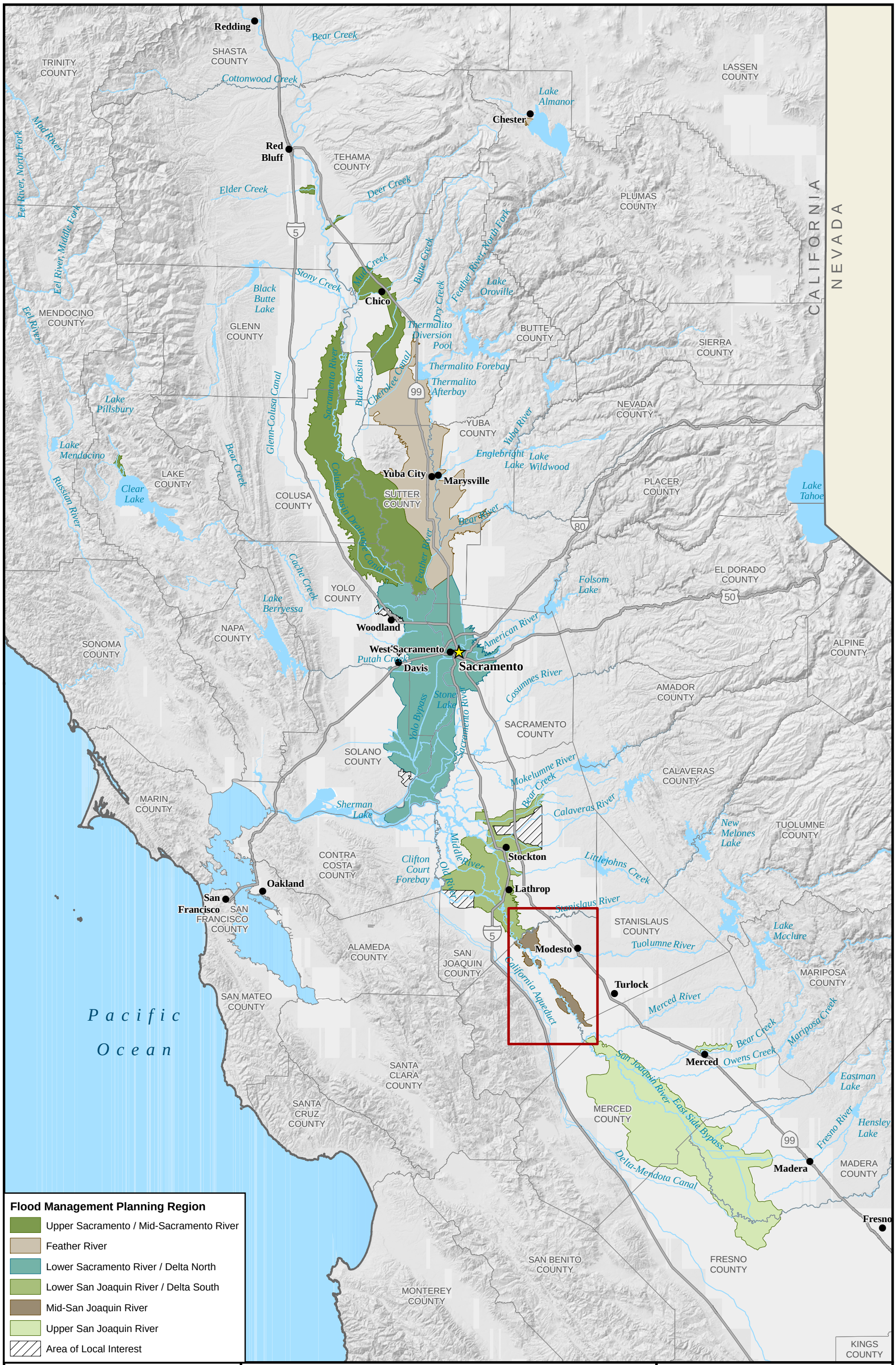


APPENDIX A

Mid San Joaquin River Region Regional Flood Atlas – Draft


Redding
Bear Creek
SHASTA COUNTY
TRINITY COUNTY
Cottonwood Creek
LASSEN COUNTY
Lake Almanor
Chester
Red Bluff
TEHAMA COUNTY
Mad River
Eel River, North Fork
Elder Creek
Deer Creek
PLUMAS COUNTY
CALIFORNIA
NEVADA
Eel River, Middle Fork
Stony Creek
Mud Creek
Butte Creek
Feather River, North Fork
Lake Oroville
Black Butte Lake
Chico
Eel River
MENDOCINO COUNTY
GLENN COUNTY
Dry Creek
Thermalito Diversion Pool
BUTTE COUNTY
SIERRA COUNTY
Thermalito Forebay
Thermalito Afterbay
Sacramento River
Butte Basin
Cherokee Canal
Lake Pillsbury
Glenn-Colusa Canal
NEVADA COUNTY
YUBA COUNTY
Yuba River
Lake Mendocino
Bear Creek
Englebright Lake
Lake Wildwood
Yuba City
Marysville
Clear Lake
LAKE COUNTY
Russian River
COLUSA COUNTY
SUTTER COUNTY
Colusa Basin Drainage Canal
Bear River
PLACER COUNTY
Lake Tahoe
Feather River
Cache Creek
Folsom Lake
EL DORADO COUNTY
YOLO COUNTY
Lake Berryessa
Woodland
American River
NAPA COUNTY
West Sacramento
Sacramento
Putah Creek
Davis
ALPINE COUNTY
SONOMA COUNTY
Cosumnes River
Stone Lake
Yolo Bypass
Sacramento River
AMADOR COUNTY
SACRAMENTO COUNTY
SOLANO COUNTY
Mokelumne River
Bear Creek
CALAVERAS COUNTY
MARIN COUNTY
Sherman Lake
Calaveras River
New Melones Lake
TUOLUMNE COUNTY
Middle River
Clifton Court Forebay
CONTRA COSTA COUNTY
Stockton
Littlejohns Creek
Old River
Oakland
Lathrop
San Francisco
SAN FRANCISCO COUNTY
Stanislaus River
STANISLAUS COUNTY
Lake Moclure
Tuolumne River
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
Modesto
California Aqueduct
MARIPOSA COUNTY
Turlock
SAN MATEO COUNTY
Merced River
Bear Creek
Mariposa Creek
Merced
Owens Creek
San Joaquin River
Eastman Lake
SANTA CLARA COUNTY
East Side Bypass
Fresno River
Hensley Lake
MERCED COUNTY
SANTA CRUZ COUNTY
Delta-Mendota Canal
Madera
MADERA COUNTY
Fresno
SAN BENITO COUNTY
FRESNO COUNTY
MONTEREY COUNTY
KINGS COUNTY
Pacific Ocean
5
99
80
50
Flood Management Planning Region
Upper Sacramento / Mid-Sacramento River
Feather River
Lower Sacramento River / Delta North
Lower San Joaquin River / Delta South
Mid-San Joaquin River
Upper San Joaquin River
Area of Local Interest
1 " = 20 miles
Miles
0 5 10 20
Datum: NAD 83
Zone: N/A
Projection: CA (Teale) Albers
Units: meters
Sources: See Appendix for source citations
Regional Flood Management Planning
Mid-San Joaquin River
Regional Overview
DRAFT
DRAFT
Prepared By: K. Miller
Date: May 10, 2013
File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San
MAP 1

Redding
Bear Creek
SHASTA COUNTY
TRINITY COUNTY
Cottonwood Creek
LASSEN COUNTY
Lake Almanor
Chester
Mad River
Eel River, North Fork
Red Bluff
TEHAMA COUNTY
Deer Creek
Elder Creek
PLUMAS COUNTY
CALIFORNIA
NEVADA
Eel River, Middle Fork
Butte Creek
Feather River, North Fork
Stony Creek
Mud Creek
Black Butte Lake
Chico
Lake Oroville
Dry Creek
MENDOCINO COUNTY
Eel River
GLENN COUNTY
Thermalito Diversion Pool
BUTTE COUNTY
SIERRA COUNTY
Thermalito Forebay
Thermalito Afterbay
Sacramento River
Butte Basin
Cherokee Canal
Lake Pillsbury
Glenn-Colusa Canal
NEVADA COUNTY
YUBA COUNTY
Yuba River
Lake Mendocino
Bear Creek
SUTTER COUNTY
Englebright Lake
Lake Wildwood
Yuba City
Marysville
Russian River
Clear Lake
LAKE COUNTY
COLUSA COUNTY
Colusa Basin Drainage Canal
Bear River
PLACER COUNTY
Lake Tahoe
Feather River
Cache Creek
Folsom Lake
EL DORADO COUNTY
Lake Berryessa
YOLO COUNTY
Woodland
NAPA COUNTY
American River
West Sacramento
Putah Creek
Davis
Sacramento
ALPINE COUNTY
SONOMA COUNTY
Cosumnes River
Yolo Bypass
Stone Lake
Sacramento River
AMADOR COUNTY
SACRAMENTO COUNTY
SOLANO COUNTY
Mokelumne River
Bear Creek
CALAVERAS COUNTY
MARIN COUNTY
Sherman Lake
Calaveras River
New Melones Lake
TUOLUMNE COUNTY
Middle River
Clifton Court Forebay
CONTRA COSTA COUNTY
Stockton
Littlejohns Creek
Old River
Oakland
San Francisco
Lathrop
Stanislaus River
STANISLAUS COUNTY
Lake Mcclure
Modesto
Tuolumne River
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
California Aqueduct
Turlock
MARIPOSA COUNTY
SAN MATEO COUNTY
Merced River
MERCED COUNTY
Bear Creek
Mariposa Creek
Merced
Owens Creek
SANTA CLARA COUNTY
San Joaquin River
Eastman Lake
Pacific Ocean
SANTA CRUZ COUNTY
East Side Bypass
Fresno River
Hensley Lake
Delta-Mendota Canal
Madera
MADERA COUNTY
Fresno
SAN BENITO COUNTY
FRESNO COUNTY
MONTEREY COUNTY

2000 Population Data
- 1 Dot = 500 People
- 1 Dot = 5,000 People
- Region Boundary

Protected Asset ($1,000/acre)
- 0 -100
- 100 - 200
- 200 - 300
- 300 - 400
- > 400

Note: The protected assets and populations were mapped based on the damage areas originally identified in the Comprehensive Study, and modified in 2010.

1 " = 20 miles
Miles
0 5 10 20

Datum: NAD 83
Zone: N/A
Projection: CA (Teale) Albers
Units: meters
Sources: See Appendix for source citations

Regional Flood Management Planning

Mid-San Joaquin River Protected Populations and Assets

DRAFT DRAFT

Prepared By: K. Miller
Date: May 10, 2013
File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San

MAP 2

SAN JOAQUIN COUNTY

STANISLAUS COUNTY

MERCED COUNTY

San Joaquin River

Tuolumne River

Delta-Mendota Canal

California Aqueduct

Merced River

Modesto

219

108

99

132

33

5

PS

- Local Facility
- SPFC Facility
- Pump Station
- SPFC Levee
- Weir
- County Boundary
- Region Boundary
- Other Region
- Area not Protected by SPFC Facilities

Levee Flood Protection Zone

- Estimated Depth Greater Than 3'
- Estimated Depth Less Than 3'
- Depth Unknown

1 " = 2 miles

Miles

0 0.5 1 2

Datum: NAD 83
Zone: N/A

Projection: CA (Teale) Albers
Units: meters

Sources: See Appendix for source citations

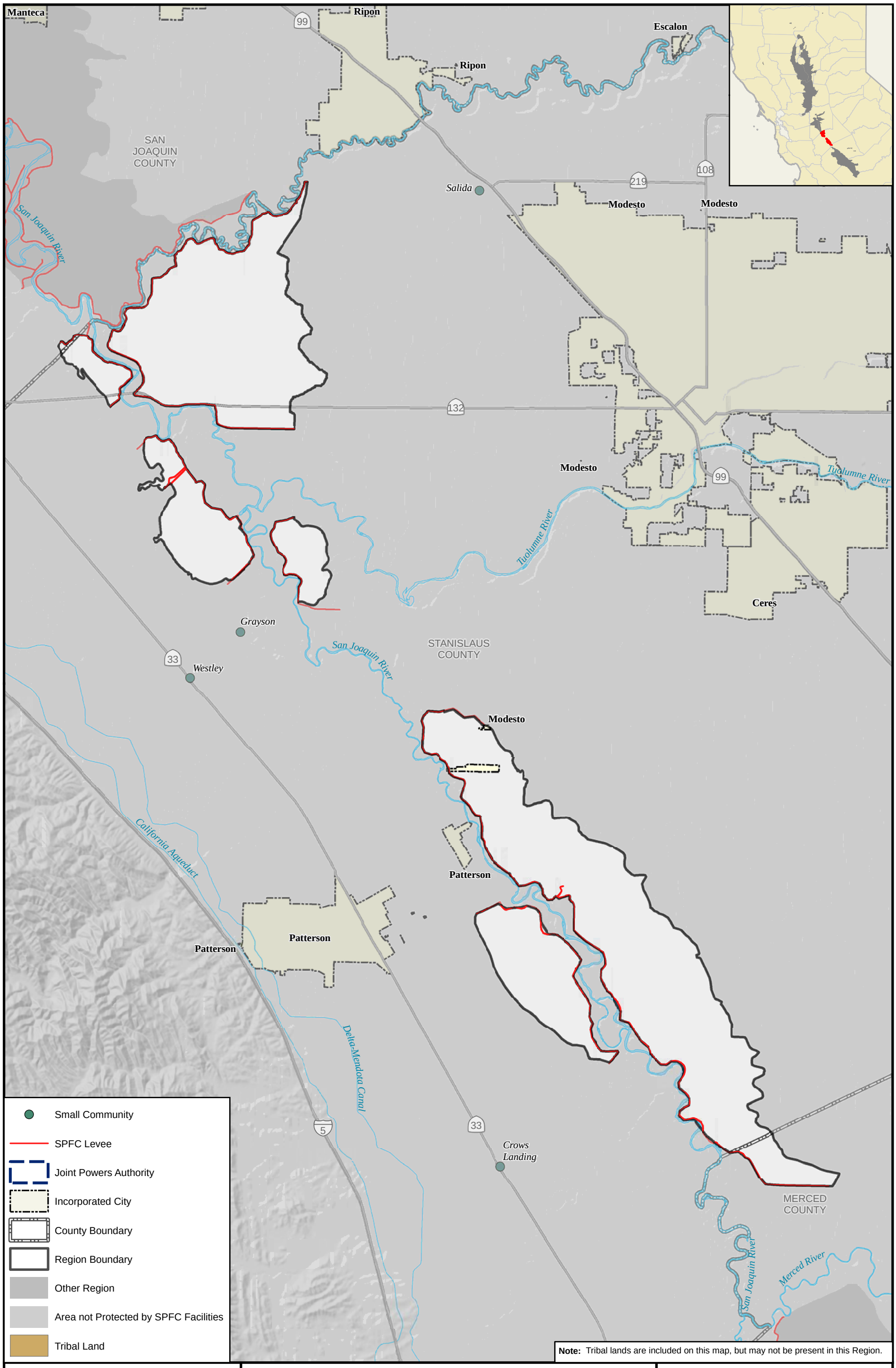
Regional Flood Management Planning

Mid-San Joaquin River
Levee Flood Protection Zones

DRAFT DRAFT

Prepared By: K. Miller
Date: May 10, 2013
File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San

MAP 3


Manteca
Ripon
Ripon
Escalon
99
SAN JOAQUIN COUNTY
San Joaquin River
Salida
219
108
Modesto
Modesto
Modesto
132
Tuolumne River
99
Ceres
Grayson
STANISLAUS COUNTY
San Joaquin River
33
Westley
Modesto
California Aqueduct
Patterson
Patterson
Patterson
Delta-Mendota Canal
5
33
Crows Landing
MERCED COUNTY
San Joaquin River
Merced River
Small Community
SPFC Levee
Joint Powers Authority
Incorporated City
County Boundary
Region Boundary
Other Region
Area not Protected by SPFC Facilities
Tribal Land
Note: Tribal lands are included on this map, but may not be present in this Region.
1 " = 2 miles
Miles
0 0.5 1 2
Datum: NAD 83
Zone: N/A
Projection: CA (Teale) Albers
Units: meters
Sources: See Appendix for source citations
Regional Flood Management Planning
Mid-San Joaquin River
Local Jurisdictions
DRAFT
DRAFT
Prepared By: K. Miller
Date: May 10, 2013
File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San
MAP 4

Eastern San Joaquin IRWM Region

SAN JOAQUIN COUNTY

Stanislaus River

San Joaquin River

219

108

99

Modesto

132

Tuolumne River

East Stanislaus IRWM Region

STANISLAUS COUNTY

San Joaquin River

33

5

California Aqueduct

Delta-Mendota Canal

33

Westside San Joaquin IRWM Region

MERCED COUNTY

San Joaquin River

Merced River

Merced IRWM Region

SPFC Levee

County Boundary

Region Boundary

Other Region

Area not Protected by SPFC Facilities

IRWM Region Boundary

1 " = 2 miles

Miles

0 0.5 1 2

Datum: NAD 83
Zone: N/A

Projection: CA (Teale) Albers
Units: meters

Sources: See Appendix for source citations

Regional Flood Management Planning

Mid-San Joaquin River
DWR Integrated Regional Water Management Planning Areas

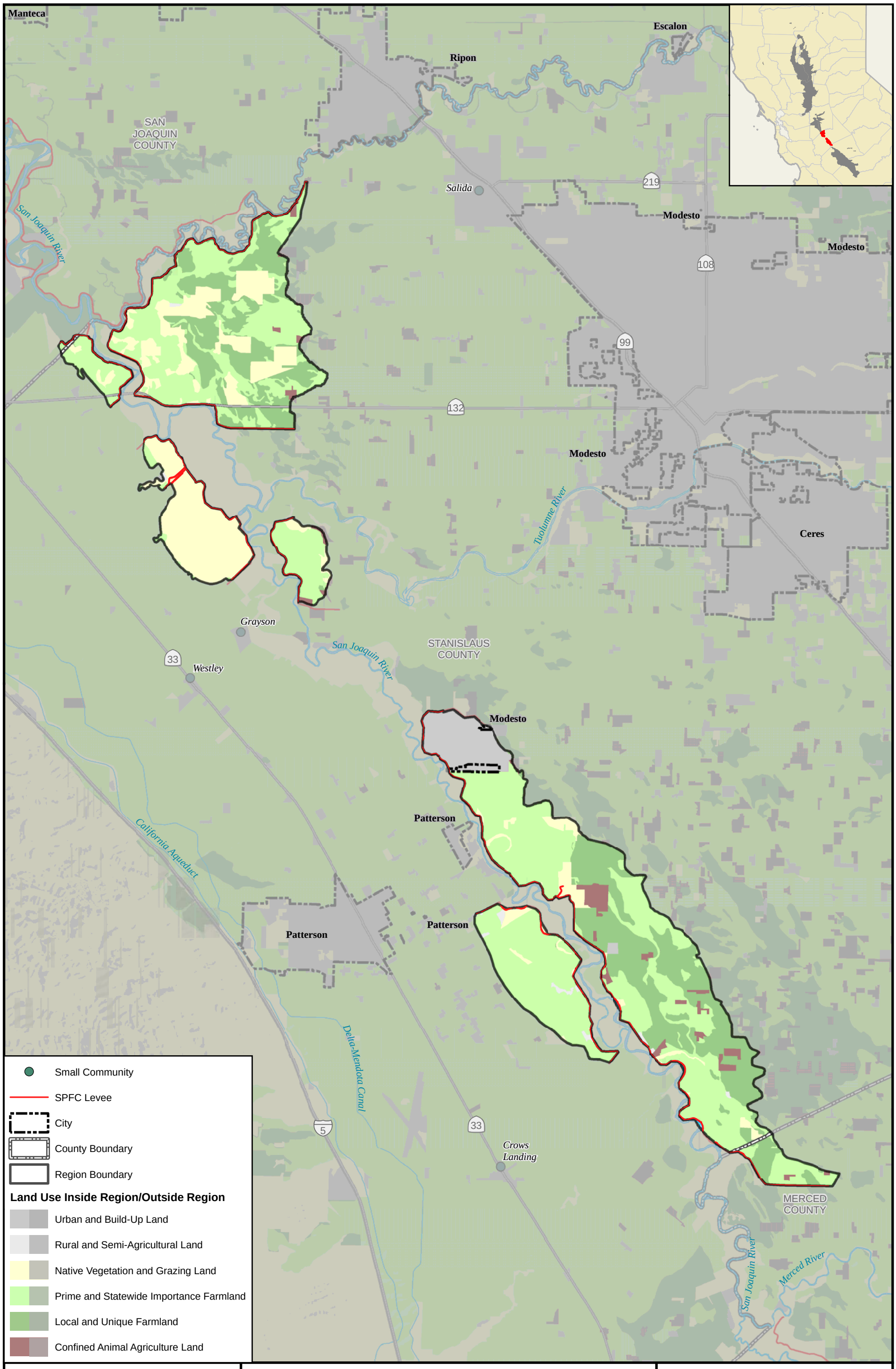
DRAFT DRAFT

Prepared By: K. Miller

Date: May 10, 2013

File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San

MAP 5



1 " = 2 miles

Miles

0 0.5 1 2

Datum: NAD 83
Zone: N/A

Projection: CA (Teale) Albers
Units: meters

Sources: See Appendix for source citations

Regional Flood Management Planning

Mid-San Joaquin River
General Land Use

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Prepared By: K. Miller
Date: May 10, 2013
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MAP 6

RD 17
RD 2094
RD 2075
SAN JOAQUIN COUNTY
San Joaquin River
RD 2064
RD 2085
RD 2101
RD 2031
RD 2099
RD 2100
RD 2102
RD 2092
STANISLAUS COUNTY
Tuolumne River
San Joaquin River
RD 2091
NA 65
RD 1602
RD 2063
MERCED COUNTY
San Joaquin River
Merced River
NA 10
California Aqueduct
Delta-Mendota Canal
99
219
108
99
132
Modesto
33
5
33

SPFC Levee
County Boundary
Reclamation District (RD)
Reclamation District (historical)
Levee District (LD)
Maintenance Area (MA)
Named Area (NA)
State Maintained Area (ST)
Other District
Region Boundary
Other Region
Area not Protected by SPFC Facilities

1 " = 2 miles
Miles
0 0.5 1 2

Datum: NAD 83
Zone: N/A
Projection: CA (Teale) Albers
Units: meters
Sources: See Appendix for source citations

Regional Flood Management Planning

Mid-San Joaquin River
Local Maintaining Agencies

DRAFT DRAFT

Prepared By: K. Miller
Date: May 10, 2013
File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San

MAP 7

Manteca
Escalon
Ripon
Salida
Modesto
Ceres
Westley
Patterson
Crows Landing
SAN JOAQUIN COUNTY
STANISLAUS COUNTY
MERCED COUNTY
Stanislaus River
San Joaquin River
Tuolumne River
California Aqueduct
Delta-Mendota Canal
Merced River
99
108
219
132
33
5

Police Station
Fire Station
Hospital
Airport
School
Boat Launch
Bridge
SPFC Levee
Railroad
Highway, Interstate
County Boundary
Region Boundary
Other Region
Area not Protected by SPFC Facilities

Note: This map shows an initial representation of facilities and assets in the Region. It is anticipated that additional information will be identified by the local agencies during the development of the Regional Plan.

1 " = 2 miles
Miles
0 0.5 1 2

Datum: NAD 83
Zone: N/A
Projection: CA (Teale) Albers
Units: meters
Sources: See Appendix for source citations

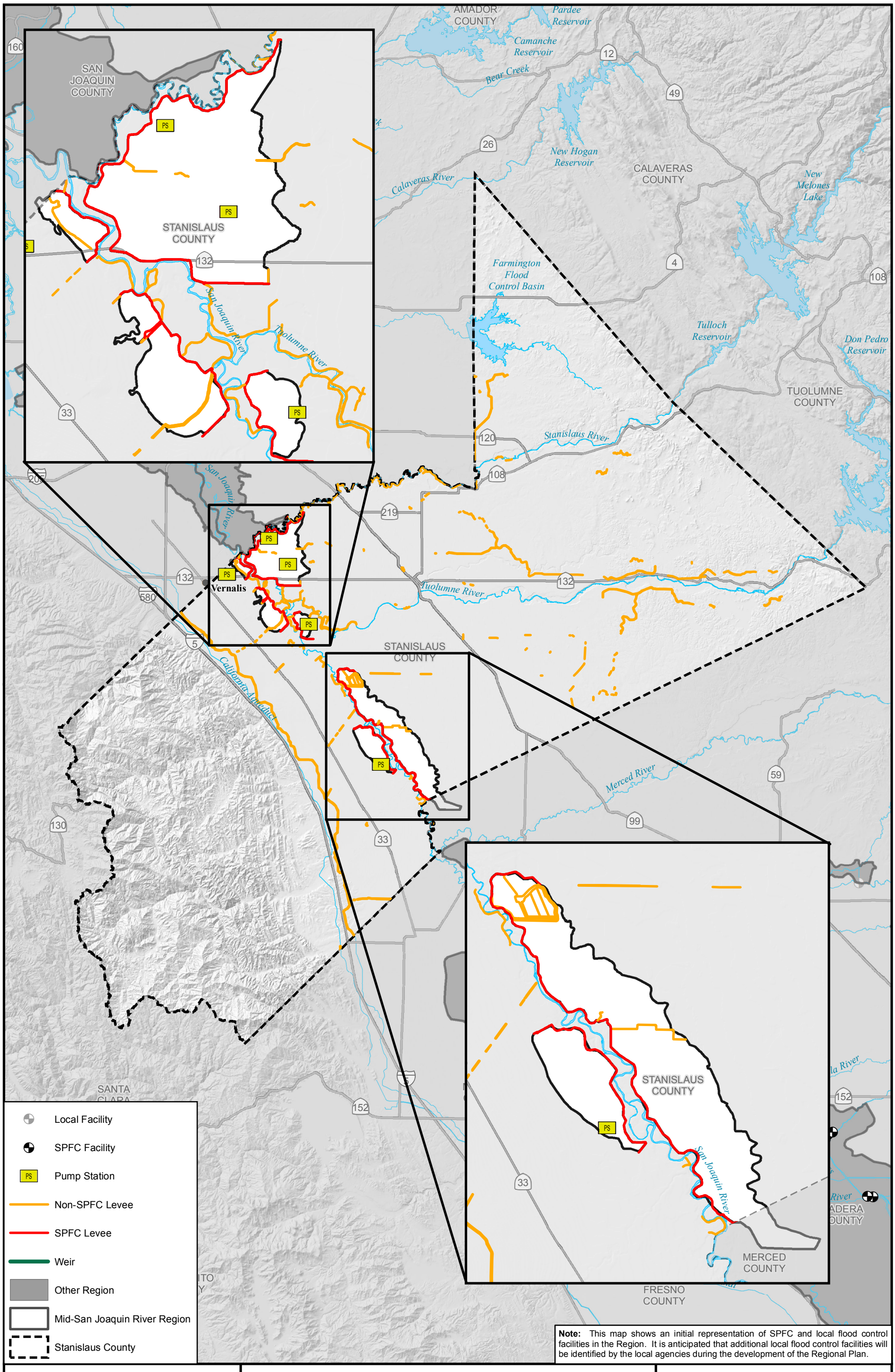
Regional Flood Management Planning

Mid-San Joaquin River
Existing Critical Facilities and Economic Assets

DRAFT DRAFT

Prepared By: K. Miller
Date: May 10, 2013

MAP 8



Note: This map shows an initial representation of SPFC and local flood control facilities in the Region. It is anticipated that additional local flood control facilities will be identified by the local agencies during the development of the Regional Plan.

1 " = 7 miles

0 1.5 3 6 Miles

Datum: NAD 83
Zone: N/A

Projection: CA (Teale) Albers
Units: meters

Sources: See Appendix for source citations

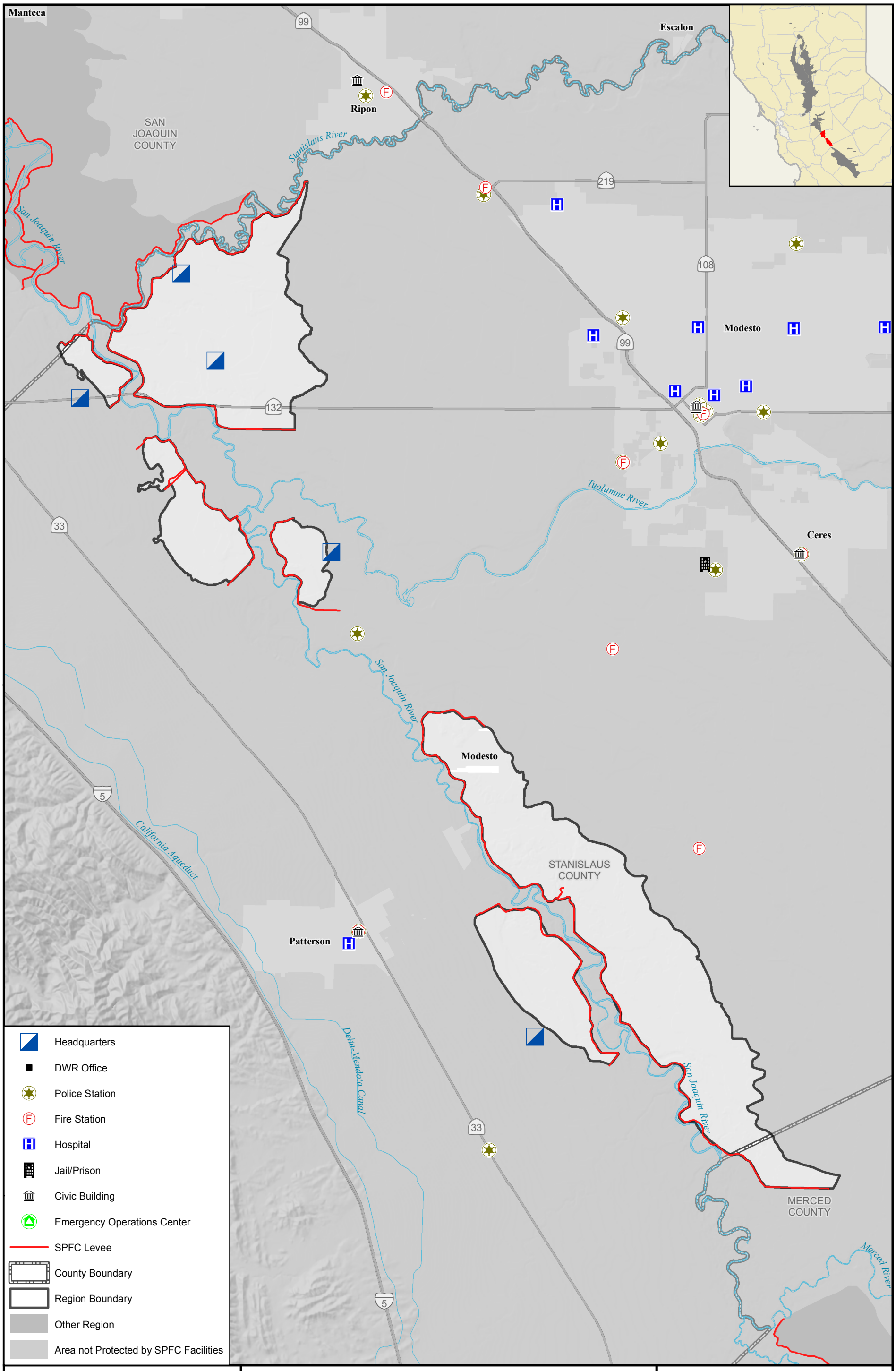
Regional Flood Management Planning

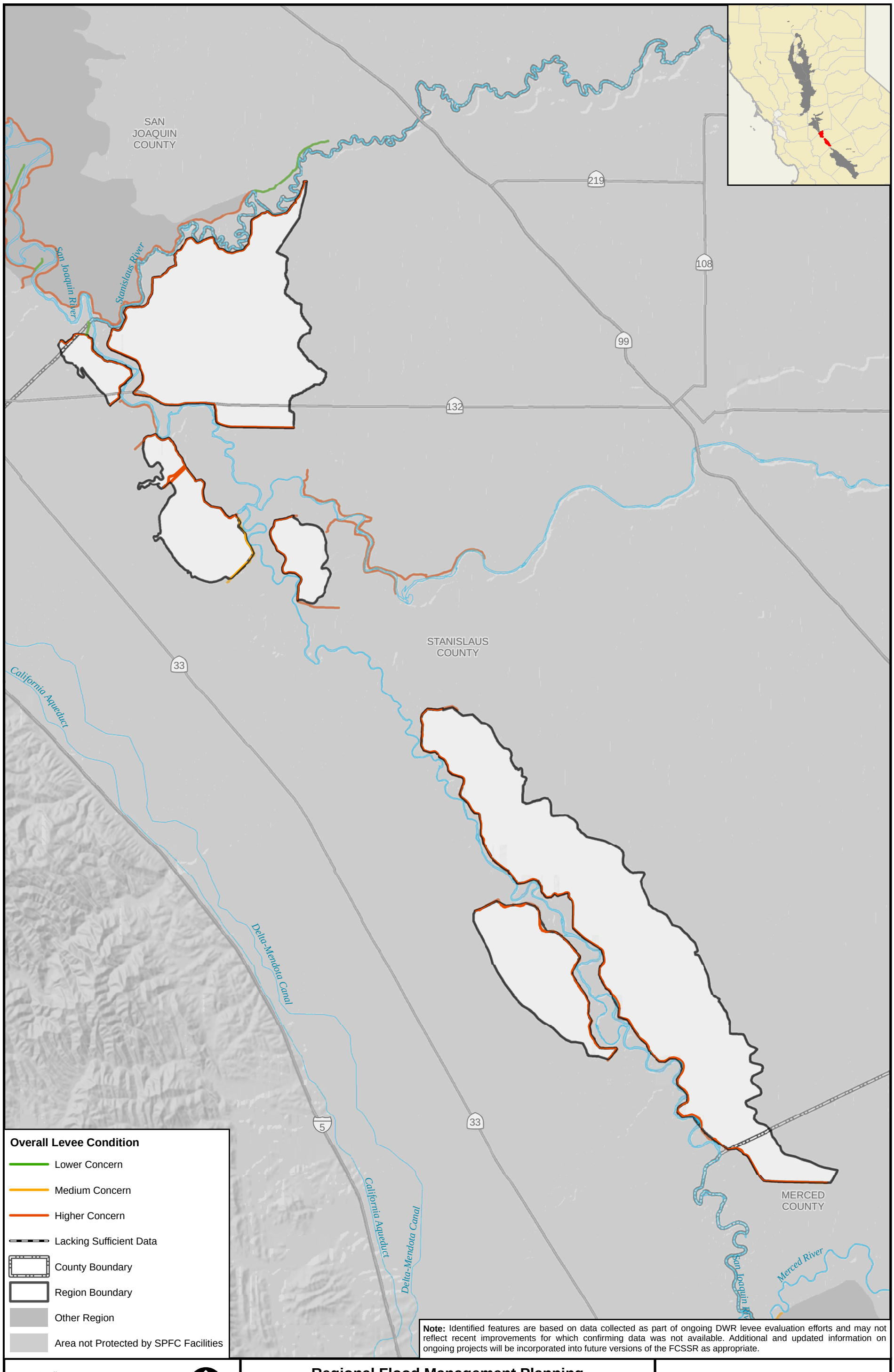
Mid San Joaquin River
SPFC and Local Flood Control Facilities

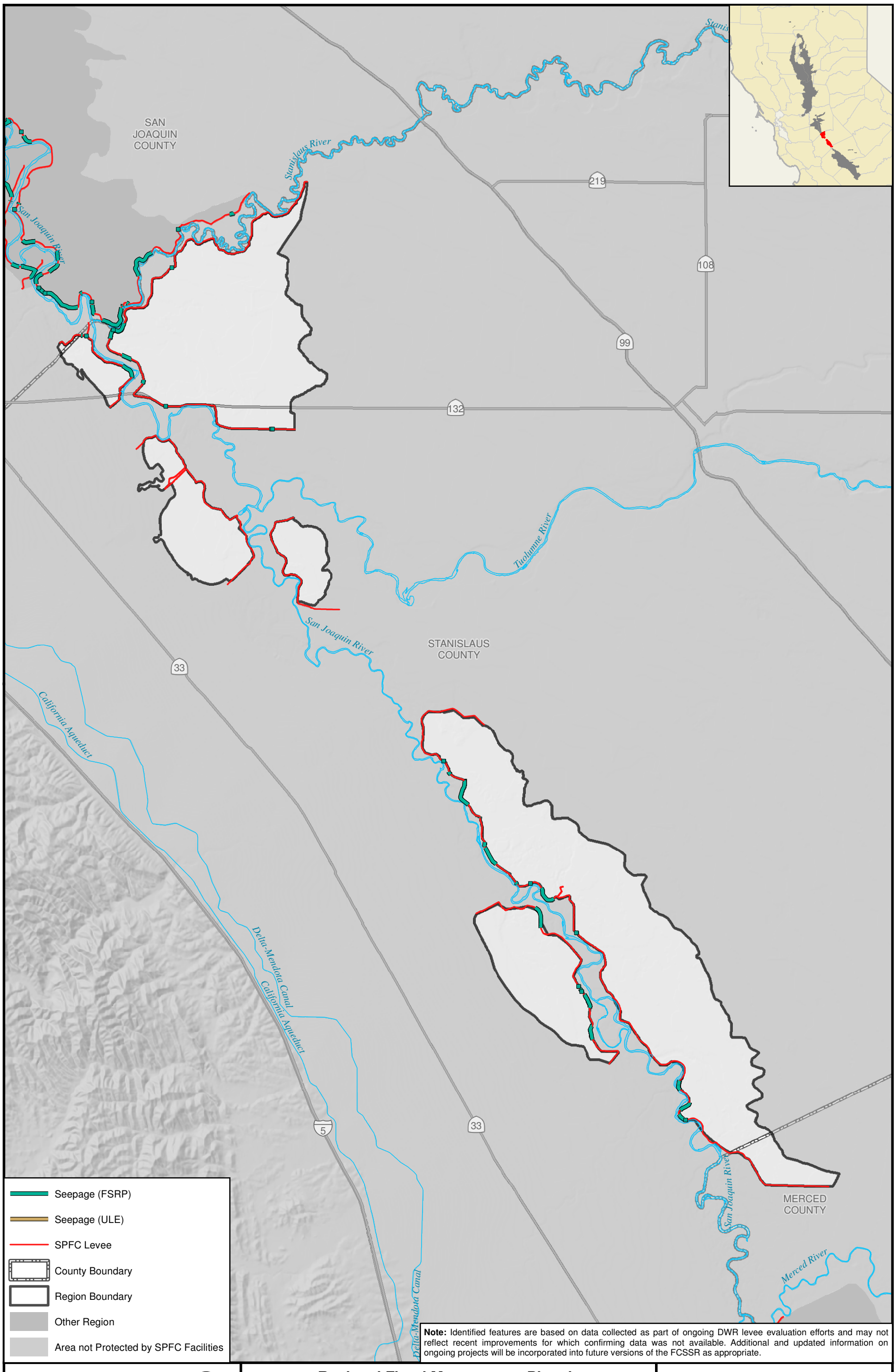
DRAFT DRAFT

Prepared By: K. Miller
Date: May 10, 2013
File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San

MAP 9


Manteca
99
Escalon
Ripon
SAN JOAQUIN COUNTY
Stanislaus River
San Joaquin River
219
108
Modesto
99
132
33
Tuolumne River
Ceres
Modesto
5
California Aqueduct
Patterson
STANISLAUS COUNTY
Delta-Mendota Canal
33
San Joaquin River
MERCED COUNTY
Merced River
5
Headquarters
DWR Office
Police Station
Fire Station
Hospital
Jail/Prison
Civic Building
Emergency Operations Center
SPFC Levee
County Boundary
Region Boundary
Other Region
Area not Protected by SPFC Facilities
1 " = 2 miles
Miles
0 0.5 1 2
Datum: NAD 83
Zone: N/A
Projection: CA (Teale) Albers
Units: meters
Sources: See Appendix for source citations
Regional Flood Management Planning
Mid-San Joaquin River
Flood Emergency Response Facilities
DRAFT
DRAFT
Prepared By:
Date: July 30, 2013
File:
MAP 10


SAN JOAQUIN COUNTY
STANISLAUS COUNTY
MERCED COUNTY
219
108
99
132
33
5
San Joaquin River
Stanislaus River
California Aqueduct
Delta-Mendota Canal
Merced River
Overall Levee Condition
Lower Concern
Medium Concern
Higher Concern
Lacking Sufficient Data
County Boundary
Region Boundary
Other Region
Area not Protected by SPFC Facilities
Note: Identified features are based on data collected as part of ongoing DWR levee evaluation efforts and may not reflect recent improvements for which confirming data was not available. Additional and updated information on ongoing projects will be incorporated into future versions of the FCSSR as appropriate.
1 " = 2 miles
Miles
0 0.5 1 2
Datum: NAD 83
Zone: N/A
Projection: CA (Teale) Albers
Units: meters
Sources: See Appendix for source citations
Regional Flood Management Planning
Mid-San Joaquin River
Overall Levee Conditions
DRAFT
DRAFT
Prepared By: K. Miller
Date: May 10, 2013
MAP 11
File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San



Note: Identified features are based on data collected as part of ongoing DWR levee evaluation efforts and may not reflect recent improvements for which confirming data was not available. Additional and updated information on ongoing projects will be incorporated into future versions of the FCSSR as appropriate.

