

# Upper San Joaquin River Regional Flood Management Plan

Regional Flood Protection  
Now and in the Future

Workshop 10:  
Recommendations and  
Future Implementation

Wednesday September 17<sup>th</sup>, 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

- RFMP Development Strategy
- Proposed Tier 1 Short Term System Improvements
- Draft RFMP Recommendations
- RFMP Phase 2
- Next Steps

# RFMP Development Strategy



# 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)
- Maintain PL 84-99 eligibility
- SB 5 urban 200-year
- SB 5 small communities 100-year
- Improve O&M and document EM
- Expedite system improvement permitting and construction
- 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 Improvements Ranking Procedure

- 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



# Tier 1 Short Term Projects



# 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
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 County Subsidence Solution	\$ 9,800,000	Short-term	Groundwater Recharge / Conjunctive Use / Water Supply	1
19	Fresno Slough South Levee Repair and Floodplain Enhancement Project	\$ 1,140,000	Short-term	Rural	1
20	Fresno Slough Sediment Removal	\$ 720,000	Short-term	O&M	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
50	SJRRP Seepage Management Projects	\$ 51,000,000	Short-term, Long-term	SJRRP	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
60	Modify water intake structures at selected refuge units	\$ 1,540,000	Short-term	Environmental	1
5A	Rehabilitation of San Joaquin River Control Structure	\$ 340,000	Short-term	Rural	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
17	Reregulation of Kings River Flood Flows (and possibly San Joaquin River flood flows) through CCID and DMC facilities for storage in San Luis and Los Banos Reservoirs	\$ 11,700,000	Short-term	Groundwater Recharge / Conjunctive Use / Water Supply	2
21	Upper San Joaquin Sediment Study	\$ 100,000	Short-term	Rural	2
33	Channel Dredging and/or Vegetation Removal	\$ 2,200,000	Short-term	O&M	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	\$ 1,140,000	Short-term	Rural	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
1	Bear Creek Diversion Structure	\$ 260,000	Short-term	Rural	2
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 County Subsidence Solution	\$ 9,800,000	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
20	Fresno Slough Sediment Removal	\$ 720,000	Short-term	O&M	2
22	Bear Creek Diversion Channel Feasibility Study	\$ 100,000	Short-term	Urban	2

# Economic Stability – 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
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 County Subsidence Solution	\$ 9,800,000	Short-term	Groundwater Recharge / Conjunctive Use / Water Supply	1
17	Reregulation of Kings River Flood Flows (and possibly San Joaquin River flood flows) through CCID and DMC facilities for storage in San Luis and Los Banos Reservoirs	\$ 11,700,000	Short-term	Groundwater Recharge / Conjunctive Use / Water Supply	1
19	Fresno Slough South Levee Repair and Floodplain Enhancement Project	\$ 1,140,000	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
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
50	SJRRP Seepage Management Projects	\$ 51,000,000	Short-term, Long-term	SJRRP	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
5A	Rehabilitation of San Joaquin River Control Structure	\$ 340,000	Short-term	Rural	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

# Regional Issues – Short-Term

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7	Levee Improvements in Subsidence Area	\$ -	Short-term	Rural	1
12	Great Valley Grassland State Park (GVGSP) Levee De-Authorization	\$ 4,930,000	Short-term	Environmental	1
14	Install New Gaging Stations	\$ 330,000	Short-term	Rural	1
15	Western Madera County Subsidence Solution	\$ 9,800,000	Short-term	Groundwater Recharge / Conjunctive Use / Water Supply	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
38	Develop Emergency Response Plans	\$ 100,000	Short-term	Emergency Management	1
47	Three Rivers Ranch Study	\$ 100,000	Short-term	Environmental	1
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49	Sunrise Ranch Study	\$ 100,000	Short-term	Environmental	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
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
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# Total Scores – Short-Term

