Fish passage and flood structures
- Arroyo Canal and Sack Dam passage

**RFMP
Phase 2**



DWR RFMP Phase 2 Fact Sheet

DWR is interested in funding:

- **Coordination:** promote regional collaboration with the BWFS and CVFPP
- **Communication and Engagement:** Coordinate with local landowners, stakeholders, and interest groups
- **Regional Governance:** establish regional governance bodies to lead and manage flood management activities
- **Institutional Barriers:** develop strategies to deal with issues such as permitting of O&M, flood insurance, and financing

Status of RFMP Process

RFMP	Timeline
Document Regional Setting and Identify Flood Management Issues (Land Use, Environmental, O&M, Emergency Management)	Summer 2013
Identify Potential Actions/ System Improvements/studies	2013 – Winter 2014
Project Development and Prioritization	Spring - summer 2014
Financial Plan	September 2014
Draft RFMP	November 2014
Finalize RFMP	December 2014

**For more information please
contact: Reggie Hill (209) 387-4545**

website: <http://www.usjrflood.org>