1 " = 2 miles

0 0.5 1 2 Miles

Datum: NAD 83
Zone: N/A

Projection: CA (Teale) Albers
Units: meters

Sources: See Appendix for source citations

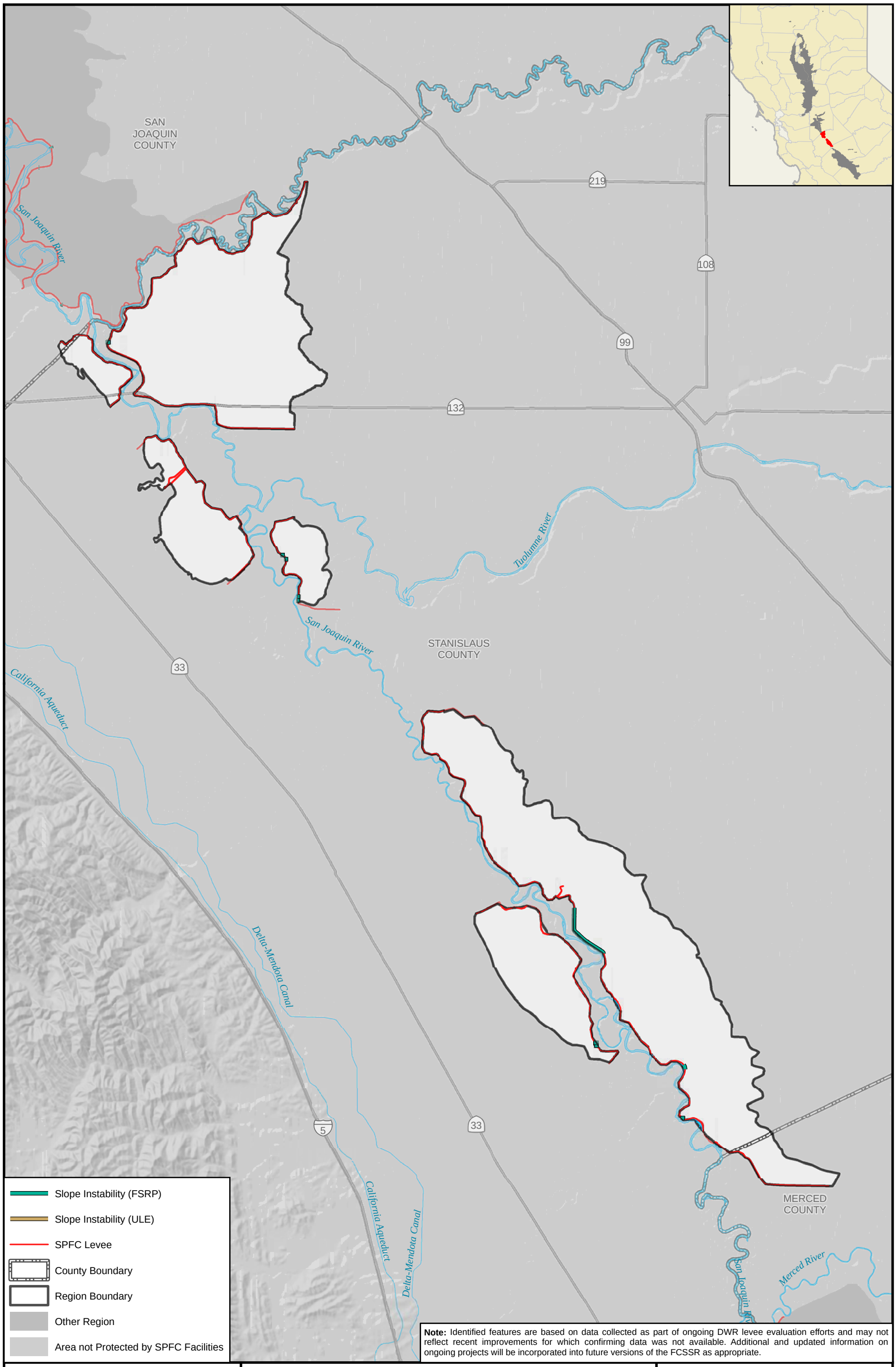
Regional Flood Management Planning

Mid-San Joaquin River
Seepage Past Performance Problems

DRAFT DRAFT

Prepared By:
Date: July 30, 2013
File:

MAP 12



Note: Identified features are based on data collected as part of ongoing DWR levee evaluation efforts and may not reflect recent improvements for which confirming data was not available. Additional and updated information on ongoing projects will be incorporated into future versions of the FCSSR as appropriate.

1 " = 2 miles

0 1 2

Datum: NAD 83
Zone: N/A

Projection: CA (Teale) Albers
Units: meters

Sources: See Appendix for source citations

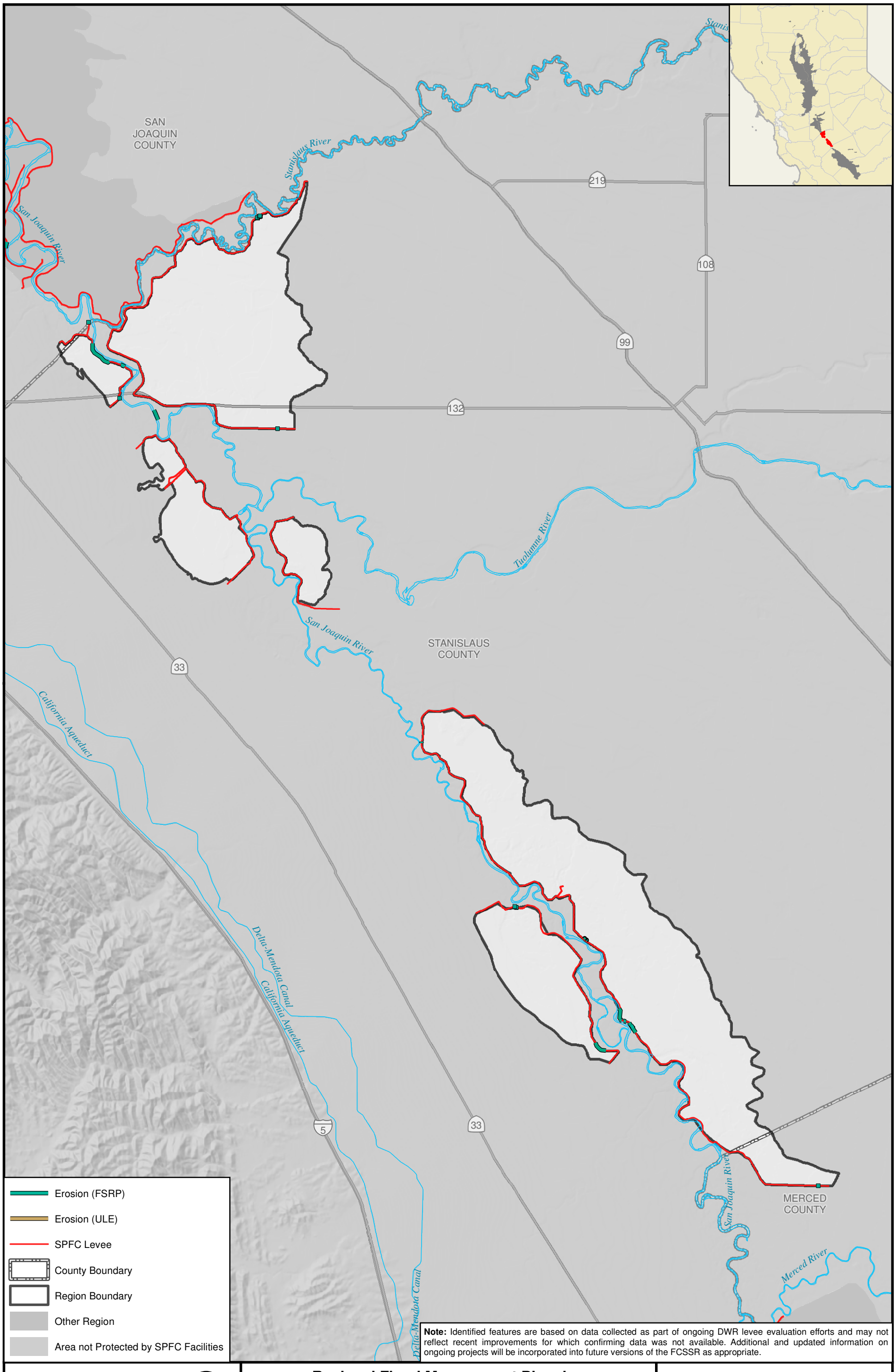
Regional Flood Management Planning

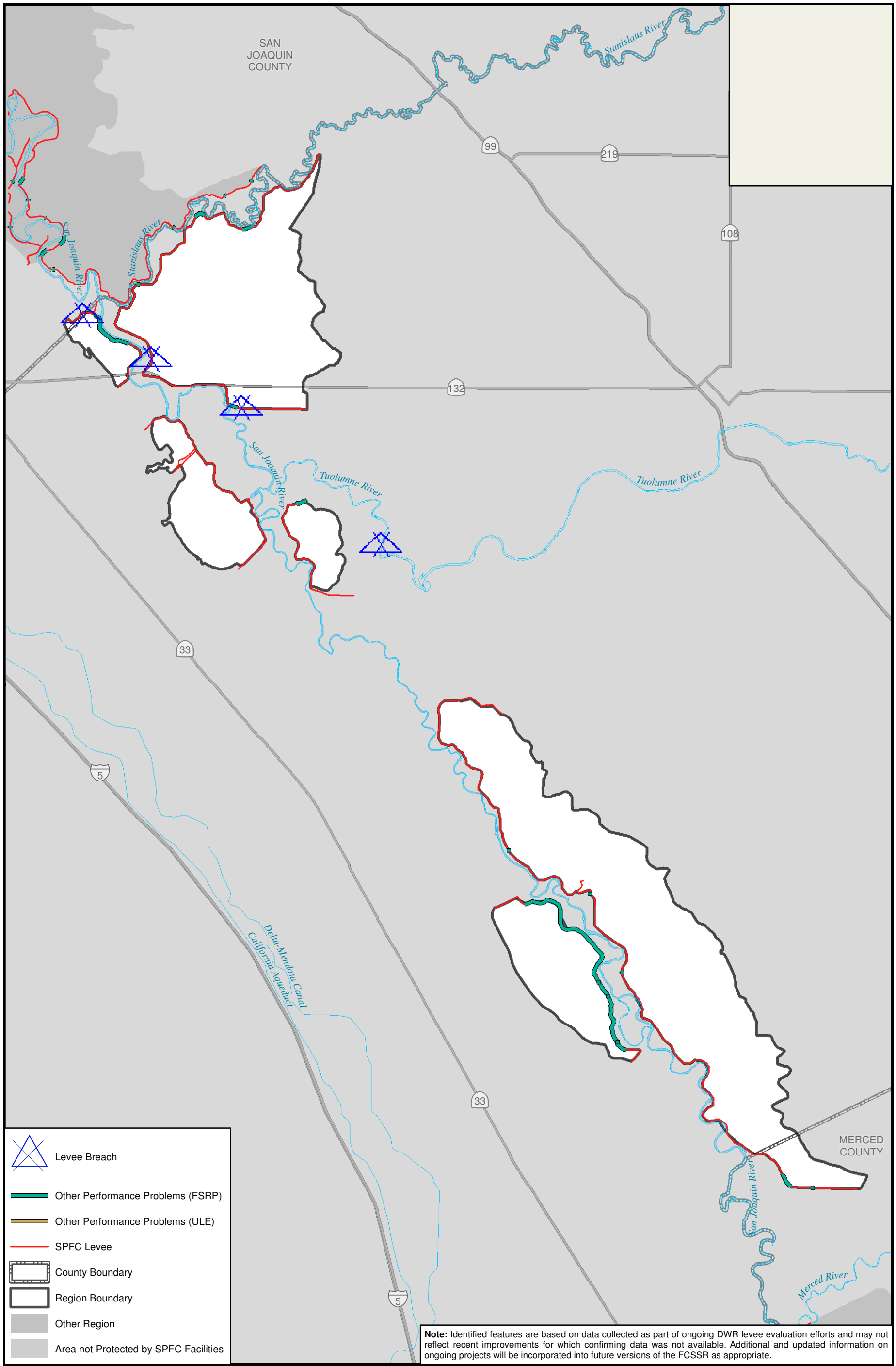
Mid-San Joaquin River
Slope Instability Past Performance Problems

DRAFT DRAFT

Prepared By: K. Miller
Date: May 10, 2013
File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San

MAP 13


SAN JOAQUIN COUNTY
STANISLAUS COUNTY
MERCED COUNTY
Stanislaus River
San Joaquin River
Tuolumne River
Merced River
California Aqueduct
Delta-Mendota Canal
219
108
99
132
33
5
Erosion (FSRP)
Erosion (ULE)
SPFC Levee
County Boundary
Region Boundary
Other Region
Area not Protected by SPFC Facilities
1 " = 2 miles
0 1 2
Datum: NAD 83
Zone: N/A
Projection: CA (Teale) Albers
Units: meters
Sources: See Appendix for source citations
Note: Identified features are based on data collected as part of ongoing DWR levee evaluation efforts and may not reflect recent improvements for which confirming data was not available. Additional and updated information on ongoing projects will be incorporated into future versions of the FCSSR as appropriate.
Regional Flood Management Planning
Mid-San Joaquin River
Erosion Past Performance Problems
DRAFT
DRAFT
Prepared By:
Date: July 30, 2013
File:
MAP 14



Note: Identified features are based on data collected as part of ongoing DWR levee evaluation efforts and may not reflect recent improvements for which confirming data was not available. Additional and updated information on ongoing projects will be incorporated into future versions of the FCSSR as appropriate.

1 " = 2 miles

Miles
0 0.5 1 2

Datum: NAD 83
Zone: N/A

Projection: CA (Teale) Albers
Units: meters

Sources: See Appendix for source citations

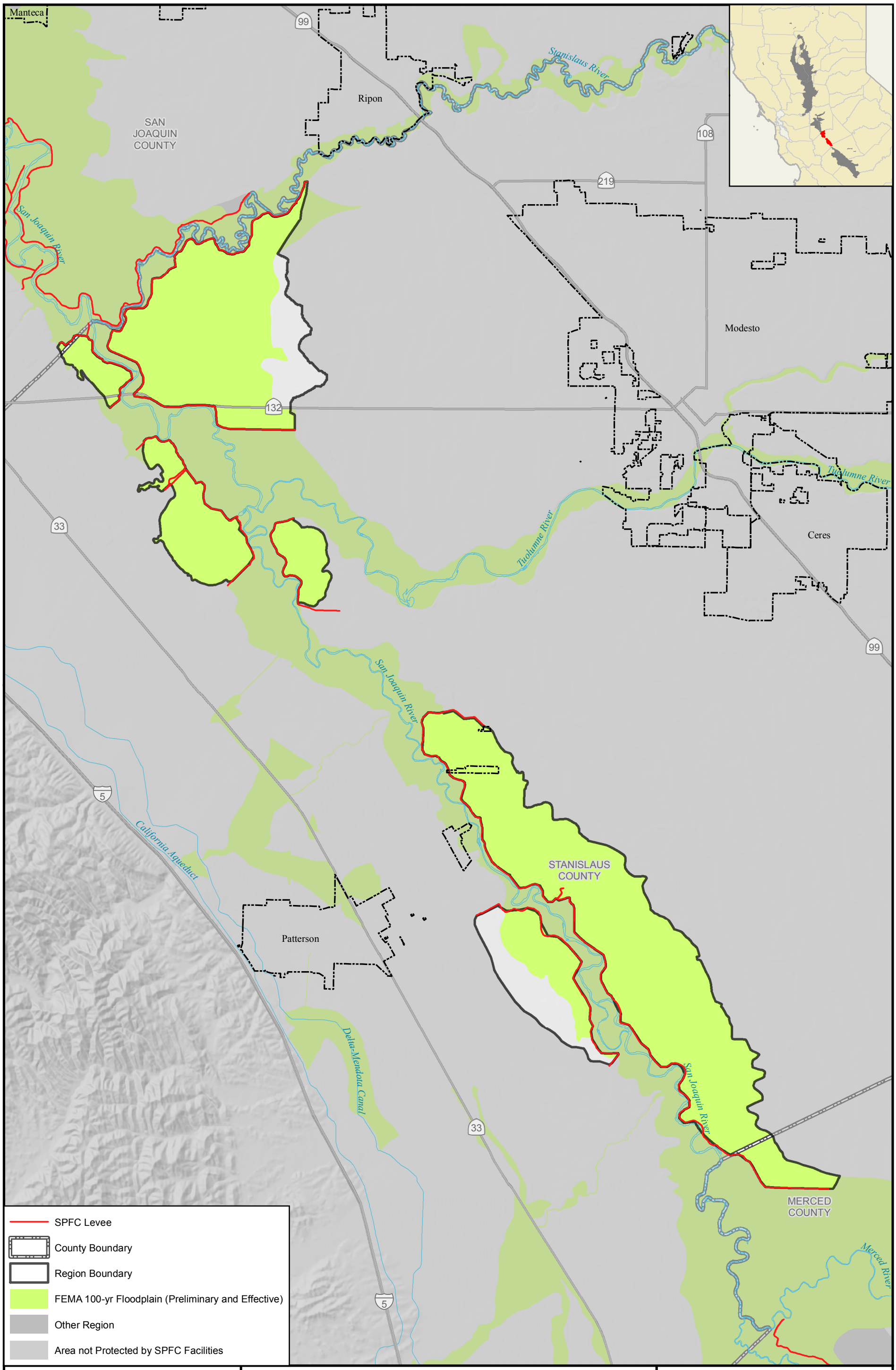
Regional Flood Management Planning

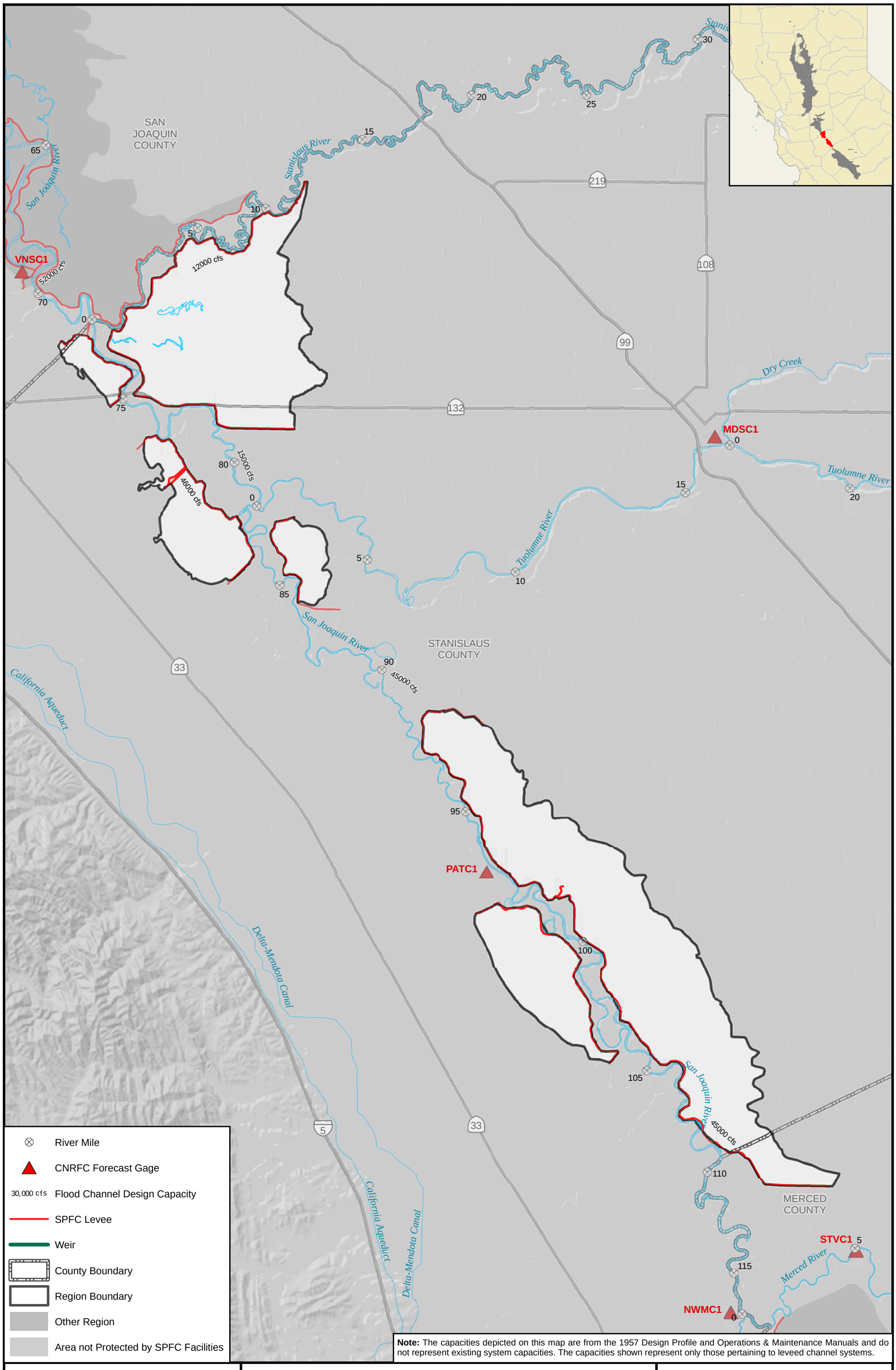
Mid-San Joaquin River
Other Past Performance Problems

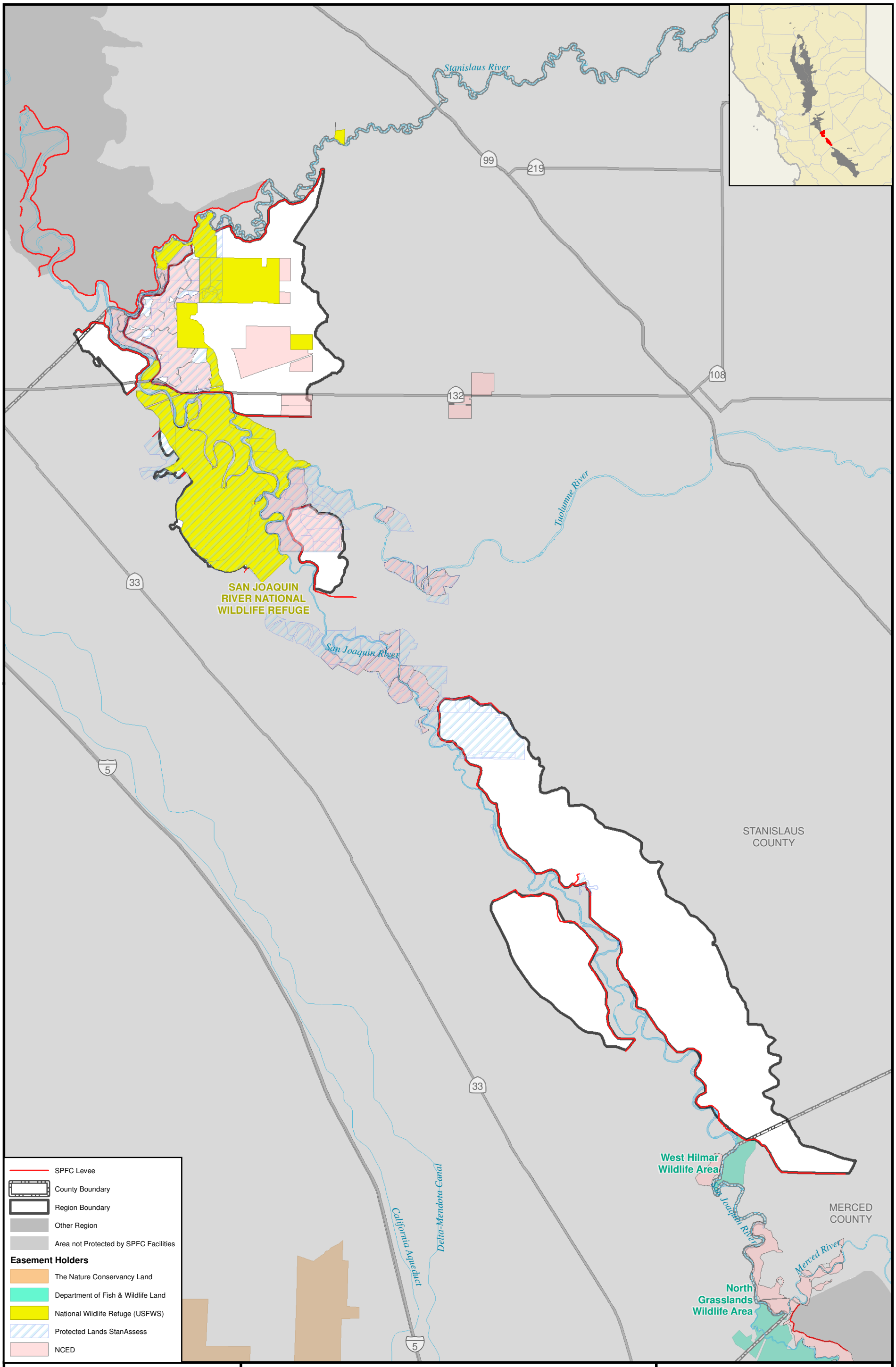
DRAFT DRAFT

Prepared By:
Date: July 30, 2013
File:

MAP 15


Manteca
99
Stanislaus River
Ripon
SAN
JOAQUIN
COUNTY
108
219
San Joaquin River
Modesto
132
Tuolumne River
33
Ceres
99
San Joaquin River
5
California Aqueduct
STANISLAUS
COUNTY
Patterson
Delta-Mendota Canal
San Joaquin River
33
MERCED
COUNTY
Merced River
5
SPFC Levee
County Boundary
Region Boundary
FEMA 100-yr Floodplain (Preliminary and Effective)
Other Region
Area not Protected by SPFC Facilities
1 " = 2 miles
0
1
2
Datum: NAD 83
Zone: N/A
Projection: CA (Teale) Albers
Units: meters
Sources: See Appendix for source citations
Regional Flood Management Planning
Mid-San Joaquin River
FEMA 100-Year Floodplain
DRAFT
DRAFT
Prepared By: K. Miller
Date: May 10, 2013
MAP 16
File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San Joaq


SAN JOAQUIN COUNTY
STANISLAUS COUNTY
MERCED COUNTY
Stanislaus River
San Joaquin River
Tuolumne River
Dry Creek
California Aqueduct
Delta-Mendota Canal
VNSC1
MDSC1
PATC1
STVC1
NWMC1
12000 cfs
52000 cfs
46000 cfs
15000 cfs
45000 cfs
219
108
99
132
33
5
River Mile
CNRFC Forecast Gage
30,000 cfs Flood Channel Design Capacity
SPFC Levee
Weir
County Boundary
Region Boundary
Other Region
Area not Protected by SPFC Facilities
Note: The capacities depicted on this map are from the 1957 Design Profile and Operations & Maintenance Manuals and do not represent existing system capacities. The capacities shown represent only those pertaining to leveed channel systems.
1 " = 2 miles
0 1 2
Datum: NAD 83
Zone: N/A
Projection: CA (Teale) Albers
Units: meters
Sources: See Appendix for source citations
Regional Flood Management Planning
Mid-San Joaquin River
Channel Capacities and Flood
Forecast Monitoring Network
DRAFT
DRAFT
Prepared By: K. Miller
Date: May 10, 2013
File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San
MAP 17



1 " = 2 miles

0 1 2

Datum: NAD 83
Zone: N/A

Projection: CA (Teale) Albers
Units: meters

Sources: See Appendix for source citations

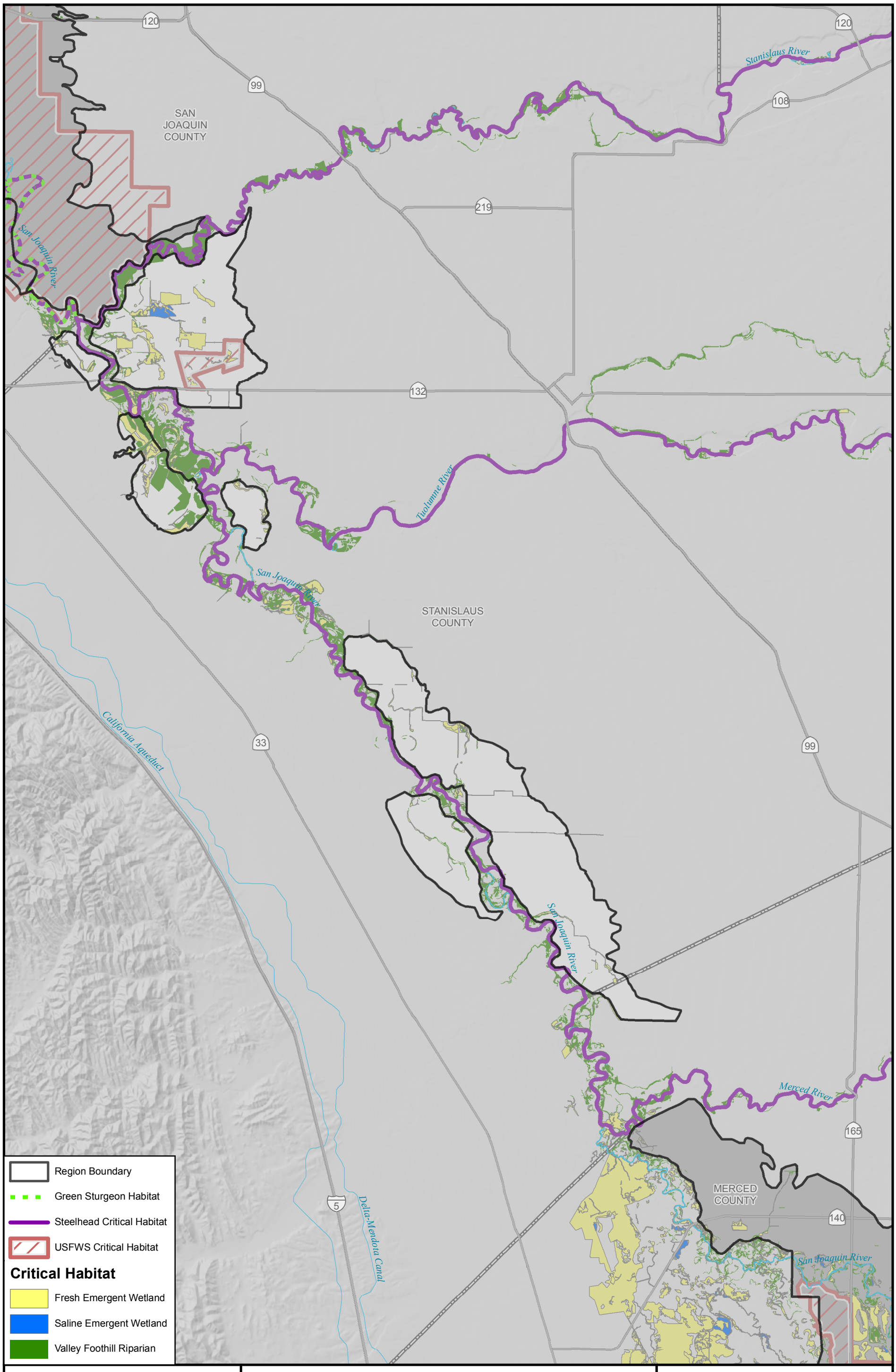
Regional Flood Management Planning

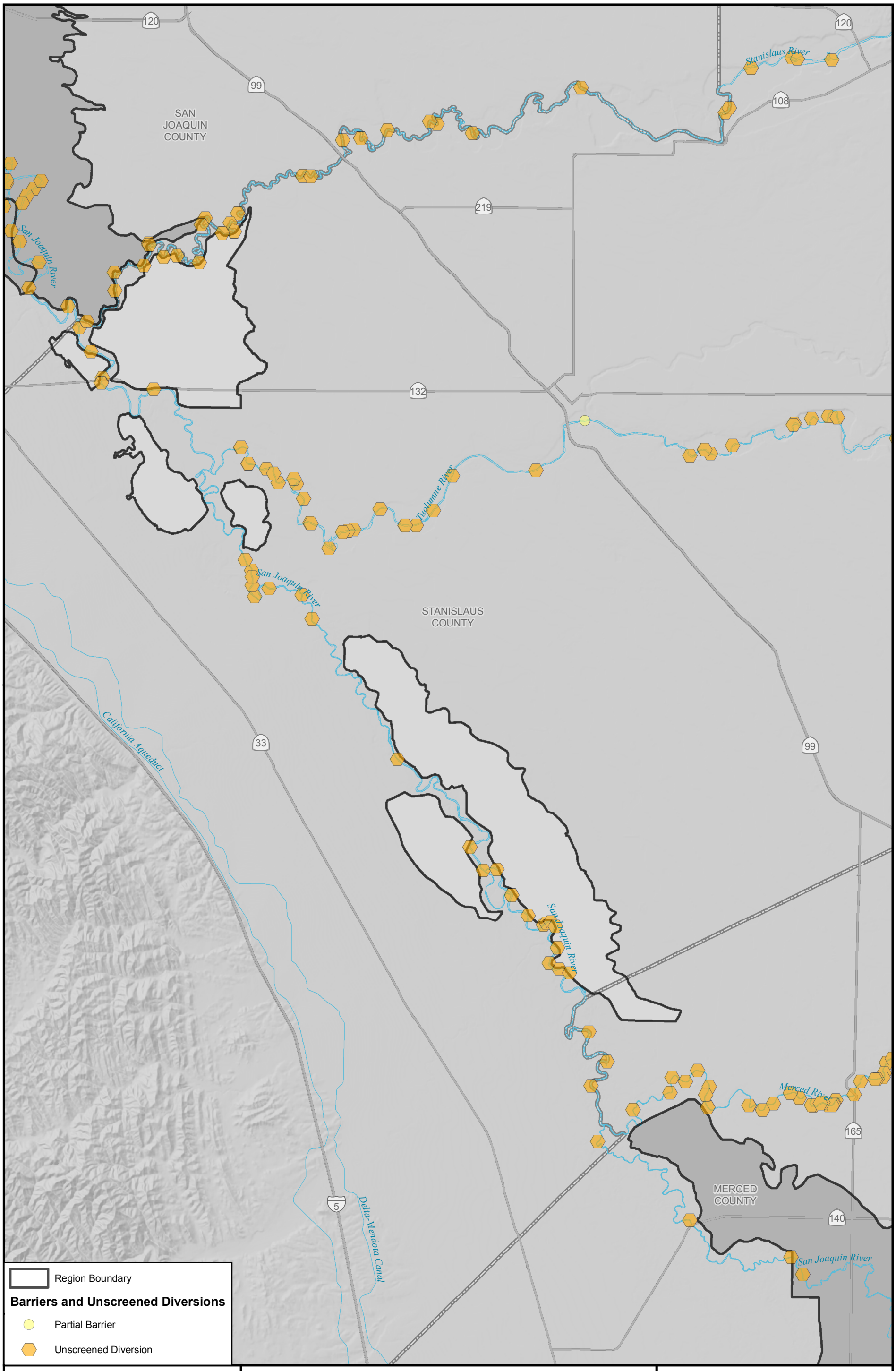
Mid-San Joaquin River
Managed Environmental Lands

DRAFT DRAFT

Prepared
Date: July 30, 2013
File:

MAP 18


120
99
SAN
JOAQUIN
COUNTY
Stanislaus River
108
219
San Joaquin River
132
Tuolumne River
San Joaquin River
STANISLAUS
COUNTY
California Aqueduct
33
99
San Joaquin River
Merced River
165
MERCED
COUNTY
140
San Joaquin River
5
Delta-Mendota Canal
Region Boundary
Green Sturgeon Habitat
Steelhead Critical Habitat
USFWS Critical Habitat
Critical Habitat
Fresh Emergent Wetland
Saline Emergent Wetland
Valley Foothill Riparian
1 " = 2 miles
Miles
0 0.5 1 2
Datum: NAD 83
Zone: N/A
Projection: CA (Teale) Albers
Units: meters
Sources: See Appendix for source citations
Regional Flood Management Planning
DRAFT
Mid San Joaquin River
Riparian Vegetation, Critical Habitat, and
Endangered and Threatened Species
DRAFT
Prepared By: C. Hilliard
Date: February 5th, 2014
MAP 19A
File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San Joaquin\MS



1 " = 2 miles

Miles
0 0.5 1 2

Datum: NAD 83
Zone: N/A

Projection: CA (Teale) Albers
Units: meters

Sources: See Appendix for source citations

Regional Flood Management Planning

DRAFT

Mid San Joaquin River
Barriers and Unscreened Diversions

DRAFT

Prepared By: C Hilliard
Date: February 5th, 2014

MAP 19B

File: S:\PROJ\Mid SJ RFMP\MSJ_RFMP\Atlas Info from DWR\Mid-San Joaquin\MS



APPENDIX B
Charter

Mid San Joaquin River Regional Flood Management Plan

CHARTER **May 28, 2013**

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A. Introduction

The Central Valley Flood Protection Plan (CVFPP) calls for DWR to work with local flood management agencies to prepare detailed Regional Flood Management Plans (RFMPs) that, at a minimum, identify and articulate the following:

- Describe flood management challenges and deficiencies at the regional level including operations and maintenance practices, levee and channel inspection, and emergency response plans.
- Propose potential solutions/projects identified by local public agencies and interest groups for the region, projects' costs, and prioritization of the solutions/projects (e.g., enhanced operations and maintenance, emergency response, and floodplain management).
- Propose financial strategies that identify benefits of the projects and sources of the funding for implementation of the projects.

The purpose of the regional planning effort is to build upon the CVFPP by obtaining more region-specific information and local input for long term implementation of a sustainable and integrated flood risk reduction program in the Mid-San Joaquin River Region. The RFMP effort will partner with resource agencies, local governments, levee maintenance agencies, flood emergency responders, stakeholders and property owners with the DWR and Central Valley Flood Protection Board (CVFPB) to identify and prioritize the Region's needs and projects related to integrated regional flood management. The result will be an identification of prioritized actions to reduce flood risk in urban and urbanizing areas, small communities, rural-agricultural areas and sensitive resource areas through a combination of

improvements to the flood protection system for implementation over the long term (next 25 years or so).

This Program Charter will describe the scope and deliverables of the Mid-San Joaquin River RFMP; identify the RFMP stakeholders, management team, and consultant support team and their roles; present the anticipated development schedule and process; and describe the RFMP protocols and ground rules.

B. Charge and Deliverables

DWR encourages the formation of regional working groups to prepare the RFMPs. The Mid SJR RFMP will be developed with input from a Regional Working Group comprised of Regional Stakeholders that include representatives of resource agencies, local governments, levee maintenance agencies, flood emergency responders, stakeholders, and property owners that are knowledgeable about the flood risks and potential solutions within their flood region. The charge of the Regional Working Group is to provide input on the RFMP so that it reflects local conditions and the flood management vision of the region.

Ten workshops will be held for the Regional Working Group to discuss and develop the RFMP. Each workshop will discuss at least two sections of the RFMP, starting one and concluding another, where the RFMP sections will be presented once in draft form and another in final form. The final product of the input and discussions that occur during the ten workshops will be the Mid SJR RFMP.

A desirable outcome of the Mid SJR RFMP process is the development of a formal or ad hoc group to continue into the future, collaborating to implement the vision of the RFMP, the projects identified in the RFMP, and guide and support overall flood management of the Mid San Joaquin River region. While not a specific charge of the RFMP, it is an outcome that we expect the RFMP process to inspire and support.

C. Membership/Participants

Preparation of the RFMP will be managed by the Regional Partners, consisting of RD 2092 and Stanislaus County, assisted by DWR staff and the ESA PWA consultant team. The Regional Working Group will consist of all active participants in the development of the Mid SJR RFMP. The Regional Working Group will provide input to develop the RFMP. Sixteen stakeholder groups and organizations have submitted official commitment letters for the development of the RFMP, and these groups have direct and prior involvement in flood planning, including development of the CVFPP and/or through their professional roles in organizations. Regional Stakeholders and all parties interested in the development of the RFMP are invited to join the Regional Working Group. Anticipated Regional Working Group members include:

- Resource agencies such as the US Fish and Wildlife Service, East Stanislaus Regional Water Management Partnership, as well as the Oakdale, West Stanislaus, Del Puerto, Patterson, El Solyo, and Modesto Irrigation Districts;

- Local governments, including Stanislaus County and the Cities of Modesto, Patterson, Newman, and Turlock;
- Levee maintenance agencies, including RD 2092 and RD 2063;
- Flood emergency agencies, including DWR and Stanislaus County Public Works;
- Interested stakeholders such as Tuolomne River Trust and Sierra Club; and
- Interested property owners, such as Mapes Ranch.

D. Roles and Responsibilities

DWR: Provides relevant and updated information and data such as the GIS layers and electronic files for the Regional Atlas.

Regional Partners (RD 2092 and Stanislaus County, assisted by ESA PWA consultant team): Works with DWR and Regional Stakeholders to provide relevant information to the Technical Team for the RFMP; provides coordination services throughout the project period to ensure broad stakeholder involvement within the region and the neighboring regions; ensures that all relevant perspectives are articulated in the RFMP; provides document review and guidance to the Technical Team; and responsible for executing the Charter.

Technical Team (ESA PWA consultant team): provides technical support to RD 2092 and Stanislaus County in planning, public outreach, and technical services in preparation of the Mid SJR RFMP; and produces the draft and final sections of the Mid SJR RFMP.

Outreach Team (led by Kearns & West staff and East Stanislaus County Resource Conservation District staff, assisted by ESA PWA staff and Julie Rentner of RD 2092): Engages a broad range of stakeholders that are interested and/or affected by the development of the Mid SJR RFMP and its implementation.