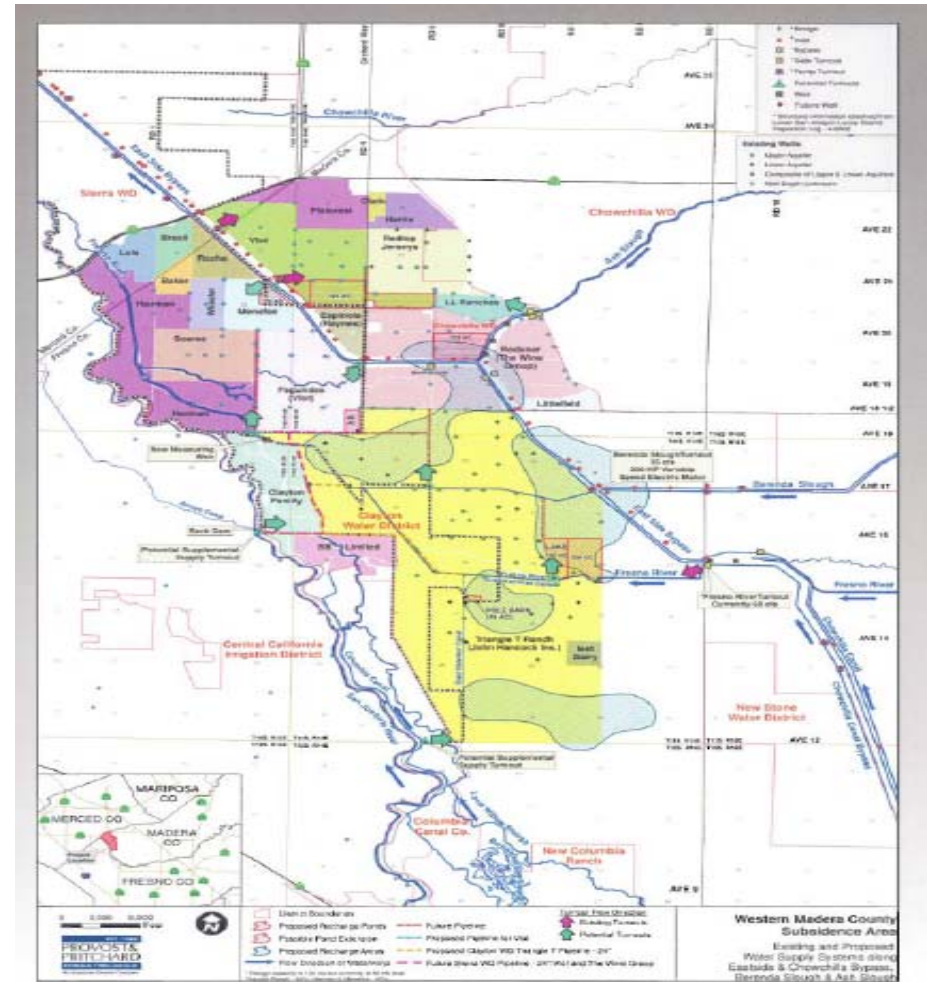
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63	San Luis NWR East Bear Creek Unit Enhance existing wetland depth and configuration to provide additional habitat and flood water storage on approximately 500 acres of wetland basins	\$ 1,150,000	Short-term	Environmental	1