Regional Working Group (listed above under C. Membership/Participants): contributes expertise, data and information to develop the Mid SJR RFMP; reviews and provides comments on the Mid SJR RFMP; and represents various interests in the region and serves as the liaison to communicate information to and from their organizations and constituencies.

Facilitation Support (Kearns & West): Provides neutral leadership to the dialogue process and meeting management, which means they will not try to promote a particular outcome for the process; advocates for the process and works to keep the Technical Team and Outreach Team within scope and follow the terms of the Charter; and actively suggests methods to accomplish tasks and oversees preparation of meeting summaries.

E. Decision-Making within Regional Working Group

This is an advisory rather than a final decision making group. The Regional Working Group and Regional Partners will use a consensus-seeking approach and work diligently to find common ground on issues.

F. Schedule and Work Plan

The Regional Partners, Technical Team, Outreach Team, and the Regional Working Group will implement the proposed Work Plan and adhere to the 18-month schedule to the best of their ability. However, the project effort may require adjustment as the project process unfolds.

The Regional Working Group will convene at least ten times starting in July 2013 and is expected to continue through July 2014. Attendance at workshops and/or timely provision of comments and information is critical to ensuring the group completes its work on the RFMP according to schedule.

G. Protocols and Meeting Ground Rules

Protocols

- All Working Group members agree to act in good faith in all aspects of this process and to communicate their interests.
- Working Group members agree not to make commitments they do not intend to keep.
- Parties will act consistently in other forums where similar topics are being discussed, including sessions with the press.
- Working Group members agree to make a concerted effort to provide requested information or to explain the reason why not.
- Meeting notes will be prepared with a focus on key points, ideas, and action items rather than as transcripts. Unless very specific to understanding the content, references will generally be made to the content rather than the members.

Meeting Ground Rules

- Use common conversational courtesy. Don't interrupt each other, use appropriate language, and avoid side conversations.
- Humor is welcome but should never be at someone else's expense.
- Stay focused on the charge and deliverables. There are many related issues and topics that could be discussed. Such topics will be noted, but will not be the focus of discussions.
- Focus on the substantive issues, not on formatting, structure, or wordsmithing. The most helpful input will be advice on how to best address the key issues, not how to organize the document.
- All ideas and points have value. The purpose of the Regional Working Group is to share ideas and capture various perspectives. All ideas have value in this setting. If you believe another approach is better, offer it as a constructive alternative. Please avoid ascribing motives to others.
- Members have a right to change their minds as information is discussed and conditions change.
- Turn cell phones or other electronics off or to silent mode. If you do not believe you will be able to participate fully, please discuss your situation with one of the facilitators.
- Honor time. We have ambitious meeting agendas, so please follow the time guidelines provided by the facilitator.



APPENDIX C
Engagement Record

Appendix C

Engagement Record

The following stakeholders participated in the development of the RFMP.

Agency/Organization	Contact
Stanislaus County	Matt Machado
Reclamation District 2092 (Dos Rios)	Julie Rentner
RD 2031 (Elliot)	William Lyons, Jr
RD 1602 (Del Puerto) -- TWIN OAKS	Dan Roberts
U.S. Fish and Wildlife Service	Kim Forrest
RD 2063 (Crows Landing)	Joe Sallaberry
Modesto Irrigation District	John Davids
Turlock Irrigation District (TID)	Tou B. Her
City of Modesto	Jim Alves
RD 2101 (Blewett)	James Coddington
Stanislaus County	David Leamon
DWR	Paul Romero
DWR	S. Greg Farley
Central Valley Flood Protection Board	James Herota
RD 2063 (Crows Landing)	Albert Mendes
RD 2063 (Crows Landing)	Sue Baldwin
City of Patterson	Mike Willett
City of Patterson	Maria Encinas
City of Newman	Garner Reynolds
Oakdale Irrigation District	Emily Sheldon
Patterson Irrigation District	Peter Rietkerk
Stanislaus County Farm Bureau	Tom Orvis
Tuolumne River Trust	Patrick Koepele
City of Turlock	Dan Madden
City of Modesto/RD 2091	Laura Anhalt
RD 2091 (Chase)	Dan Lamb
CDFW - Region 4	Abimael (Abi) Leon
CDFW	John Shelton
Rural County Representatives of California	Mary Pitto
River Partners	John Carlon
East and West Stanislaus RCD	Chester Anderson
DWR -- FESSRO	Ron Melcer
DWR -- FESSRO	Monique Wilbur
Central San Joaquin Flood Control	Vince Dykzeul
City of Turlock	Larry Gilley
Sacramento Fish and Wildlife Office	Doug Weinrich

Agency/Organization	Contact
AUDUBON CALIFORNIA	Matthew Danielczyk
US Fish and Wildlife	Monica Gutierrez
CVFPB	Joe Countryman
Candidate for Congress California District 10, Stanislaus	Mike Barkley
Stanislaus County OES	Jeff Adney
RD2091 Unit #2 (Gomes Lake)	Robert Caetano
Newman Waste Water Plant	Lance Perry
River Partners	Jeff Holt
Turlock Irrigation District (TID)	Brad Koehn
Stanislaus OES	Debra Thrasher
Patterson Waste Water Plant	Victorio Tostado
RD 2013 and RD2092	Martin Reyes
RD 2092	Stephen Sheppard
Stanislaus Agricultural Commissioner	Milton O'Haire
City of Ceres	Toby Wells
City of Ceres	Michael Brinton
CVFPB	Mike Villines
RD 2092	Bob Ott
Congressman Denham's office	Daron McDaniel
Resource Conservation Solutions.	Bill Loudermilk
ESA	Betty Andrews
Congressman Denham's office	Masis Hagobian
	Bob Endeley
DWR - CVFPO	Brian Smith
DWR - CVFPO	Todd Bernardy
Stanislaus County Agriculture Department	Tim Pelican
DER	Janis Mein
Senator Tom Berryhill's officw	Doug Miller
City of Modesto	Isabelle Chhit
City of Modesto	Ingrid Verastegui
Caltrans	Chuck Carlson
Mapes Ranch	James Bogetti
City of Turlock	David Funk
URS	John Clerici
URS	Cameron Ripley
Latino Emergency Council	Dale Butler
Congressman Denham's office	Kevin Padway
DWR - CVFPB	Bill Edgar
CH2MHill	Rob Tull
City of Modesto	Miguel Alvarez
PBI	Jesse Patchett
TID	Tim Payne
PBI	Ron Baldwin
City of Newman	Perfecto Millan

Agency/Organization	Contact
Stanislaus County	Dan Bernaciak
GEI Consultants	Larry Rodriguez
	Malvern Canell
City of Patterson	Ken Irwin
	Ron Cornell
DWR CVFPO	Eric Tsai
DWR	David Pesavento
USACE	Brigid Briskin
Kjeldsen, Sinnock & Neudeck, Inc., RDs	Christopher Neudeck
City of Newman	Koosun Kim
USDA-NRCS	Kristin Guy
CVFPB	Mike Wright
GEI Consultants	Mike Mirmazaheri
USACE	Ryan Larson
USACE	Tim Crummett
DWR FMO	Ran Singh
DWR FMO	Meredith Harvan
Cal OES	Kyle Noderer
	Greg Nunes
City of Patterson	Joel Andrews
GEI	John Ayres
GEI	Ashley Casey
River Partners	Jerry Dion
DWR	Terri Gaines
PBI	Charles Hillard
WSID/PID	Carrie Loschke
OES	Deb Thrasher
Modesto Wastewater facility	Cindy Fosi

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APPENDIX D

Flood Emergency Response Assessment Technical Memorandum

Flood Emergency Response Assessment Technical Memorandum



Ronald Baldwin, Peterson-Brustad Engineers, Inc.

Mid-San Joaquin River
Regional Flood Management Plan
June 2013

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1. Introduction

The objective of this Technical Manual is to provide an initial assessment of flood emergency response in the Mid-San Joaquin River Region to assist local stakeholders with the development of a regional flood management plan. This report includes a general description of the current situation along with locale specific assessments. It also provides some general conclusions and recommendations but does not recommend or discuss specific improvement projects. Report contents and conclusions are based on a short study area reconnaissance completed in May and early June, past flood experience, and recognition of the jurisdictional complexity of flood response in California.

Earthen levees, such as those used in the Mid-San Joaquin Region, have been a key reclamation methodology in the Central Valley since the beginning of settlements by non-native Americans. This early emphasis on levees led in 1861 to the creation of the "reclamation district" entity by the California legislature. This new special purpose political jurisdiction was created to facilitate cooperative reclamation work by multiple landowners. While successful in meeting that objective, this action also added an element of complexity to modern flood emergency response that is missing in other types of disasters.



The reality is that a separate political entity, the "reclamation district", with historically little administrative structure or depth and often limited financial resources, has primary jurisdiction over a key aspect of flood emergency response, the efforts to prevent a levee from failing or to limit the extent, depth, or duration of flood waters if it does. Counties, cities, and other special purpose districts with historically broader public safety responsibilities are faced with this jurisdictional barrier when formulating their preparedness plans and flood response protocols.

Since "jurisdiction" is a basic concept behind all response, mutual aid, and disaster assistance programs this added jurisdictional complexity ends up, for all practical purposes, dividing flood response into two distinct components; the levee "flood fight" and the more traditional public safety operations (e.g. warning, evacuation, rescue). Each of these components involves different key players, different needed expertise, and different response issues. Each component does, though, share the common problem of how it should interact with the other. This situation does have beneficial aspects if this response dichotomy is recognized and clearly addressed in preparedness planning.

The reconnaissance that serves as the basis for this report included meetings, conversations, or site visits with individuals of the following jurisdictions.

- Stanislaus County OES
- Stanislaus County Agricultural Commissioner
- City of Modesto
- City of Newman
- City of Turlock
- City of Patterson
- Turlock Irrigation District
- Reclamation District 1602
- Reclamation District 2031
- Reclamation District 2063
- Reclamation District 2091
- Reclamation District 2092
- Reclamation District 2099
- Reclamation District 2100
- Reclamation District 2101
- Reclamation District 2102

2. Background

2.a Stanislaus County, the San Joaquin River, and Reclamation History

Initial settlement of Stanislaus County after the Mexican Period was concentrated in close proximity to the San Joaquin River and its tributaries, the Stanislaus and Tuolumne Rivers. The extensive dry plain extending between these rivers made overland travel difficult and subsistence farming impossible at any distance from these water sources. Initial settlement concentrated at the site of ferries established early in the Gold Rush period to serve the heavy traffic to and from the mining areas. A few of these settlements subsequently grew into the first towns in the County.

Key early river towns within the study area were Graysonville (modern Grayson), Tuolumne City, Adamsville, Paradise City, and Hill's Ferry. The population of these centers waxed and waned over time with drought and other economic impacts but the bulk of County population remained near the rivers as long as steamboats were the most convenient means of long distance travel. The subsequent spread in the 1860's of wheat and barley dry land farming into the plains only enhanced the importance of these river towns since steamboats remained for many years the only practical means of shipment of bulk products to cities and international trans-shipment points on the coast.

This settlement pattern began to change with the advent of publicly maintained roads between key Valley urban centers. The establishment of the Stockton to Visalia public highway (along the path of current River Road) with its associated stage coach lines pulled population and businesses away from the immediate vicinity of the rivers. The construction of railroads through the Valley vastly accelerated this population shift. The completion of the railroad down the west side of the County in the 1880's pulled

populations on the west bank of the San Joaquin River back to the new railroad towns of Westley, Patterson, and Newman.

In consequence of these changes the floodplains of the San Joaquin and lower Stanislaus and Tuolumne Rivers had by the late 1880's reverted to the virtually exclusive rural agricultural use which continues today. Grayson is currently the only remaining significant population concentration immediately adjacent to the San Joaquin River.

While small levees were almost certainly built by the first settlers of these floodplains, initial attempts in Stanislaus County to take advantage of the "district" reclamation mechanism occurred only in 1895. In that year thirteen reclamation districts were formed by the Stanislaus Board of Supervisors. These districts encompassed only 60 to 800 acres each, were almost certainly limited in their financial soundness, and by 1930 were reported as long inactive.

The reclamation districts currently seen in Stanislaus County were formed after 1911, during what has been called the third distinct period of Central Valley reclamation activity. In 1911 the State Reclamation Board was created along with the associated Sacramento-San Joaquin Drainage District. Reclamation districts organized after this important action were in the main more intelligently planned under some central control. Reclamation Districts 1602 and 1604 (now RD2091) were formed in 1914, Reclamation District 2031 in 1919, and RD2063 in 1922. The remaining current Stanislaus County reclamation districts were formed at a later period during the implementation of the Lower San Joaquin River and Tributaries flood control project in the 1950's.

The Lower San Joaquin River and Tributaries Project was authorized by the 1944 Flood Control Act and completed during the 1950's and 1960's. This Project improved project levees to the general state that we find them today. The Project was also evidently the catalyst for the completion of drainage infrastructure such as the Gomes Lake drainage system, the reorganization of older districts, and the creation of the newer districts.

But by the time of the Lower San Joaquin River and Tributaries Project the rural nature of the study area floodplain was firmly established. This fact ensured that Stanislaus County reclamation districts would continue to have limited financial depth or capability without any attenuation of their direct responsibility to maintain and flood fight their respective levee systems. This minimal administrative structure, low ability to raise funds, and reliance on volunteers in an emergency would run parallel but separate from the development of increasingly sophisticated and capable emergency response systems by cities and counties throughout the later 20th Century.

2.b Flood Emergency Response Components

The following study discussion makes a clear distinction between the two key components of flood response mentioned in the introduction. These components are more fully defined as follows.

2.b.1 Flood Fight Operations



This component includes those emergency activities aimed at preventing failure of a levee during a flood or, in the event of a levee breach, to physically limit the extent, depth, and/or duration of floodwaters. These operations include levee patrol and basic remedial actions involving the placement of sandbags and plastic visquine. However, importantly, they include the common need for direct expenditure of significant funds for the acquisition of private contractor or construction services, expensive bulk materials (e.g. rock), and heavy equipment (e.g. large pumps). The reclamation district conducts these operations with possible assistance from the Department of Water Resources and the Corps of Engineers as allowed by those agencies' response protocols, funding availability, and agency discretion.

2.b.2 General Public Safety Operations



This component includes public warning, evacuation, rescue, care and shelter, and recovery functions which are the traditional jurisdiction of counties, cities, locally-based State agencies, and special purpose "fire districts". These same entities also operate the mutual aid and other coordination systems that make up the Standardized Emergency Management System (SEMS).

2.b.3 Interaction between Response Components

Local fire and law agencies have jurisdiction within the floodplain for protecting people and property and reclamation districts have jurisdiction for the flood fight. The arrival of the Department of Water Resources and the Corps of Engineers in response to a request from a reclamation district completes the list of key players in the flood fight component. Fire, law, and EMS agencies with jurisdiction within a particular portion of the floodplain complete the list of players for field public safety operations.

In a large flood the geographic scale at which these different groups of agencies establish command and control or organize their response often varies due to

differences in agency jurisdictional boundaries and internal protocols. Therefore, potentially different operational response structures can add to the jurisdictional complexity within the floodplain. How the agencies performing each separate flood response component coordinate or assist those performing the other response component becomes a key organizational and even policy issue in the overall response.

2.c Study Methodology

The methodology for preparing this study was determined by past experience and available budgeted resources. An "Emergency Response Focus Area Review Sheet" (Attachment 1) was initially developed for use during site visits and agency meetings. An initial map and document review was conducted to identify key topographic, infrastructure, road, and population characteristics of the study area as well as key reclamation district and agency contacts.

A site visit/meeting plan was then developed and conducted in May and June. Site visits were limited in order to stay within the project budget for reconnaissance. An initial draft report will be completed and sent to individuals who provided initial input for review for errors or omissions of facts. After a 10 day review period the report will be finalized and forwarded to PBI supervisors for incorporation into subsequent RFMP development activities as needed.

Limited resources for this project prevented extensive cross checking of information provided during meetings and interviews or obtained by visual observation. It is assumed that this study will be reviewed in future group workshops and any errors that remain will be corrected prior to determination of final regional flood management plan flood improvement projects.

3. Analysis

3.a General Area Characteristics

Field reconnaissance revealed the following general area characteristics that bear on any recommendations or prioritization for improving response.



<u>Rural Nature</u>

The Stanislaus County 2010 Hazard Mitigation Plan estimates a population of approximately 2,400 in the 100-year floodplain of the San Joaquin River. The only concentrations of population near the study area, however, is the

town of Grayson situated on bluffs above the San Joaquin River channel, a mobile home park located next to the Shiloh Road bridge on the Tuolumne River and a small group of rental homes in RD1602. Reclamation districts in the northern portion of the region appear to be extremely rural with few residences or structures while the southern portion of the region is more densely populated with several dairies, businesses, and residences, particularly in RD2063.

The few situations in the County where flooding can affect a more significant population concentration are outside of the areas protected by project levees; urban areas in Modesto near the Tuolumne River and Dry Creek and portions of the Cities of Patterson and Newman exposed to sheet flooding from nearby creeks. Even these cases do not present a complex organizational issue for responders responsible for warning, evacuation, and rescue since total potential impacted population at any one location does not exceed a couple of thousand at the most.



While the rural nature of the Mid-San Joaquin Region simplifies the problems of warning, evacuation, and rescue for people, it elevates the importance of other evacuation and recovery issues unique to agricultural areas. Evacuation of dairies, removal of hazardous materials prior to the arrival of flood waters and debris removal after the departure of flood waters, are more complex organizational challenges present in the study area. Particular attention should be paid to these issues during development of potential improvement projects.

Concentration of Critical Infrastructure and Property

There is a concentration of critical infrastructure and property either within or adjacent to areas protected by project levees on the San Joaquin River that does have more complex emergency response planning implications. Critical infrastructure identified in the reconnaissance important to public health, the environment, or public services included Highway 132, at least two important underground pipelines, several vital east-west connector roads, and three waste water treatment plants for the Cities of Modesto, Patterson, and Newman respectively. The Stanislaus County 2010 Hazard Mitigation Plan indicates that total property value including private property within the 100-year floodplain of the San Joaquin River totals $149,520,110 including structures worth $52,849,542.

Some of the identified critical infrastructure has life and safety implications for significant populations located outside of the floodplain itself. After the 1997 floods, the Stanislaus County Board of Supervisors declared the Crows Landing Road bridge over the San Joaquin River to be a vital transportation link critically needed in the event of an emergency. This bridge and the Las Palmas Avenue bridge to the north carry most local

traffic across the San Joaquin River. The loss of either bridge (and potentially both could be lost from one levee breach as discussed below) would require a one hour detour to reach the other side of the River. Since all hospital facilities are on the east side of the San Joaquin River the ability to use these bridges becomes critical to the safety of residents on the west side of the County.

The need to prevent adverse public safety or environmental impacts from the flooding of any of these critical facilities, along with the presence of significant public and private property within the floodplain, places a greater emphasis on examining the flood fight component of Mid-San Joaquin flood emergency response. Improving this component of the response to better prevent flooding, or limit flood extent, is obviously the key to protecting these assets. This report, therefore, focuses particular attention on assessing the status of flood fight operations within the region.

3.b Description of Current Situation and Locale Specific Assessments

The following discussion provides the basic results of the area reconnaissance completed in May. A description of several flood threats outside of the area protected by existing project levees is included.

3.b.1 Reclamation Districts and Project Levees

Reclamation District 2031

Description

Reclamation District 2031's thirteen miles of levees extend along both the south bank of the Stanislaus River and the east bank of the San Joaquin Rivers and protect approximately 5,000 acres at the confluence of those rivers. There are two large private properties within the district; the Faith Ranch, located roughly adjacent to the San Joaquin River and the lower Stanislaus River and the Mapes Ranch, located in the eastern and southern portion of the District.

At least three other property owners are located adjacent to the Stanislaus River east of the reclamation district boundary. These properties are protected by a private interest levee on the river's south bank that connects with the District levee in the vicinity of Caswell State Park. A breach in this private interest levee on the south bank of the Stanislaus River could flood portions of RD2031 along with portions of those properties.

The area is primarily range land for cattle with some habitat easements. There are a limited number of structures located within district boundaries. The headquarters of each respective ranch and most farm structures are located on higher ground that apparently stayed dry in the 1997 flood. The few individual residences within the district boundaries are elevated on artificial mounds or also on high ground. There are no labor

camps or group residences within the District. The District is crossed by Highway 132 and two key underground pipelines, a PG&E natural gas line and the Hetch-Hetchy Aquaduct.

There are three Modesto Irrigation District irrigation canals that flow east to west across RD2031 and terminate into either the Stanislaus River or the San Joaquin River (see report maps). All three canals convey both irrigation and storm drain waters based on season. Lateral 6 discharges by gravity through a pipeline that passes through the levee into the Stanislaus River upstream of its confluence with the San Joaquin River. Lateral 3 discharges into Miller Lake. Water then flows through a channel to a structure on the east side of the Stanislaus River levee, west of Miller Lake and upstream of its confluence with the San Joaquin River. When the Stanislaus River elevations is low the water drains by gravity and when the water elevation submerges the pipes the Miller Lake pumps turn on and lift the water into the river. Finally, Lateral 4 is located at the southern end of the District. While this lateral does not discharge through the levee the north canal bank acts as a portion of the District levee west of Gates Road. At the southeast corner of RD2031 the levee is also the north bank of MID Lateral 4. A breech in this portion of the levee would also be a breech in the canal bank rendering the canal un-usable until the breech is repaired.

Assets in the area

Highway 132
Hetch-Hetchy Aquaduct (Underground)
PG&E Natural Gas Pipeline (Underground)
Modesto Irrigation District canals
MID Miller Lake Pumps
Private irrigation pipelines and field infrastructure
Rangeland infrastructure
Farm structures and equipment

Administrative History and Issues

The Reclamation District is apparently inactive although this situation should be confirmed. It appears, though, that the two property owners maintain and flood fight that section of project levee that lies within their property lines independently with only informal coordination.

Agencies with responsibility in this area for public safety operations as defined above are the Stanislaus Sheriff's Department, the Salida Fire Protection District, the Woodland Avenue Fire Protection District, and the California Highway Patrol.

Recent Flood History and Issues

In 1997, the two primary property owners in the District conducted separate flood fight operations for the section of District levee adjacent to their property lines. Equipment and supplies for these separate operations were provided by each respective ranch. Both ranches maintain a basic inventory of sandbags and other flood fight material. Flood fight operations rely on a few key individuals with flood fight experience for leadership. Long time familiarity with each other allows for informal coordination of their efforts in an emergency.

In the 1997 flood, the District levee was breached approximately 1/8 mile north of Highway 132. Anecdotal information is that the levee probably pushed out after prolonged saturation and pressure from flood waters. The ground to the south of the District levee system is lower and only a portion is protected by a private levee. In 1997, river flood flows inundated this area, breached the private levee, and reached the top of the District's southern levee section maintained by Mapes Ranch. This levee section also subsequently breached. Highway 132 was closed due to the flooding.

The district is flat with no option for use of a relief cut to limit flood depth or extent. Impounded flood waters probably flow to the confluence of the Stanislaus and San Joaquin Rivers and then build back toward high ground. Flood waters are returned to the river through the breaks as the river water elevation drops. There are drain pipes that penetrate the levee with one-way valves which are used for draining internal runoff, but these have minimal usefulness for draining impounded floodwaters from a breach.

Highway 132, running along a bluff line, forms a portion of the district levee section from a point just east of its San Joaquin River bridge approach to Finnegan's Cut. From this point the District's southern levee section extends east and south along Finnegan's Cut and then runs east along a low bluff to high ground. The District levee appears in good condition but is sandy and seeps significantly in high water although serious boils are reported to be rare.

Drain water from Miller Lake flows through a channel to a pump structure on the east side of the RD2031 levee as shown in the report maps. When Stanislaus River elevations are too high for gravity discharge the Miller Lake pumps are activated to provide additional relief. This facility was damaged by flooding during the winter of 1955-56 and repaired through the Flood Relief Law of 1958.

Overall Emergency Response Assessment

There are limited life and safety response issues within this district except for the timely closure of Highway 132 and of public access into the area in a flood event. Safety of flood fight crews operating in the District is of concern. The potential for damage to underground critical infrastructure crossing the district should also be assessed. Staff

with experience in flood fight operations are available but no written plans or procedures for flood fight operations were identified nor any written or formal training program for flood fight crews. Public safety agencies have no written plans or protocols or training programs specific to response to this District.

Reclamation District 2101

Description

Reclamation District 2101's 3.5 miles of levees protect approximately 2,000 acres of farmland belonging to a single family farm in operation since 1919. A portion of the land in the floodplain is leased to an outside dairy operation for cultivation of silage and feed products. The land rises to the west in a series of low bluffs or benches. A spur levee extends northward from the District's north levee section to prevent flood flow from moving along that levee section and causing erosion.

Assets in the area

Highway 132 and associated San Joaquin River bridge
Irrigation systems and two pumping stations
Farmland

Administrative History and Issues

The reclamation district was formed in 1954 and its levees were improved in 1956. District boundaries extend just past Highway 132 on the south to include a portion of the Blewett water district. The District spends approximately $25,000 a year on levee maintenance to include vegetation and rodent control and replacement of gravel for all weather levee road. The District also maintains a stockpile of approximately 1,000 sandbags, stakes, and buttons each and around 1,000 feet of visquine. Family members, hired hands, and emergency hires are used for patrol and basic flood fight operations.

Agencies with responsibility in this area for public safety operations as defined above are the Stanislaus Sheriff's Department and the West Stanislaus County Fire Protection District.

Recent Flood History and Issues

District flooded in 1997 from a levee breach and in 1999 and 2000 from extensive seepage. In 1997, students were hired to help family members and hired hands with levee patrol and flood fight. In that flood over 50 persons were involved in District flood fight operations as well as CCC crews obtained through mutual aid systems.

The main concern during that flood was at the southern end of the district levee system where pressure from high flows was the greatest. A breach at this location would have led to heavy flows across the District, particularly once flood waters broke back into the river at the District's northern end. Such a shift in the river flow could have caused catastrophic scouring of productive soil destroying existing farmland productivity.

Boils were extensive during the 1997 event and water elevations were generally at the levee crown. The District manager subsequently withdrew levee crews due to unacceptably dangerous conditions and the District levee subsequently breached on the north levee section. Flood waters backed into the District damaging infrastructure and depositing large amounts of sand and debris.

Another major issue in the 1997 flood was entry of flood waters into the District from the south over Highway 132. There are private levees along the river south of the District boundary but these were breached by the heavy flood flows flooding the area to the south of Highway 132. Flood waters up to 2-3 feet in depth subsequently flowed over Highway 132 into Reclamation District 2101.

Currently the District has ongoing erosion problems on the riverbank in front of levee during high flow events. In one area this riverbank erosion has reached the toe of the levee. In addition, the Corps repair of the 1997 breach was inadequate and extensive seepage occurs at that location in high water events. The Corps attempted to address this problem by building up the river bank in front of levee but this was not completely successful.

Overall Emergency Response Assessment

There are limited life and safety response issues within this District except for the timely closure of Highway 132 and of public access to the floodplain. Safety of flood fight personnel is a concern. The current District manager is experienced in flood fight operations and does monitor safety of flood fight personnel operating with the District but no written safety training protocols were identified.

No written flood fight operations response plans were identified and agencies responsible for public safety operations in the District do not have written response or training plans specific to this District.

Reclamation Districts 2099/2100/2102

Description

These districts with a combined total of approximately 7 miles of levee are all located on the west bank of the San Joaquin River. They are discussed together since they are all owned and administered by the U.S. Fish and Wildlife Service with a new objective of

habitat restoration. Reclamation Districts 2099, 2100, and 2102 are adjacent to each other but Reclamation Districts 2100 and 2102 are physically separated by a substantial leveed earthen waterway that serves as part of the West Stanislaus Irrigation District system. This waterway/canal allows river water to reach irrigation district pumps located to the west of the floodplain which move the water into the formal canal system.

Assets in the area

Lift pumps and irrigation systems
Desirable habitat resulting from restoration programs
Agricultural structures

Administrative History and Issues

The districts were originally farming operations. The acquisition of these lands by the federal government has changed the mission of the districts to habitat restoration. The federal government is in the process of de-certifying the levees and is conducting studies to determine the potential future use of existing levees.

There is a possibility that levees may be reconfigured to allow the districts to flood during flood peaks thereby lowering river elevations at a critical point in future floods. The Lower San Joaquin/South Delta regions have expressed support for such a project to provide enhanced flood protection on the Lower San Joaquin River. Agencies with responsibility for public safety operations as defined above in this area are the Stanislaus Sheriff's Department and the West Stanislaus County Fire Protection District.
Recent Flood History and Issues

The presence of the West Stanislaus Irrigation District waterway/canal and the "bowl" nature of the floodplain on the west side of the San Joaquin River lowers the risk that the flooding of one district will significantly increase the danger of flooding to an adjacent district. However, the West Stanislaus Irrigation District intake waterway/canal itself poses a flood risk to the districts on either side of it.

The intake ditch/canal was built decades before the project levees. When the project levee was built it was extended across the intake canal but with a water control structure installed to allow controlled flow into the waterway. In the 1997 flood this portion of the levee with the water control structure blew out and was never repaired. No other mechanism was subsequently put in place for controlling flow or water elevations in this ditch/waterway up to the irrigation district pumps. Therefore, in high water events flood waters at the western end of the ditch/waterway have broken out to the north and into Reclamation District 2100.

This type of flooding of the district where there is no breach in the project levee that impounded flood waters can use to return to the river causes extended unnatural

ponding of flood waters on land being restored to habitat. This unnatural ponding has proved detrimental to newly planted desired vegetation. There is no contingency plan in place for making a relief cut in these cases to return impounded waters to the river.

A study is being performed to determine the feasibility and usefulness of placing a weir on each district's levee to allow controlled flooding of the interior in high water events to relieve the flood threat in other areas of the San Joaquin River system. The Lower San Joaquin/South Delta regions have expressed an interest in the use of these districts for such controlled flooding during major flood events as a means to improve flood control on the lower San Joaquin River.

Overall Emergency Response Assessment

These districts present a limited public safety operations issue. The Federal government does not intend to flood fight the levees in the future so safety of flood fight crews operating in the District is not a concern. Public safety agencies have no written plans or protocols specific to response to these Districts.

Reclamation District 2092

Description

Reclamation District 2092's 3.8 miles of project levee protect approximately 2,000 acres of farmland and habitat. The District's levee is in good condition and substantial. There are two property owners within district; River Partners, an environmental organization, and a farm operation. A portion of the River Partners land is leased for farming pending implementation of a final habitat plan.

Structures and farm buildings within District boundaries are located on higher ground on the east side of the district generally above project design flood elevations. The District southern levee section extends east to Shiloh Road to protect the District from flood waters that fill a lower, unprotected, floodplain to the south during high water events. The District's northern levee section also extends east along a bluff to high ground to protect the District from high flows on the Tuolumne River. A pumping station is located in front of District levees near the river channel.

Assets in the area

District pump station
Irrigation Systems
Farmland and habitat
Small number of agricultural structures and a residence
Stanislaus County Honor Farm (along Grayson Road to the south of District boundary)

Administrative History and Issues

District formed in 1959. Area was devoted to farming operations until acquisition of most of the District's land by River Partners. A majority of the land within the District will now be converted over time into habitat.

A study is being conducted to determine whether weirs could be placed on District levees to allow controlled flooding of the District in order to provide additional flood protection for other areas of the San Joaquin River. A flood easement with the other private property owner in the District would be needed for such use. The Lower San Joaquin/South Delta regions have expressed support for such a project to provide improved flood control on the Lower San Joaquin River. Such controlled flooding would also play a role in returning the area to a natural flood regime.

Agencies with responsibility in this area for public safety operations as defined above are the Stanislaus Sheriff's Department and the Westport Fire Protection District.

Recent Flood History and Issues

In the 1997 flood, the District relied on a local individual with flood fight experience and assistance from the local fire district for conducting flood fight operations. Currently, River Partners staff members are also prepared to assist with flood fight operations.

The rise in the elevation of San Joaquin River waters in a flood causes the normal river flow direction to move easterly and more directly along the District levee. This change in flow pattern heightens the potential for erosion on the levee waterside. A large fetch is also created in front of the District levee creating the potential for wave wash damage in addition to normal seepage.

The District acquires sandbags, visquine, and any other needed flood fight materials as needed at the time of the flood. The District levee did not fail in 1997 but private levees to the east and north along the Tuolumne River did fail filling the area between that river and the RD2092 north levee section. District officials feel that the project levee was not constructed as shown in design documents which should be assessed.

Overall Emergency Response Assessment

District presents a limited public safety operations issue in floods. Safety of flood fight crews conducting flood fight operations in the District is a concern. The District currently relies on an individual with flood fight experience who is also committed to assisting RD2031. District does have staff from River Partners designated to assist with flood fight operations and there is a relationship with the local fire district to provide assistance with flood fight operations. No written flood fight operations plans or procedures were identified nor any written or formal training programs. Public safety

agencies have no written plans or training programs specific to response to this area.

Reclamation District 1602

Description

Reclamation District 1602's six miles of levee protect approximately 3,500 acres. There are approximately 13 property owners within the District of which the largest is Patterson Westside Farms which owns around 2,500 acres. Most of the area is farmland used primarily for the production of alfalfa, wheat, and a few other annual crops.

There are several residences with secondary structures on the north and south end of the District but these are on higher ground that historically has not flooded. There is a small group of rental residences, Westside Properties, in the middle of the District next to a levee section vulnerable to extensive seepage. This levee section also sees the highest water elevations against the District levee in a flood.

On the north end of the District is Lake Ramona, a year-round lake of approximately 2 acres. Irrigation tail water from Patterson Irrigation District and Twin Oaks Irrigation District enter the lake and from there can flow into an access ditch leading to a gravity-flow concrete culvert extending through the levee. A small ditch/slough drains the discharge into the River's main channel which is at its nearest proximity to the District levee at this point. There is also a pump at the entrance to the culvert to move runoff and tail water over the levee and into the River during periods of high water. Reclamation District 1602 is directly across the San Joaquin River from Reclamation District 2091. The west bank of the River is generally a little higher than the east bank making Reclamation District 1602 in general less likely to flood than the districts on the opposite bank.

Assets in the Area

Approximately 12-15 residences, both privately owned and rental
Irrigation District pumping station
Irrigation canals/ditches and outfall pipes
Farmland generally under production during period of highest flood risk

Administrative History and Issues

The primary landowner, Patterson Westside Farms, acquired its land over 30 years ago and its staff basically manages the two special districts covering the area; Twin Oaks Irrigation District which primarily services Patterson-Westside Farms and the reclamation district which encompasses a larger area incorporating several more properties. There is an annual meeting of the reclamation district but there are no

assessments and the reclamation district does not have a budget. Property owners share any costs or maintenance work on an informal basis under the initiative of Patterson Westside Farms. The two primary landowners threatened by a flood, Patterson Westside Farms and Westside Properties, show the most initiative in meeting any emergency needs or expenses. Other property owners assist with maintenance for the levee section along their property to a more or less satisfactory degree.

The District maintains some flood fight supplies but has accessed sandbags and sand provided by the County to the public in past floods. Agencies with responsibility in this area for public safety operations as defined above are the Stanislaus Sheriff's Department and the West Stanislaus County Fire Protection District.

Recent Flood History and Issues

In the 1997 flood, the District did not suffer a levee break. There was a significant boil and seepage on the levee section next to Westside Properties. The Corps of Engineers at the request of the District placed a seepage berm behind the levee at this point to prevent levee failure. However, seepage continued beyond the berm and standing water did impact the Westside Properties structures.

The District did experience some levee erosion near Lake Ramona and near its southern end which was mitigated by placing plastic visquine by crews from DWR. Water elevations at these points at the time just reached the toe of the levee making levee failure unlikely.

The District project levee turns and runs to the west at both ends of the District since the areas to the north and south of the District boundary are unprotected. In 1997, flood waters impacted Las Palmas Avenue and nearby residences about one-half mile to the north of the District but did not approach its northern levee extension. Flood waters did impact the District in the south where flows over Crows Landing Road from the south entered the District beyond the west of the end of its southern levee section.

An additional major problem in 1997 was overflows from Salado Creek to the northwest entered the District flooding portions of its land. Salado Creek had overflowed near Patterson flooding portions of that City and adjacent areas. Area drainage systems directed these flows into irrigation ditches running to the south to the vicinity of Reclamation District 1602. These irrigation and other ditches subsequently overflowed flooding portions of the District.

In the 2006 flood, high flows damaged the concrete culvert through the levee at Lake Ramona that carries storm water and tail water run off to the River. The structure at the exit end of the culvert holding the flap-gate to prevent reverse flow failed destroying the flap gate. Flood waters then began to enter the District through the culvert. Emergency actions were taken to stop this reverse flow and a gate was subsequently installed at

the top of the levee. The State has indicated in its inspections that the original flap-gate at the exit end of the culvert must be repaired to meet its O&M standards.

Overall Emergency Response Assessment

There are structures and their residents at risk in the District during floods. Due to the relatively small number of these homes their warning and evacuation is not an overly complicated operation as long as it is timely. Residences at the north and south end of the District would be exposed at most to shallow flooding in future events. The District has a substantial levee that is barely impinged upon by flood waters for most of its length due to the fact that the west bank of the River is generally higher than the east bank. Water elevations that would create a much more significant risk of failure to the District levee would probably lead to failure of the east bank levees first lowering the threat until those breached district(s) filled.

The District has a knowledgeable individual for directing flood fight operations and adequate staff for levee patrol and basic flood fight remedial actions can be obtained. Safety of flood fight crews should be looked at. No written procedures for flood fight or training programs for crews were identified. Flooding from the south over Crows Landing Road is a significant impact given the critical nature of this connection with the east side of the County. The public safety agencies covering this area have no written response plans for this specific area.

Reclamation District 2091

Description

Reclamation District 2091's eight miles of project levee protect approximately 7,000 acres. There are three primary property owners within the District; two farm operations and the City of Modesto which owns 4,500 acres in the northern section. One farm operation is a dairy which grows feed within the District for dairy cows maintained at a different location. The other farm is a mixed hay and crop farm. There is also a firing range owned by Stanislaus County and operated by the Sheriff's Department.

The District is relatively flat but with a south to north elevation gradient. At the north end of the District is the Westport Drain which connects to a Turlock Irrigation District (TID) lateral. Immediately adjacent on the south side of this structure is the new City of Modesto Secondary Waste Water Treatment Facility currently under construction. Storage and treatment ponds of this facility are complete with dikes higher than the district levee. The ponds are located on the northwest portion of the District. Treated waste water from this facility is used to irrigate crops grown on the Modesto property.

An old slough runs northwest to southeast from the vicinity of the treatment plant to the vicinity of West Main Avenue. This slough can serve as a conduit for flood waters

coming from the south to move under and through West Main Avenue.

West Main Avenue is an important east-west County road which bisects the District and is elevated as it approaches the river and its San Joaquin River bridge. The West Main/Las Palmas Avenue bridge along with the Crows Landing Road bridge 10 miles to the south carries most of the daily local traffic across the San Joaquin River.

South of West Main Avenue is a continuation of farm fields and the County firing range. Adjacent to the firing range on its south side is a storm water drainage facility called Reclamation District 2091 Unit #2.

Reclamation District 2091 Unit #2

This facility consists of Gomes Lake, a pumping station, the Harding Drain, the Gomes Lake Bypass Channel, and associated equipment. The Harding Drain is a large open drainage ditch which runs west from the end of Turlock Irrigation District (TID) Lateral #5 at Prairie Flower Road to the RD2091 project levee. From this point the Gomes Lake Bypass Channel runs north along the landside toe of the District's project levee for one-half mile to Gomes Lake. Another drainage ditch for local runoff called locally the "Levee Drain" joins the Gomes Lake Bypass Channel just south of the Lake.

The purpose of this drainage system is to move storm water originating from the Turlock Irrigation District, Sand Creek, City of Turlock, and a large area of unincorporated land to the east of the District to the San Joaquin River. Treated waste water from the City of Turlock Waste Water Treatment Plant and some local runoff through the Levee Drain also enters this system for eventual discharge into the river.

At the point where the Harding Drain reaches the river from the east two flap gate pipes penetrate the levee allowing gravity flow of the runoff into the river. When the river is in flood and gravity flow at this location is no longer possible, the runoff is directed to the north through the Gomes Lake Bypass Channel to Gomes Lake where it can be delivered to the river by gravity flow through the pumping station. If water elevations in the river prevent gravity discharge then the pumps are turned on to move the runoff to the river.

During flood periods, Gomes Lake becomes a holding basin for this storm water runoff. A dike at its northern end prevents the collecting runoff from flowing to the north once the natural lake holding capacity is exceeded. This drainage system was put in place in the 1960's concurrently with project levee improvements, probably as part of the Lower San Joaquin River and Tributaries Project.

Currently the City of Turlock is building a conveyance system to take treated waste water from its treatment plant on Walnut Avenue directly to the river. Infrastructure from

this new system near the river will consist of an underground line and weir/discharge system to empty the treated water into the river.

Assets in the area

City of Modesto Secondary Waste Water Treatment Plant
Stanislaus Sheriff Firing Range and Facility
West Main Avenue and its associated bridge and several secondary County roads
Reclamation District 2091 Unit #2 (Gomes Lake, pumping station and Harding Drain)
Farmland and associated irrigation systems
City of Turlock waste water transfer system



Administrative History and Issues

Reclamation District 2091 has a three-person Board of Trustees composed of the two private property owners and a representative from the City of Modesto. The reclamation district conducted a successful 218 election in the recent past to improve its financial situation. The District now has an approximate annual budget of $100,000 and is attempting to build up an emergency fund.