# Tier 1 Project Examples



# 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



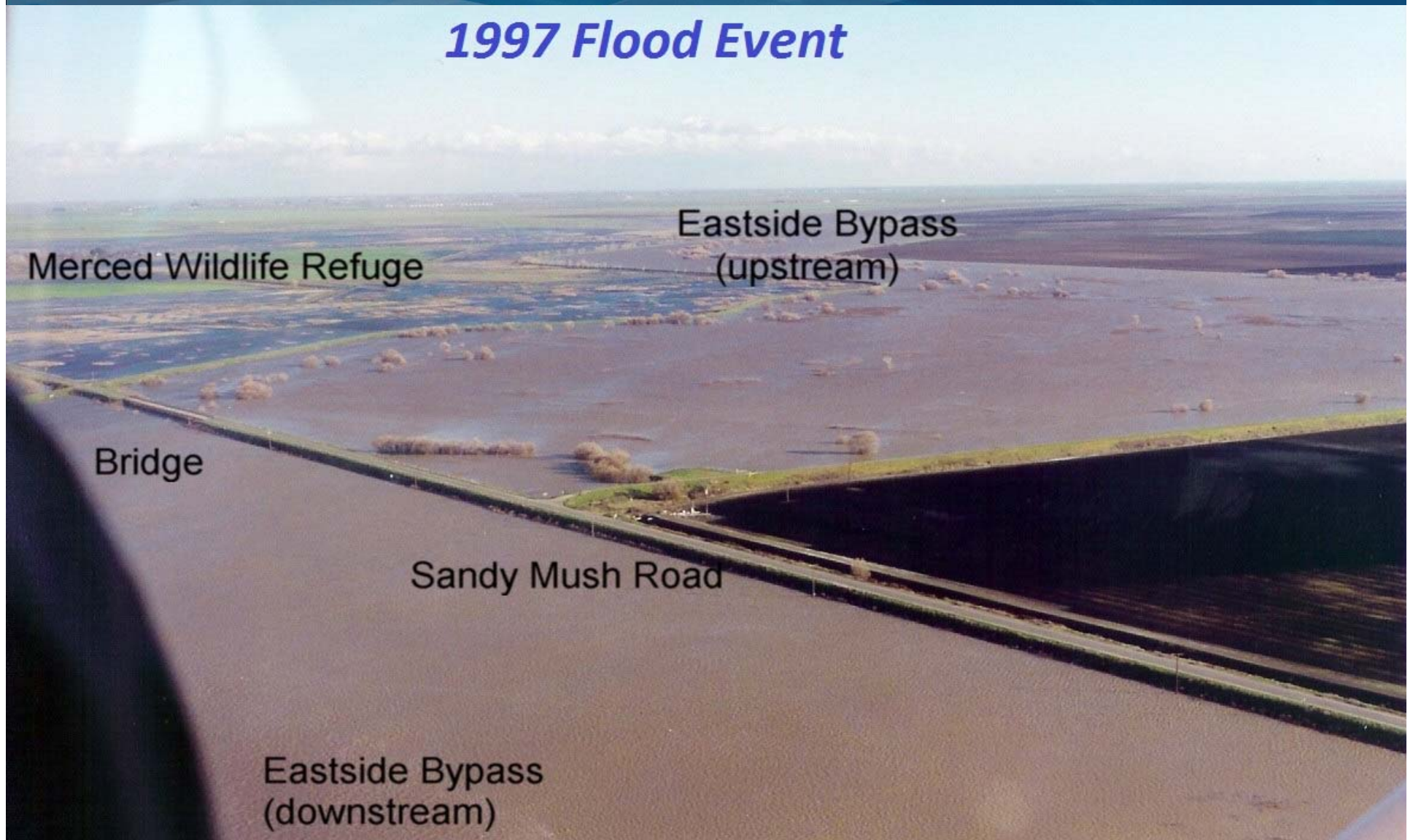


# Chowchilla Bypass Structure Enlargement and Repair