The District has a contract with the City of Modesto to provide levee maintenance and limited emergency response functions. While this is a positive step it was unclear what the limits of the contracted services are in an emergency or how command for flood fight operations will be established or transferred back to the District if necessary in a flood.

It is also not documented how the flood fight operations command structure will interact with any public safety operations command established for evacuation, rescue, and security in the District. While these issues may be understood by individuals in the different agencies, no written documents defining these command and control protocols were identified.

Another command and control complication is the operation and maintenance of the Unit #2 drainage system in flood events. Reclamation District 2091 was originally responsible for maintenance of the Unit 2 drainage system which is located within the District but serves for the most part the drainage rights of areas outside of the District. It is unclear why the district accepted this responsibility originally but by 1971 the reclamation district was broke and unable to meet this responsibility.

Subsequently, in 1971, a Joint Powers Agreement was formed for the maintenance and operation of the system. This JPA is composed of the City of Turlock, County of

Stanislaus, Turlock Irrigation District (TID), RD2091, and RD2063. TID provides a superintendent who oversees operation of the Gomes Lake Bypass Channel and the pumping station only. It is unclear who would supervise flood fight operations to maintain the Gomes Lake Dike in a flood.

Agencies with responsibility in this area for public safety operations as defined above are the Stanislaus Sheriff's Department, the Westport Fire Protection District, and the Mountain View Fire Protection District.

Recent Flood History and Issues

Flood fight operations are necessary for two distinct structures in this district; the project levee and the Gomes Lake dike. Failure of either structure could flood portions of the district damaging property and potentially critical assets. Failure of the Gomes Lake Dike could also create additional threats to the stability of the project levee. The emergency response organizational structure for coordinating these two operations is unclear as well as the process for resolving any conflicts between each operation that may arise. At least no written protocols or procedures addressing these issues were identified.

In 1997, water elevations are reported to have reached within 1' of the crown of the project levee at locations. The District levee experienced numerous boils north of Gomes Lake at an extreme bend in the levee and additional boils and the failure of a section of the levee back slope adjacent to the Gomes Lake Bypass Channel. While the project levee did not fail, the Gomes Lake Dike did subsequently fail.

The open ditch Gomes Lake Bypass Channel runs immediately adjacent to the landside toe of the project levee for more than one-half mile. It is obviously a serious design flaw to have a large open ditch with running water immediately adjacent to the landside toe of a flood control levee. It prevents adequate levee inspection and is a threat to levee stability. A constriction in the Channel and periods of rapid drawdown of Gomes Lake can create a 300 cfs flow creating the potential for damage to the project levee.

In 1997, when the back slope on a portion of the project levee adjacent to the Bypass Channel failed, the Corps of Engineers placed an emergency buttress to prevent complete levee failure. They also recommended at that time that the pumps moving water from Gomes Lake to the river be stopped in order to allow the water in the Channel to build up and provide a hydrostatic balance to the waterside hydrostatic pressures. The resulting buildup of water in Gomes Lake caused its dike to fail flooding areas to the north and damaging property.

Interdependence with Reclamation District 2063

A significant flood fight issue is the apparent dependence of RD2091 on RD2063 levees for protection from flooding. There is a 16' fall in the river as it runs from the south end of RD2063 to the north end of RD2091. It would appear that a levee breach in RD2063 would flood RD2091 as impounded flood waters flow down this gradient. A study is needed to confirm this conclusion but there is some evidence of this interdependence.

An old cross levee runs east to high ground at the southern end of RD2091 on the north side of the Levee Drain mentioned above (by which this ditch gets its name). This old cross levee is located on a small but noticeable rise in the ground that then gradually descends to the north. A visual inspection indicated that this cross levee was put in place to prevent flood waters from moving north into RD2091 from the area now protected by RD2063 levees.

This assumption is reinforced by the fact that the area encompassed by RD2091 was originally within an older district, RD1604, formed in 1914. Reclamation district 2063 was not formed until eight years later so it can be assumed that improved levees were first placed in RD2091. The cross levee on the south side of the district would have been needed to prevent flood waters from entering the new district from the unprotected, or inadequately protected, area to the south. This situation, if confirmed, has implications for the development of a proper flood fight strategy for RD2091.

Overall Emergency Response Assessment

The presence of considerable infrastructure in this District, particularly the waste treatment plant for a large city, would justify more stringent attention to the planning of flood emergency operations in this area. This attention would be further justified if the dependence of RD2091 on RD2063 levees for protection is confirmed since that would mean that the use of both the Crows Landing Road bridge, which was declared a vital transportation link in 1997, and the West Main/Las Palmas bridge, its nearest alternate route, could be lost from a single levee break.

The higher density of dairy, farm, and other operations (treatment plant, tallow works, etc.) in both districts means that more significant public safety operations for evacuation, security, and rescue would be necessary in a flood. No written flood fight plan or training program was identified. Public safety agencies have no written plans or protocols specific to response to this area.

Safety of flood fight crews is also of a concern. The City of Modesto does provide annual flood fight training but no written, formal, training program for the District was identified. No written flood fight operations plan was identified and command and control protocols for flood fight operations are not as clearly outlined as they should be.

Reclamation District 2063

Description

Reclamation District 2063's 11 miles of project levee protects approximately 10,000 acres. There are numerous property owners within the district including several dairies and farm operations and a tallow works. The primary crops grown in the area are alfalfa and other feed crops. The area is generally flat with a south to north gradient and numerous remnant sloughs in southern portion of district. Crows Landing Road provides the means of crossing the river in the area. District President estimates that flood waters could reach as far east as Morgan Road based on his historical knowledge.

The District has two pumping stations for interior drainage. The Victoria pumping station is located at the end of a slough draining storm water runoff and irrigation tail water from the southern portion of the district. TID tail water can also potentially enter this slough although TID evidently does not have a drainage right into the slough. This slough is also a collection point for levee seepage during flood events. Pipes penetrate the levee to allow gravity flow of runoff and seepage into the river. When river elevations prevent this gravity flow then the pumps are used to remove accumulating waters.

The smaller Nielson pumping station is located at south end of district at end of TID laterals 11 and 12 and is used to pump irrigation tail water, storm water from the

communities of Delhi and Hilmar, and local runoff into the river when river water elevations prevent use of the existing gravity flow pipes with one-way flap gates.

Assets in the area

Crows Landing Road and associated bridge and numerous secondary County roads
Several dairy and farm operations
Tallow works and other businesses
Irrigation and other infrastructure for fields
District pumping stations

Administrative History and Issues

District has an active Board of Trustees with a contract attorney. Current Board president states that it is increasingly difficult to recruit trustees. The District is attempting build an emergency fund but their revenue flow is limited. Savings from changing the method of vegetation control has helped.

Agencies with responsibility in this area for public safety operations as defined above are the Stanislaus Sheriff's Department and the Mountain View Fire Protection District.

Recent Flood History and Issues

District levees are reported to have functioned well in 1997 flood. However, the extensive seepage experienced and high runoff flows in the slough leading to the Victoria pumping station during this event forced the District to install an additional large pump while the flood was still in progress.

There are no levees along the river south of the district so the Reclamation District 2063 levee extends eastward on its south end along the higher north side of an old slough until approximately Central Road. This extension of the project levee to the east prevents flood waters from flanking the south end of levee section facing the San Joaquin River. Where this levee section ends technically as part of the project levee is in dispute between the District and the State. In 1997, flood waters in this area reached near the crown of the levee near the River but did not reach the levee at its eastern end.

High river flows have also caused erosion problems on the river bank below the waterside toe of the District levee. Such erosion if allowed to continue could endanger the stability of the levee. In 2011, the District placed rip rap at several locations to stop erosion that at some locations had reached within 20-50' of the levee toe. This concrete rip rap later became an issue with the Department of Fish and Game.

Farmer volunteers are used for levee patrol in floods and a stockpile of basic flood fight materials is maintained at Victoria Dairy near the center of the District. The Board president supervises patrol and appears to be the most experienced flood fighter in the District. Flood fight operations are generally self-help propositions by property owners but the District did declare an emergency in 2011 in an attempt to obtain State assistance with the riverbank erosion. Assistance was not forthcoming.

During enhanced brush clearing operations after the 1997 flood it was discovered that there are 7 pipe penetrations with one-way valves in the district levee. USACE had no record of these encroachments in the Project documentation but they appear to have been placed to assist with dewatering the district if it flooded. District has repaired and maintained these pipes since their discovery.

Overall Emergency Response Assessment

There is a more significant public safety response component in this area due to the presence of several dairies with hundreds of milk cows and a higher density of farm operations with potential on-site hazardous materials. Recovery operations after a flood could also be more significant. No written plans for public safety or recovery operations for this specific area were identified. Public safety agencies have no written plans or protocols specific to response to this area.

In regard to flood fight operations, the District President is knowledgeable and capable but there does not seem to be a formal response organizational structure outside of the Board of Trustees. No written response plans for flood fight operations were identified. The use of improvised material for flood fight operations (e.g. concrete from farm operations instead of rock) shows initiative but emphasizes the lack of adequate financial resources of the reclamation districts.

The potential dependence of RD2091 on RD2063 levees for protection places a higher importance on the coordination of the flood fight plans and operations of these two districts. Flood characteristics of this area and options for containing flood waters from a breach should be fully explored and documented.

3.b.2 Other San Joaquin River Emergency Response Issues

Lower Tuolumne River – South Bank

Description

A rural area of approximately 1,500 acres located between the north boundary of RD2092 and the south bank of the Tuolumne River. Several farms and structures and a mobile home park are located within this area. Privately constructed levees are present along the south bank. Entire area is unincorporated without a reclamation district.

Recent Flood History and Issues

In the 1997 flood this area flooded when private levees failed on its upstream end. Structures were damaged and evacuation operations were necessary. At least one death was associated with this flooding.

Overall Emergency Response Assessment

Public safety operations in this area will continue to be important but not organizationally complex. Command structures for performing public safety operations in this area should be combined with similar public safety and security operations necessary to support RD2092 and documented.

City of Patterson Waste Water Treatment Plant

Description

The City of Patterson Waste Water Treatment Plant is located at 14901 Poplar Avenue adjacent to the San Joaquin River and across the river from RD2091. The treatment plant with its three separate treatment processes and associated ponds is located on a

low bench 2-3 feet above a lower section of river bank that extends approximately 300 yards to the river channel.

Administrative History and Issues

The current plant occupies the same location as older pond treatment facilities put in by the City. The City of Patterson owns land in proximity to the plant including portions of the lower bank next to the river. The City is currently developing a waste water treatment master plan that will guide future development of the facility and this municipal function. That plan has not been reviewed to determine the extent it addresses flood issues discussed below.

Recent Flood History and Issues

Past high flows on the San Joaquin River flood the lower riverbank area on the east side of the plant. In the modest 2011 high flow event, flood waters are reported to have reached the base of a fence that surrounds the plant. Additional history on surface flooding of the 1997 is being collected to better identify the threat of surface flooding of the plant. Erosion of the riverbank northeast of the plant is of concern. After 1997, the City placed fill to restore a significant site of riverbank erosion. Continued erosion of the riverbank could lead to a greater flooding threat to the plant itself.

In addition to the threat of flooding from the San Joaquin River, the plant faces a problem with excessive inflow through its sewage lines. Normal inflow into the plant is approximately 1.5 million gallons a day and capacity is 2.25 million gallons. But the plant operator indicated that any significant rain event creates an inflow spike, probably through interconnections with the storm water system in the downtown area.

During the heavy rain events in December 2012 the inflow into the plant reached capacity. The problem is greatest when excessive rains in the Coast Range cause Salado Creek to overflow and flood portions of downtown and some residential areas. In 1997, these greatly increased inflows into the plant caused continuing problems with the maintenance of treatment processes.

The plant currently does not have the capability to bypass excessive flows in its sewage lines into larger existing storage ponds. In an excessive inflow situation the plant operator may have to sacrifice one or more treatment processes to try to contain the water. The potential exists for discharge of inadequately treated waste into the river and extended failure of treatment capability. The plant manager estimates that it could take up to 30 days to restore one of the normal treatment processes.

Overall Emergency Response Assessment

The plant manager is knowledgeable of the flooding potential and has a response concept but no written emergency procedures or protocols for dealing with either a threat of flooding from the river or excessive inflow from plant sewage lines were identified. The City is preparing a waste treatment master plan which may address these issues but that plan has not been reviewed as part of this study.

The plant manager did mention the possibility of installing a bypass system allowing waste water inflow to be stored temporarily in the plant's large Pond #1 and then pumped back into the treatment processes and additional physical protection from high water in the San Joaquin River.

Portions of the City of Patterson is also exposed to sheet flooding from Salado Creek. This threat does not present overly complex response organizational issues for ensuring public safety primarily due to the shallowness of such flooding.

City of Newman Waste Water Treatment Plant

Description

The Newman Waste Water Treatment Plant is located in proximity to the San Joaquin River on Hill's Ferry Road. The plant is located next to lower ground to the east that floods when flows in the river are high. Plant facilities are located at two levels. On the lowest level next to the river floodplain are the oxidation pond, facility maintenance building, and several pumps. At a higher level to the west side are Treatment Ponds 1 and 2 and ponds where treated water is stored to be used for irrigation of several hundred acres of city-owned farm land that surrounds the plant.

Waste water is treated in Ponds 1 and 2 and then transferred by gravity flow to the oxidation pond. Treated water from the oxidation pond is then pumped back up hill to the storage ponds. Tail water from the irrigated land to the west is reclaimed and re-used with zero discharge to the San Joaquin River. Tail water and runoff from farms in the surrounding area flow to a ditch near the plant maintenance building where it can enter the river through one-way pipes. The facilities permit only allows storm water discharge into the River. During high water conditions when the riverbank east of the plant is flooded a pump located at the gravity pipes is used to move accumulating runoff over the entrance road and into the river.

The plant entrance road connects to a designed levee on the east side of the oxidation pond to form a flood control levee at a uniform elevation of 72'. This levee protects the oxidation pond, plant building, and several pumps from inundation from the river.

However, directly adjacent to the oxidation pond on its south side is the Newman Wasteway built by the Bureau of Reclamation to carry storm runoff from Newman and the surrounding area to the river. The wasteway north embankment adjacent to the plant is substantial but not a designed levee.

Administrative History and Issues

The treatment plant is owned by the City of Newman which also owns several hundred acres of farmland adjacent to the west side of the plant. Treated waste water is used to irrigate this farmland.

Recent Flood History and Issues

Orestimba Creek runs from the Coastal Range to the San Joaquin River on the north side of Newman. During severe rainfall events in the Coastal Range, Orestimba Creek will deposit debris where it runs under the railroad and Highway 33 which will cause it to overflow its banks. The parallel north-south railroad and Highway 33 embankments form a "canal" that channels this overflow into the City of Newman affecting dozens of structures. These flood waters also enter waste water lines and threaten to overwhelm the plant's ability to either treat or hold these higher inflows. In the 1997 flood, it took weeks for the plant to clear the ponds of this excessive inflow. The plant has no means of bypassing excessive flows directly into the river.

In the 1997 flood, water elevations to the east of the plant reached within 2 feet of the crown of the City levee protecting the oxidation pond. Wave wash was a serious problem in that event and the City has since been slowly placing rip rap on the oxidation

pond levee to protect it from this source of potential failure. The levee is not yet entirely protected in this manner.

The City must flood fight this levee while water levels remain high as well as monitor the Newman Waste Way embankment which is covered in vegetation and experiences seepage during high water events. The high water elevations in the river also back up runoff coming down the waste way putting pressure on the wasteway embankments on either side. The embankments are substantial but not engineered for flood control. If either the City levee or the waste way embankment fails then the oxidation pond will be flooded and rendered inoperable. The plant has no means of redirecting effluent into alternate storage ponds or to the river. Partially treated waste water could enter the river in this scenario and restoration of normal plant operations could be lengthy.

Overall Emergency Response Assessment

The plant manager is knowledgeable on the flooding threats and is taking what steps he can to improve the performance of the City levee that protects the west side of the

oxidation pond and plant maintenance building. Additional issues remain including ensuring that interior runoff can be pumped back to the river during high flow periods.

The performance of the Newman Wasteway embankment that protects the south side of the oxidation pond needs to be evaluated. The facility operations and maintenance manual has a section on flooding and the plant manager has added a section to the facility's standard operating procedures on flood response based on past experiences.

Public safety operations are required in the City of Newman itself due to the flooding from Orestimba Creek but this does not seem to present overly complex emergency response organizational issues.

3.b.3 Additional Emergency Response Information

County of Stanislaus

Meetings or telephone interviews were conducted with Stanislaus County OES and Agricultural Commissioner and an email summary was obtained from Stanislaus County Public Works on flood response. There was no time for interviews of agencies with specific field response jurisdiction, the Sheriff's Department and several fire districts so a general picture was obtained through these limited contacts.

Stanislaus County OES maintains standard response plans and response facilities such as the operational area emergency operations center. The Office demonstrates competence in disaster management and has experience with response to urban flooding in the Modesto area and along the rivers.

In regard to flood response, there are limited specific written plans or procedures for response into the areas of the reclamation districts during a flood. Given the limited complexity of public safety operations in most of these rural areas, detailed written plans may not be necessary. Information or issues of importance for flood response in areas protected by project levees were identified as follows.

<u>Interaction with Reclamation Districts</u>

Stanislaus OES indicated that they often lack good contacts with the reclamation districts. The County is not aware of any written flood fight operations plans maintained by those agencies. It recognizes the reclamation districts as responsible for such planning. There has been some friction in the interaction of the County with the districts in regard to proclaiming emergencies and the process for requesting assistance with flood fight operations. This appeared to be mainly an issue of clarification of the process of coordination between these separate jurisdictions for flood fight assistance and activation of emergency authorities and powers.

Evacuation Planning

No written evacuation plans for areas protected by project levees were identified. No written plans for assisting property owners with the evacuation of dairies and hazardous materials stored at farm operations were identified. The County did not identify a specific role in the conduct of dairy or hazardous materials evacuation.

Flood Fight Materials and Mutual Aid

Stanislaus County Public Works maintains a supply of sandbags and sand for distribution to the public. No stockpiles are maintained specifically for supporting flood fight operations by reclamation districts although at least one district indicated it had accessed this supply for flood fight operations. The Operational Area emergency operations center procedures do not clearly define the mutual aid system that reclamation districts would use to request mutual aid for flood fight operations.

Flood Fight Operations Training

The County does not conduct flood-specific training or provide DWR flood fight classes to its employees. There is a level of involvement of local fire districts with reclamation district flood fight operations but the level of training provided to fire district staff for those activities is unknown. The City of Modesto indicated that waste water treatment plant staff do receive annual flood fight training.

Debris Removal

County Public Works recognizes a function with debris removal from County roads. FEMA will allow the County to assist with removal of debris from private property that did not originate with the property owner's possession or land but a written debris removal plan with criteria to ensure that debris removed meets eligibility rules is needed. The County does not have such a plan at this time.

No written plan for organizing the removal of hazardous waste from a flooded area was identified. County Environmental Resources would have a role in this activity but time did not allow an interview with that organization. Follow up on this is recommended.

4. Geographic Area

See attached annotated maps.

5. Recommendations

5.a General Conclusions

5.a.1 In Regard to Public Safety Operations

While they are obviously important, public safety operations within the study area do not face highly complex or extensive issues such as are found in heavily urbanized areas in deep flood zones. The shallow nature of potential flooding in the more urban areas of Patterson and Newman cause considerable damage but again are not a highly complex organizational response challenge. Development of extensive pre-plans for conducting resident warning, evacuation, or rescue would, in general, not be a priority for the study area if resources are limited. There are currently no written response plans specific to the study area.

There are two issues regarding public safety operations, however, that the reconnaissance indicates should be examined more closely for possible action. First, the structure of field command and control in regard to flood fight operations and public safety operations, as well as the manner of their interaction, was unclear in some districts and not clearly documented in any. Second, the area does present the potential problem of evacuation of dairies and bulk hazardous materials from rural sites and debris removal following a flood. These more complex organizational issues should be examined more closely for potential action.

5.a.2 In Regard to Flood Fight Operations

The presence of considerable private property, vital bridges and roads, and substantial infrastructure critical to public safety and health focuses attention on the quality of flood fight operations. Effective and rapid action to prevent a levee breach, or to limit the extent, depth, or duration of flood waters in the event of a breach, is the only methodology for minimizing possible long term adverse impacts from loss of this infrastructure. Flood fight operations in this case would include plans for rapid removal of equipment or components of facilities where possible to speed restoration of services.

Currently there are very knowledgeable and experienced people available to direct flood fight operations but little or no written flood fight plans reflecting this knowledge. Flood fight operations are organized at the time of the emergency and are mostly conducted informally. The command structure for conducting flood fight operations in some cases is unclear, or at least not documented.

Also, the financial situation of the reclamation districts is relatively weak and could be a barrier to improvement actions and response. Grants or other sources of alternate funding should be explored to enhance reclamation district response capabilities.

Finally, processes for reclamation districts to request mutual aid should be clearly defined and jurisdictions need to at least discuss and better define their policies for supporting flood fight operations if requested.

5.a.3 In Regard to Overall Flood Emergency Response Preparedness

The Mid-San Joaquin River Region is at a point where initial detailed planning for future flood fight operations and concurrent public safety operations is needed and justified. Opportunities for accomplishing this planning in the near future are discussed below. However, a major problem in areas that have completed such detailed planning and training in the past is maintenance.

The long intervals between floods, and the other demands placed on the time of officials, makes maintenance of plans and training over the long intervals between major floods difficult. The consistent communication and cooperation that is a key element of joint planning tends to stop when initial resources run out and other demands on time become a constant distraction. Any major project to improve flood response in the Mid-San Joaquin River Region should include a mechanism for ensuring proper maintenance of resulting improved plans and training programs created as a result of the regional flood management plan process.

5b. Specific Recommended Projects

5.b.1 Develop Local Flood Fight Plans

In regard to flood fight operations, develop local flood fight plans as the highest priority response improvement project. These plans would document 1) historic and flood fight knowledge of current and past district responders, 2) current response procedures for levee flood fight, and 3) options for containing floods from a breach. Reclamation districts, as the local jurisdiction responsible for maintaining the project levees and general flood control within their boundaries, would prepare the plans with the assistance of other local jurisdictions.

As noted below, a standard template for development of such flood fight plans (also called flood safety plans or tactical flood plans in other contexts) is emerging in the Central Valley that is supported by the Department of Water Resources and FEMA. This template uses a map format to display information complemented with a concise written reclamation district emergency operations plan. The standard template is consistent with FEMA preparedness planning guidance and has been approved by the Department of Water Resources.

5.b.2 Perform Key Hydrological Studies

A key preliminary to preparing the local flood fight plans in the Mid-San Joaquin River Region is completion of some detailed topographic and hydrological studies. The key study would be for the area protected by RD2091 and RD2063. The characteristics of flood flows that would occur in the event of a breach in either district need to be identified. The other studies would better define flood threats to the waste water treatment plants of Newman and Patterson.

In regard to the first study, the RD2091/2063 area, as noted in this report, contains considerable critical infrastructure and is the most highly populated area protected directly by project levees. There is reason to believe that RD2091 is dependent on the RD2063 levees for protection as well as on its own levee system. A breach in RD2091 could possibly also cause flood waters to back into RD2063 to some extent.

In order to ensure the best possible protection of critical infrastructure in RD2091 (e.g. the Modesto waste water treatment plant and Gomes Lake) this relationship needs to be confirmed. If confirmed the characteristics of flood flows from RD2063 into RD2091 and vice versa needs to be thoroughly understood in order to identify practical containment options and an effective joint flood fight plan between districts. Part of this study would include an update of the current topography and elevations of the area by LIDAR or other means.

The smaller micro-studies for the other treatment plans would confirm water elevations at which there is a significant threat to those facilities and the characteristics of flood water movement in the event 1) water elevations rise above the eastern boundary fence line at the Patterson plant, or 2) either the Newman Plant flood control levee or Newman Wasteway embankment fails. This detailed information would allow development of better trigger levels for actions to protect infrastructure and better plans for maintaining service if either of these contingencies materialize.

5.b.3 Complete Response Plans for Public Safety Agency Functions

The primary general public protection action in floods is evacuation. Elements of such operations include warning, provision of public information and instructions, rescue, and shelter operations. They also can include provisions for orderly shutdown of threatened critical infrastructure and evacuation of critical, portable, equipment.

It is recommended that public safety agency evacuation plans and maps be developed at a minimum for the area protected by RD1604, RD2063, and RD2091. Evacuation procedures for these rural districts could be included on the respective flood contingency map or displayed on separate evacuation maps. In addition, formal urban evacuation maps should be developed for those populated areas of the Cities of Newman, Patterson, and Modesto exposed to sheet flow or flood water back up from

area streams and creeks. These urban evacuation maps would be developed in accordance with the Guide to Urban Evacuation Mapping available at www.sjmap.org/oesmg.

Evacuation procedures shown on these maps should also address rural evacuation issues such as locations of dairies and storage of bulk hazardous materials with detailed procedures for their orderly evacuation and temporary storage. All evacuation maps would display the emergency response command organization for conducting these operations and the response organization structure. These plans and maps would be developed in cooperation with local law and fire agencies and the reclamation districts.

Finally, Stanislaus County should develop a debris removal plan and policy. Preparation of such a written plan would assist with ensuring reimbursement for debris removal costs incurred by the County after a flood from the State and federal disaster assistance programs. Stanislaus County operates the local waste disposal system and has both jurisdiction and resources for operating a debris removal program. Ensuring eligibility for disaster financial assistance will allow the County to perform authorized debris removal without delay or uncertainty.

5.b.4 Clarify Command and Control

As noted above, command of flood fight operations within RD2091, and how that command relates to public safety command, is unclear or at least not clearly documented. It is a high priority that local jurisdictions should clarify and document the command structure for areas threatened by flood waters. In particular, it is important to clarify how the flood fight commands and public safety agency commands will interact. These protocols could be included on flood contingency and evacuation maps or shown on a separate flood fight unified command map. In addition, reclamation districts should adopt a formal mechanism for clearly designating a flood fight incident commander as part of their flood safety plans.

5.b.5 Arrange for Emergency Planning Support for Reclamation Districts

The limited financial resources and staffing of reclamation districts makes development and maintenance of detailed and adequate flood fight plans difficult. There is also a lack of expertise within reclamation districts for preparation of proper written emergency plans. The County of Stanislaus and City of Modesto should enter into an agreement with the reclamation districts to provide administrative and professional support for the development and maintenance of district flood fight plans. A cost sharing arrangement could be developed within this agreement.

5.b.6 Better Define Operational Area Logistical Support for Flood Fight Operations

Jurisdictions making up the Stanislaus Operational Area should develop an agreement or procedure outlining the specific process and characteristics for providing levee flood fight support and mutual aid to reclamation districts. Potential support would include assistance with levee patrol, flood fight crews, and funds for the acquisition of private contractors and bulk materials. In particular, the provision of funds, or purchasing support, for acquisition of private vendors or bulk materials should be clearly defined. Total dependence on the State or federal governments for emergency funding of response to threats to levee integrity could lead to delays that result in levee failure. Local jurisdictions should identify circumstances in which they will intervene to support reclamation district response financially to protect their interests and the general public.

5.b.7 Develop a Flood Response Training Program

State and federal governments require that public agencies institutionalize the National Incident Management System (NIMS) for management of disaster incidents. The Department of Water Resources has also issued standardized protocols for marking levee problems during levee patrols. A realistic training policy and program for reclamation districts should be developed as part of the planning process.

5.b.8 Form a Stanislaus Operational Area Flood Response Working Group

The Stanislaus Operational Area should form a flood response working group composed of the reclamation districts and public safety agencies with jurisdiction within the flood plain. This working group should be created through a written agreement or protocol that defines meeting frequency, objectives, and specific review items. This group could then ensure that flood contingency maps, evacuation plans, and training standards developed in past preparedness projects are maintained. This process would also ensure that there is ongoing communication between jurisdictions and that new officials are properly briefed on current preparedness plans and their status.

6. Opportunities

6a. Availability of Standard Local Flood Emergency Plan Templates

The issuance of two grants by the Department of Water Resources for local flood emergency response projects has stimulated discussion on the need for local flood response plans and the proper format for such plans. Indeed, DWR grant guidance indicates that completion of such plans are a prerequisite to obtaining funds for other response items such as supplies or communications. The recent addition of Water Code Section 9650 (AB156) which requires the preparation of “flood safety plans” also has highlighted the need for a standard and acceptable template for such local flood response plans.

San Joaquin County has over the past decade developed a local flood response plan template using a mapping format. The flood contingency maps and urban evacuation maps developed under this concept display flood emergency response information, plans, and protocols in a user friendly format. FEMA subsequently provided funds for development of guides for implementing similar mapping programs. In 2012, San Joaquin County adapted this concept to fully conform to the requirements of Water Code Section 9650 for its urban areas protected by project levees. The new plan template enhanced previous mapping products and integrated them with a new written reclamation district emergency operations plan.

During the summer of 2013, flood safety plans initially completed for two San Joaquin County reclamation districts using this new format were submitted to the Department of Water Resources and the Central Valley Flood Protection Board for review. Subsequently, the Department of Water Resources indicated that this format met Section 9650 requirements and that the Department considered this format the preferred methodology for completing local flood response plans required by their grant guidance.

Grant funding has now been awarded, or is in the process of submission and review, for implementation of this planning template throughout the Delta and the Mid and Upper Sacramento River. This situation provides an opportunity for the Mid-San Joaquin River Region to more rapidly complete any local flood planning project since tested methodology already approved by the State, and consistent with similar efforts in other regions, is now available

6b. Funding Opportunities for Flood Emergency Preparedness

Propositions 1E and 84 passed by the voters in 2006 provided, among other things, for $135 million in funding for enhancing flood emergency response in the State. In 2013 the Department of Water Resources issued the first grants to locals from these funds for local flood emergency response projects. In March 2013 a “statewide” grant with total funding of $5 million was issued and in August 2013 a “Delta specific” grant with total funding of $5 million was issued. Stanislaus County jurisdictions were eligible for applying for the statewide grant but failed to do so.

However, the Department of Water Resources has indicated that it is identifying funds for a second round of these grants that could occur in 2014. Funds for a second round of the Delta specific grant have already been identified which provides some assurance that a second round of the statewide grant will also be forthcoming.

This situation provides a possible opportunity for the Mid-San Joaquin River Region to begin to implement emergency response and preparedness projects identified and in the regional flood management plan process. This potential funding opportunity should be integrated into the final plan and the funding needs for specific projects identified

within the RFMP so that jurisdictions are prepared to submit a joint, well-planned, application.

6.c Development of Joint Planning and Plan Maintenance Mechanisms

The Mid-San Joaquin River Region regional flood management plan process provides an opportunity for local jurisdictions to form embryo mechanisms and procedures for future joint flood emergency response planning and maintenance activities. Procedures and protocols used to jointly develop the regional plan should be adjusted for use after the completion of this project to perform joint planning or to jointly seek funding for identified projects.

7. Sources

The following documents and persons were contacted as part of this report to supplement personal observation of the study area. Listing of an individual does not imply necessary endorsement of all report details or conclusions.

Documents

Stanislaus County Multi-Jurisdictional Hazard Mitigation Plan, updated 2010

Annals of Stanislaus County, I. Brotherton, 1982

Stories of Stanislaus, S. Elias, 1924

California Department of Public Works Bulletin No. 37, Irrigation, Reclamation and Other Public Districts in California, 1930

2012 Inspection and Local Maintaining Agency Report of the Central Valley State-Federal Flood Protection System, Appendix B

Officials and Individuals

Jeff Adney
Stanislaus County OES

Laura Anhalt
Modesto Waste Water Treatment Plant

Robert Caetano
Turlock Irrigation District

Tou Her
Turlock Irrigation District

Jeff Holt
River Partners

Brad Koehn
Turlock Irrigation District

James Coddington
Reclamation District 2101

Maria Encinas
City of Patterson

Kim Forrest
U.S Fish and Wildlife Service

Larry Gilley
City of Turlock Municipal Utilities

Lance Perry
City of Newman Waste Water Plant

Julie Rentner
RD2092/River Partners

Martin Reyes
RD2031 and RD2092

Garner Reynolds
City of Newman Public Works

Stephen Sheppard
River Partners/RD2092

Tony Martinez
Reclamation District 1602

Dan Lamb
Reclamation District 2091

Dave Leamon
Stanislaus County Public Works

Matt Machado
Stanislaus County Public Works

Dan Madden
City of Turlock Municipal Utilities

Debra Thrasher
Stanislaus OES

Victorio Tostado
City of Patterson Waste Water Plant

Milton O'Haire
Stanislaus Agricultural Commissioner

Joe Sallaberry
Reclamation District 2063

Ed and William Lyons
Reclamation District 2031

Dan Roberts
Reclamation District 1602

Attachment 1

Emergency Response Focus Area Review Sheet

Objective: Develop a comprehensive description of the status of Flood Emergency Preparedness, Response, and Recovery (FEPRR) capabilities in order to identify and prioritize possible improvements with local agencies.

Review Issues:

Existing County and City plans/policies in regard to following specific flood response issues:

- Flood forecasting and early warning/public notification systems
- Public education initiatives (flood elevation level markings on utility poles, etc.)
- Specific plans or procedures for public safety response within LMAs.

  Evacuation plans to include pre-identified routes, organization, traffic control, shelter areas, and transportation. Are any such plans specific to LMAs or only general?

  Degree of integration of evacuation/rescue plans with LMA flood fight plans. Do evacuation/rescue plans reference LMA potential need to move material and staff into evacuation zone? Would the public safety IC be aware of location of concurrent LMA operations such as making relief cuts or placing emergency pumping stations?

  Plans for collecting hazardous or toxic materials released and/or deposited from a flood

  Recovery plans specific to floods including a debris removal plan.

- Stockpiling of resources; 1) flood fight materials to support LMAs, 2) evacuation/rescue/command/communications materials and equipment, or 3) FF materials for use by the public.

  County/city policy for supporting LMAs with engineering/construction services for levee problems.

  Existence of contact lists/standby contracts for vendors of 1) flood fight materials, 2) engineering/construction services and 3) shelter support

- Does the OA have a mutual aid system and coordinator specifically identified to handle mutual aid requests from LMAs for assistance with levee patrol, flood fight, emergency engineering work on a levee or engineering actions to physically contain a flood.
- Designation of critical facilities to protect/flood proof? Specific plans to protect or mitigate damage to critical facilities in event of potential breach (e.g. pulling pump motors, turning off systems or removing computers/controls, etc)

Flood proofing or mitigation projects for critical facilities pre-identified and documented to facilitate rapid application for implementation funding if it becomes available.

- Training of county and city response personnel; 1) Standard SEMS and NIMS training; 2) flood specific training; 3) levee flood fight training (e.g. DWR flood fight class or training on levee patrol) to support LMA response on the levees, and 4) other relevant training.

- Is there a pre-established unified command structure for field operations in a flood;

  1) Unified command for multi-jurisdictional warning/evacuation/rescue operations

  2) Unified command for multi-jurisdictional flood fight operations (LMAs with neighboring LMAs and with DWR/USACE)

  3) Specific command or coordination protocols between LMAs and public safety agencies operating in the area).

  If the county/city only create such commands at the time of the emergency is there a protocol for doing that in place.

- Flood response exercises – city, county, state-level**.** Exercises with LMAs.

- Communications capabilities and protocols

  1) Tactical communications between County/city responders and LMAs

  2) Communications protocols between county/city to DWR on flood fight issues

- Emergency response agreements with city, county, state, etc. that address issues of liability and roles & responsibilities for flood fight (levee) response and public safety response.

- Integration of environmental compliance and mitigation into flood fighting plans

  Mutual Aid Agreements – with other agencies specific to flood response (such as California Conservation Corps, etc.) Agreements to train and use Sheriff work crews, etc.

- History FEMA/State reimbursement; 1) Reimbursement of expenditures for county/city public safety response; 2)reimbursement of expenditures made in support of flood fight operations.

<u>Existing Levee Maintaining Agencies Emergency Response Plans(ERP) in regard to:</u>

- Water Code Section 9650 (AB156) Levee Safety Plan criteria; Flood Preparedness Plan, Levee Patrol Plan, LMA Communications Plan, Flood Fight Plan, Dewatering Plan.

  NOTE: An AB156 LSP is not required for rural districts with less than 1,000 residents but is still a good template to use to evaluate LMA preparedness

Flood Preparedness Plan

Stockpile of FF resources; availability of engineering services

Responsibility assigned for monitoring of water conditions and action criteria established for 1) alerting trustees and staff, 2) starting levee patrol, 3) pre-positioning FF materials, 4) notifying county and state agencies

NIMS/SEMS training policy and program for 1) trustees, 2) staff, 3) volunteers obtained at time of emergency.

Authorities and responsibilities identified in writing for emergency expenditure of funds, signing of contracts, speaking for district in multi-agency coordination processes.

Levee patrol plan

Staffing identified, patrol organization and scheduling identified, communications protocol; patrol sectors pre-identified if warranted, safety equipment and written safety protocols

Pre-identified staging areas for FF supplies along levee. Pre-identified delivery points to meet resources/staff coming from outside of district.

Does the LMA have a levee problem staking protocol and do patrols have needed materials.

Are volunteers or staff obtained at time of emergency provided safety/NIMS/staking protocols/reporting and debriefing training.

Flood Fight Plan

Does LMA have clear written protocols for 1) assigning a LMA Incident Commander in accordance with NIMS protocols, 2) providing authority to sign contracts or expend LMA funds for emergency actions, and 3) communicating with county/city/state agencies?

Flood history relevant to future flood response operations documented. Extent, direction, and characteristics of flood flow in the event of a breach known and documented. Key elevations known and documented (e.g. 100-year flood, key ground elevations, key contours)

Potential containment actions analyzed, identified and documented (e.g. relief cuts, emergency berms)

LMA reporting protocol in place for reporting levee problems, patrol status or results, or mutual aid requests to city, County, DWR.

LMA contingency fund in place for contracting with vendors for emergency actions on their levees or for purchasing additional flood fight materials.

Standby contracts in place or pre-established contract templates and emergency contracting process.

Does LMA have any on-going planning process in place with neighboring LMAs or any mutual aid agreements with neighboring LMAs or county/cities for help with levee patrol, basic flood fight operations (bagging a boil).

Integration of environmental compliance and mitigation into flood fighting plans

Dewatering Plan

Dewatering plan identified and/or documented (e.g. relief cut, placement of emergency pumps, removal of ponded water)

Are current pumping stations above 100-year flood elevation? Plans for removing motors or protecting pumps in place if not?

Is it clear in the LMA plan or the county/city emergency plans who will finance dewatering operations in the event an area is flooded? Is there any protocol for requesting State or federal assistance with dewatering?

<u>Existing situation in regard to levee rehabilitation and restoration of flood protection existing prior to the flood event</u>.

- Identification of the responsibilities between the State and local agencies to repair damage to both SPFC and non-SPFC levees after a flood event

- Implications for LMAs if they lose eligibility for federal assistance through the USACE Rehabilitation and Inspection Program (RIP)

- Feasibility of those LMAs developing and implementing System-Wide Improvement Framework (SWIF) plans, or even regional SWIF

Attachment 2

Additional Considerations for Flood Emergency Preparedness

Any flood preparedness program must face the major maintenance issue posed by the long intervals between major floods on the San Joaquin River. The predictable high rates of personnel turnover over the course of a decade or two alone makes it highly probable that when a major flood next arrives the great majority of responders will have had little training and no practical flood response experience. The following comments are provided to further assist with identification of specific flood control improvement projects.

Identify, collect, and centralize information critical for decision making

A priority should be given to collecting information critical for making effective and rapid decisions in a future flood. How high is that dry land levee? What happened 20 years ago in the 1997 floods? How will the water flow if the levee does breach? It will be time consuming or impossible to collect this when the flood arrives. Information, options, and prompts to assist the initial organization of an effective response should also be collected or decided upon.

Display plans and information in a user friendly format

Key response decisions will inevitably be made in the field where time pressures, stress, and human reaction to chaotic environments place a premium on ease of access of information needed for making those decisions and organizing the initial response. User-friendly formats should be used to display critical information.

Plan for taking better advantage of flood warning times

The difficulty of maintaining extensive training programs for floods over the long intervals between major floods means that the time between initial flood warning and arrival must be fully and expertly exploited. Even 24 hours of warning is sufficient to provide competent, but very likely inexperienced, responders with enough information to organize an effective response. But the use of this time must be intelligently pre-planned. Detailed plans for providing abbreviated training and safety sessions to both flood fight crews and public safety responders, particularly command personnel, could expedite the organization of an effective response, help meet State and Federal requirements for reimbursement, and improve results.