# Sandy Mush Road 1997 Flood

## *1997 Flood Event*

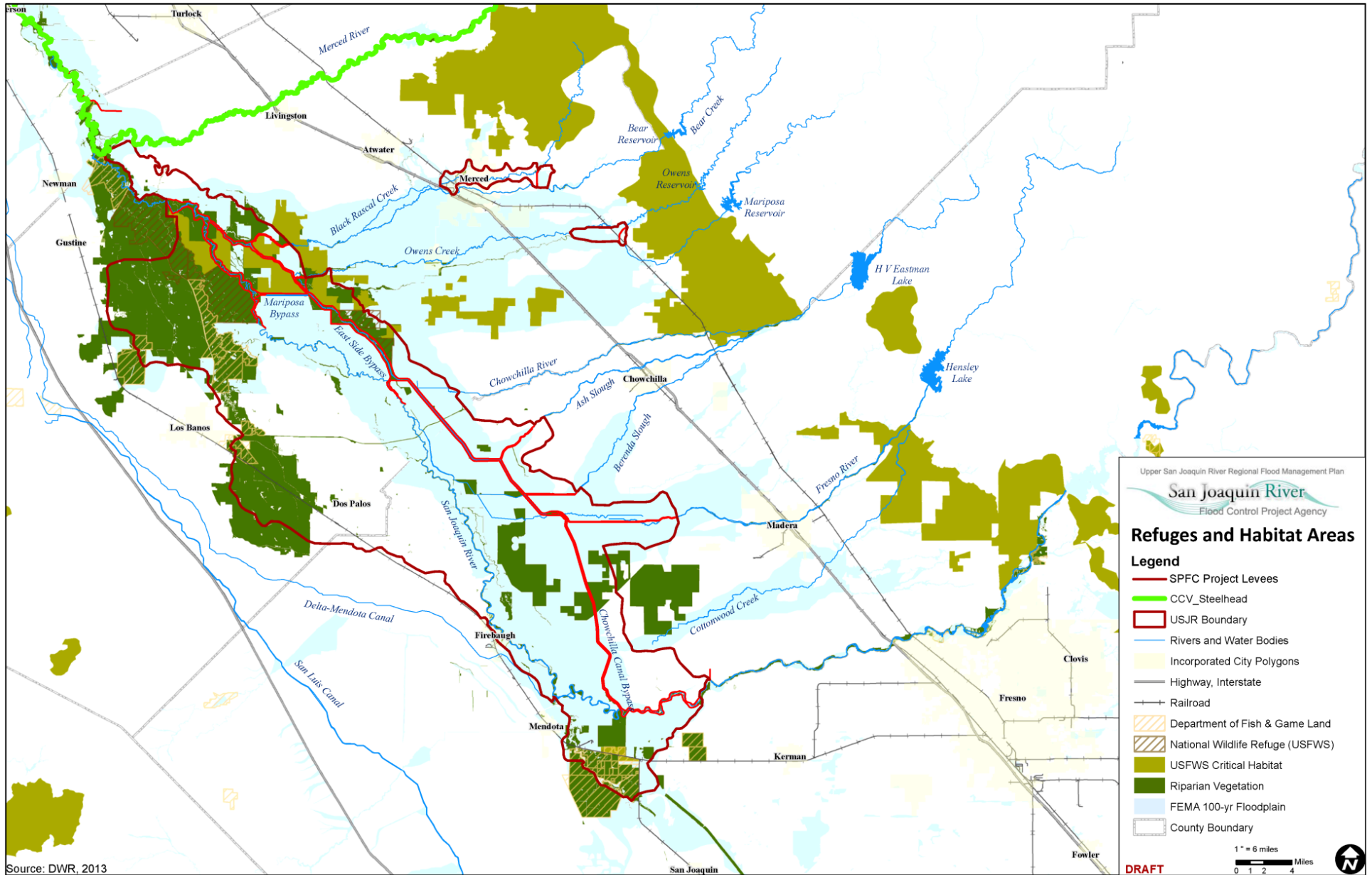


# Merced Streams Group Proposed Improvements

- 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