RD 2085

RD 2064

RD 2031

RD 2101

RD 2099

Private Interest Levee

Dairy

Farm

Dairy

Faith Ranch Headquarters

Maps Ranch Headquarters

Levee Breach 1997

Riverbank Erosion

Riverbank Erosion

Project Levee

Pump Station

1997 Boils

Levee Breach 1997

Pump Station

District Headquarters

Highway 132

Riverbank Erosion

Blewett Water District

Highway 132

District Levee

Levee Breach 1997

PGE UG Pipeline

Hetch Hetchy Aquaduct

County

Reclamation District

N

0 0.25 0.5 0.75 1 2 Miles

PETERSON . BRUSTAD . INC
ENGINEERING . CONSULTING

1180 Iron Point Rd., Suite 260
Folsom, CA 95630

Phone: (916) 608-2212
Fax: (916) 608-2232

MID SAN JAOQUIN
REGIONAL FLOOD MANAGEMENT PLAN

AREA MAP 1

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RD 2031

RD 2099

RD 2100

RD 2102

RD 2092

Habitat Restoration Area

Earlier River Channel Before River Shifted to Finnegan Cut

Public Access Point

Habitat Restoration Area

Start of Project Levee

Mobile Home Park

Bluff

West Stanislaus Irrigation Ditch Waterway

Strenstrup Slough

High Water Flow Pattern Shift

District Headquarters and Farm Structures

Levee Breach
1997

District Pump

West Stanislaud Irrigation District Pump

Private Farm

Dairy

County

Reclamation District

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N

0 0.2375 0.475 0.7125 0.95 1.9

Miles

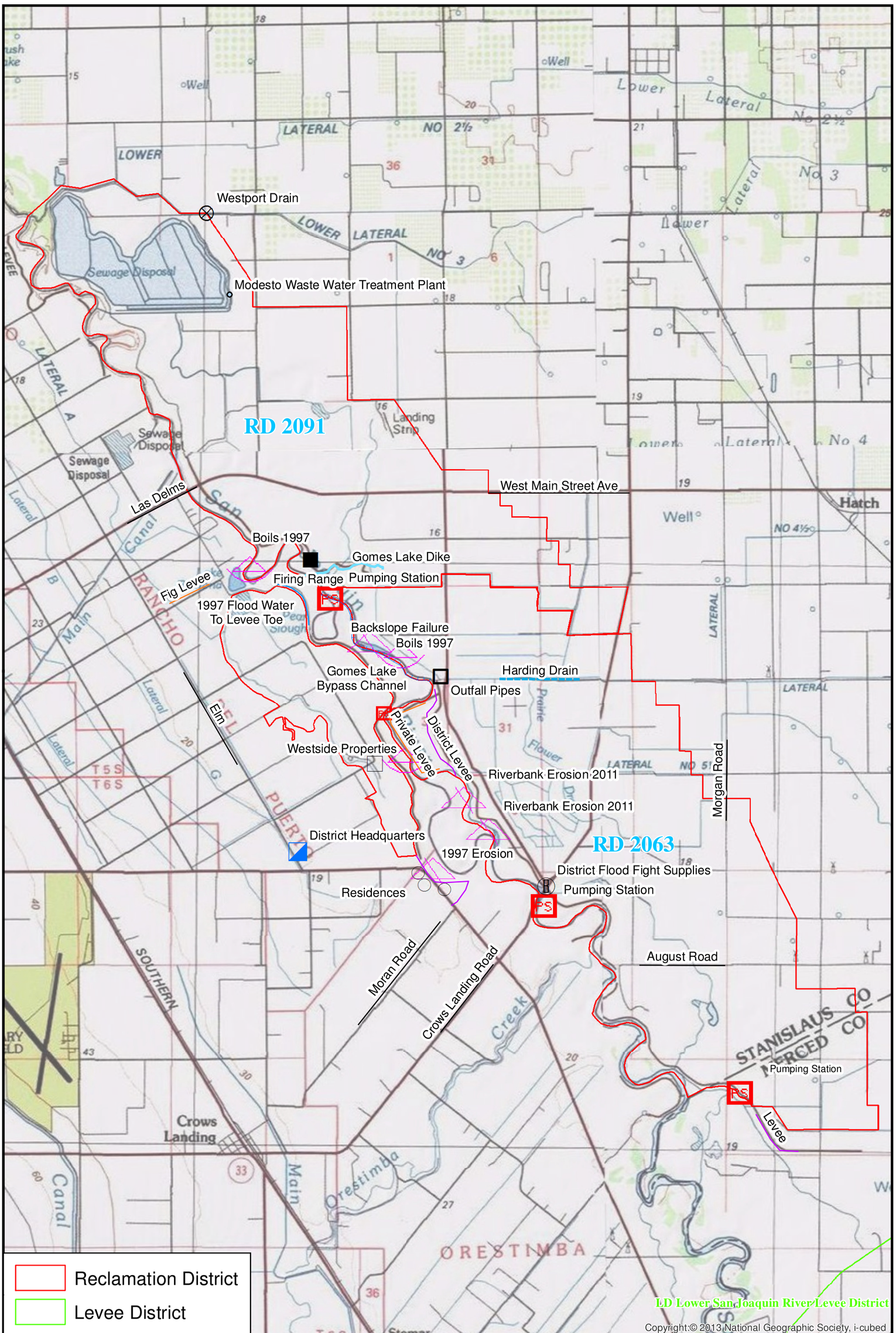
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ENGINEERING . CONSULTING

1180 Iron Point Rd., Suite 260
Folsom, CA 95630

Phone: (916) 608-2212
Fax: (916) 608-2232

MID SAN JAOQUIN
REGIONAL FLOOD MANAGEMENT PLAN

AREA MAP 2



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1180 Iron Point Rd., Suite 260
Folsom, CA 95630
Phone: (916) 608-2212
Fax: (916) 608-2232

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REGIONAL FLOOD MANAGEMENT PLAN

AREA MAP 3

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APPENDIX E

Operations and Maintenance Assessment Technical Memorandum

Operations and Maintenance Assessment Technical Memorandum



Charles Hilliard, Peterson-Brustad, Inc.

Mid-San Joaquin River
Regional Flood Management Plan
March 2014

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6 Sources

I. Abbreviations & Acronyms

CVFPB……..….Central Valley Flood Protection Board
DWR……Department of Water Resources
EIR…….……Environmental Impact Report
ESA…….……Endangered Species Act
LM……..Levee Mile
LMA…….Local Maintaining Agency
LMA Report……...Inspection and Local Maintaining Agency Report
NULE……Non-Urban Levee Evaluation
O&M…….....Operations and Maintenance
RD/District…..……..…Reclamation District
Region……Mid San Joaquin River Region
SPFC……State Plan of Flood Control
State……..……State of California
USACE…….……United States Army Corps of Engineers

II. Definitions

Department of Water Resources (DWR) Levee Inspection Summary Table Ratings

Acceptable (A) – No immediate work required, other than routine maintenance. The flood protection project will function as designed and intended with a high degree of reliability, and necessary cyclical maintenance is being performed adequately.

Minimally Acceptable (M) – One or more deficient conditions exist in the flood protection project that needs to be improved or corrected. However, the project will essentially function as designed with a lesser degree of reliability than what the project could provide.

Unacceptable (U) – One or more deficient conditions exist that may prevent the project from functioning as designed, intended, or required.

NOTE: Instances where M* are given, this means that this levee segment would have received an "A" rating, but there were very small portions of levee that received a rating of "U".

Non-Urban Levee Evaluation (NULE) Levee Ratings

Hazard Level A - When water reaches the assessment water surface elevation (typically the 1955/1957 profile), there is a low likelihood of either levee failure or the need to flood-fight to prevent levee failure.

Hazard Level B - When water reaches the assessment water surface elevation (typically the 1955/1957 profile), there is a moderate likelihood of levee failure or the need to flood-fight to prevent levee failure.

Hazard Level C - When water reaches the assessment water surface elevation (typically the 1955/1957 profile), there is a high likelihood of levee failure or the need to flood-fight to prevent levee failure.

Lacking Sufficient Data (Category LD) - Lacking sufficient data regarding levee past performance or hazard indicators to be able to assign a hazard level or there is poor correlation between past performance and hazard indicators.

1. Introduction

The objective of this Operations and Maintenance (O&M) Memorandum is to provide an initial assessment of the Operation and Maintenance practices in the Mid San Joaquin River Region in order to assist local stakeholders with the development of a Regional Flood Management Plan (RFMP). This report includes a description of each Reclamation District (RD) and/or Local Maintaining Agency (LMA), including the agency responsible for O&M in each district, characteristics of each district, typical O&M activities performed, approximate expenditures, budget information, and a summary of identified O&M deficiencies. General recommendations are also included for each district, along with over-arching general recommendations in the beginning of this report. The contents of this report are based on reviewing available information and discussions with Reclamation District (RD) staff responsible for flood control system O&M.

2. Study Methodology

The methodology for preparing this report was determined using available information from DWR and based on discussions with RD representatives. Each source document was reviewed for relevant information on the reclamation districts within the Mid San Joaquin River Region. The information gathered was then cross checked between sources in order to find the most current and reliable information.

3. General Findings

Typical maintenance activities for the districts in the region include: vegetation management, rodent control, erosion control/repairs, and crown maintenance. Most of the RDs in the Mid San Joaquin Region are rural districts which encompass agricultural land. Accordingly, there are limited or no assessments, which means that individual land owners fund and perform necessary levee maintenance.

Vegetation and animal control were common issues that were noted in many of the DWR Levee Inspection Summaries for the RDs in the Region. Vegetation and rodent control challenges were also noted in discussions held with each RD. Discussions with RD staff and representatives indicated environmental permitting challenges and Endangered Species Act (ESA) constraints associated with O&M activities often puts districts in the middle of conflicting regulatory requirements. Examples of this include being disallowed to remove vegetation that is habitat for endangered species, constraints on methods of animal control, and permitting challenges when using controlled burns as a means of vegetation management. In these instances, RDs have to make the decision of whether to perform the required O&M and potentially be fined for violating ESA regulations, or perform limited O&M that complies with ESA

requirements at the risk of failing regular inspections. Since RDs have limited financial resources as it is, the decision is often made to comply with ESA regulations and hope the limited O&M is sufficient.

However, failure to perform regular maintenance not only threatens financial support in the event of a disaster from the PL 84-99 program, but reduces the effectiveness of existing flood control facilities to perform during a flood event, thereby threatening the people and property behind these levees. Currently, RD 2092 is the only District in the Mid San Joaquin Region that is eligible for PL 84-99 disaster assistance. However, the District is in the process of seeking to eliminate O&M responsibilities and will permit flowage on previously protected lands within the District.

In addition to permitting challenges, many RDs cited differing vegetation criteria as outlined by DWR and USACE as a source of confusion and frustration. In the past, these differing criteria would often result in RDs receiving acceptable ratings on DWRs levee inspections, but unacceptable ratings on USACE (PL 84-99) inspections. This was problematic since just one unacceptable rating from USACE can jeopardize an LMA's eligibility in the PL 84-99 program, which provides levee rehabilitation assistance in the event of a disaster. Recently USACE changed their vegetation policy, deciding that otherwise eligible levees would not be removed from active PL84-99 status because of vegetation concerns alone. This interim policy change was meant to help alleviate this vegetation issue and will be replaced by a permanent vegetation policy once it is determined.

Furthermore, many LMAs noted they were comfortable funding minimal O&M responsibilities, but this level of O&M has been insufficient to meet State and Federal requirements. Given their limited financial resources, these Districts are not able to generate the capital needed to implement large-scale levee repairs. The table below summarizes the approximate annual O&M expenditures, and sources of funding for the LMAs in the Region.

LMA	Approx. Levee Miles Maintained	Approx. Annual O&M Expenditures	O&M Funding Sources
RD 1602	6.29	$10,000 - $12,000	Individual Property Owners
RD 2031	13.19	$30,000	Individual Property Owners
RD 2063	10.63	$83,000	Assessments
RD 2091	7.89*	$40,000 - $50,000	Assessments
RD 2092	3.76	$10,000 - $12,000	Individual Property Owners
RD 2101	3.51	$25,000	Individual Property Owner

Gomes Lake	0.3	$14,000 - $35,000	JPA (TID, Stanislaus County, City of Turlock, RD 2091, RD 2063)

*0.3 miles are maintained by TID under the Gomes Lake JPA

Based on this information, funding of routine O&M appears sustainable. However, this does not consider funding needs for large-scale repairs. DWR grant programs can help LMAs with these expenses, but financial resources of the LMAs are limited, making it difficult to meet the local cost-share requirements. Furthermore, LMA staff limitations, combined with the fact that district staff are typically work and/or manage farms full-time, mean there is little time left to apply for this funding. It is also noted that some LMAs expressed an interest in pooling O&M equipment resources to help control O&M expenses.

4. General Recommendations for Improving O&M in the Region

Based on the findings in the previous section, PBI has developed the following recommendations to improve O&M in the Region.

Programmatic Environmental Analysis for O&M

As previously discussed, O&M activities such as vegetation and rodent control can impact endangered species and habitat for these species. Reform of current permitting regulations may help RDs more effectively meet their O&M responsibilities, while complying with applicable regulations. A programmatic approach to permitting routine O&M responsibilities for SPFC facilities through the region, or the State, may help meet their O&M responsibilities while complying with applicable regulations.

Establish Consistent Levee Vegetation Standards

Maintenance and/or removal of vegetation along the levee is aimed at improving public safety, levee surface visibility, and levee accessibility. However, as noted in the previous section, it is common for an RD to receive an acceptable rating from DWR on vegetation management, but an unacceptable rating from USACE. RDs in the Region need DWR and USACE to agree on a common standard for levee vegetation management.

A brief summary of the differing vegetation standards is provided below.

The USACE's vegetation policy is outlined in an Engineering Technical Letter (ETL) titled "Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures." According to the ETL, a vegetation-free zone must be maintained along all levees. The vegetation-free zone is defined as a three-dimensional corridor surrounding all levees, floodwalls, embankment dams, and critical appurtenant structures in all flood damage reduction systems. The

ETL requires removal of all vegetation (except grass) on existing levees, plus vegetation within 15-feet of the landside levee toe. Tree canopies extending into this zone must be trimmed 8-feet above the ground.

By contrast, DWR's vegetation policy incorporates a Life Cycle Management (LCM) approach for "legacy" vegetation. This policy is aimed at limiting the financial costs associated with extensive vegetation removal and potentially significant loss of habitat along levees. Under DWRs vegetation management strategy, levees containing legacy trees along the landside or waterside slopes will be managed to allow vegetation and trees to live out their normal life cycles except where they pose a threat, while gradually progressing (over several decades) toward the current USACE policy of "eliminating woody vegetation from the vegetation free zone." The LCM approach allows for the preservation of riparian habitat as long as the vegetation does not impair visibility and accessibility. The crown must be kept free of all vegetation since it serves as a patrol road for levee maintenance.

DWR's policy also permits trees on the waterside slope that are farther than 20' from the crest because of engineering benefits including erosion protection, soil reinforcement, and sediment recruitment, provided visibility requirements are met, and the vegetation does not pose a threat to the integrity of the levee.

Recently USACE has released its "Interim Policy for Determining Eligibility Status of Flood Risk Reduction Management Projects for the Rehabilitation Program Pursuant to Public Law (P.L.) 84-99" (March 2014). This document has set interim policies on levee vegetation management. Following this interim policy, levee systems will no longer be removed from the PL84-99 Program for vegetation issues alone while long term policies are set. This is a good short term solution until long term policies are set. These long term policies may be more in line with DWR guidelines.

Reconciling these two differing criteria will enable RDs to focus on a meeting a single vegetation standard for their levees. If this recommendation is combined with the programmatic approach to permitting routine O&M responsibilities for SPFC facilities as discussed previously, this would enable RDs to comply with permitting requirements while completing regular O&M responsibilities.

Streamline Grant Application Process and/or Support LMAs with Grant Applications

DWR has many grant programs available to assist LMAs with repairs and improvements to their levee systems, which is good since many RDs lack the financial resources to implement large-scale repairs/improvements. However, grant applications can take a significant amount of time to prepare, and technical expertise to complete. Limited RD staff resources mean that grants often go unapplied for, thus propagating system deficiencies.

RDs have expressed a desire to have DWR staff assist in the preparation of grant applications, especially for deficiencies identified by DWR. The RDs could review and have their respective Boards approve such applications, if necessary. This would help address critical erosion/seepage sites and other needed repairs identified by DWR.

As mentioned previously, RDs in the Mid San Joaquin Region have limited financial resources, making it difficult for these areas to meet the local cost-sharing requirements for State and Federal grant programs. Revisions to the State's local cost-sharing guidelines for projects that provide regional flood system benefits should be considered by DWR.

Finally, many of the RDs in the Region are not formally organized which prevents them from being able to enter into funding agreements with the State. A solution is needed to enable Districts to apply for State funding. For Districts where organization is infeasible, one possibility is agreements amongst several Districts to enter into funding agreements with DWR.

Consolidation of O&M

Large mowers and grout equipment used for vegetation and rodent control can be expensive, and are not used continuously. Therefore, an opportunity exists for RDs in the Region to pool their resources and share upfront and maintenance costs of operating one piece of machinery, rather than each RD having to own and operate their own.

Develop Levee Maintenance Best Management Practice (BMP) Guidance

Development of a handbook of best management practices for levee management would help educate LMA staff and standardize O&M practices. The handbook would include guidance for all O&M challenges, including addressing burrows/burrowing animals, and managing vegetation consistent with both DWR and USACE standards (until one standard can be agreed upon).

It would describe methods (e.g. dragging chains, goat grazing, mechanical trimming) and include the pros and cons of each, so each LMA can choose what works best for their situation.

Encroachments (those in place, but lacking permitting documentation) could also be addressed within the handbook. If no such protocol exists this would be a natural place to develop it.

Develop a Technical Support and Education Program to Inform LMAs on Levee Maintenance Issues

This program would be a medium through which educational materials such as the BMP handbook described above could be disseminated. This would likely be done by a staff

person who would meet in person with LMA staff and organize workshops to benefit multiple LMAs. This program could also be expanded to support LMAs in grant applications, but this expansion would most likely require local cost share from benefitted parties.

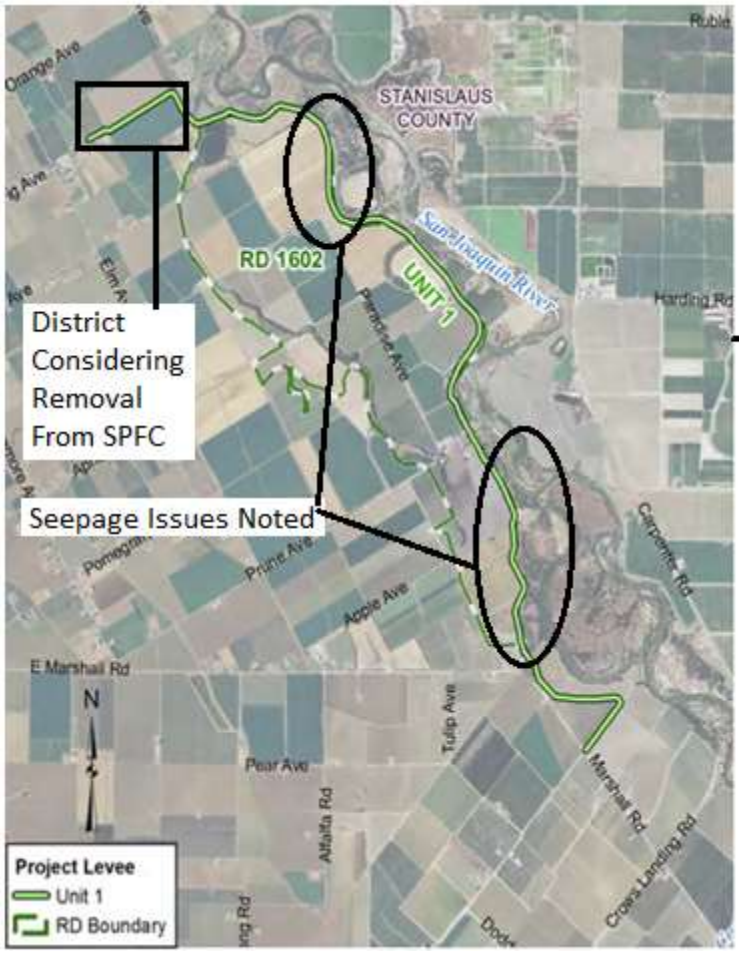
5. Individual District O&M Information

5.1 RD 1602 – Del Puerto

Maintaining Agency Information:

Reclamation District No. 1602

<u>Contact:</u>
Dan Roberts
Manager
District Office
2012 Apple Avenue
Patterson CA 95363
Phone: (209) 605-7117



Area Characteristics:

RD 1602 has 6.29 miles of levees along the left bank of the San Joaquin River that protect 3,500 acres of land. The protected land is mainly agricultural, used for growing alfalfa, wheat, tomatoes, and similar crops.

The district does have an annual landowner meeting, but there is no official board of trustees, and therefore there are no assessments. Thus, the O&M responsibilities fall to the property holders, who share any costs and maintenance duties on an informal basis under the initiative of Patterson Westside Farms, the district's primary land owner.

Typical Maintenance Activities:

Rodent Control, Slope Dragging, Vegetation Spraying

Estimated O&M Expenditures:

In the 2011-2012 and 2012-2013 RD 1602 estimated their O&M cost to be $10,000 and $12,000 respectively.

Budget Information:

There is not a formal O&M budget for RD 1602. Routine O&M is funded as required by the individual property owners.

Summary of O&M Deficiencies:

The table below was developed by DWR as part of the 2012 Inspection and Local Maintaining Agency Report and indicates specific problems on each levee and assigns a rating based on that information. Explanation of ratings criteria can be found under Abbreviations, Acronyms, and Definitions in the front of the manual.

The table shows inspection data from Fall 2011 and Fall 2012 as well as the change in that time, with an improvement being in green and a decline in red.

DWR Levee Inspection Summary

RD1602	Total LMA Miles	6.29										
	Fall 2011				Fall 2012				Change			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	4.54		4.54	**72.18**	2.10		2.10	**33.39**	-2.44		-2.44	**-38.79**
Trim / Thin Trees	0.03		0.03	**0.48**					-0.03		-0.03	**-0.48**
Encroachments	0.05		0.05	**0.80**	0.04		0.04	**0.64**	-0.01		-0.01	**-0.16**
Animal Control	0.29		0.29	**4.61**	0.55		0.55	**8.74**	0.26		0.26	**4.13**
Slope Stability	0.04		0.04	**0.64**	0.04		0.04	**0.64**				**0.00**
Interior Drainage & Piping Systems												
Encroachments	0.01		0.01	**0.16**	0.01		0.01	**0.16**				**0.00**
Flap Gates	0.01		0.01	**0.16**	0.01		0.01	**0.16**				**0.00**
Concrete Tilting / Settlement	0.01		0.01	**0.16**	0.01		0.01	**0.16**				**0.00**
LMA Totals:	4.98	0.00	4.98	**79.17**	2.76	0.00	2.76	**43.88**	-2.22	0.00	-2.22	**-35.29**

***Maximum Allowable Threshold: 10%** **A: Acceptable** **M: Minimally Acceptable** **U: Unacceptable**

The levee inspection summary table shows that there is a positive trend from Fall 2011 to Fall 2012 in all areas except animal control. Although there is positive trend, the levee is still rated as unacceptable because of vegetation issues (M+4U>10%).

The 2012 LMA report found that there was significant rodent activity in the area, unauthorized encroachment at the levee, and unauthorized vehicle traffic between LM 0.0 and 0.5 as well as other locations.

The NULE project was conducted by DWR in recent years. The geotechnical information gathered as part of this effort and corresponding hazard ratings is shown below.

NULE RESULTS - RD 1602								
RD #	RD Name	Unit #	Segment #	Under-seepage	Slope Stability	Through Seepage	Erosion	Overall
1602	Del Puerto	1	190	C	A	C	A	C

The District staff cited funding for large scale projects/improvements, permitting, and rodent control as their primary O&M challenges. A 1,700 foot section of levee with seepage issues was also discussed. The district has been instructed to repair the section but they do not have the funding to complete the project, or the staffing or expertise to complete any application for grant money that might help pay for the project. The project was estimated to cost $2.9 million by DWR.

A possible desire to remove a portion of levee on the northwest side of the district from the SPFC was also mentioned. The levee is apparently on high ground and not very useful.

Needs and Suggestions Identified by the District:

- Assistance from DWR to prepare grant applications for large-scale repairs
- Establish consistent levee vegetation standards between DWR and USACE
- Remove a portion of the levee from the SPFC

5.2 RD 2031 – Elliot

Maintaining Agency Information:

Reclamation District No. 2031

Contact:
William Lyons, Jr
Landowner
Mapes Ranch
10555 Maze Boulevard
Modesto CA 95358
Phone: (209) 522-1762



Area Characteristics:

RD 2031 has 13.19 miles of levees with two separate units. Unit 01 is 7.15 miles long and lies on the left bank of the Stanislaus River while Unit 02 is 6.04 miles long and lies on the right bank of the San Joaquin River. These levees protect approximately 5,000 acres of land that is used primarily as range land for cattle. There are a limited number of structures within the district boundaries, and the structures that do exist are located high ground.

The Reclamation District has been inactive, but has recently requested re-activation from Stanislaus County and appointment of three Trustees. In the district's inactivity, the responsibility for levee maintenance has fallen to the property owners. Participation in maintenance in adjacent levees varies from landowner to landowner, with some owners being very active, and others being completely inactive.

The two primary landowners in the area, Faith Ranch and Mapes Ranch, noted that government agencies own land within the district, but are unwilling or unable to join a board of directors.

Typical Maintenance Activities:

Re-gravel and scrape roads, check valves, rodent control, and vegetation management

Estimated O&M Expenditures:

It was estimated that the two primary landowners spend around $30,000 per year between them.

Budget Information:

Since the district is inactive there are no assessments or formal budget for this district.

Summary of O&M Deficiencies:

The table on the following page was developed by DWR as part of the 2012 Inspection and Local Maintaining Agency Report and indicates specific problems on each levee and assigns a rating based on that information. Explanation of ratings criteria can be found under Abbreviations, Acronyms, and Definitions in the front of the manual.

The table shows inspection data from Fall 2011 and Fall 2012 as well as the change in that time, with an improvement being in green and a decline in red.

DWR Levee Inspection Summary

RD2031	Total LMA Miles	13.19										
	Fall 2011				Fall 2012				Change			
	Overall LMA Rating			M *	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.02		0.02	**0.15**	0.02		0.02	**0.15**				**0.00**
Trim / Thin Trees	0.62		0.62	**4.70**	0.61		0.61	**4.63**	-0.01		-0.01	**-0.08**
Encroachments	0.01		0.01	**0.08**	0.52		0.52	**3.94**	0.51		0.51	**3.87**
Animal Control	0.03	0.01	0.07	**0.53**	0.14	0.03	0.26	**1.97**	0.11	0.02	0.19	**1.44**
Erosion / Bank Caving	0.03	0.01	0.07	**0.53**	0.03	0.01	0.07	**0.53**				**0.00**
Crown Surface / Depressions / Rutting	0.02		0.02	**0.15**	0.07		0.07	**0.53**	0.05		0.05	**0.38**
Seepage / Sandboils		0.01	0.04	**0.30**						-0.01	-0.04	**-0.30**
Interior Drainage & Piping Systems												
Flap Gates						0.01	0.04	**0.30**		0.01	0.04	**0.30**
Supplemental												
DWR Erosion Survey	0.04		0.04	**0.30**	0.04		0.04	**0.30**				**0.00**
LMA Totals:	0.77	0.03	0.89	**6.75***	1.43	0.05	1.63	**12.36**	0.66	0.02	0.74	**5.61**

***Maximum Allowable Threshold: 10%** **A: Acceptable** **M: Minimally Acceptable** **U: Unacceptable**

The levee inspection summary table shows an overall negative trend from Fall 2011 to Fall 2012. Encroachment is the largest negative change with 0.51 miles changing from acceptable to minimally acceptable. Tree trimming and thinning remains one of the larger problems.

The 2012 LMA report found that there is one or more encroachments that may significantly impact the integrity of the area.

The NULE project was conducted by DWR in recent years. The geotechnical information gathered as part of this effort and corresponding hazard ratings is shown below.

NULE RESULTS - RD 2031								
RD #	RD Name	Unit #	Segment #	Under-seepage	Slope Stability	Through Seepage	Erosion	Overall
2031	Elliot	1	191	C	A	B	A	C
		2	341	C	A	C	C	C

The District landowners cited funding, endangered species issues, and seepage as their primary O&M challenges. Funding is a challenge because each landowner must pay for their own maintenance. The district also contains Riparian Brush Rabbit, Aleutian Cackling Goose, and Valley Elderberry Longhorn Beetle habitats that must be considered when doing levee maintenance. A 1.5 to 2 mile seepage site along Highway 132 (Unit 02) was mentioned as a major challenge. In any high water event this portion of levee is subject to major seepage. District landowners also mentioned that RD 2031 is not subject to flood surges as much as it is to prolonged high water on the levees. This causes a problem with seepage through the levees. Furthermore, there is concern that in the future, as a result of climate change, upstream reservoirs may release water over more extended periods, causing longer high water along RD 2031 levees and therefore more seepage issues.

Representatives from Mapes and Faith Ranches cited the lack of an organized district as a challenge. They would like to address this by setting up a board but have found that organization of this effort to be a challenge itself.

Needs and Suggestions Identified by the District:

- Reform permitting regulations to enable more effective O&M
- Assistance from DWR to prepare grant applications for large-scale repairs
- Establish consistent levee vegetation standards between DWR and USACE
- Increased funding from the State to implement O&M activities and capital improvements
- Need staff to focus on O&M
- Possible removal of a levee portion from the SPFC [TBD upon coordination with RD]
- State support to address and enforce encroachment violations within the District

5.3 RD 2063 – Crow's Landing

Maintaining Agency Information:

Reclamation District No. 2063

Contact:
Joe Sallaberry
President
5780 South Central
Turlock CA 95380
Phone: (209) 587-2305



Area Characteristics:

RD 2063 has 10.63 miles of levee along the right bank of the San Joaquin River that protects 10,000 acres of land. The protected area has numerous property owners, including several dairies and farm operations, as well as a tallow works.

The district has an active board of trustees that is responsible for the O&M of the levees.

Project Maintenance Activities:

Erosion repair, gate repair, minor structural repair including pipe removal, rodent baiting and trapping, slope dragging, tree removal, thinning and trimming, pump maintenance, and vegetation burning.

The District also reported corrected issues and ongoing corrective actions in response to DWR inspection comments. The corrective actions included encroachment control, erosion and levee slope repair, rodent control, tree thinning and trimming, and vegetation control.

Estimated O&M Expenditures:

The estimated 2011-2012 and 2012-2013 O&M costs were estimated to be $168,100 and $83,000 respectively.

Budget Information:

The District chose not to disclose specific numbers but was willing to say that funding is not an issue. It was reported that the district will use the entirety of its budget this year but may have a surplus next year.

Summary of O&M Deficiencies:

The table below was developed by DWR as part of the 2012 Inspection and Local Maintaining Agency Report and indicates specific problems on each levee and assigns a rating based on that information. Explanation of ratings criteria can be found under Abbreviations, Acronyms, and Definitions in the front of the manual.

The table shows inspection data from Fall 2011 and Fall 2012 as well as the change in that time, with an improvement being in green and a decline in red.

DWR Levee Inspection Summary

RD2063	Total LMA Miles	10.63										
	Fall 2011				Fall 2012				Change			
	Overall LMA Rating		U		Overall LMA Rating		U					
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	2.03		2.03	**19.10**	1.10		1.10	**10.35**	-0.93		-0.93	**-8.75**
Trim / Thin Trees	0.03		0.03	**0.28**					-0.03		-0.03	**-0.28**
Encroachments	0.12	0.01	0.16	**1.51**					-0.12	-0.01	-0.16	**-1.51**
Animal Control	0.11		0.11	**1.04**	0.11		0.11	**1.04**	0.00			**0.00**
Slope Stability	0.01		0.01	**0.09**					-0.01		-0.01	**-0.09**
Erosion / Bank Caving		0.16	0.64	**6.02**	0.02	0.01	0.06	**0.56**	0.02	-0.15	-0.58	**-5.46**
Crown Surface / Depressions / Rutting	10.58		10.58	**99.53**	10.58		10.58	**99.53**				**0.00**
LMA Totals:	12.88	0.17	13.56	**127.56**	11.81	0.01	11.85	**111.48**	-1.07	-0.16	-1.71	**-16.09**

***Maximum Allowable Threshold: 10%** **A: Acceptable** **M: Minimally Acceptable** **U: Unacceptable**

The levee inspection summary table shows an overall positive trend from 2011 to 2012. Crown surface/depressions/rutting are a major issue, present in almost the whole length of the levee. Vegetation is also noted as an issue that needs to be addressed.

The 2011 LMA report found that there was erosion on the levee between levee mile 3 and 4. It was also found that there was unauthorized cattle grazing and vehicular traffic on the entire length of the levee access.

The 2012 LMA report found a number of issues:

- The crown of the roadway may be unusable in poor weather conditions.
- RD 2063 Pumping Plant (Nelson Drain) is rated as unacceptable. The current

condition may significantly impact its performance.

- Turlock Irrigation District (TID) has cut a ramp for access. RD 2063 has asked for it to be repaired, but does not believe it will affect the integrity of the levee.
- The Reclamation District reported an agricultural ditch that has encroached into the berm and the toe of the project levee.

It is noted that the District does not agree with the deficiencies cited in the 2012 LMA Report. The District believes the levees are acceptable.

The NULE project was conducted by DWR in recent years. The geotechnical information gathered as part of this effort and corresponding hazard ratings is shown below.

NULE RESULTS - RD 2063								
RD #	RD Name	Unit #	Segment #	Under-seepage	Slope Stability	Through Seepage	Erosion	Overall
2063	Crow's Landing	1	194	C	A	C	A	C

Needs and Suggestions Identified by the District:

- Establish consistent levee vegetation standards between DWR and USACE

5.4 RD 2091 – Chase

Maintaining Agency Information:

Reclamation District No. 2091

Contact:
Wendel Trinkler, Jr
President
District Office
7007 Jennings Road
Modesto CA 95358
Phone: (209) 537-9883



Area Characteristics:

RD 2091 has 7.89 miles of levee within its boundary, which is broken into two units. RD 2091 is only responsible for Unit 01 which is 7.59 miles long and lies along the right bank of the San Joaquin River. Unit 02 is considered part of the Gomes Lake Facility and will be discussed in a separate section. RD 2091 levees protect approximately 7,000 acres of land and the Waste Water Treatment Plant which serves the City of Modesto.

RD 2091is an active district, with a three-person board of trustees that is composed of two private property owners and a representative of the City of Modesto. The district has a contract with the City of Modesto to provide levee maintenance.

Typical Maintenance Activities:

Erosion control, flood preparedness, inspections, minor structure repair, roadway maintenance, rodent control, slope dragging, tree trimming, and vegetation burning and spraying.

Estimated O&M Expenditures:

In 2011-2012 and 2012-2013 RD 2091 estimated their O&M cost to be $40,535 and $45,877 respectively.

Budget Information:

Because of a recent successful 218 election the district now has an approximate budget of $100,000 per year.

Summary of O&M Deficiencies:

The table below was developed by DWR as part of the 2012 Inspection and Local Maintaining Agency Report and indicates specific problems on each levee and assigns a rating based on that information. Explanation of ratings criteria can be found under Abbreviations, Acronyms, and Definitions in the front of the manual.

The table shows inspection data from Fall 2011 and Fall 2012 as well as the change in that time, with an improvement being in green and a decline in red.

DWR Levee Inspection Summary

RD2091	Total LMA Miles	7.92											
	Fall 2011				Fall 2012				Change			
	Overall LMA Rating			M *	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation					0.04		0.04	0.51	0.04		0.04	0.51
Trim / Thin Trees	0.01		0.01	0.13	0.04		0.04	0.51	0.03		0.03	0.38
Animal Control	0.01		0.01	0.13	0.08		0.08	1.01	0.07		0.07	0.88
Slope Stability		0.01	0.04	0.51						-0.01	-0.04	-0.51
LMA Totals:	0.02	0.01	0.06	0.76*	0.16	0.00	0.16	2.02	0.14	-0.01	0.10	1.26

***Maximum Allowable Threshold: 10%** **A: Acceptable** **M: Minimally Acceptable** **U: Unacceptable**

The levee inspection summary table shows a negative trend in most areas from 2011 to 2012, but the unacceptable portions of the levee were fixed, allowing for an acceptable rating. Animal control, vegetation, and tree trimming/thinning all saw a decline while slope stability saw a very small improvement.

Both the 2011 and 2012 LMA reports state that there is a 100 foot long and 5 to 7 foot wide erosion site at levee Unit 01, LM 1.5.

The NULE project was conducted by DWR in recent years. The geotechnical information gathered as part of this effort and corresponding hazard ratings is shown

below.

NULE RESULTS - RD 2091								
RD #	RD Name	Unit #	Segment #	Under-seepage	Slope Stability	Through Seepage	Erosion	Overall
2091	Chase	1	199	C	A	C	A	C

In addition to the State-Identified deficiencies listed above, the district cited funding for larger projects, permits for encroachments and vegetation burning, and rodent issues as O&M challenges.

The district also cited the problem of being dependent on RD 2063 in the USACE PL84-99 program. The two districts are contained in the same "leveed area" so they share a rating. RD 2091's levees are well maintained and are kept up to standards, while RD 2063's are not, which causes both of the districts to be inactive within the PL84-99 program.

Needs and Suggestions Identified by the District:

- Reform permitting regulations to enable more effective O&M
- Assistance from DWR to prepare grant applications for large-scale repairs
- Establish consistent levee vegetation standards between DWR and USACE
- Coordinate with agencies that hold permitting authority for O&M activities, such as California Air Resource Board (CARB) and United States Fish & Wildlife Service (USFWS), to ensure their established standards are consistent
- Educate USACE and DWR levee inspection staff on the difference between gopher holes and squirrel holes
- Divorce this district from RD 2063 with regards to PL84-99 eligibility

5.5 RD 2092 – Dos Rios

Maintaining Agency Information:

Reclamation District No. 2092

Contact:
Stephen Sheppard
580 Vallombrosa Avenue
Chico CA 95926
Phone: (209) 639-2216

Area Characteristics:

RD 2092 has 3.76 miles of levee along the right bank of the San Joaquin River that protects approximately 2,000 acres of farmland and habitat, as well as a heifer barn (located on high ground).

RD 2092 is managed by a board of trustees, with maintenance and repairs being performed by the primary property owners.



Typical Maintenance Activities:

The district reported that O&M is minimal, with only a few days per year allocated to the task. However, they do plan to reduce vegetation through mowing and herbicide treatments as well as backfill animal burrows and remove animals such as skunks. The district also cites time spent with inspectors as a maintenance activity.

Estimated O&M Expenditures:

In the 2012-2013 fiscal year the estimated O&M cost for the landowner was reported to be $10,000 to $12,000.

Budget Information:

It was reported that there is no dedicated amount budgeted for O&M. The primary landowners spend the required amount to maintain the levees.

Summary of O&M Challenges and Deficiencies:

The table below was developed by DWR as part of the 2012 Inspection and Local Maintaining Agency Report and indicates specific problems on each levee and assigns a rating based on that information. Explanation of ratings criteria can be found under Abbreviations, Acronyms, and Definitions in the front of the manual.

The table shows inspection data from Fall 2011 and Fall 2012 as well as the change in that time, with an improvement being in green and a decline in red.

DWR Levee Inspection Summary

RD2092	Total LMA Miles	3.76										
	Fall 2011				Fall 2012				Change			
	Overall LMA Rating		M *		Overall LMA Rating		A					
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments					0.01		0.01	**0.27**	0.01		0.01	**0.27**
Animal Control	0.12		0.12	**3.19**	0.04		0.04	**1.06**	-0.08		-0.08	**-2.13**
Slope Stability	0.05		0.05	**1.33**	0.01		0.01	**0.27**	-0.04		-0.04	**-1.06**
Crown Surface / Depressions / Rutting	0.01		0.01	**0.27**					-0.01		-0.01	**-0.27**
Seepage / Sandboils		0.01	0.04	**1.06**						-0.01	-0.04	**-1.06**
Emergency Supplies & Equipment					0.04		0.04	**1.06**	0.04		0.04	**1.06**
Flood Preparedness & Training					0.04		0.04	**1.06**	0.04		0.04	**1.06**
LMA Totals:	0.18	0.01	0.22	**5.85***	0.14	0.00	0.14	**3.72**	-0.04	-0.01	-0.08	**-2.13**

***Maximum Allowable Threshold: 10%** **A: Acceptable** **M: Minimally Acceptable** **U: Unacceptable**

The levee inspection summary table shows a positive trend from 2011 to 2012, with the levee receiving an acceptable rating in 2012. Animal control is seen to be one of the biggest issues, along with emergency supplies and equipment and flood preparedness and training.

The 2011 LMA report found historical seepage areas because of high water levels at various locations of the levee, but does not report exactly where these issues occur.

The 2012 LMA report found the following issues:

- Significant rodent activity in area.
- Vegetation, levee crown shape, rodent burrows, and slope instability.
- Slope damage because of livestock.
- Encroachments by agricultural ditches and fences on levee Unit 1.

The NULE project was conducted by DWR in recent years. The geotechnical information gathered as part of this effort and corresponding hazard ratings is shown below.

NULE RESULTS – RD 2092								
RD #	RD Name	Unit #	Segment #	Under-seepage	Slope Stability	Through Seepage	Erosion	Overall
2092	Dos Rios	1	200	B	A	B	C	C

In addition to the State-identified deficiencies, the district cited that differing standards between DWR and USACE are the most difficult challenge that they face. These differing or conflicting standards make it difficult for the district to plan for future O&M. The district also noted that encroachments are a major challenge and that the cost to TV video inspect pipeline encroachments will be very large.

Needs and Suggestions Identified by the District:

- Establish consistent levee vegetation standards between DWR and USACE
- Assistance on backfilling rodent holes
- Assistance moving encroachments back to an acceptable distance or obtaining permits
- In the future, this district will be the site of a non-structural flood control project and modification of the O&M manual is desired to eliminate levee maintenance responsibilities and permit flowage on previously protected lands. The mechanism to gain such approval requires further guidance from DWR, CVPFB and USACE as well as funding for engineering analysis and permitting.

5.6 RD 2101 – Blewett

Maintaining Agency Information:

Reclamation District No. 2101

Contact:
James Coddington
President
6130 Huntingdale Circle
Stockton CA 95219
Phone: (209) 477-2156



Area Characteristics:

RD 2101 has 3.51 miles of levee, broken into two separate units. Unit 01 is 3.20 miles long and lies on the left bank of the San Joaquin River. Unit 02 is a spur levee, which is 0.31 miles long and is located on the left bank of the San Joaquin River. These levees protect approximately 2,000 acres of land. The land is predominantly farmland, with a portion leased to a dairy operation for cultivation of silage and feed products.

The district is active and takes responsibility for the O&M of the levee system within its area.

Typical Maintenance Activities:

Levee geometry shaping (once every two years), inspection, minor structure repair, roadway maintenance, grouting of rodent burrows (which landowner feels does not work), animal trapping, tree removal, vegetation mowing and spraying (4-6 times per year).

Estimated O&M Expenditures:

In the 2012-2013 fiscal year the district expects O&M costs to be $25,000.

Budget Information:

The district O&M is funded by the landowner and as such does not have a set budget. The landowner plans for around $5,000 per levee mile, but noted that that figure changes from year to year.

Summary of O&M Deficiencies:

The table below was developed by DWR as part of the 2012 Inspection and Local Maintaining Agency Report and indicates specific problems on each levee and assigns a rating based on that information. Explanation of ratings criteria can be found under Abbreviations, Acronyms, and Definitions in the front of the manual.

The table shows inspection data from Fall 2011 and Fall 2012 as well as the change in that time, with an improvement being in green and a decline in red.

DWR Levee Inspection Summary

RD2101	Total LMA Miles	3.51										
	Fall 2011				Fall 2012				Change			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	2.98		2.98	**84.90**	0.08		0.08	**2.28**	-2.90		-2.90	**-82.62**
Trim / Thin Trees	0.24		0.24	**6.84**	0.02		0.02	**0.57**	-0.22		-0.22	**-6.27**
Encroachments					0.01		0.01	**0.29**	0.01		0.01	**0.29**
Animal Control	0.03	0.21	0.87	**24.79**	0.24	0.02	0.32	**9.12**	0.21	-0.19	-0.55	**-15.67**
Erosion / Bank Caving	0.02		0.02	**0.57**	0.02		0.02	**0.57**				**0.00**
Supplemental												
DWR Erosion Survey		0.10	0.40	**11.40**		0.10	0.40	**11.40**				**0.00**
LMA Totals:	3.27	0.31	4.51	**128.49**	0.37	0.12	0.85	**24.22**	-2.90	-0.19	-3.66	**-104.27**

***Maximum Allowable Threshold: 10%** **A: Acceptable** **M: Minimally Acceptable** **U: Unacceptable**

The levee inspection summary table shows an unacceptable rating for these levees, though there is a positive trend from 2011-2012. Animal control and vegetation are the two largest areas of concern.

The 2012 LMA report found the following issues:

- Significant rodent activity in area.
- Historical breach location at levee Unit 01, LM 1.8 to 1.95.
- Erosions sites at levee Unit 01, LM 1.9, 2.0, and 2.9, levee Unit 02, LM 3.

The NULE project was conducted by DWR in recent years. The geotechnical information gathered as part of this effort and corresponding hazard ratings is shown below.

NULE RESULTS - RD 2101								
RD #	RD Name	Unit #	Segment #	Under-seepage	Slope Stability	Through Seepage	Erosion	Overall
2101	Blewett	1	206	C	A	C	C	C
		2	340	NA	NA	NA	NA	NA

The District representative cited funding, vegetation control, erosion, seepage, and rodent control as their primary O&M challenges. It was also noted that the book keeping effort to keep the O&M funded and staffed is complex. Rodent control efforts using bait traps were also abandoned because of threat of legal action from an advocacy group. A large erosion site was noted as a major challenge the district is facing, because of the cost of repair. Seepage is an issue for RD 2101.

Needs and Suggestions Identified by the District:

- Reform permitting regulations to enable more effective O&M
- Establish consistent levee vegetation standards between DWR and USACE
- Develop a more effective rodent and vegetation control program
- Assistance from DWR to prepare grant applications for major repairs.

Other Notes:

The District representative is frustrated with the fact that the State/Federal government built levees out of sand, then made the Districts responsible for the levees, and is now penalizing them for seepage issues. The District feels that they should not be penalized for an issue they did not create.

5.7 Turlock Irrigation District – Gomes Lake Named Area 65

Maintaining Agency Information:

Gomes Lake JPA

Contact:
Brad Koehn
(209) 883-8203

Area Characteristics:

The Gomes Lake Pumping Facility and its associated infrastructure protect more than 10,000 acres of land within local RD's. The facility works to prevent flooding by pumping backed up water through the levees into the San Joaquin River.

The Gomes Lake facility is operated by joint powers agreement (JPA) between Turlock Irrigation District (TID), Stanislaus County, City of Turlock, and RD's 2091 and 2063.



Note: Unit 01 of Gomes Lake is actually Unit 02 of RD 2091.

The JPA is active and has a contract with TID to perform the maintenance on Gomes Lake Dike.

Typical Maintenance Activities:

Rodent control and vegetation management.

Estimated O&M Expenditures:

The JPA spent $404,000 between 2005 and 2007 for once per decade pump maintenance. Annual operation costs range from $14,000 to $35,000.

Budget Information:

The facility is funded through the JPA, with each partner being assessed a percentage. TID representatives reported an annual O&M budget cap of $63,000.

Summary of O&M Deficiencies:

None.

Needs and Suggestions Identified by the District:

- Assistance from DWR to prepare grant applications for major repairs

5.8 RD 2099/ RD2100/ RD2102

Maintaining District Information:

US Fish and Wildlife Service

Contact:
Kim Forrest
Refuge Manager
San Luis National Wildlife Refuge Complex
PO Box 2176
Los Banos, CA 93635
Phone: (209) 826-3508

Area Characteristics:

These districts are discussed together because of the fact that the lands they encompass have been purchased by the US Fish and Wildlife Service and are now part of the San Joaquin River National Wildlife Refuge.

The project levees are breached at the West Stanislaus Irrigation District Canal entrance and no longer provide flood protection to these districts. Further, there is no intention by the current property owner, the USFWS, to provide future maintenance of the levees and the RDs have been effectively dissolved. Therefore, it is our understanding that future O&M is not required.

6. Sources

The following documents were used as part of the research for this report.

Peterson-Brustad Engineers (PBI), 2013.Flood Emergency Response Assessment Technical Memorandum.

DWR, 2011. 2011 Local Maintaining Agency Annual Report for Levees of the State Plan of Flood Control, Appendix B.

DWR, 2012. 2012 Inspection and Local Maintaining Agency Report of the Central Valley State-Federal Flood Protection System, Appendix B.



APPENDIX F
Project Descriptions and Evaluations

Contents

Project Name: Black Gulch Storm Drainage Study
Project Name: City of Newman/Bureau of Reclamation Flood Levee Rehabilitation
Project Name: Consolidation of O&M
Project Name: Dennett Dam Removal
Project Name: Dos Rios Ranch Floodplain Expansion and Ecosystem Restoration Project and Hidden Valley Ranch Mitigation Project
Project Name: Dry Creek Watershed Detention Reconnaissance Study
Project Name: Emergency Response Plan – Debris Management
Project Name: Emergency Response Plan – Local Planning and Training
Project Name: Flood Risk Education
Project Name: Gomes Lake / Harding Drain Improvements
Project Name: Hydraulic and Channel Migration Studies
Project Name: Integrated Levee Vegetation Management – Flood Maintenance and Habitat
Project Name: La Grange Floodplain Restoration and Spawning Gravel Augmentation
Project Name: Little Salado Creek
Project Name: Modesto WWTP - Reduce Flood Risk
Project Name: Orestimba Creek Flood Risk Management Project
Project Name: Patterson WWTP – Reduce Flood Risks
Project Name: RD 1602 Resilience
Project Name: RD 2031 Resilience
Project Name: RD 2063 Resilience
Project Name: RD 2091 Resilience
Project Name: RD 2101 Resilience
Project Name: Reducing Sediment Loading into the San Joaquin River from Westside Agricultural Lands
Project Name: Regional Maintenance Technical Support
Project Name: Riverfront Park Project
Project Name: Salado Creek Flood Management Project
Project Name: SB5 Compliance – City of Modesto
Project Name: SB5 Compliance – City of Newman
Project Name: SB5 Compliance – City of Patterson
Project Name: Sediment Management Investigation
Project Name: Storm Drainage Enhancements along Salado Creek
Project Name: Three Amigos (also known as the Non-structural Alternative at the San Joaquin River National Wildlife Refuge)
Project Name: Tuolumne River Flood Management Feasibility Study
Project Name: Tuolumne River Regional Park – Carpenter Road/West Modesto Flood Management and Park Development
Project Name: Tuolumne River Regional Parkway
Project Name: Westside Creeks On-Farm Multi-Benefit Program

Project Name: WSID Fish Screen and Change in Point of Diversion Project

Project Name: Black Gulch Storm Drainage Study

Project Lead: City of Patterson

Potential Project Partners:

Stanislaus County

Short Project Description:

There is a permitted spillway into the Delta Mendota Canal (DMC) from Black Gulch, a drainage situated between Salado and Del Puerto creeks, which keeps a local commercial area in Patterson from flooding. A study needs to be performed to determine what alternative solutions might be appropriate if/when the DMC Authority decides to not renew the permit.

Long Project Description:

Black Gulch resides between Salado Creek and Del Puerto Creek and storm drain flows enter the existing Villa Del Lago development in the City via culvert crossings underneath Interstate 5 and the California Aqueduct. There is a permitted spillway into the DMC that keeps the Del Lago Commercial area from flooding. A study needs to be performed to evaluate options to contain flood control water if the DMC Authority elects to not renew an agreement, which allows for the overflow of storm drainage into the DMC during heavy rain events. A drainage study is needed to evaluate options to address storm water flow at this location and to try to renew the permit. The Black Gulch runoff typically works its way through varying sized culverts until it reaches the San Joaquin River.

In the screening- and ranking-level assessments, it is assumed that the items identified in the proposed study would be implemented and, therefore, the anticipated benefits would be realized. The only exception is the cost-effectiveness criterion, RC-9, where only the cost and benefit of the study can be compared because the costs for the action items that would come out of the study can't be estimated until the study is complete.

Unique Project Characteristics:

None specified

Project Status:	Pre-planning
Project Cost:	$28,000
Project Timeframe:	Undetermined
Cost-sharing:	Stanislaus County
Multi-benefit Project:	Potentially
Types of benefits:	The project would improve flood risk management and could potentially improve operations and maintenance, promote ecosystem functions, and/or promote multi-benefit projects.
Source of Project:	City of Patterson, SDMP

Background Information:

None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

The project would improve flood risk management and could potentially improve operations and maintenance, promote ecosystem functions, and/or promote multi-benefit projects. Due to the uncertainty as to whether or not action items would be identified or implemented out of the study, the score is "Medium" instead of "High."

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, the City of Patterson.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).

Note: project costs should be considered to include both the initial costs and the ongoing operations,

maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

Given the relatively low estimated cost of $28,000 and the magnitude of the tax base, it is anticipated that local funding for the project or a local cost share requirement can be met. The financial feasibility of the actions that would be identified in the study cannot be evaluated until the study is complete.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

As the De Lago Commercial Area personnel are expected to be present at the site during floods, reduction of flood risk there is anticipated to potentially reduce the risk of loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

This project may provide at least locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

Not possible to assess at this time.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

Not possible to assess at this time.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

Not possible to assess at this time.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.

- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

Project Name: City of Newman/Bureau of Reclamation Flood Levee Rehabilitation

Project Lead: City of Newman

Potential Project Partners:

Bureau of Reclamation

Short Project Description:

Rehabilitate a flood protection levee on Bureau of Reclamation property between the Newman Wasteway and the City of Newman Wastewater Treatment Plant (WWTP).

Long Project Description:

Option 1: Repair erosion and rodent damage by excavating, replacing and compacting levee. Construct uniform 2.5:1 slope and construct 12' access road atop flood levee for maintenance. Place slope protection, rip-rap or cobble, on flood prone side. Provide agreements for continual maintenance, patrolling during flooding and control of weeds and rodents. Option 2: Bureau of Reclamation deed over said flood levee to City of Newman for full repair and maintenance by City of Newman. Option 3: Bureau of Reclamation provide long term lease of said levee property to City of Newman for full repair and maintenance.

Unique Project Characteristics:

The subject flood protection levee is on the Bureau of Reclamation property; however, the levee protects the City of Newman's wastewater treatment plant. This has created the situation that the City of Newman is unable to provide ongoing maintenance to said levee, therefore the levee has not been maintained since 1979 and is now subject to failure.

Project Status:	Pre-planning
Project Cost:	**$**225,000
Project Timeframe:	45-day construction time
Cost-sharing:	Bureau of Reclamation/City of Newman
Multi-benefit Project:	Yes
Types of benefits:	The project would improve flood risk management. As the project would protect water quality in the event of a flood event, it is also considered consistent with the supporting objective of promoting multi-benefit projects.
Source of Project:	City of Newman

Background Information:

In 1979, the City of Newman upgraded its wastewater treatment plant which included the construction of a flood protection levee to protect the WWTP from periodic flooding from the San Joaquin River. At that time, for reasons unknown, approximately 2150 feet of flood protection levee at the south east section of the WWTP sits on Bureau of Reclamation property along the Newman Wasteway. The City of Newman WWTP continually maintains, improves and patrols during flooding, the section(s) of flood protection levees that sit within the City of Newman-WWTP property. However, the City of Newman hasn't the authority to maintain that section of flood protection levee that is on the Bureau of Reclamation property. Over the year's rodents, erosion and neglect has compromised the integrity of the Bureau of Reclamation flood protection levee. During flood years seepage has been observed by City personnel on the Reclamation section of levee.

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

The project would improve flood risk management. As the project would protect water quality in the event of a flood event, it is also considered consistent with the supporting objective of promoting multi-benefit projects.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, the City of Newman.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).

Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

Given the importance of the WWTP facilities to the urban area of Newman and the magnitude of the tax base combined with the modest project cost, it is anticipated that local funding for the project or a local cost share requirement can be met.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Medium

As personnel are expected to be present at the site during floods, reduction of flood risk at the WWTP is anticipated to reduce the risk of loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

This project is expected to provide at least a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

Not possible to assess at this time.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

Material and at least locally-significant water quality and economic stability benefits would accrue as a result of repairing the levee.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.

- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

Project Name: Consolidation of O&M

Project Lead: Reclamation District 2092

Potential Project Partners:

One or more Reclamation Districts (RDs), so far interested parties include: RD 2031, 2101, 2092, 2091, 1602; City of Modesto - however, the details of consolidation needs further development; DWR (funding, technical assistance); RCDs, Stanislaus County (potential governance and management partners)

Short Project Description:

Two or more Reclamation Districts form a formal partnership to share technical, financial, and/or operational capacity to perform necessary operations and maintenance (O&M). As an initial step, invest 2 person-years to investigate potential governance options and design and implement a pilot maintenance agreement project.

Long Project Description:

The Mid San Joaquin Region's RDs have ongoing Operations & Maintenance responsibilities as described in O&M Manuals developed for each RD as part of the San Joaquin River & Tributaries Project. Each RD has responsibilities for project facilities, including emergency response, routine monitoring, maintenance, and repair. To the extent that these responsibilities require specialized knowledge, equipment, supplies, and staff, savings may be realized by consolidating some or all of the fulfillment of responsibilities under a single entity. This entity might be a separate joint powers authority, or the consolidation might simply take the form of an RD entering into an agreement to perform selected responsibilities for one or more other RDs. For example, RD 2091, which has a vested interest in the performance of the levees within RD 2063, immediately upstream, might enter into an agreement with RD 2063 to perform maintenance on the levees and other facilities within RD 2063 in exchange for payment.

This project will explore the potential for consolidation of O&M responsibilities, draft a pilot maintenance agreement, and implement such an agreement if two or more RDs choose to participate. Once the maintenance agreement has been entered into, project staff will monitor the implementation effort, advise the participating RDs on implementation options and strategies, and develop a report assessing the effectiveness of the first two years of the pilot project, lessons learned, and recommendations for the future.

Unique Project Characteristics:

Potential to increase the sustainability and effectiveness of flood system O&M activities for participating RDs, as well as providing initial groundwork in the form of a pilot project that may lead to additional similar efforts elsewhere.

Project Status:	Planning
Project Cost:	$200,000
Project Timeframe:	1-5 years
Cost-sharing:	Any participating RDs; possibly DWR
Multi-benefit Project:	Yes
Types of benefits:	The project would improve flood risk management; operations and maintenance; and institutional support.
Source of Project:	RD 2092

Background Information:

USACE O&M Manuals, Maintenance Agreement with Central Valley Flood Protection Board

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management; operations and maintenance; and institutional support.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, Reclamation District 2092.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

While a plausible funding source has not been identified, it is anticipated that local funding for the project or a local cost share requirement can be met, particularly given the number of parties that are interested in pursuing the project. Still, the project was evaluated as "Medium," given that the funders will be private landowners and the local cost share is $20,000 or more.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

If operations and maintenance are materially improved in the relevant portion of the planning area, the project may reduce loss of life in the event of a flood. As sufficient detail regarding the potential consolidation of responsibilities has not been developed at this time, a score of "Low" is assigned.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Medium

This project would provide a regionally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

High

The project is expected and intended to materially improve operations, maintenance, and repair at least on a local scale, and potentially on a regional scale.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

Not possible to assess at this time.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

High

The project has the potential to improve institutional support on at least a local scale and possibly on a regional scale.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

Material and at least locally-significant economic stability benefits would accrue as a result of consolidation of O&M responsibilities.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.

- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

Given the nature of the project, there is a low potential for dis-benefits.

Project Name: Dennett Dam Removal

Project Lead: Tuolumne River Trust

Potential Project Partners:

No partners identified at this time

Short Project Description:

Removal of Dennett Dam, an abandoned low-head dam located on the lower Tuolumne River in Modesto, California. The dam has been an instream barrier to anadromous fish passage, controlling local hydraulic and sediment transport conditions, for over 60 years, while also impeding water flow in the river. It is also a significant safety hazard adjacent to a major park, and has been the location of three drowning deaths in the last five years, including two children.

Long Project Description:

The specific short-term goal of the project is to remove Dennett Dam and restore the channel and adjacent riparian vegetation. By removing the dam, we expect to achieve the following specific long-term objectives:

- Improve upstream passage for anadromous fish
- Improve downstream rearing habitat and passage for juvenile anadromous fish
- Reduce non-native predatory fish habitat
- Improve riparian and shaded riverine aquatic habitat at the project site
- Remove an impediment to water flow within the river channel

The project also will achieve two key community objectives:

- Remove a hazardous in-stream structure to reduce the risk of drowning in the river
- Improve recreational boating opportunities through the project reach

With the removal of Dennett Dam and associated channel and riparian restoration, we expect several important ecological features and functions to be rehabilitated at the project site. Most notably, we expect fish passage to improve noticeably providing unimpeded access for anadromous fish to 37 miles of the lower Tuolumne River, including access to the prime spawning grounds for steelhead trout and fall run Chinook salmon. An assessment of fish passage at the dam completed for the Tuolumne River Trust by HDR Engineering, Inc. based on NMFS and CDFW protocols of fish passage, and using hydraulic and survey data analyzed with HEC-RAS v.4.1, determined that Dennett Dam is a partial barrier that does not meet the selected fish passage criteria for a 1-foot hydraulic differential across the dam crest for flows less than 1,800 cfs. The analysis also developed a flow-frequency relationship, which estimates a 1,640 cfs flow has an exceedance probability, during adult salmon migration, of 20%. To be more explicit, approximately 80% of the time, the dam creates a passage barrier to up migrating adult salmon. By removing Dennett Dam, we remove this passage barrier and improve passage in general.

We also anticipate that downstream passage and rearing habitat for juvenile salmon and steelhead will improve. As noted above, there are a number of exotic fishes that inhabit the Tuolumne River, including black bass and striped bass, which are known predators of juvenile salmon. According to a Sediment Management Proposal prepared for the Tuolumne River Trust by NewFields River Basins Services, LLC, Dennett Dam creates a backwater effect extending approximately 4.36 miles upstream. This slow moving water behind the dam creates excellent warm water habitat for these predatory fish. On the downstream

side of the dam, two large eddies on either side of the river also create very good habitat for predator species to lie in wait as juveniles flush over the middle section of the dam. Dam removal will restore sediment transport, create a more natural channel with a defined thalweg and associated pools, thus reducing predator habitat.

In addition, dam removal will reduce solar heating of the river water, thus reducing temperature stressors on the fish, particularly juveniles. By removing the slow, shallow pool in the river, water will have less of a chance to heat in the air. After removal of the dam is completed, we will undertake riparian restoration in the immediate project vicinity, which will in turn, provide more shaded riverine aquatic habitat providing more shading of the river water itself. Simultaneously reducing predator habitat and increasing shaded riverine aquatic habitat will reduce stressors on juvenile salmonids and have the combined effect of improving downstream migratory and rearing conditions for the fish.

Unique Project Characteristics:

This project can be completed in conjunction with other flood damage reduction, parks development, and habitat restoration projects, such as the development of the Tuolumne River Regional Park, the replacement of the 7th Street Bridge, or other projects in the vicinity.

Project Status: Planning. The Dam Removal Basis of Design Report is complete. Funding is required to complete a sediment toxicology test, plus NEPA/CEQA, and permitting.
Project Cost: $700,000
Project Timeframe: 2 years
Cost-sharing: US Fish and Wildlife Service contributed $105,000 and City of Modesto contributed $10,000 towards completing the Basis of Design Report
Multi-benefit Project: Yes
Types of benefits: The project would improve flood risk management (reduced loss of life), promote ecosystem functions, and improve recreation, making it a multi-benefit project.
Source of Project: Tuolumne River Trust

Background Information:

None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management (reduced loss of life), promote ecosystem functions, and improve recreation, making it a multi-benefit project.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

Preliminary designs have been developed and the project has support from the City of Modesto and the United States Fish and Wildlife Service.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

The Tuolumne River Trust does not have the resources to supply the local cost share. However, because the City of Modesto contributed to the cost of the Basis of Design Report and there is general local support for the project, it is reasonable to expect that the Tuolumne River Trust would be able to meet the local cost share for this project through partnerships and potentially through fundraising. It is noted that local financial limitations have contributed to this project not being implemented in the past despite local support and studies that were funded and completed. Thus, the project was assessed as "Medium" in terms of financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

High

From a purely flood risk perspective, it is expected that the project would reduce loss of life based on the local flooding issues that Dennett Dam causes and its proximity to developed areas in Modesto, and, therefore, an initial score of "Medium" is appropriate. However, as there have been three drowning deaths at Dennett Dam in the last five years, even though they were not related to flooding, the score is elevated to "High."

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

The project is expected to create a locally-significant reduction in flood risk in the vicinity of Dennett Dam.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

High

The project is consistent with draft BWFS/CS objectives metrics 6a, Shaded Riparian Aquatic, and 6b, Riparian, under metric 6, Habitats, as well as metric 8c, Fish Passage Barriers, under metric 8, Stressors. The project would support the implementation of the Central Valley Joint Venture Implementation Plan and the Riparian Conservation Plan. It is also included in the Tuolumne River Regional Park Master Plan.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project would materially increase recreation and public benefits access on the Tuolumne River at a locally-significant scale.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The score is "High" because removal of the dam would contribute substantially to the reduction of life risk at relatively modest costs, as well as providing other benefits.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.

- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits have been identified.

Project Name: Dos Rios Ranch Floodplain Expansion and Ecosystem Restoration Project and Hidden Valley Ranch Mitigation Project

Project Lead: River Partners

Potential Project Partners:

Wildlife Conservation Board (WCB); California Department of Water Resources (DWR); United States Bureau of Reclamation (USBR); United States Fish and Wildlife Service (USFWS); Natural Resources Conservation Service (NRCS); San Francisco Public Utilities Commission (SFPUC); California Department of Fish and Wildlife (CDFW) (funding partners, technical assistance); Central Valley Flood Protection Board (CVFPB); National Marine Fisheries Service (NMFS); United States Army Corps of Engineers (USACE); regulatory agencies; environmental non-governmental organizations (NGOs); local municipalities; Reclamation District 2092 (project support and approvals); regional flood management agencies with mitigation needs that may be filled on the property

Short Project Description:

Project to restore flooding and transient floodwater storage to approximately 1,000 acres of historic floodplain, restore riparian habitats, and promote river physical processes of scour and deposition along 6 river miles. Remove levee maintenance obligations from State Plan of Flood Control (SPFC) and modify USACE O&M manual to allow breaching and other modification to the existing levees. Provide 191 acres of habitat mitigation for future regional SPFC environmental impacts.

Long Project Description:

River Partners owns the fee title for 2,100 acres of flood-prone farmlands at the confluence of the San Joaquin and Tuolumne Rivers in Stanislaus County. The properties will be restored to multi-benefit wildlife habitat and transient floodwater storage areas through the re-establishment of native vegetation, grading, levee breaching, and other local improvements (such as fish screening surface diversions, permanently retiring riparian water rights, weed management, recreational development, and removing bank revetment). Currently, 600 acres are being restored, and planning is underway for the remaining acreage. All flood management activities require regulatory approval from local, state and federal agencies. While the property has been purchased, additional investment is needed to develop mitigation opportunities, address permitting needs, and remove levees from the federal project or otherwise modify the maintenance obligations.

Unique Project Characteristics:

This project is aligned with the goals and objectives of many overlapping conservation, recreation, local and regional planning efforts. The property is immediately adjacent to the San Joaquin River National Wildlife Refuge and sits within the proposed boundary expansion area. The mitigation component has the potential to provide future mitigation to SPFC activities for the entire San Joaquin River watershed. Advanced mitigation planning will require substantial involvement from the regulatory agencies.

Project Status:	Planning, Implementation
Project Cost:	**$**8,000,000
Project Timeframe:	1-5 years
Cost-sharing:	Varies: Costs for restoration may be eligible for funding from local, state or federal grant programs.

Multi-benefit Project: Yes
Types of benefits: The project would improve flood risk management, promote ecosystem functions, and promote multi-benefit projects.
Source of Project: River Partners

Background Information:
Various technical reports and memos – please request from River Partners

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management, promote ecosystem functions, and promote multi-benefit projects.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

The project has reasonable assurance of being implemented by the lead, River Partners, who is committed to seeing the project through and has cultivated broad agency support.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

The project cost is estimated at $8 million; $38 million have already been obligated or invested in the project. Because of the success of the project in attracting funds so far, it has been evaluated as having "High" financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

It is possible that the transitory storage provided by the project could result in the reduction of loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

The project is anticipated to provide a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

This project is expected to remove up to 3.76 miles of levees from the SPFC.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

High

The project is consistent with draft BWFS/CS objectives metrics 5a, Inundated Floodplain, and 5b, Riverine Geomorphic Processes, under metric 5, Ecosystem Processes - Improve and enhance natural dynamic hydrologic and geomorphic processes; metrics 6a, Shaded Riparian Cover, and 6b, Riparian, under metric 6, Habitats; as well as metric 8b, Levees, under metric 8, Stressors - Reduce stressors related to the

development and operation of the flood management system that negatively affect important species. (Are SRA, riparian, and floodplain ag a part of the project?)

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

High

The project is expected to materially increase water quality and groundwater recharge at a locally-significant scale over the long-term. The project would provide a regionally significant recreation improvement as described in the Central Valley Vision document prepared by California State Parks.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.

- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

While the cost for the completion of the project is high at $8 million, the benefits are expected to outweigh the cost, demonstrated both by the fact that project has successfully attracted most of the needed funding and the estimated per acre cost of restoration is below typical values.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc. Note: if the project is a study, score as "Medium."

To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No significant dis-benefits are anticipated. A short-term water quality dis-benefit is anticipated because water pollutants such as pesticides and nutrients that are present in site soils would be transported to the channel when flood waters recede. A minor reduction in the tax base is another anticipated dis-benefit. While the property is currently subject to a lower tax rate through a Williamson Act contract, the property value is expected to descrease after project implementation, which would reduce the property tax collected.

Project Name: Dry Creek Watershed Detention Reconnaissance Study

Project Lead: Stanislaus County and City of Modesto

Potential Project Partners:

USACE

Short Project Description:

Complete a reconnaissance study of potential options for reducing flood risks by detaining flood flows in the Dry Creek watershed, upstream of the City of Modesto.

Long Project Description:

In 2012, the 1600-acre Dos Rios Ranch was purchased by River Partners for management as flood-prone wildlife habitat and potentially as a transient floodwater storage basin. Funding for the acquisition was provided by the USDA NRCS, California Wildlife Conservation Board, DWR, the California River Parkways Program, the San Francisco Public Utilities Commission, the USFWS North American Wetland Conservation Act (NAWCA), the US Bureau of Reclamation and USFWS Central Valley Project Conservation Program, and River Partners. The USDA NRCS holds a Wetland Reserve Program easement, the Tuolumne River Trust holds a Conservation Easement, and River Partners holds the fee title for the property. In 2013, the remaining 497 acres of flood-prone land within Reclamation District 2092 (Dos Rios) were purchased by River Partners for similar purposes. The Tuolumne River Trust holds a Conservation Easement on the property which expressly provides for the future development of habitat mitigation opportunities for SPFC impacts on 191 acres of the property, and River Partners owns the fee title. River Partners hopes to use the NSA example from the Three Amigos project as a model for floodplain reconnection on the RD 2092 properties. Habitat restoration is currently underway and is expected to be completed in phases over the next 8 to 10 years. Restoration activities include screening river pumps to protect juvenile salmonids, earthwork to create floodplain swales and benches as well as high-elevation refugia for terrestrial species, planting, and ongoing vegetation maintenance, and eventual modification to the existing levee to provide for floodplain reconnection and transient floodwater storage. Additional funding and permitting is required to complete the full build-out of the Dos Rios Ranch Habitat Restoration Project.

Unique Project Characteristics:

Dry Creek in Stanislaus County has the largest uncontrolled flow in the San Joaquin River basin, which affects both downstream and upstream flood levels within the system.

Project Status:	Pending funding grants
Project Cost:	$250,000
Project Timeframe:	2015-2016 pending funding
Cost-sharing:	Up to 10% pending funding
Multi-benefit Project:	Yes
Types of benefits:	The project would improve flood risk management and could potentially improve operations and maintenance, promote ecosystem functions, and/or promote multi-benefit projects.

Source of Project:

Background Information:

None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

The project would improve flood risk management and could potentially improve operations and maintenance, promote ecosystem functions, and/or promote multi-benefit projects. Due to the uncertainty as to project benefits beyond flood risk reduction, the score is "Medium" instead of "High."

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified co-leads, Stanislaus County and the City of Modesto.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).

Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

As the cost is relatively modest and grant funds are pending, the assigned score is "High."

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Medium

The actions that would flow from this study could potentially reduce the risk of flooding in and near Modesto. Considering the potential lives lost in a flood event, the reduction in risk would be regionally significant.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Medium

The actions that would flow from this study could potentially reduce the risk of flooding in and near Modesto. Considering the assets at risk, the reduction in risk would be regionally significant.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.

- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

Project Name: Emergency Response Plan – Debris Management

Project Lead: Stanislaus County Office of Emergency Services

Potential Project Partners:

Stanislaus County Public Works, cities within Stanislaus County, city public works departments within Stanislaus County, Patterson Irrigation District, West Stanislaus Irrigation District

Short Project Description:

A debris management plan is needed to better prepare to restore public services and ensure public health and safety in the aftermath of a flood or earthquake and to better position the Mid SJR Region for emergency response funding from the State of California, Federal Emergency Management Agency (FEMA), and other participating entities. Stanislaus County Office of Emergency Services proposes the development of a comprehensive, countywide debris management plan.

Long Project Description:

As described by FEMA, "debris removal operations can be time-consuming and costly. Over the last five years, debris removal operations accounted for approximately 27 percent of the disaster recovery costs." For Stanislaus County and its communities to recover from a disaster in a timely manner, a debris management plan is key. The debris management plan developed would consider large-scale debris removal and disposal operations after a flood or earthquake. By developing a debris management plan, Stanislaus County will be better prepared to address disaster-related debris in a time-efficient manner, expediting the recovery process. Components of the plan may include:

- Staff Roles and Responsibilities
- Situation and Assumptions
- Debris Collection Plan
- Debris Management Sites
- Contracted Services
- Private Property Demolition and Debris Removal
- Public Information Plan

Unique Project Characteristics:

Both the Patterson Irrigation District and West Stanislaus Irrigation District divert water from the San Joaquin River for delivery to farms within their districts, resulting in significant contributions to the local and state economies annually. River debris and sediment deposition at their intakes and elsewhere within their infrastructure diminish their ability to provide reliable and safe water supplies, and public safety, during and following flood events. Intense rain-flood events within their watersheds can cause similar challenges within and adjacent to their canal systems.

Project Status:	Pre-planning
Project Cost:	**$**110,000
Project Timeframe:	1-5 years
Cost-sharing:	In anticipation of future contributions toward operations and maintenance benefits following plan development, the Patterson Irrigation District and West Stanislaus Irrigation District will consider a reasonable cost share for plan development. In-lieu

contribution of their representatives time and expense to participate in district components of plan development is their preferred cost-share approach.

Multi-benefit Project: Yes

Types of benefits: The project would improve flood risk management and institutional support.

Source of Project: The project was an outcome of the emergency response technical memorandum prepared by the Mid SJR RFMP project team. Stakeholders participating in workshops during the fall of 2013 also suggested that this project be considered.

Background Information:

None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

The project would improve flood risk management and institutional support.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, the Stanislaus County Office of Emergency Services.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

The Stanislaus County Office of Emergency Services has the resources to supply the majority of the local cost share, and the Patterson Irrigation District and West Stanislaus Irrigation District will consider a reasonable cost share for plan development.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

The focus of the project is to manage debris in the aftermath of a flood. While the focus is not to reduce loss of life, it is possible that implementation of the Debris Management Plan would do so.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

Flood damage could be reduced by improving post-flood recovery and debris clearing.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

O&M could be easier to perform with improved post-flood debris management.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

An effective debris management strategy is anticipated to allow businesses to reopen more quickly and reduce the cost of emergency responsse. The project is expected to provide economic benefits at least at a locally-significant level.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

High

Given the high cost of debris management, the project is anticipated to have material economic benefits on a regionally-significant level.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The cost of the project is very low when compared to the benefits. The project would fall in the upper third of projects considered in terms of the mix of benefits provided for the given project cost, and is considered high among the upper third.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: Emergency Response Plan – Local Planning and Training

Project Lead: Stanislaus County Office of Emergency Services

Potential Project Partners:

Stanislaus County; City of Modesto; City of Patterson; City of Newman; Reclamation Districts 1602, 2063, and 2091; Patterson Irrigation District; West Stanislaus Irrigation District

Short Project Description:

Planning and training are necessary to improve coordination between local agencies so that emergency response can be improved in the planning area. A program would be developed and implemented to address this need.

Long Project Description:

To affirm effective response coordination among agencies during a flood within the Mid San Joaquin River Region, it is important that local agencies plan, prepare, and train for such an incident. Actions that should be addressed include, but are not limited to:

- Response plans for public safety agency functions, including evacuation and debris management planning
- Development and training on the command and communication structure for areas threatened by flood waters. This would include an emphasis on the National Incident Management System (NIMS) and Standardized Emergency Management System (SEMS).
- Coordination of local response plans between county, impacted cities and reclamation districts.

Unique Project Characteristics:

The West Stanislaus Irrigation District and Patterson Irrigation District are non-State Plan of Flood Control entities, yet their Districts comprise significant portions of the west side of the watershed within the Mid-San Joaquin River Region. Their participation with SPFC entities in flood management and organized response activities can help strengthen flood
resilience, public safety, and protect important infrastructure in the Mid-SJR Region. They maintain communications with their farmers and their local communities, have infrastructure and property within the 100 year floodplain, storage facilities, access, equipment, and other assets of potential value before/during/after flood events.

Project Status:	Pre-planning
Project Cost:	**$**110,000
Project Timeframe:	1-5 years
Cost-sharing:	In anticipation of future benefits to the Patterson Irrigation District and West Stanislaus Irrigation District resulting from a good plan - better communication and training - the districts will consider a reasonable cost share. In-lieu contribution of their representatives' time and expense to participate in district components of the project is their preferred cost-share approach.
Multi-benefit Project:	Potentially
Types of benefits:	The project would improve flood risk management; operations and maintenance; and institutional support.
Source of Project:	The project was an outcome of the emergency response technical memorandum prepared by the Mid SJR RFMP project team. Stakeholders participating in workshops during the fall of 2013 also suggested that this project be considered.

Background Information:
None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management; operations and maintenance; and institutional support.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

The project has a capable project lead, support from expected participants and a reasonable assurance of being implemented given the commitment of the project lead.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations,

maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

The project lead has the ability to carry out the project or supply any needed local cost share; the cost is modest and grant funding is anticipated to be available.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Medium

Given that flood risk management would improve through better agency coordination and emergency response, the project is expected to reduce loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Medium

Given that flood risk management would improve through better agency coordination and emergency response, the project is expected to also reduce flood damage, and at a regionally-significant level.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

High

The project is expected to enhance operations at a regionally-significant level.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

High

The project is expected to improve institutional support at a regionally-significant level.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The cost of the project is very low when compared to the benefits. The project would fall in the upper third of projects considered in terms of the mix of benefits provided for the given project cost, and is considered high among the upper third.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.

- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

Given the nature of the project, there is a low potential for dis-benefits.

Project Name: Flood Risk Education

Project Lead: River Partners

Potential Project Partners:

DWR and USACE levee maintenance and inspection staff; CVFPB; regional flood management agencies, including San Joaquin River Flood Control Agency (SJRFCA); San Joaquin Area Flood Control Agency (SJAFCA); Lower San Joaquin Levee District (LSJLD); counties; cities; USFWS, CDFW, USACE, NGOs with an interest in river and flood management and education

Short Project Description:

Develop and implement a regional flood risk management educational program to raise awareness of flood risks and elevate the level of public understanding with respect to flood risk management needs and the value of investments to address them. For the local maintaining agencies (LMAs), include education on their role in flood risk management and provide technical guidance/assistance on levee maintenance activities and permitting requirements.

Long Project Description:

Flood management in the Central Valley has developed into a very complex regulatory endeavor – once simple maintenance activities now require review from multiple resource agencies and complex funding structures. Often the public, policy-makers, and stakeholders are not aware of the importance of flood risk management in land use planning, development, agricultural practices and soil quality management, transportation projects, and environmental and recreation improvement efforts. This lack of awareness leads to conflicts among user groups and flood management interests. This project would develop an education program to raise awareness of flood risks and elevate the level of public understanding of regional flood risk management needs and the value of investments to address them. Example educational products include brochures and brief handouts relevant to regional flood interests, presentations for community groups and LMAs, and possibly a website devoted to flood risk management education. A specific educational effort would be devoted to raising awareness of rural landowners with respect to levee maintenance obligations/opportunities, permitting assistance, and project implementation strategies.

Unique Project Characteristics:

This project would strengthen institutional structures in the area of interest, and may indirectly promote broader support for flood risk management investment at a local level, environmental stewardship, and improved public safety.

Project Status: Pre-planning
Project Cost: $30,000
Project Timeframe: Dependent upon funding – could start immediately and continue indefinitely contingent upon funding
Cost-sharing: Opportunities exist to cost-share with other educational outreach programs managed by local agencies and California's resource agencies
Multi-benefit Project: Yes
Types of benefits: The project would improve flood risk management and could improve operations and maintenance and institutional support indirectly.
Source of Project: River Partners

Background Information:

None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management and could improve operations and maintenance and institutional support indirectly.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, River Partners.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations,

maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

River Partners does not have the resources to supply the local cost share; however, opportunities exist for fundraising for the local cost-share, as well as the potential to have a local cost share provided by other educational outreach programs managed by local agencies and possibly California's resource agencies. Additionally, the cost is relatively modest. Thus, financial feasibility is scored as "high."

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

If the population in the planning area is more educated about flood risk, it could result in greater public support for projects that reduce loss of life, and the project could change the number of lives potentially at risk.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Medium

If the population in the planning area is more educated about flood risk, it could result in greater public support for projects that reduce flood damages and less public support for projects that would increase the assets exposed to flood risk. This pro

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

If the population in the planning area is more educated about flood risk, it could result in outcomes that would improve operations and maintenance, such as collaboration between local landowners and LMAs. Given the level of uncertainty associated with th

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

If the population in the planning area is more educated about flood risk, it could result in outcomes that would improve institutional support, particularly related to response, recovery, and land use and development planning. Given the level of uncertain

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

If the population in the planning area is more educated about flood risk, it could result in a variety of indirect benefits. Given the level of uncertainty associated with that potential outcome, the score of "Low" is assigned.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The cost of the project is very low when compared to the benefits. The project would fall in the upper third of projects considered in terms of the mix of benefits provided for the given project cost, and is considered high among the upper third.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: Gomes Lake / Harding Drain Improvements

Project Lead: Gomes Lake Joint Powers Authority

Potential Project Partners:

Turlock Irrigation District, City of Turlock, Stanislaus County, Reclamation District 2063, Reclamation District 2091

Short Project Description:

This project includes multiple components to enhance the function, reliability, flexibility and capacity of the Gomes Lake facility, which stores and drains stormwater and return flows, providing flood risk reduction behind the east bank levees of the San Joaquin River.