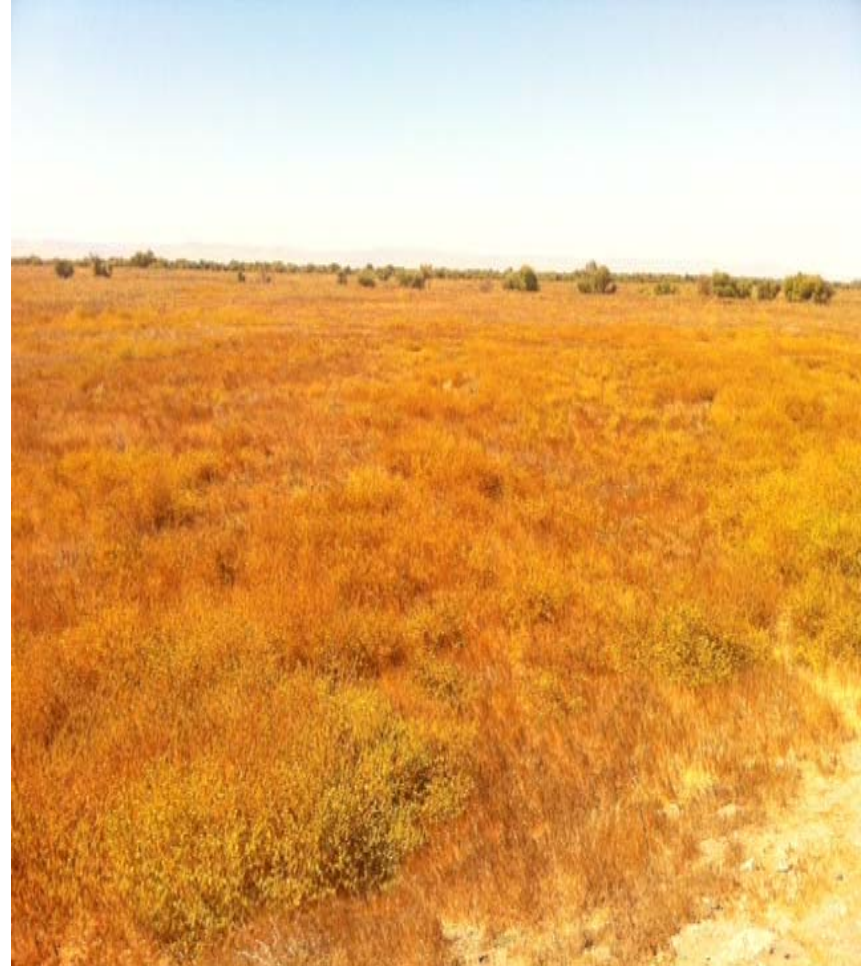


# Refuges and Habitat Areas



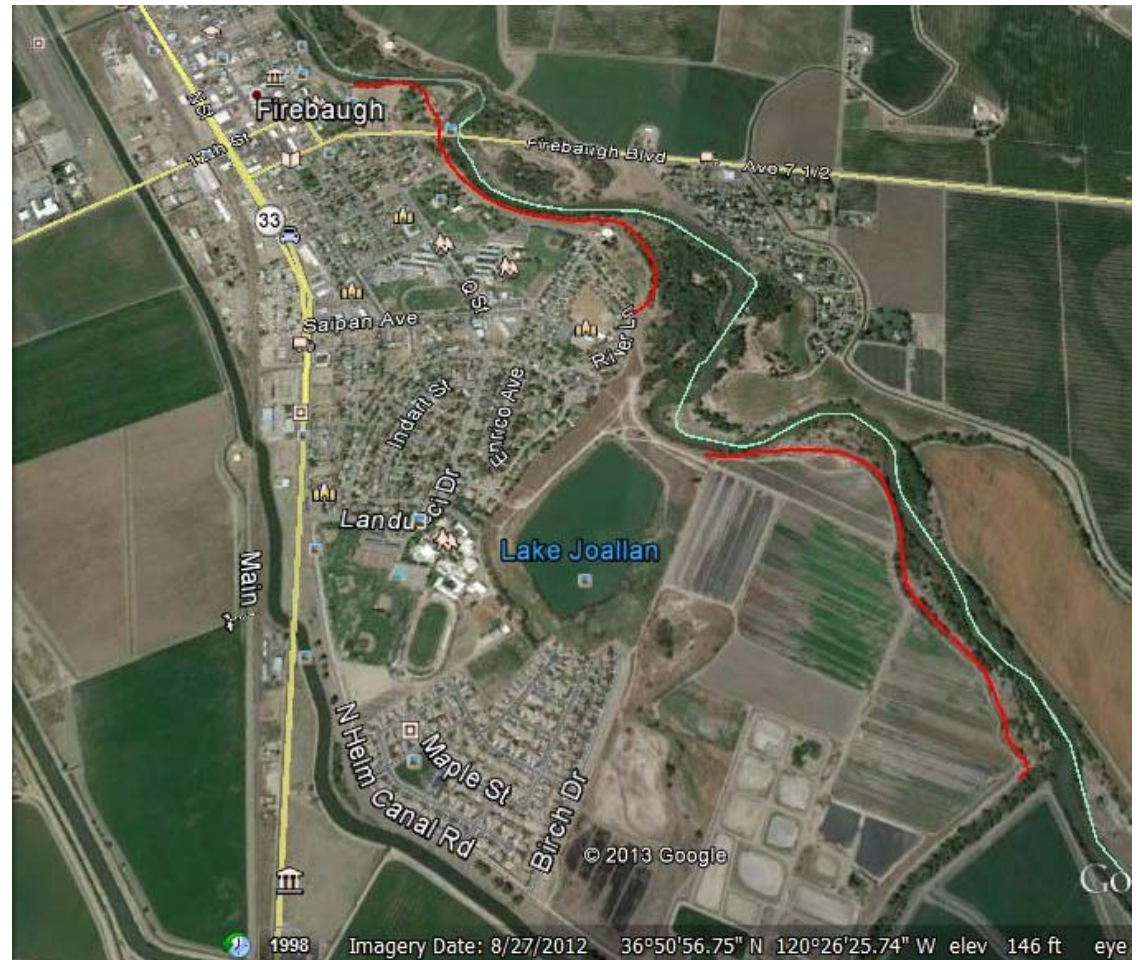
Source: DWR, 2013

# Great Valley Grasslands



# 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)



# Tier 1 Finance Scenarios

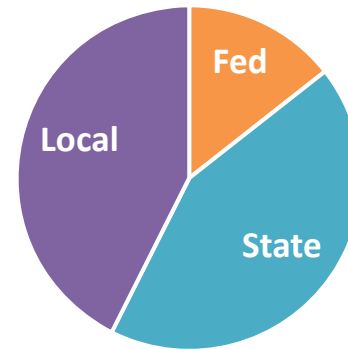


# Funding Sources Scenarios

Three Scenarios to represent likely outcomes:

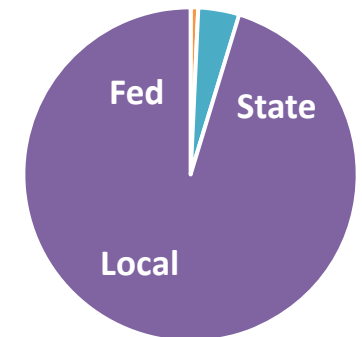
- Continuation of Past Practices

- Federal and State Support, low local obligations



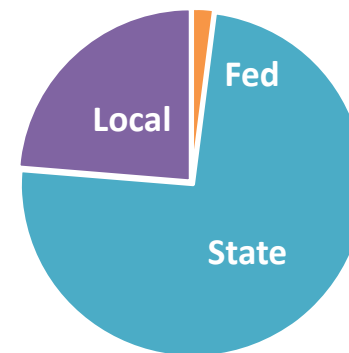
- Decreased Federal Funding

- 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

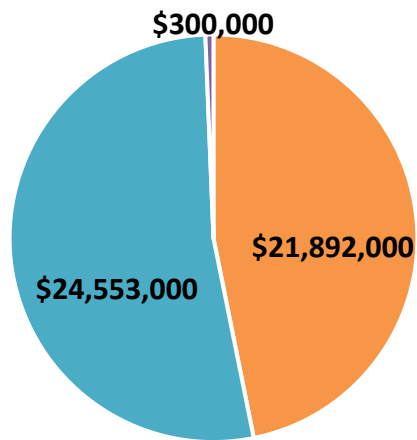
**Total USJR Tier 1 Rural System Improvement Costs: \$46,745,000**

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

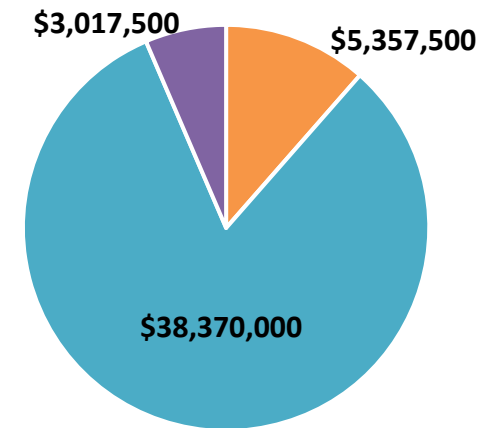
<b>Scenario</b>	<b>Total Federal Contribution</b>	<b>Total State Contribution</b>	<b>Total Local Contribution</b>
Past Practices	\$21,892,000	\$24,553,000	\$300,000
Decreased Federal Funding	\$5,357,500	\$38,370,000	\$3,017,500
Increased Local Participation	\$3,674,500	\$36,565,000	\$6,505,500

# Tier 1 Rural Scenario Cost Allocations

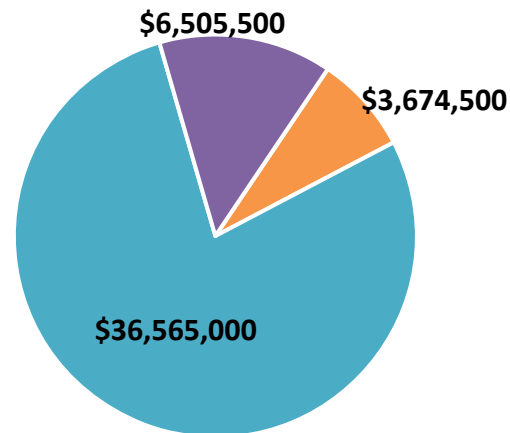
Past Practices



Decreased Federal Funding



- Fed
- State
- Local



Increased Local Participation

# Tier 1 Urban Scenario Summary

## USJR Tier 1 Urban Scenario Summary

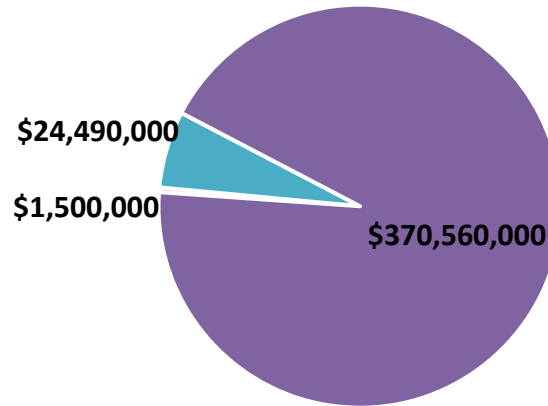
**Total USJR Tier 1 Urban System Improvement Costs: \$396,550,000**