Long Project Description:

Currently, the pump sump area is always submerged, requiring divers for any maintenance work and to remove fallen debris that could damage the pumps during operation. Construction of a gated weir or berm in the lake upstream of the pumps would isolate the pumps so they could be de-watered. A gravity bypass could be built around the pumping plant to continue the option of gravity flow into the San Joaquin River that currently passes through the below-base pump discharges. Replacement of aging flap gates at the pumping plant discharge is also needed. The aging gates do not open fully, causing additional head loss during pumping. There may be other pumping plant facilities that need to be improved as well.

The two existing slide gates at the terminus of the Harding Drain act in a single seating direction (only closed when San Joaquin River water level is higher than the drain). Gates capable of resisting both seating and unseating head are required for flexibility. With the installation of such gates, drain water could be conveyed to Gomes Lake any time of the year. For example, this would provide the ability to exercise the Gomes Lake pumps during the summer. The existing discharge pipes are corrugated metal and are aging and are in need of repair. Replacement or slip lining the pipes would extend the life of the structure. Other improvements are needed such as installation of trash racks at the culvert inlets.

Currently, there is vulnerability in the event of a pump outage during a flood. Gomes Lake has insufficient storage capacity to accommodate such an outage, and therefore there may be risk of flooding in such an event. It would be beneficial to increase the size of Gomes Lake to create sufficient storage capacity to handle one of the three pumps to be out for a 24-hour period. The original pumps are still used in the original pumping plant. Replacement of the old pumps with more efficient and higher capacity pumps would also provide reduced risk of flooding.

Unique Project Characteristics:

None specified

Project Status:	Pre-planning
Project Cost:	$1,700,000
Project Timeframe:	1-5 years
Cost-sharing:	No opportunities identified to date
Multi-benefit Project:	Yes
Types of benefits:	The project would improve flood risk management and operations and maintenance.
Source of Project:	Turlock Irrigation District

Background Information:

None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

The project would improve flood risk management and operations and maintenance.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, Gomes Lake Joint Powers Authority.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

The cost of the project has not been determined, and cost-share partners have not been identified. However, it is anticipated that the Gomes Lake Joint Powers Authority has the resources to supply the local share on their own or through potential future partnerships. Still, the project was evaluated as "Medium," given that the funders will be local government and the local cost share is $20,000 or more.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

Improved flexibility in the operation of Gomes Lake and the Harding Drain may result in a reduction in the number of lives at risk.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

Improvements to these facilities and the resultant increased flood management flexibility is expected to result in a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project would materially improve operations and maintenance at the local level. For example, maintenance at Gomes Lake would become much easier to complete if the pumps could be dewatered as proposed.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.

- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: Hydraulic and Channel Migration Studies

Project Lead: Stanislaus County Office of Emergency Services

Potential Project Partners:

RD 2091, Gomes Lake JPA, City of Modesto, City of Newman, City of Patterson

Short Project Description:

Two regional studies (mainstem San Joaquin River flood hydraulics and channel migration) and three focused hydraulic studies are needed to better inform flood management in the Mid SJR Region.

Long Project Description:

Two regional studies are required to advance flood management planning within the Mid SJR Region's planning area. First, updated baseline hydraulic analyses of flood conditions on the mainstem of the San Joaquin River in the Mid SJR Region's planning area are needed to inform site-specific studies of flood hazards and better identify flood hazard mitigation opportunities. The analyses will include a range of flood events, such as the 2-, 10-, 25-, 100-, and 200-year events and will largely or entirely rely on available models and hydrology as developed for the CVFPP. A report on this study will provide a regional evaluation of the level of performance of the flood management facilities and produce a set of recommendations for improvements and a strategy for pursuing them. Second, as a counterpart to the hydraulic analyses, a channel migration study within the same area will also be conducted to identify under current (baseline) conditions approximately where, and by what degree, channel movement is anticipated to occur, creating challenges and opportunities for flood management. The results of the channel migration study will be used to inform the recommendations in the hydraulic study.

These two regional studies will provide the backdrop for a set of three site-specific studies to address flood risks within the region. While the regional studies will not include all of the relevant information needed for the site-specific studies, they will provide key contextual information. The site-specific studies will include: 1) RDs 2091 and 2063, including the City of Modesto's wastewater treatment plant on Jennings Avenue and the Gomes Lake project; 2) the City of Patterson's wastewater treatment plant; and 3) the City of Newman's wastewater treatment plant. Each of these site-specific studies is described in further detail below.

The RD 2091/RD 2063 area contains considerable critical infrastructure (e.g., the Modesto wastewater treatment plant and Gomes Lake) and is the most highly populated area protected directly by project levees. The characteristics of flood flows that would occur in the event of a breach in either district need to be identified. There is the potential that RD 2091 is dependent on the RD 2063 levees for protection as well as on its own levee system. A breach in RD 2091 could also possibly cause flood waters to back into RD 2063 to some extent. The characteristics of flood flows from RD 2063 into RD 2091, and vice versa, also needs to be thoroughly understood in order to identify practical containment options and an effective flood fight plan for the districts. This study would include obtaining the current topography and bathymetry from new sources as needed to supplement existing datasets. The study report will include specific recommendations to reduce flood risks and inform an effective flood fight plan for the RDs.

Hydraulic studies for the Newman and Patterson Wastewater Treatment Plans (WWTPs) would confirm water elevations at which there is a significant threat to those facilities and the characteristics of flood water movement in the event that 1) water elevations rise above the eastern boundary fence line at the Patterson plant, or 2) either the Newman Wastewater Treatment Plant flood control levee or the Newman Wasteway embankment fails. This detailed information would allow development of better trigger levels for actions to protect infrastructure and better plans for maintaining service if either of these events were to occur.

Current and planned studies completed by DWR under the Central Valley Flood Protection Plan (CVFPP) and other programs should be accessed initially for information relevant to the above issues. Any current relevant information generated by those studies can be used as a starting point for the studies described above.

Unique Project Characteristics:

None specified

Project Status: Pre-planning
Project Cost: $200,000
Project Timeframe: 1-5 years
Cost-sharing: Undetermined
Multi-benefit Project: Yes
Types of benefits: The project would contribute to our understanding of flood risk and, therefore, would help to improve flood risk management.
Source of Project: The project was an outcome of the emergency response technical memorandum prepared by the Mid SJR RFMP project team. Stakeholders participating in workshops during the fall of 2013 also suggested that this project be considered.

Background Information:

None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

The project would contribute to our understanding of flood risk and, therefore, would help to improve flood risk management.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)

- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, Stanislaus County Office of Emergency Services.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

The cost of the project has not been determined, and cost-share partners have not been identified. However, it is anticipated that the Stanislaus County Office of Emergency Services has the resources to supply the local share on their own or through potential future partnerships. Still, the project was evaluated as "Medium," given that the funders will belocal government and the local cost share is $20,000 or more.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.

- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

If flood risks are better understood, the proposed study may contribute to reducing the number of lives at risk.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

If flood operations improve as a result of better understanding of flood risks, and/or flood risk reduction actions are identified in the proposed study and subsequently implemented, the value of assets at risk is expected to be reduced at a locally-signi

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

If flood operations can be improved as a result of better understanding of flood risks, this project will enhance their efficiency and effectiveness. This is expected to occur at least at a locally-significant level.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."

To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: Integrated Levee Vegetation Management – Flood Maintenance and Habitat

Project Lead: River Partners

Potential Project Partners:

Funding partners - WCB, DWR, USBR, NRCS; landowners; RDs; environmental NGOs; technical experts - as needed

Short Project Description:

This project includes re-establishing appropriate vegetation on levee slopes to promote terrestrial wildlife survival during floods – either native sod on active levees or native brush vegetation on inactive levees (RDs 2099, 2100, 2102, and 2092 in the future).

Long Project Description:

Since 2002, wildlife researchers at the Endangered Species Recovery Program at CSU Stanislaus have been working with landowners and other stakeholders to identify habitat management and restoration activities that can contribute to the recovery of terrestrial riparian species in the region including riparian brush rabbit and riparian wood rat. Levees in the region provide crucial high-ground refugia for such wildlife during flood events. Vegetation on levees in the region is currently not managed to facilitate levee use during floods for wildlife survival and post-flood recovery. On levees that have been or will be removed from the federal project, brushy vegetation can be re-established on the levees through a three-year restoration project and live trapping has shown that these efforts are successful for wildlife recovery. On levees that must continue to pass state and federal inspections/maintenance requirements, native grass sod has been shown to provide marginal habitat that can act as a movement corridor for terrestrial species during flood events. This project includes re-establishing appropriate vegetation on levee slopes to promote terrestrial wildlife survival during floods – either native sod on active levees, or native brush vegetation on inactive levees (RDs 2099, 2100, 2102, and 2092 in the future).

Unique Project Characteristics:

Once established, the vegetation proposed for levee slopes requires very low maintenance. On inactive levees, the vegetation is left alone after the initial 3-year establishment period. On active levees, maintenance requirements can be reduced to mowing once per year to facilitate spring inspections. Native sod promotes erosion control on levee slopes as well as wildlife usage, thus this is a multi-benefit project. On private lands, this project will require consultation with the wildlife agencies regarding future levee vegetation maintenance.

Project Status:	Planning
Project Cost:	$6,400,000
Project Timeframe:	1-5 years
Cost-sharing:	Varies: Some costs for levee vegetation management may be eligible for funding from local, state or federal grant programs.
Multi-benefit Project:	Yes
Types of benefits:	The project would improve operations and maintenance; promote ecosystem functions; improve institutional support; and promote multi-benefit projects.
Source of Project:	River Partners

Background Information:

Check next CNGA Grasslands Journal; Various technical reports from ESRP – please request from River Partners

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve operations and maintenance; promote ecosystem functions; improve institutional support; and promote multi-benefit projects.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

Over 8 miles of levees on the San Joaquin River National Wildlife Refuge have already been planted in brushy vegetation or native grasses. Funding was provided for that work from multiple sources including the United States Fish and Wildlife Service, Cen

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).

Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

Several funding partners have been identified, and it is anticipated that River Partners would be able to fundraise to meet the local cost share. The project has demonstrated success in fundraising for 8 miles of levee vegetation since 2006, and there is one funding application pending with the Central Valley Regional Water Quality Control Board. Still, the project was evaluated as "Medium," given that the cost of implementing the project throughout the region is relatively high.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

N/A

No benefits identified.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

N/A

No benefits identified.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

High

Proposed actions may reduce maintenance costs and help to stabilize levees, resulting in less erosion. If implemented on a regional scale, the project could have regionally-significant benefits.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

High

The project is consistent with draft BWFS/CS objectives metric 7a, Threatened and Endanered Target Species, under metric 7, Species - Contribute to the recovery and stability of native species populatons and overall biotic community diversity. It is also consistent with the Recovery Plan for Upland Species of the San Joaquin Valley.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

If implemented on a regional scale, the project could have material and regionally significant aesthetic benefits.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits have been identified.

Project Name: La Grange Floodplain Restoration and Spawning Gravel Augmentation

Project Lead: Tuolumne River Trust

Potential Project Partners:

Stanislaus County Parks and Recreation

Short Project Description:

Restore 77 acres of degraded floodplain habitat along the Tuolumne River in La Grange while developing a source of spawning gravel to improve and enhance existing spawning beds in the Tuolumne River.

Long Project Description:

The floodplain in the project area was heavily altered by gold dredging operations in the 1930's-1950's and has never recovered. As a result of the gold dredging, the floodplain has become armored and it supports little riparian vegetation. Additionally, the floodplains adjacent to the rivers are artificially elevated and disconnected from the channel. Coupled with the heavily altered flow regime, the gravels are rarely, if ever, activated, thus they provide no benefit to spawning salmonids. Meanwhile, the in-channel spawning beds are heavily degraded because they cannot be replenished through normal geomorphic processes because of the sediment-blocking of Don Pedro and La Grange Dams. Through this project, we will harvest gravels from the floodplain and place them in the spawning riffles, while simultaneously lowering and revegetating the floodplain.

Stanislaus County presently owns approximately 200 acres of Tuolumne River floodplain near the town of La Grange. The land extends from approximately RM 49.2 - 50.6 on the south bank and from RM 49.9 - RM 50.6 on the north bank. This is a proposal to undertake a project on about 77 acres out of the 200 acres of county land. The project is floodplain and riparian restoration to recreate a more natural environment for the benefit of riparian species, San Joaquin fall-run Chinook salmon, and steelhead. The project will improve riparian habitat along the lower Tuolumne River, and improve chinook salmon and steelhead spawning and rearing habitat. The following goals will be met by implementing this project: recovery of at-risk native species (Central Valley steelhead and Central Valley fall-run Chinook salmon), restoration of fish spawning and rearing habitat, rehabilitation of natural channel-floodplain processes, and rehabilitation of native riparian habitat. The goal of this project is to improve the functionality of the Tuolumne River floodplain and channel to provide riparian habitat to support riparian species and San Joaquin fall-run Chinook salmon and steelhead trout. The primary objectives for the restoration project are: a. Restore functional floodplains that allow inundation at a greater frequency and reduce risks of juvenile salmonid stranding. b. Restore native riparian vegetation by preserving existing native vegetation and planting the appropriate species on restored surfaces inundated by the contemporary hydrologic regime. c. Exclude trespassing cattle from the county property by building fences. d. Build a loop trail consistent with the restoration project to improve recreational access and utility.

Unique Project Characteristics:

None specified

Project Status: Pre-planning
Project Cost: $1,500,000
Project Timeframe: 1-5 years
Cost-sharing: No opportunities identified to date
Multi-benefit Project: Yes

Types of benefits: The project would improve flood risk management, promote ecosystem functions, and promote multi-benefit projects.

Source of Project: East Stanislaus Integrated Regional Water Management Partnership

Background Information:

East Stanislaus Integrated Regional Water Management Partnership website: http://www.eaststanirwm.org/

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management, promote ecosystem functions, and promote multi-benefit projects.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, the Tuolumne River Trust.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).

Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

The Tuolumne River Trust does not have the resources to carry out the project or supply the local cost share. No potential funding partners have been identified. The project was evaluated as "Medium," given that the project is being championed by an NGO and the local cost share is $20,000 or more.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

The proposed floodplain rehabilitation is expected to reduce flood risk and may reduce loss of life in adjacent areas.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.

- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

The proposed floodplain rehabilitation is expected to create a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

High

The project is consistent with CVFPP metrics 5a, Inundated Floodplain, and 5b, Riverine Geomorphic Processes, under metric 5, Ecosystem Processes - Improve and enhance natural dynamic hydrologic and geomorphic processes; metrics 6a, Shaded Riparian Aquatic (SRA) Cover, 6b, Riparian, under metric 6, Habitats - Increase and improve quantity, diversity, quality, and connectivity of riverine aquatic and floodplain habitats; and metric 7, Species - Contribute to the recovery and stability of native species populations and overall biotic community diversity, for Central Valley steelhead and Central Valley fall-run Chinook salmon.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project would materially increase water quality, recreation and groundwater recharge at a locally-significant scale.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The score is "High" because the provision of this type of ecosystem benefit at this magnitude could occur at a cost that is low relative to similar projects.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No significant dis-benefits are anticipated. A minor reduction in the tax base is an expected dis-benefit. While the property is currently subject to a lower tax rate through a Williamson Act contract, the property value is expected to descrease after project implementation, which would reduce the property tax collected.

Project Name: Little Salado Creek

Project Lead: Stanislaus County

Potential Project Partners:

USACE

Short Project Description:

Construction of a project to partially divert, retain, and percolate up to 1,030 cubic feet per second (cfs) of flow from Little Salado Creek.

Long Project Description:

The County proposes to place the portion of Salado Creek that traverses the 1,532-acre former Crows Landing Air Facility in an underground conveyance. The existing channel conveyance capacity will need to be upgraded to convey the calculated design storm runoff flows. This can be achieved by upsizing the existing underground channel sections and creating new underground conveyances that will replace and exceed the capacity aboveground conveyances. Three segments of the creek would be placed underground:

• An approximately 4,000 foot segment of the creek that extends northeast from the culvert beneath the Delta Mendota Canal at Davis Road to the culvert on the south side of Runway 11-29;

• An approximately 1,300-foot segment of the creek that extends from the north side of runway 11-29 to the west side of Runway 16-34; and

• An approximately 5,800-foot segment of the creek that extends from the east side of runway 16-34 to the existing 24-inch diameter drain pipe at Marshall Road.

The County has considered options that would allow the creek to remain aboveground within its project boundaries, but open channels would not be considered compatible with its plans to reuse airport pavements for the development of a general aviation facility. Federal Aviation Administration (FAA) guidance at Advisory Circular 150/5200-33B, "Wildlife Hazard Attractants on and Near Airports" warn against the creation of open water or wet areas that support wildlife habitat within 10,000 feet of aircraft movement areas. The 1,532-acre site does not provide sufficient area to accommodate FAA's advised separation. The County does intend to incorporate a groundwater recharge component into the project through the use of perforated pipe in the segments listed above or several other potential methods. The design of the proposed conveyances will be developed following additional hydrological studies.

Unique Project Characteristics:

None specified

Project Status:	Planning
Project Cost:	**$**5,000,000
Project Timeframe:	1-5 years
Cost-sharing:	Stanislaus County, USACE and State for construction; Stanislaus County for maintenance. County may form a Benefit Assessment District for maintenance,; and a local levee district may be formed to operate and maintain flood control portions of the project.
Multi-benefit Project:	Yes
Types of benefits:	The project would improve flood risk management and provide groundwater recharge, making it a multi-benefit project.

Source of Project: Stanislaus County

Background Information:

The Storm Drainage Water Quality Master Plan was prepared in 2007 for the West Park development provides background information on flows from Little Salado Creek in the project area. The existing study area, consists primarily of agricultural lands and the former Crows Landing Naval Air Facility. The following paragraphs are based or were taken from the 2007 storm drainage master plan.

As illustrated in Figure 2.0, bBoth the Delta-Mendota Canal (DMC) and the California Aqueduct (CAQ) traverse the study area, with the DMC acting as a natural drainage boundary because water cannot flow from one side to the other without being intercepted by the canal. The DMC facility has historically been used for both irrigation and for drainage purposes. The DMC splits the study area roughly down the middle, creating westerly and easterly drainage subareas. The only connection for the two drainage areas is at the Little Salado Creek double box culvert crossing beneath the DMC.

Storm runoff from the Little Salado Creek watershed and west of the CAQ enters the pProject area from across both Interstate 5 and the CAQ, via two 78-inch diameter pipes, which then open out into a control structure just east of the CAQ. From that point, runoff then enters a 24-inch diameter pipe, which runs east toward the DMC. Just before reaching the DMC, the 24-inch pipe terminates into an open ditch that drains towards and through the double box culverts crossing beneath the DMC. On the east side of the DMC, the box culverts drain out into an open channel ditch that continues in a northeasterly direction toward the low point at the intersection of State Route 33 and Marshall Road. Along the way to this discharge point, it crosses beneath anthe Aairfield through multiple culverts. On the east side of the DMC, Little Salado Creek serves as a tailwater irrigation drain ditch for the surrounding agricultural fields. At its terminus discharge point from the Project site, wWater drains through a 24-inch diameter drain pipe that flows east along Marshall Road for about 4.5 miles to its final discharge point at the San Joaquin River.

Salado Creek enters the pProject area at the proposed northwest boundary just north of the intersection of Oak Flat Road and Interstate 5, just south of the proposed stormwater quality detention basin. Storm runoff west of the CAQ crosses over the Aqueduct via an open box culvert overchute and then continues north by means of an open channel until it reaches the DMC. At the DMC, it crosses over the canal via another open box culvert overchute which then drains into an open channel that flows toward the City of Patterson. Also, at the upstream side of the DMC are three recently constructed 60-inch diameter overflow pipes that discharge excess storm runoff directly into the DMC (see photographs below of both overchutes at the CAQ and DMC). From the information gathered thus far, it is not known what flood analysis studies were completed for Salado Creek with these spillover pipes. The limits of this study are outside the scope to evaluate in more detail the impacts of the spill over pipes on Salado Creek. More detailed hydraulic and hydrologic analysis will need to be explored in subsequent reports.

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."

- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

The project would improve flood risk management and groundwater recharge, making it a multi-benefit project.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

The project is a priority of Stanislaus County and part of a larger project that is on track for implementation.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

The project was evaluated as "Medium," given that the champion is Stanislaus County and the local cost share is $20,000 or more.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

The project would improve flood risk management and, therefore, may reduce loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

The project would result in a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project includes a groundwater recharge component, the details of which are still being defined. The project would result in at least a locally-significant improvement in groundwater recharge, and a score of "Medium" is assigned. Depending on the scale of the groundwater component, there could be a regionally-significant level.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: Modesto WWTP - Reduce Flood Risk

Project Lead: City of Modesto

Potential Project Partners:

No partners identified at this time

Short Project Description:

Develop and evaluate potential solutions to existing flood hazards at the Modesto Sutter and Jennings WWTPs, including completion of two studies (Sutter Plant Relocation Feasibility Study and a Wastewater Treatment Facilities Master Plan) that are currently in process, and implement the preferred alternative.

Long Project Description:

The City of Modesto's wastewater treatment facilities span two locations and both are situated within 100-year floodplains, one on the Tuolumne River and one on the San Joaquin River. The City is currently engaged in reconnaissance studies to identify long-term options for the facilities, potentially including consolidation of both plants at the Jennings Facility site. While a preferred project alternative has not been developed or identified, any scenario for their operations will incorporate components or design considerations to reduce flood risks at the facility or facilities.

This project would encompass the design and construction of at least the flood risk reduction features of the proposed project, which could include relocation of the Sutter Plant or portions thereof. This description assumes that the flood risk reduction components will be sufficiently separable to allow funding to be sought for specific project features with a flood risk reduction focus.

Unique Project Characteristics:

None specified

Project Status:	Pre-planning
Project Cost:	$80,000,000
Project Timeframe:	Undetermined
Cost-sharing:	No opportunities identified to date
Multi-benefit Project:	Yes
Types of benefits:	The project would improve flood risk management. As the project would protect water quality in the event of a flood event, it is considered consistent with the supporting objective of promoting multi-benefit projects. It is possible that flood risk reduct
Source of Project:	City of Modesto

Background Information:

None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

The project would improve flood risk management. As the project would protect water quality in the event of a flood event, it is considered consistent with the supporting objective of promoting multi-benefit projects. It is possible that flood risk reduction features identified in the reconnaissance studies that are currently underway would improve operations and maintenance, promote ecosystem functions, and/or improve institutional support. However, because the flood risk reduction features are not yet defined, the score reflects only the flood risk management and multi-benefit project goals.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

Feasibility studies are currently underway. While not yet complete, the actions that are identified are expected to be those that are deemed feasible.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Low

The City of Modesto does not currently have the resources to implement the actions that will come out of the reconnaissance study process. The cost of those actions has not been determined, and potential cost-share partners have not been identified. The project was evaluated as "High," given that the funders will be local government and the local cost share is anticipated to be $500,000 or more.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Medium

As personnel are expected to be present at the site during floods, reduction of flood risk there is anticipated to reduce the risk of loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

The project is expected to create a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.

- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

Material, locally-significant water quality and economic stability benefits are anticipated as a result of implementing flood risk reduction actions identified through the reconnaissance studies.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."

To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

Project Name: Orestimba Creek Flood Risk Management Project

Project Lead: Stanislaus County

Potential Project Partners:

City of Newman, Orestimba Creek Flood Control District, USACE

Short Project Description:

Construction of a 4.7-mile chevron levee along east bank of Central California Irrigation District (CCID) Main Canal and a 1-mile cross levee to reduce flood risk to Newman and adjacent agricultural areas, providing a 200-year level of protection. The chevron levee would include 3 feet of freeboard above the mean 200-year water surface elevation.

Long Project Description:

The chevron levee would be constructed parallel to the east bank of the CCID Main Canal. Starting at the Newman Wasteway, the levee would continue north to a location near Lundy Road, at which point the levee alignment would angle diagonally away from the canal toward the northeast for another 0.7 miles to tie in to the CNRR embankment near an existing culvert. This existing culvert would function to reduce the frequency and duration of floodwater ponding on the north side of the levee. The levee would also extend an additional 35 feet east of the CNRR embankment to ensure that floodwaters do not flank the proposed levee. The levee would be approximately 4.7 miles in total length. The proposed levee is higher than roadway elevations at four crossing locations, and a gap in the top portion of the levee is required to meet highway vertical curve safety standards. A slotted abutment would be constructed in the levee on each side of these roadways. During a flood event, stop logs would be placed into the slotted abutments across the roadways. When installed, the stop log structure would be approximately 1 to 3 feet high and would prevent floodwaters from flowing through the gap. This would not interfere with traffic because the roadway to the west of the structure would be flooded when the stop logs were in place. The stop-log closure structures would be located at four locations where existing roads cross the proposed levee alignment. These road crossings include Shells Road, Draper Road, Orestimba Creek Road, and Stuhr Road. Another gate closure would be constructed where the levee crosses the CNRR railroad embankment. The proposed levee is higher than the railway and a gap in the top portion of the levee is required to prevent interference with the levee grade. An abutment would be constructed in the levee on each side of the railway. During a flood event, floodgates hinged on the abutment would be closed across the railway. When installed, the swing gate structure would be approximately 2 to 3 feet high and would prevent floodwaters from flowing through the gap. This would not interfere with railway traffic because the railway north of the levee would be flooded when the swing gate structure was in place.

Where the levee crosses State Highway 33, the highway would be raised to meet levee design elevations. Highway 33 would be raised over an additional 2000 foot length to account for longer vertical curves necessary to go over the higher levee. Another component of the levee is a seepage berm. The proposed project would also include a railroad embankment protection plan. During small flood events and localized rainfall events, Orestimba Creek floodwater or local runoff would be conveyed to the east side of the railroad embankment through existing drainage culverts. However, the railroad would be overtopped during a large flood event. To mitigate for this condition, the east side of the railroad embankment would require a sand filter and be lined with rock revetment to prevent erosion. Approximately 10 culverts under the CNRR embankment would be extended to accommodate the seepage embankment and erosion protection. New upstream and downstream headwalls would be constructed at each culvert. The railroad embankment

protection plan begins where the proposed levee crosses the railroad and ends where the railroad crosses Orestimba Creek. The distance is approximately 2 miles.

Stanislaus County has three low water crossings of Orestimba Creek that are closed every year during normal precipitation that would be improved under this project. The three low water crossings of Orestimba Creek from west to east are Bell Road, Jorgensen Road, and Eastin Road. Bell Road is the most westerly road and has automatic gates that drop when there is water on the road. This location does not incur as many stranded vehicles as the other two and not resulted in a fatality. The Bell Road crossing is a much shallower crossing than the other two as it does not drop as far down into the creek bottom as the other two crossings due to 3 culverts at low flow channel elevation. The low water crossing at Jorgensen Road has automatic gates that drop when there is water on the road. The channel profile at this location has a much more defined river channel that is approximately 8 to 10 feet lower than the existing top of bank elevation. Jorgensen Road does not have culverts and so any flows here flow over the road. Jorgensen Road has not had fatalities, however, Stanislaus County Public Works has had many dozens of vehicles in the last 20 years try to cross here and subsequently get stranded while Orestimba Creek is flowing. The low water crossing at Eastin Road is the most heavily traveled of the three low water crossings. This location has automatic gates that drop when there is water on the road. This location does have a 24" diameter culvert that carries a minimal amount of water under the road at the low flow condition. This location floods approximately up to 5 feet above the crown of the road. Stanislaus County has had 2 fatalities at this location due to people leaving their stranded vehicles and getting swept downstream in the flood. The project would include the building of bridges and/or culverts to raise the roads at the locations described above.

Unique Project Characteristics:

None specified

Project Status:	Planning
Project Cost:	**$**44,000,000
Project Timeframe:	1-5 years
Cost-sharing:	Federal contribution of $23,230,000 with non-federal contribution of $21,100,000
Multi-benefit Project:	Yes
Types of benefits:	This project would reduce flood risk in the near term by providing protection against the 200-year flood. Note: It may lead to greater future flood risk if further development in the floodplain is spurred by its implementation. The project would also impr
Source of Project:	USACE

Background Information:

Orestimba Creek Flood Risk Management Draft Feasibility Report and EA/IS - http://173.254.66.117/news-and-information/e-docs.html (see document list under Public Works)

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.

- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

This project would reduce flood risk in the near term by providing protection against the 200-year flood. Note: It may lead to greater future flood risk if further development in the floodplain is spurred by its implementation. The project would also improve institutional support.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

The feasibility of the project has been evaluated in a document prepared by the United States Army Corps of Engineers (USACE).

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the

planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Low

The estimated $21.1 million local cost share of the total project cost to be born by local government is relatively high -- greater than $500,000, and the project is therefore evaluated as having "Low" financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Medium

At least one death has occurred as a result of flooding on Orestimba Creek. The project would protect portions of the City of Newman that are currently in the 100-year floodplain.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Medium

According to the USACE feasibility study, the project is expected to improve flood risk in the City of Newman and surrounding agricultural areas, which is considered regionally-significant. The USACE analysis estimates annual benefits of $3.128 million.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified. The project would add flood management facilities and, therefore, would add to operations, maintenance, and repair requirements. This is noted under RC-10.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project will improve institutional support at a locally-significant level, per the emergency planning and response components of the project.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

A benefit: cost ratio of 1.34 has been estimated for the Tentatively Recommended Plan; this is anticipated to fall in the mid-range of the projects considered.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.

- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The USACE EIR/EIS suggests that there will be no significant dis-benefits, but there will be an increase in operations, maintenance, and repair requirements as a result of the project; this is anticipated to fall in the mid-range of the projects considered.

Project Name: Patterson WWTP – Reduce Flood Risks

Project Lead: City of Patterson

Potential Project Partners:

No partners identified at this time

Short Project Description:

Develop and evaluate potential solutions to existing flood hazards at the City of Patterson WWTP.

Long Project Description:

There is limited information available concerning the extent of flooding that occurs at or near the City of Patterson Waste Water Treatment Plant (WWTP) located along the San Joaquin River. Further study is needed to understand if the existing berm system surrounding the WWTP is adequate to control flooding or if the berms are of adequate size or length to control the seasonal flooding. A review of the limits of the flooding around the WWTP is needed. Specifically, the site should be surveyed to determine the size and heights of embankments, and high water elevations should be determined and whether they could affect operation of the WWTP. If inadequate, design solutions will be recommended which may include extending the embankments, increasing the height of the existing embankments or if the current system is adequate recommend no action.

In the screening- and ranking-level assessments, it is assumed that the items identified in the proposed study would be implemented and, therefore, the anticipated benefits would be realized. The only exception is the cost-effectiveness criterion, RC-9, where only the cost and benefit of the study can be compared because the costs for the action items that would come out of the study can't be estimated until the study is complete.

Unique Project Characteristics:

None specified

Project Status:	Pre-planning
Project Cost:	$27,000
Project Timeframe:	Undetermined
Cost-sharing:	No opportunities identified to date
Multi-benefit Project:	Yes
Types of benefits:	The project would improve flood risk management. As the project would protect water quality in the event of a flood event, it is considered consistent with the supporting objective of promoting multi-benefit projects.
Source of Project:	City of Patterson

Background Information:

None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

The project would improve flood risk management. As the project would protect water quality in the event of a flood event, it is considered consistent with the supporting objective of promoting multi-benefit projects.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, the City of Patterson.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).

Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

Given the importance of the WWTP facilities to the urban area of Patterson and the magnitude of the tax base as well as the relatively modest cost of the project, it is anticipated that local funding for the project or a local cost share requirement can be met.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

As personnel are expected to be present at the site during floods, reduction of flood risk there is anticipated to potentially reduce the risk of loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

This project is expected to provide at least locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified. The project would add flood management facilities and, therefore, would add to operations, maintenance, and repair requirements. This is noted under RC-10.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

At least minimum, locally-significant modest water quality and economic stability benefits may are expected to accrue as a result of implementing any flood risk reduction actions that may be identified through this study and subsequently implemented.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.

- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

Project Name: RD 1602 Resilience

Project Lead: RD 1602

Potential Project Partners:

CVFPB - permitting, technical assistance; landowners - funding, governance; DWR - funding, technical assistance; USACE - small role in emergency response, possibly funding for repairs; Stanislaus County - oversees district governance and financing; engineering firms, environmental firms, other technical experts as needed

Short Project Description:

Complete the necessary repairs and upgrades to bring RD levee system back into "Active" status for PL84-99 eligibility.

Long Project Description:

Many of the reclamation districts (RDs) in the planning area have been unable to maintain levees to United States Army Corps of Engineers (USACE) standards because they lacked the funding and staff to complete necessary repairs. As a result, these RDs no longer have "Active" status per the PL84-99 eligibility requirements.

This project would address the current deficiencies of the levees under the jurisdiction of RD 1602 including completion of the necessary repairs and upgrades to bring the levee system back into "Active" status for PL84-99 eligibility. Necessary actions can be found in RD inspection reports from 2013 – all "U" ratings need to be fixed immediately and all "M" ratings need to be fixed within 2 years or less. Actions listed in the inspection reports vary by RD, but generally include:

- structural repairs to levees, pumps, or other facilities
- removal of unpermitted encroachments (i.e. structures, fences, pipes, etc.)
- researching and negotiating encroachment permits for previously unpermitted encroachments
- improved fund-raising capacity for needed O&M
- improved technical capacity to perform necessary O&M (i.e. visual inspections of pipes, rodent control, erosion repairs, emergency road access, etc.)
- development of Emergency Response Plan for the RD
- establishment of Board of Trustees or maintenance agreement with another local agency(ies)
- others as needed

Specific deficiencies identified in the 2013 inspection report for RD 1602 include the following:

"U" rated items –

- Animal Control

"M" rated items –

- 1.68 miles of vegetation issues
- Encroachments
- 0.04 miles of slope stability concerns

The USACE Interim Policy for Determining Eligibility Status of Flood Risk Management Projects for the Rehabilitation Program Pursuant to PL 84-99 (Interim Policy) went into effect on March 21, 2014 and temporarily suspends PL 84-99 eligibility determinations, including generally excluding levee vegetation condition requirements. The Interim Policy allows for districts to make eligibility determinations based on a subset of items from the full inspection list. The path to regaining Active Status is through the USACE System-Wide Improvement Framework Policy (SWIF), which requires that the districts present a plan to address the deficiencies identified.

Unique Project Characteristics:

Varies – may include incorporation of environmental, water supply, or other secondary benefits to the region

Project Status:	Pre-planning
Project Cost:	$4,700,000
Project Timeframe:	1-5 years
Cost-sharing:	Some costs may be eligible for funding from local, state or federal grant programs – likely requires active Reclamation District with Trustees and financial oversight from the County.
Multi-benefit Project:	Potentially
Types of benefits:	The project would improve flood risk management; operations and maintenance; and institutional support.
Source of Project:	RD 1602

Background Information:

Maintenance reports; Inspection Reports; Maintenance Agreement with CVFPB; USACE O&M Manual

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management; operations and maintenance; and institutional support.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, RD 1602.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Low

RD 1602 does not have the resources to fund the project or the local cost share, and the project cost is greater than the anticipated size of the assessment potential within the District over the next 30 years.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.

- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

Improvements to levees and other infrastructure, emergency response, and operations and maintenance may reduce loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

Improvements to levees and other infrastructure, emergency response, and operations and maintenance are expected to result in a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project is expected to materially improve operations and maintenance at a local level.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.

- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project is expected to materially improve institutional support at a local level.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

Improved protection for assets within RD 1602 is expected to result in a material increase in economic benefits at a locally-significant scale.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."

To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Low

The score is "Low" because the project cost is high relative to the assets that would be protected by it.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: RD 2031 Resilience

Project Lead: RD 2031

Potential Project Partners:

CVFPB - permitting, technical assistance; landowners - funding, governance; DWR - funding, technical assistance; USACE - small role in emergency response, possibly funding for repairs; Stanislaus County - oversees district governance and financing; engineering firms, environmental firms, other technical experts as needed

Short Project Description:

Complete the necessary repairs and upgrades to bring RD levee system back into "Active" status for PL84-99 eligibility.

Long Project Description:

Many of the reclamation districts (RDs) in the planning area have been unable to maintain levees to United States Army Corps of Engineers (USACE) standards because they lacked the funding and staff to complete necessary repairs. As a result, these RDs no longer have "Active" status per the PL84-99 eligibility requirements.

This project would address the current deficiencies of the levees under the jurisdiction of RD 2031 including completion of the necessary repairs and upgrades to bring the levee system back into "Active" status for PL84-99 eligibility. Necessary actions can be found in RD inspection reports from 2013 – all "U" ratings need to be fixed immediately and all "M" ratings need to be fixed within 2 years or less. Actions listed in the inspection reports vary by RD, but generally include:

- structural repairs to levees, pumps, or other facilities
- removal of unpermitted encroachments (i.e. structures, fences, pipes, etc.)
- researching and negotiating encroachment permits for previously unpermitted encroachments
- improved fund-raising capacity for needed O&M
- improved technical capacity to perform necessary O&M (i.e. visual inspections of pipes, rodent control, erosion repairs, emergency road access, etc.)
- development of Emergency Response Plan for the RD
- establishment of Board of Trustees or maintenance agreement with another local agency(ies)
- others as needed

Specific deficiencies identified in the 2013 inspection report for RD 2031 include the following:

"U" rated items –

- Animal Control

"M" rated items –

- Vegetation issues
- Tree trimming
- Encroachments

• 0.03 miles of erosion issues

• 0.07 miles of surface depression issues

The USACE Interim Policy for Determining Eligibility Status of Flood Risk Management Projects for the Rehabilitation Program Pursuant to PL 84-99 (Interim Policy) went into effect on March 21, 2014 and temporarily suspends PL 84-99 eligibility determinations, including generally excluding levee vegetation condition requirements. The Interim Policy allows for districts to make eligibility determinations based on a subset of items from the full inspection list. The path to regaining Active Status is through the USACE System-Wide Improvement Framework Policy (SWIF), which requires that the districts present a plan to address the deficiencies identified.

Unique Project Characteristics:

Varies – may include incorporation of environmental, water supply, or other secondary benefits to the region

Project Status:	Pre-planning
Project Cost:	**$**2,000,000
Project Timeframe:	1-5 years
Cost-sharing:	Some costs may be eligible for funding from local, state or federal grant programs – likely requires active Reclamation District with Trustees and financial oversight from the County.
Multi-benefit Project:	Potentially
Types of benefits:	The project would improve flood risk management; operations and maintenance; and institutional support.
Source of Project:	RD 2031

Background Information:

Maintenance reports; Inspection Reports; Maintenance Agreement with CVFPB; USACE O&M Manual

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management; operations and maintenance; and institutional support.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, RD 2031.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

RD 2031 is expected to have the resources to fund the local cost share, as that is expected to be less than two years' worth of the hypothetical benefit potential within the District.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

While improvements to levees and other infrastructure, emergency response, and operations and maintenance may improve as a result of this project, the risk of loss of life in the area protected by these levees is extremely low due to the lack of residences and small number of people typically exposed to flood hazards on these lands.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

Improvements to levees and other infrastructure, emergency response, and operations and maintenance are expected to result in a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project is expected to materially improve operations and maintenance at a local level.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project is expected to materially improve institutional support at a local level.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

Improved protection for assets within RD 2031 would result in a material increase in economic benefits at a locally-significant scale.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: RD 2063 Resilience

Project Lead: RD 2063

Potential Project Partners:

CVFPB - permitting, technical assistance; landowners - funding, governance; DWR - funding, technical assistance; USACE - small role in emergency response, possibly funding for repairs; Stanislaus County - oversees district governance and financing; engineering firms, environmental firms, other technical experts as needed

Short Project Description:

Complete the necessary repairs and upgrades to bring RD levee system back into "Active" status for PL84-99 eligibility.

Long Project Description:

Many of the reclamation districts (RDs) in the planning area have been unable to maintain levees to United States Army Corps of Engineers (USACE) standards because they lacked the funding and staff to complete necessary repairs. As a result, these RDs no longer have "Active" status per the PL84-99 eligibility requirements.

This project would address the current deficiencies of the levees under the jurisdiction of RD 2063 including completion of the necessary repairs and upgrades to bring the levee system back into "Active" status for PL84-99 eligibility. Necessary actions can be found in RD inspection reports from 2013 – all "U" ratings need to be fixed immediately and all "M" ratings need to be fixed within 2 years or less. Actions listed in the inspection reports vary by RD, but generally include:

- structural repairs to levees, pumps, or other facilities
- removal of unpermitted encroachments (i.e. structures, fences, pipes, etc.)
- researching and negotiating encroachment permits for previously unpermitted encroachments
- improved fund-raising capacity for needed O&M
- improved technical capacity to perform necessary O&M (i.e. visual inspections of pipes, rodent control, erosion repairs, emergency road access, etc.)
- development of Emergency Response Plan for the RD
- establishment of Board of Trustees or maintenance agreement with another local agency(ies)
- others as needed

Specific deficiencies identified in the 2013 inspection report for RD 2063 include the following:

"U" rated items –

- Erosion / Bank Caving

"M" rated items –

- 0.14 miles of vegetation issues
- Tree trimming
- Animal control

• Encroachments

• ER preparadness / training

The USACE Interim Policy for Determining Eligibility Status of Flood Risk Management Projects for the Rehabilitation Program Pursuant to PL 84-99 (Interim Policy) went into effect on March 21, 2014 and temporarily suspends PL 84-99 eligibility determinations, including generally excluding levee vegetation condition requirements. The Interim Policy allows for districts to make eligibility determinations based on a subset of items from the full inspection list so that the focus remains on the levees in the worst condition first. The path to regaining Active Status is through the USACE System-Wide Improvement Framework Policy (SWIF), which requires that the districts present a plan to address the deficiencies identified.