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

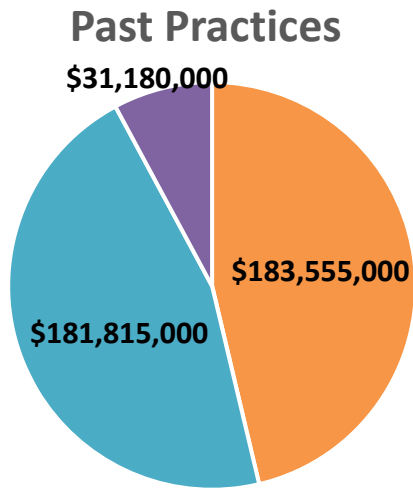
<b>Scenario</b>	<b>Total Federal Contribution</b>	<b>Total State Contribution</b>	<b>Total Local Contribution</b>
Past Practices	\$183,555,000	\$181,815,000	\$31,180,000
Decreased Federal Funding	\$18,490,000	\$323,811,000	\$54,249,000
Increased Local Participation	\$1,500,000	\$24,490,000	\$370,560,000

# Tier 1 Urban Scenario Cost Allocations

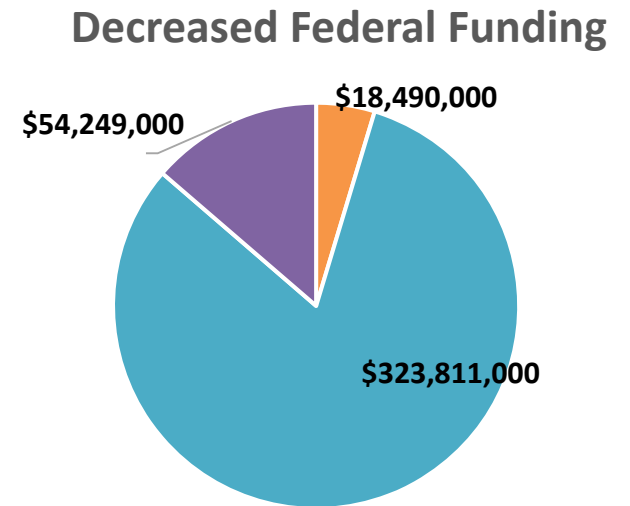
- Fed
- State
- Local



Increased Local Participation



Past Practices



Decreased Federal Funding

# Draft Recommendations



# Range of Potential Solutions

RFMP outlines a range of potential solutions that:

- Allow for mixing of system improvements to match funding guidelines
- Identifies grouping of system improvements to support DWR's IWM goals
- Identifies short-term and long-term solutions to regional issues
- Outlines potential funding strategies

# Studies and Recommended Actions

## Studies

- Coordinated upstream reservoir operations
- Forecast based upstream reservoir operations
- Additional upstream storage
- System wide sediment management plan
- Regional permitting for facilities and O&M

## Recommend Actions

- Flood control and JPA governance implementation
- Areawide 408 permit
- Merced flood risk BMPs and awareness

**RFMP  
Phase 2**





## RFMP Phase 2

- Continued regional coordination and collaboration
- Promote and develop multi-benefit IWM projects
  - City of Firebaugh
  - Great Valley Grasslands State Park
  - USFWS projects
  - Madera Subsidence Solution
- Facilitate project implementation and pre-feasibility studies
- Assist with grant application preparation

## RFMP Phase 2

- Address O&M issues/funding
- Assess institutional barriers/regional permitting
- Evaluate governance options
- Rural flood policies and legislation (NFIS, FEMA, PL84-99)
- Conduct multi-benefit pilot project to demonstrate regional cooperation

# Status of RFMP Process

RFMP	Timeline
Document Regional Setting and Identify Flood Management Issues (Land Use, Environmental, O&M, Emergency Management)	Summer 2103
Identify Potential Actions/ System Improvements/studies	2013 – Winter 2014
Project Development and Prioritization	Winter - Spring 2014
<b>Financial Plan</b>	<b>September 2014</b>
<b>Draft RFMP</b>	<b>September 2014</b>
Finalize RFMP	October 2014

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

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