Unique Project Characteristics:

Varies – may include incorporation of environmental, water supply, or other secondary benefits to the region

Project Status:	Pre-planning
Project Cost:	**$**3,500,000
Project Timeframe:	1-5 years
Cost-sharing:	Some costs may be eligible for funding from local, state or federal grant programs – likely requires active Reclamation District with Trustees and financial oversight from the County.
Multi-benefit Project:	Potentially
Types of benefits:	The project would improve flood risk management; operations and maintenance; and institutional support.
Source of Project:	RD 2063

Background Information:

Maintenance reports; Inspection Reports; Maintenance Agreement with CVFPB; USACE O&M Manual

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management; operations and maintenance; and institutional support.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, RD 2063.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

RD 2063 is anticipated to be able to cover the local cost share, as that is expected to be less than one years' worth of the hypothetical benefit potential within the District.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

Improvements to levees and other infrastructure, emergency response, and operations and maintenance may reduce loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

Improvements to levees and other infrastructure, emergency response, and operations and maintenance are expected to result in a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project is expected to materially improve operations and maintenance at a local level.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project is expected to materially improve institutional support at a local level.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

Improved protection for assets within RD 2063 would result in a material increase in economic benefits at a locally-significant scale.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.

Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: RD 2091 Resilience

Project Lead: RD 2091

Potential Project Partners:

CVFPB - permitting, technical assistance; landowners - funding, governance; DWR - funding, technical assistance; USACE - small role in emergency response, possibly funding for repairs; Stanislaus County - oversees district governance and financing; engineering firms, environmental firms, other technical experts as needed

Short Project Description:

Complete the necessary repairs and upgrades to bring RD levee system back into "Active" status for PL84-99 eligibility.

Long Project Description:

Many of the reclamation districts (RDs) in the planning area have been unable to maintain levees to United States Army Corps of Engineers (USACE) standards because they lacked the funding and staff to complete necessary repairs. As a result, these RDs no longer have "Active" status per the PL84-99 eligibility requirements.

This project would address the current deficiencies of the levees under the jurisdiction of RD 2091 including completion of the necessary repairs and upgrades to bring the levee system back into "Active" status for PL84-99 eligibility. Necessary actions can be found in RD inspection reports from 2013 – all "U" ratings need to be fixed immediately and all "M" ratings need to be fixed within 2 years or less. Actions listed in the inspection reports vary by RD, but generally include:

- structural repairs to levees, pumps, or other facilities
- removal of unpermitted encroachments (i.e. structures, fences, pipes, etc.)
- researching and negotiating encroachment permits for previously unpermitted encroachments
- improved fund-raising capacity for needed O&M
- improved technical capacity to perform necessary O&M (i.e. visual inspections of pipes, rodent control, erosion repairs, emergency road access, etc.)
- development of Emergency Response Plan for the RD
- establishment of Board of Trustees or maintenance agreement with another local agency(ies)
- others as needed

Specific deficiencies identified in the 2013 inspection report for RD 2091 include the following:

"U" rated items –

- None

"M" rated items –

- Flood Preparadness & Training

The USACE Interim Policy for Determining Eligibility Status of Flood Risk Management Projects for the Rehabilitation Program Pursuant to PL 84-99 (Interim Policy) went into effect on March 21, 2014 and temporarily suspends PL 84-99 eligibility determinations, including generally excluding levee vegetation

condition requirements. The Interim Policy allows for districts to make eligibility determinations based on a subset of items from the full inspection list so that the focus remains on the levees in the worst condition first. The path to regaining Active Status is through the USACE System-Wide Improvement Framework Policy (SWIF), which requires that the districts present a plan to address the deficiencies identified.

Unique Project Characteristics:

Varies – may include incorporation of environmental, water supply, or other secondary benefits to the region

Project Status:	Pre-planning
Project Cost:	**$**400,000
Project Timeframe:	1-5 years
Cost-sharing:	Some costs may be eligible for funding from local, state or federal grant programs – likely requires active Reclamation District with Trustees and financial oversight from the County.
Multi-benefit Project:	Potentially
Types of benefits:	The project would improve flood risk management; operations and maintenance; and institutional support.
Source of Project:	RD 2091

Background Information:

Maintenance reports; Inspection Reports; Maintenance Agreement with CVFPB; USACE O&M Manual

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management; operations and maintenance; and institutional support.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)

- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, RD 2091.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

RD 2091 is expected to be able to provide the local cost share, as the cost is relatively modest and the Gomes Lake JPA may be willing to contribute.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

Improvements to levees and other infrastructure, emergency response, and operations and maintenance may reduce loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

Improvements to levees and other infrastructure, emergency response, and operations and maintenance are expected to result in a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project is expected to materially improve operations and maintenance at a local level.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project is expected to materially improve institutional support at a local level.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

Improved protection for assets within RD 2091 would result in a material increase in economic benefits at a locally-significant scale.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The score is "High" because the project cost is low relative to the assets that would be protected by it.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: RD 2101 Resilience

Project Lead: RD 2101

Potential Project Partners:

CVFPB - permitting, technical assistance; landowners - funding, governance; DWR - funding, technical assistance; USACE - small role in emergency response, possibly funding for repairs; Stanislaus County - oversees district governance and financing; engineering firms, environmental firms, other technical experts as needed

Short Project Description:

Complete the necessary repairs and upgrades to bring RD levee system back into "Active" status for PL84-99 eligibility, including addressing a major levee erosion site.

Long Project Description:

Many of the reclamation districts (RDs) in the planning area have been unable to maintain levees to United States Army Corps of Engineers (USACE) standards because they lacked the funding and staff to complete necessary repairs. As a result, these RDs no longer have "Active" status per the PL84-99 eligibility requirements.

This project would address the current deficiencies of the levees under the jurisdiction of RD 2101 including completion of the necessary repairs and upgrades to bring the levee system back into "Active" status for PL84-99 eligibility. Necessary actions can be found in RD inspection reports from 2013 – all "U" ratings need to be fixed immediately and all "M" ratings need to be fixed within 2 years or less. Actions listed in the inspection reports vary by RD, but generally include:

- structural repairs to levees, pumps, or other facilities
- removal of unpermitted encroachments (i.e. structures, fences, pipes, etc.)
- researching and negotiating encroachment permits for previously unpermitted encroachments
- improved fund-raising capacity for needed O&M
- improved technical capacity to perform necessary O&M (i.e. visual inspections of pipes, rodent control, erosion repairs, emergency road access, etc.)
- development of Emergency Response Plan for the RD
- establishment of Board of Trustees or maintenance agreement with another local agency(ies)
- others as needed

Specific deficiencies identified in the 2013 inspection report for RD 2101 include the following:

"U" rated items –

- 0.10 miles of erosion
- Animal control

"M" rated items –

- Tree trimming

The USACE Interim Policy for Determining Eligibility Status of Flood Risk Management Projects for the Rehabilitation Program Pursuant to PL 84-99 (Interim Policy) went into effect on March 21, 2014 and temporarily suspends PL 84-99 eligibility determinations, including generally excluding levee vegetation condition requirements. The Interim Policy allows for districts to make eligibility determinations based on a subset of items from the full inspection list so that the focus remains on the levees in the worst condition first. The path to regaining Active Status is through the USACE System-Wide Improvement Framework Policy (SWIF), which requires that the districts present a plan to address the deficiencies identified.

Unique Project Characteristics:

Varies – may include incorporation of environmental, water supply, or other secondary benefits to the region

Project Status:	Pre-planning
Project Cost:	$2,500,000
Project Timeframe:	1-5 years
Cost-sharing:	Some costs may be eligible for funding from local, state or federal grant programs – likely requires active Reclamation District with Trustees and financial oversight from the County.
Multi-benefit Project:	Potentially
Types of benefits:	The project would improve flood risk management; operations and maintenance; and institutional support. It may also promote multi-benefit projects as a result of reducing sediment inflows to the river if the eroding levee is repaired.
Source of Project:	RD 2101

Background Information:

Maintenance reports; Inspection Reports; Maintenance Agreement with CVFPB; USACE O&M Manual

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management; operations and maintenance; and institutional support. It may also promote multi-benefit projects as a result of reducing sediment inflows to the river if the eroding levee is repaired.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, RD 2101.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Low

RD 2101 may have the resources to fund the project but may not want to fund the local cost share. Because the local cost share is relatively high for an individual landowner, the project has been assessed as having "Low" financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

While improvements to levees and other infrastructure, emergency response, and operations and maintenance may improve as a result of this project, the risk of loss of life in the area protected by these levees is extremely low due to the lack of residences and small number of people exposed to flood risks on these lands.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

Improvements to levees and other infrastructure, emergency response, and operations and maintenance are expected to result in a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project is expected to materially improve operations and maintenance at a local level.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project is expected to materially improve institutional support at a local level.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

Improved protection for assets within RD 2101 would result in a material increase in economic benefits at a locally-significant scale. Additionally, water quality benefits may accrue to the river through reduced levee erosion.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Low

The score is "Low" because the project cost is high relative to the assets that would be protected by it.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: Reducing Sediment Loading into the San Joaquin River from Westside Agricultural Lands

Project Lead: West Stanislaus RCD

Potential Project Partners:
NRCS, irrigation districts, Westside Coalition

Short Project Description:
Improve irrigation technology with buried drip and sprinkler irrigation systems that allow for the capacity to irrigate a variety of crop types and effectively eliminate erosion of sediment off of farm fields when compared to traditional, flood irrigation practices. Sediment loading results in reduced capacity of and increased flooding in Westside Creeks and the San Joaquin River.

Long Project Description:
Sediment erosion into Westside creeks and the San Joaquin River from agricultural land on the west side of Stanislaus and Merced Counties has been an ongoing problem since the inception of agriculture in that region. The sediment loading results in reduced capacity of and increased flooding in Westside Creeks and the San Joaquin River as well as diminished farm land productivity and increased pollution and costs.

Recent improvements in irrigation technology for large acreages allows for significant reductions in the amount of sediment eroding off of farmland. The improvements include buried drip and sprinkler irrigation systems that allow for the capacity to irrigate a variety of crop types and that effectively eliminate erosion of sediment off of farm fields when compared to traditional, flood irrigation practices.

These irrigation systems are in high demand because of increased crop production and reduced costs to growers allowing for more precise application of amendments. But, the systems remain cost prohibitive if producers must shoulder their full cost. NRCS and Proposition 84 State funds have cost-shared with producers to fund these types of irrigation systems but demand and need significantly outstrips funding capacity and State funds are no longer available.

Approximately 45% of the irrigated land on the Westside of the San Joaquin River has been converted to either drip or sprinkler systems in the last 10 years. Along with improved irrigation management, the use of PAM, sediment retention ponds and tail-water recirculation systems there has been an approximately 50% reduction in sediment loading to the San Joaquin River over the last 35 years. Our goal is to reduce sediment loading by 95% when compared to 1979 figures and convert over 80% of the agricultural land to drip or sprinkler irrigation systems (a total of approximately 65,000 acres).

Along with the implementation of recent advances in irrigation technologies we will also look at the feasibility of developing wetlands in strategic places on the Westside that further reduce sediment loading to the creeks and the river. Reducing sediment loads to the San Joaquin River has the added benefit of improving water quality by also reducing the amount of pesticides and herbicides reaching surface waters.

Unique Project Characteristics:
Reduces sediment loading to the San Joaquin River, reduces the buildup of choke points and flooding potential in the San Joaquin River, improves farming practices that come with economic and environmental improvements, increases acreage of wetland habitats.

Project Status: Ongoing with an existing list of interested producers.
Project Cost: $65,000,000
Project Timeframe: 15 years

Cost-sharing: NRCS 33%, grower 33%, RFMP 33% or development of funds for low interest loans to growers, repaid and available indefinitely for farm improvements that conserve water, protect water resources and reduce flooding risks.
Multi-benefit Project: Yes
Types of benefits: The project would improve flood risk management, improve operations and maintenance, and promote multi-benefit projects.
Source of Project: West Stanislaus Resource Conservation District

Background Information:
None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management, improve operations and maintenance, and promote multi-benefit projects.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

The project is ongoing, has been successful, and the project lead, the West Stanislaus RCD, is motivated to continue the effort.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).

Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Low

Funding for this project would be split evenly among NRCS, growers, and the State through the CVFPP process, should it be granted. Because the local cost share would be relatively high (greater than $500,000), it is considered "Low" in terms of financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

A reduction in erosion from farms in the planning area would reduce sedimentation in the channel and the resultant loss of channel capacity. This may result in reduced risk of loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

A reduction in erosion from farms in the planning area would reduce sedimentation in the channel and the resultant loss of channel capacity. This could result in a regionally-significant reduction in flood risk. Given the uncertainty associated with how w

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

If irrigation technologies are upgraded on a sufficient number of farms to significantly reduce sedimentation, the project may materially increase operations, maintenance, and repair benefits at a locally- or regionally-significant scale. Since the actual

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project would have water supply benefits through conservation as well as water quality benefits because fewer pollutants (e.g., sediment, pesticides, nutrients) would be carried off of farms in surface water runoff. Since the actual magnitude of the project benefits cannot be quantified at this time, the score assigned is "Medium."

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Low

The score is "Low" because the project cost is very high while the magnitude of the project benefits are uncertain.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: Regional Maintenance Technical Support

Project Lead: RD 2091 and RD 2092

Potential Project Partners:

CVFPB - permitting, technical assistance; landowners - funding, governance; DWR - funding, technical assistance; USACE - possibly funding for repairs; Stanislaus County - oversees governance and financing; engineering firms, environmental firms, other technical experts as needed

Short Project Description:

Development and implementation of a shared staffing position to support LMA fulfillment of maintenance responsibilities within the Mid SJR Region.

Long Project Description:

It is very challenging for LMAs in the Mid SJR Region to fulfill their maintenance responsibilities to the satisfaction of both DWR and the USACE. This is true, in part, because LMA's have limited staff resources. Typically, maintenance responsibilities are only a small part of any one staff member's job. It is also because of such factors as conflicting standards, evolving and variable regulatory constraints, inconsistent or missing guidance with regard to permitting and best management practices with regard to compliance with permitting requirements.

By creating and funding a shared staffing position within the Mid SJR Region to support LMA fulfillment of maintenance responsibilities, the LMAs will create a knowledgeable and informed staffmember that will be able to effectively interact with the inspection programs and regulatory agencies to identify maintenance practices that meet inspection agency, regulatory agency, and LMA needs. This staffmember will also proactively engage participating LMAs on maintenance practices, providing advice, leadership, and directing some or all maintenance activities.

An initial effort would be required to establish the governance, financing, staffing, administration, position responsibilities and accounting for in-kind contributions. The position would be funded for at least two years as a pilot project. The initiation of this effort would require at least the participation of 2 or more LMAs; may grow to involve more LMAs after initial establishment. Additionally, the responsibilities of the position might expand after the pilot effort to include additional functions, such as supporting LMAs in seeking project funding from state and federal programs.

Unique Project Characteristics:

Will generate regional benefits; may provide a model for other regions

Project Status:	Pre-planning
Project Cost:	**$**100,000
Project Timeframe:	1-5 years
Cost-sharing:	Participating LMAs, possibly Stanislaus County. Some costs may also be eligible for funding from local, state or federal grant programs
Multi-benefit Project:	Yes
Types of benefits:	The project would improve flood risk management; operations and maintenance; and institutional support.
Source of Project:	RD 2092, consultant team

Background Information:

Maintenance reports; Inspection Reports; Maintenance Agreement with CVFPB; USACE O&M Manual

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management; operations and maintenance; and institutional support as well as promote ecosystem functions and improve water quality, making it a multi-benefit project.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead and co-lead, RD 2092 and RD 2091, respectively.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations,

maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

RD 2092 does not have the resources to cover the local share. However, through partnerships with other LMAs, local agencies, and potential grant funding, it is anticipated that RD 2092 can generate sufficient funds for the project, as the anticipated local cost share is relatively modest.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

If the activities conducted under this project results in reduced flood risk, loss of life may also be reduced.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Medium

If the activities conducted under this project result in reduced flood risk, the value of assets of risk may also be reduced at a regionally-significant level.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

High

The project would materially improve operations and maintenance at a regionally-significant scale and could provide a model for other regions.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

Low

The project would reduce environmentally-damaging maintenance actions by providing technical support for design and permitting.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

High

The project would materially improve institutional support at a regionally-significant scale and could provide a model for other regions.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

The project would improve water quality by reducing environmentally-damaging maintenance actions such as vegetation removal and concrete dumping.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

If successful, the benefits to flood risk management; operations and maintenance; and institutional support would outweigh the modest cost. This project is expected to fall into the lower one third of those analyzed in this RFMP.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."

To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: Riverfront Park Project

Project Lead: City of Patterson

Potential Project Partners:

Stanislaus County, San Joaquin River Valley Coalition, River Partners, San Joaquin River Partnership, California Department of Boating and Waterways

Short Project Description:

Creation of a riverfront park, recreational trail, and enhanced habitat along the western bank of the San Joaquin River between Old Las Palmas Avenue and Eucalyptus Avenue.

Long Project Description:

The proposed Riverfront County Park would extend along the west side of the San Joaquin River from Old Las Palmas Avenue to Eucalyptus Avenue, a distance of approximately 8,000 feet (about 1.5 miles). Although the exact dimensions of the park have yet to be determined, it is intended that the park would vary in width, generally between 100 and 200 feet, creating linear park of approximately 20 acres. The project would restore riparian and upland habitat, extending and enhancing a habitat corridor that has been significantly degraded. Restoration of vegetative cover may reduce flood risk to adjacent and downstream properties. The park's primary amenity, the multi-use recreational trail, would connect with the City of Patterson's planned bicycle and pedestrian network, providing greatly enhanced access to the riverfront, and encouraging bicycling and walking.

Unique Project Characteristics:

This project would improve community health by increasing recreational use of the riverfront. It would environmental health by enhancing and increasing habitat. It would provide opportunities for environmental education and recreational programming.

Project Status:	Pre-planning
Project Cost:	$2,500,000
Project Timeframe:	Undetermined
Cost-sharing:	Cost will be shared by Stanislaus County and the City of Patterson at an undetermined ratio.
Multi-benefit Project:	Yes
Types of benefits:	The project may improve flood risk management, and would promote ecosystem functions and improve recreation, making it a multi-benefit project.
Source of Project:	City of Patterson

Background Information:

The concept for the Riverfront County Park has been explored in the process of developing the City of Patterson's Parks and Recreation Master Plan (currently in draft form). It is an important link in the City's proposed recreational trail system. It would also be the community's primary access to the San Joaquin River for boating, swimming, fishing or just enjoying. Public input has confirmed the value of this proposed park to the community.

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project may improve flood risk management, would promote ecosystem functions, and improve recreation, making it a multi-benefit project.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, the City of Patterson.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).

Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

Together with Stanislaus County, the City of Patterson may be able to fund any needed local cost share, which is anticipated to be less than $500,000. As a result, the project is considered "Medium" in terms of financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

If the proposed park results in assurance of minimal development of the land, the project has the potential to reduce loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

If the proposed park results in the reduction of flood risk, the project has the potential to reduce flood damages on a locally-significant level.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

High

The project is consistent with CVFPP metrics 6a, Shaded Riparian Aquatic (SRA) Cover, and 6b, Riparian, under metric 6, Habitats - Increase and improve quantity, diversity, quality, and connectivity of riverine aquatic and floodplain habitats.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The proposed park would materially improve recreation on a locally-significant scale and provide water quality and public access benefits.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Low

Based on the high cost of the project and the uncertainty regarding the magnitude and nature of its benefits, a score of "Low" is assigned.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

A small decrease in the local tax base would result from

Project Name: Salado Creek Flood Management Project

Project Lead: City of Patterson

Potential Project Partners:
Stanislaus County

Short Project Description:
Widening of Salado Creek from the Delta Mendota Canal to the city limits.

Long Project Description:
The project involves widening of Salado Creek from the Delta Mendota Canal (DMC) to the city limits, which is approximately 6,000 feet in length. The width of Salado Creek would be widened to accommodate 710 cubic feet per second to match the City of Patterson Storm Drain Master Plan sizing requirements. In addition, this project would also limit the Delta Mendota Canal to the City Limits.

Through review of air photos may indicate that some portions of the creek may already be of adequate width to accommodate the design flow. This project estimate assumes that the full length between the DMC and the City limits requires widening.

Unique Project Characteristics:
Upon research of 1916 USGS topographic maps, Salado Creek was channelized prior to 1916. Looking at the government survey from the 1870's, the creek stops and appears on the map to possibly sheet flow or fan.

Project Status:	Pre-planning
Project Cost:	$600,000
Project Timeframe:	Undetermined
Cost-sharing:	Cost will be shared by Stanislaus County and the City of Patterson at an undetermined ratio
Multi-benefit Project:	Yes
Types of benefits:	The project would improve flood risk management.
Source of Project:	City of Patterson

Background Information:
None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

The project would improve flood risk management.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, the City of Patterson.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as “Low” if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for “Low” or “High” Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored “High” if it has been successful in attracting most of the needed funding already.

Medium

Through a partnership with Stanislaus County, the City of Patterson may be able to fund any needed local cost share, which is anticipated to be less than $500,000. As a result, the project is considered "Medium" in terms of financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

Additional capacity to convey flows may result in the reduction of loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

The project would result in a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

Project Name: SB5 Compliance – City of Modesto

Project Lead: City of Modesto

Potential Project Partners:

Stanislaus County

Short Project Description:

Comply with SB 5 regulations through update of the City's relevant planning documents and completion of a preliminary engineering report to identify potential alternatives on how the City can provide 200-year flood protection.

Long Project Description:

Senate Bill 5 was passed in 2007 which requires a 200-year level of flood protection for urban and urbanizing areas within California's Central Valley. Under SB5, development in moderate or special flood hazard areas (i.e. 500-year and 100-year floodplains, respectively) would only be allowed within the Central Valley if the city or county can find, based on substantial evidence in the record, that the development will be subject to flood depths of 3 feet or less during a 200-year flood event. The City is in the process of mapping the 200-year floodplains from the Tuolumne River within Modesto to determine where an Urban Level of Flood Protection (ULOP) finding is required (e.g., where potential depth from a 200-year flood event is greater than 3 feet). This will inform Modesto on where a ULOP finding in the City will be required, and where a ULOP finding is not required. The City is required to make the ULOP finding before: (1) entering into a development agreement for any property that is located within a flood hazard zone; (2) approving a discretionary permit or other discretionary entitlement, or a ministerial permit that would result in the construction of a new residence, for a project that is located within a flood hazard zone; or (3) approving a tentative map, or a parcel map for which a tentative map was not required, for any subdivision that is located within a flood hazard zone.

Phase I of this project will develop proposed amendments to the City of Modesto Urban Area General Plan and City of Modesto Zoning Code to include information associated with the new 200-year flood maps and ULOP provisions, as well as the 2012 Central Valley Flood Protection Plan. Proposed amendments can include supporting goals, policies, and implementation programs for the General Plan, and standards, regulations, and potentially new zoning districts for the Zoning Code.

For areas where ULOP findings are required, the next step, Phase II, will be for Modesto to complete a preliminary engineering report to identify potential alternatives for those areas. Implementation of the recommended alternatives will provide 200-year flood protection to targeted areas of the City. Phase III of this project will be to determine how the City will finance the proposed improvements.

Unique Project Characteristics:

Implementation of this project will enable Modesto to not only comply with SB5 regulations but to determine which areas within the City are most appropriate for growth and where flood risk is minimized. This will enable Modesto to continue to grow and provide opportunities for economic development.

Project Status:	Pre-planning
Project Cost:	$130,000
Project Timeframe:	Phases I and II - 1 year; Phase III - 10-20 years
Cost-sharing:	No opportunities identified to date
Multi-benefit Project:	Yes
Types of benefits:	The project would improve flood risk management and institutional support.

Source of Project: City of Modesto

Background Information:
None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management, institutional support, and is considered a multi-benefit project because there would be an economic benefit in avoiding land development restrictions that would come with non-compliance and in having new development protected from the 200-year flood.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

The analysis and planning called for by this project is required by law.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

The City of Modesto has the resources to carry out Phase I and Phase II of the project. The cost of Phase III is unknown and is likely to be significant. Potential funding sources for Phase III will need to be evaluated during Phase II.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Medium

Improving 200-year flood management would reduce loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

Improving 200-year flood protection management in the City of Modesto would reduce flood damages at a locally-significant scale.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

This project would modestly improve institutional support for flood management entities.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

The project would modestly improve the sustainability of economic development in the area.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The score is "High" because the cost is relatively modest in comparison with the benefits of compliance with state law and the improved floodplain management that would flow from this project into the future.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.

- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

Project Name: SB5 Compliance – City of Newman

Project Lead: City of Newman

Potential Project Partners:

No partners identified at this time

Short Project Description:

Comply with SB 5 regulations through update of the City's relevant planning documents and completion of a preliminary engineering report to identify potential alternatives on how the City can provide 200-year flood protection.

Long Project Description:

Senate Bill 5 was passed in 2007 which requires a 200-year level of flood protection for urban and urbanizing areas within California's Central Valley. Under SB5, development in moderate or special flood hazard areas (i.e. 500-year and 100-year floodplains, respectively) would only be allowed within the Central Valley if the city or county can find, based on substantial evidence in the record, that the development will be subject to flood depths of 3 feet or less during a 200-year flood event.

Phase I of the project will include mapping of the 200-year floodplains in the City to determine where an Urban Level of Flood Protection (ULOP) finding is required (e.g., where potential depth from a 200-year flood event is greater than 3 feet). This will inform Newman on where a ULOP finding in the City will be required, and where a ULOP finding is not required. The City is required to make the ULOP finding before: (1) entering into a development agreement for any property that is located within a flood hazard zone; (2) approving a discretionary permit or other discretionary entitlement, or a ministerial permit that would result in the construction of a new residence, for a project that is located within a flood hazard zone; or (3) approving a tentative map, or a parcel map for which a tentative map was not required, for any subdivision that is located within a flood hazard zone.

In addition, this project will develop proposed amendments to the Newman 2030 General Plan and City of Newman Zoning Code to include information associated with the new 200-year flood maps and ULOP provisions, as well as the 2012 Central Valley Flood Protection Plan. Proposed amendments can include supporting goals, policies, and implementation programs for the General Plan, and standards, regulations, and potentially new zoning districts for the Zoning Code.

For areas where ULOP findings are required, the next step, Phase II, will be for Newman to complete a preliminary engineering report to identify potential alternatives for those areas. Implementation of the recommended alternatives will provide 200-year flood protection to targeted areas of the City. Phase III of this project will be to determine how the City will finance the proposed improvements.

Unique Project Characteristics:

Implementation of this project will enable Newman to not only comply with SB5 regulations but to determine which areas within the City are most appropriate for growth and where flood risk is minimized. This will enable Newman to continue to grow and provide opportunities for economic development.

Project Status:	Pre-planning
Project Cost:	**$**125,000
Project Timeframe:	Phases I and II – 3 years?; Phase III - 10-20 years
Cost-sharing:	City of Patterson could potentially share the costs of the 200-year floodplain mapping as there may be efficiencies for the modeling and maps to be prepared for both jurisdictions at the same time.

Multi-benefit Project: Yes
Types of benefits: The project would improve flood risk management and institutional support.
Source of Project: City of Newman

Background Information:
None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management, institutional support, and is considered a multi-benefit project because there would be an economic benefit in avoiding land development restrictions that would come with non-compliance and in having new development protected from the 200-year flood.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

The analysis and planning called for by this project is required by law.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

The City of Newman has the resources to carry out Phase I and Phase II of the project. The cost of Phase III is unknown and is likely to be significant. Potential funding sources for Phase III will need to be evaluated during Phase II.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Medium

Improving 200-year flood management would reduce loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

Improving 200-year flood protection management in the City of Newman would reduce flood damages at a locally-significant scale.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.

- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

This project would modestly improve institutional support for flood management entities.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

The project would modestly improve the sustainability of economic development in the area.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The score is "High" because the cost is relatively modest in comparison with the benefits of compliance with state law and the improved floodplain management that would flow from this project into the future.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."

To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

Project Name: SB5 Compliance – City of Patterson

Project Lead: City of Patterson

Potential Project Partners:

No partners identified at this time

Short Project Description:

Comply with SB 5 regulations through update of the City's relevant planning documents and completion of a preliminary engineering report to identify potential alternatives on how the City can provide 200-year flood protection.

Long Project Description:

Senate Bill 5 was passed in 2007 which requires a 200-year level of flood protection for urban and urbanizing areas within California's Central Valley. Under SB5, development in moderate or special flood hazard areas (i.e. 500-year and 100-year floodplains, respectively) would only be allowed within the Central Valley if the city or county can find, based on substantial evidence in the record, that the development will be subject to flood depths of 3 feet or less during a 200-year flood event.

Phase I of the project will include mapping of the 200-year floodplains in the City of Patterson's General Plan Area to determine where an Urban Level of Flood Protection (ULOP) finding is required (e.g., where potential depth from a 200-year flood event is greater than 3 feet). This will inform Patterson on where a ULOP finding in the City will be required, and where a ULOP finding is not required. The City is required to make the ULOP finding before: (1) entering into a development agreement for any property that is located within a flood hazard zone; (2) approving a discretionary permit or other discretionary entitlement, or a ministerial permit that would result in the construction of a new residence, for a project that is located within a flood hazard zone; or (3) approving a tentative map, or a parcel map for which a tentative map was not required, for any subdivision that is located within a flood hazard zone.

In addition, this project will develop proposed amendments to the City of Patterson General Plan and City of Patterson Zoning Code to include information associated with the new 200-year flood maps and ULOP provisions, as well as the 2012 Central Valley Flood Protection Plan. Proposed amendments can include supporting goals, policies, and implementation programs for the General Plan, and standards, regulations, and potentially new zoning districts for the Zoning Code.

For areas where ULOP findings are required, the next step, Phase II, will be for Patterson to complete a preliminary engineering report to identify potential alternatives for those areas. Implementation of the recommended alternatives will provide 200-year flood protection to targeted areas of the City. Phase III of this project will be to determine how the City will finance the proposed improvements.

Unique Project Characteristics:

Implementation of this project will enable Patterson to not only comply with SB5 regulations but to determine which areas within the City are most appropriate for growth and where flood risk is minimized. This will enable Patterson to continue to grow and provide opportunities for economic development.

Project Status:	Pre-planning
Project Cost:	$205,000
Project Timeframe:	Phases I and II – 3 years?; Phase III - 10-20 years
Cost-sharing:	City of Patterson could potentially share the costs of the 200-year floodplain mapping with the City of Newman as there may be efficiencies for the modeling and maps to be prepared for both jurisdictions at the same time.

Multi-benefit Project: Yes
Types of benefits: The project would improve flood risk management and institutional support.
Source of Project: City of Patterson

Background Information:
None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management, institutional support, and is considered a multi-benefit project because there would be an economic benefit in avoiding land development restrictions that would come with non-compliance and in having new development protected from the 200-year flood.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

The analysis and planning called for by this project is required by law.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

The City of Patterson has the resources to carry out Phase I and Phase II of the project. The cost of Phase III is unknown and is likely to be significant. Potential funding sources for Phase III will need to be evaluated during Phase II.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Medium

Improving 200-year flood management would reduce loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

Improving 200-year flood protection management in the City of Patterson would reduce flood damages at a locally-significant scale.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.

- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

This project would modestly improve institutional support for flood management entities.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

The project would modestly improve the sustainability of economic development in the area.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The score is "High" because the cost is relatively modest in comparison with the benefits of compliance with state law and the improved floodplain management that would flow from this project into the future.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."

To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

Project Name: Sediment Management Investigation

Project Lead: River Partners

Potential Project Partners:

DWR, CVFPB, flood management agencies relevant to the Upper SJR RFMP and Lower SJR/Delta South RFMP

Short Project Description:

Complete a study that identifies sediment-induced chokepoints along the San Joaquin River in the planning area, the dynamics that create them, and potential actions to improve flood conveyance in those areas.

Long Project Description:

This project would include several analyses to better inform sediment management in the planning area. If specific flood hydraulic analyses for the mainstem of the San Joaquin River in the Mid SJR Region's planning area have been completed prior to the initiation of this study, those models and results would be relied upon adequate to generally identify hydraulic chokepoints created by sedimentation during flood events with stages in the vicinity of the levee crest profile, assuming all flows are contained by the current levees. If those hydraulic studies have not yet been completed, this study would rely on new applications of the existing Central Valley Floodplain Evaluation and Delineation Program (CVFED) model of the San Joaquin River and representations of flood hydrology adequate for the study purpose.

To determine how the channel has changed over time, recent topographic and bathymetric data represented in the hydraulic model would be compared to data from existing sources, including the 1917 Debris Commission Survey, construction of the project levees (1955), and Sacramento and San Joaquin Basins Comprehensive Study (2002).

Lastly, a field survey would be completed to gather San Joaquin River sediment data for current and future study purposes. With the assumption that the river is capacity-limited in delivering sediment into and out of the Mid SJR Region's planning area, grain size data collected as part of this study would be combined with available channel geometry data and used to estimate upstream sediment inflow to the region, outflow from the region, and typical transport capacities for reaches within the study area. The grain size data could also be used for potential future channel migration analysis, sediment transport modeling, and/or evaluation of dredge material disposal options, not included as part of the current study. Identification of apparent areas of erosion and deposition in the field can cross-check the desktop chokepoint analysis and provide a basis for estimates of the volumes of sediment in the study reach that have been contributed by bank erosion in recent years and sediment that has been stored in the channel as deposits during a similar time frame. Data collected and estimated in the course of this study will be used to develop an approximate sediment budget and a conceptual model of sediment transport dynamics for the San Joaquin River between the Merced River and the Stanislaus River. Based on the information developed through the activities described above, sediment management recommendations would be made for the San Joaquin River to improve flood conveyance within the Mid SJR Region's planning area.

Unique Project Characteristics:

None specified

Project Status:	Pre-planning
Project Cost:	**$**250,000
Project Timeframe:	1-5 years
Cost-sharing:	Undetermined
Multi-benefit Project:	Yes

Types of benefits: The project would improve flood risk management; operations and maintenance; and institutional support.

Source of Project: River Partners

Background Information:

1917 Debris Commission Survey, construction of the project levees (1955), and Sacramento and San Joaquin Basins Comprehensive Study (2002)

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management; operations and maintenance; and institutional support.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, the River Partners.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

River Partners is expected to either supply the local cost share or successfully fundraise for it. However, the local cost share is anticipated to be greater than $20,000, so the project has been assessed as having "Medium" financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

N/A

Given the uncertainty associated with post-study implementation of flood management actions, no benefits are identified.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.

- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

N/A

Given the uncertainty associated with post-study implementation of flood management actions, no benefits are identified.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

Information gained through the study may be used to improve operations, maintenance, and repair.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

Low

Understanding the sediment transport regime in the region would inform ecosystem rehabilitation efforts, but would not directly improve ecosystem function.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The information gained through the proposed study has the potential to be very useful to flood and resource managers and has a relatively low cost.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc. Note: if the project is a study, score as "Medium."

To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are identified.

Project Name: Storm Drainage Enhancements along Salado Creek

Project Lead: City of Patterson

Potential Project Partners:
No partners identified at this time

Short Project Description:
Installation of reinforced concrete pipelines under the California Northern Railroad wooden bridge to improve storm drainage along Salado Creek.

Long Project Description:
The inlet structure for the 96" Cured in Place Pipe (CIPP) just downstream of the California Northern Railroad (CNRR) wooden bridge has a limited capacity and includes a debris collection grate at the pipe inlet that is too small. These conditions contribute to frequent flooding within and upstream of this area and prevent the available capacity in the 96" CIPP from being fully utilized. The inlet structure needs to be enlarged at this location to reduce flooding and to provide discharge capacity.

This project is located downstream of the State Highway 33 and starts where the CNRR bridge crosses Salado Creek. The project will install two new 72 inch diameter reinforced concrete pipelines (RCP) under the bridge. Each pipe will be 60 feet in length. The existing trash rack at the entrance to the 96 inch pipeline will also be replaced with a new static (non-powered) unit. A new precast headwall will be installed on the upstream side of the twin 72 inch pipelines. The canal between the outlet of the new pipeline and the existing 96 inch pipeline will be lined with concrete.

Unique Project Characteristics:
None specified

Project Status:	Pre-planning
Project Cost:	**$**880,000
Project Timeframe:	Undetermined
Cost-sharing:	No opportunities identified to date
Multi-benefit Project:	Yes
Types of benefits:	The project would improve flood risk management.
Source of Project:	City of Patterson

Background Information:
None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.

- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

The project would improve flood risk management.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, the City of Patterson.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects

having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

The City of Patterson may have the resources to supply a local cost share. However, the local cost share is anticipated to be greater than $20,000, so the project has been assessed as having "Medium" financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

Reducing flood risk at the project site may also reduce loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

The project is expected to create a locally-significant reduction in flood risk at and around the project site.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

N/A

No benefits identified.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.

- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

Improved protection for assets within the vicinity of the project site would result in a material increase in economic benefits at a locally-significant scale.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

No significant dis-benefits are anticipated, but there may be an increase in operations, maintenance, and repair requirements as a result of the project; this is anticipated to fall in the mid-range of the projects considered.

Project Name: Three Amigos (also known as the Non-structural Alternative at the San Joaquin River National Wildlife Refuge)

Project Lead: San Joaquin River National Wildlife Refuge

Potential Project Partners:

River Partners, USFWS Anadromous Fish Restoration Program, USACE, early project partners - USDA/NRCS, DWR, CALFED

Short Project Description:

Project to restore flooding and transient floodwater storage to more than 3,100 acres of historic floodplain, restore riparian habitats, and promote river physical processes of scour and deposition along 3 miles of the San Joaquin River. While the lands have been purchased, additional investment is needed to implement flood risk reduction goals consistent with the Refuge's habitat management goals. Needed efforts include planning and design of the Refuge for flood management as well as removal of levees from the federal project.

Long Project Description:

As a result of the January 1997 floods, the San Joaquin River National Wildlife Refuge (SJRNWR) is working with the US Army Corps of Engineers (USACE) to plan a non-structural flood management alternative (NSA). This alternative includes breaching existing mainstem San Joaquin River levees on refuge land to protect and restore riverine and riparian habitat. This proposed NSA will provide floodplain inundation behind project levees of up to 3,100 acres on the Refuge in some years. The focus of the NSA study, being led by the USACE, has been to identify potential levee breech sites and evaluate potential flooding risk to adjacent landowners. The proposed scope of work will take the next step to identify and explore the potential impacts of the NSA alternative and help to refine this alternative to insure benefits to native aquatic, terrestrial, and avian species. Additional effort beyond the USACE study is needed to examine the potential impacts to existing infrastructure. It will also be necessary to assess potential hazards to wildlife caused by floodplain inundation, particularly terrestrial mammals. The adequacy of constructed floodwater refugia will need to be evaluated, particularly with respect to the endangered riparian brush rabbit.

This project will accomplish all the steps needed to allow implementation of the NSA to proceed. It will build on the technical studies and NSA alternative development that has occurred to date. These include the prior and current USACE NSA analysis, floodplain topographic data generated by DWR for the FloodSAFE Program, and the current study funded by DWR to develop a Water Control Structure design concept for the Refuge. Evaluation of potential resource management issues and monitoring of interim flood conditions prior to full NSA implementation will help the SJRNWR to identify and design the optimal combination of management and infrastructure modifications to meet flood risk reduction objectives while at the same time providing benefits to juvenile Chinook salmon, steelhead, and other native fish species, as well as native wildlife, including riparian obligate birds and mammals. These analyses and additional effort will be required to support the project through any necessary USACE and Central Valley Flood Protection Board procedural steps to allow implementation of the NSA, in addition to environmental documentation and permitting.

Unique Project Characteristics:

The envisioned use of the Refuge as connected floodplain and a site for transitory flood storage would be a remarkable ecological asset in the region and would benefit many endangered and native species in the San Joaquin River Basin. In particular, the proximity of the SJRNWR to salmon-producing tributaries is such that all juvenile salmonids produced in the Tuolumne and Merced rivers pass through riverine habitat of the

SJRNWR. Improved floodplain habitat could provide additional beneficial rearing and growth opportunities in a mainstem system with very little remaining physical habitat diversity. Development and implementation of an NSA that considers fish benefits provides a unique opportunity to the SJRNWR to cooperate with other fish management interests in planning mainstem habitat improvements to benefit the native fish fauna.

Project Status: Planning
Project Cost: $5,500,000
Project Timeframe: More than 5 years
Cost-sharing: No opportunities identified to date
Multi-benefit Project: Yes
Types of benefits: The project would improve flood risk management, promote ecosystem functions, and promote multi-benefit projects.
Source of Project: USFWS AFRP

Background Information:

The USACE is the federal sponsor for all SPFC levees within the region. Under Public Law 84-99, the USACE is authorized, when requested by the non-federal sponsor of a flood work, to implement Non-Structural Alternatives (NSA's) to the rehabilitation, repair, or restoration of flood works damaged by floods. Following the devastating floods in 1997, the USACE convened an Inter-Agency Task Force to evaluate the locations where levees failed in the San Joaquin Basin, and identify opportunities for NSA's. Of 17 sites evaluated in the San Joaquin Basin, one rose to the forefront as an opportunity supported by many partners. The landowners in RDs 2099, 2100, and 2102 (collectively the "Three Amigos") were willing to sell their flood-prone lands, and the USFWS was willing to accept ownership of those lands for management as flood-prone wildlife habitat and inclusion into the adjacent San Joaquin River National Wildlife Refuge (SJRNWR). The USDA NRCS partnered with USACE and USFWS to purchase perpetual floodplain easements on the lands; the USACE purchased flowage easements and the USFWS purchased the underlying fee title of the properties. Additionally, a Memoranda of Agreement was drafted and signed by the USFWS, USACE, and California Reclamation Board (now Central Valley Flood Protection Board) to implement the NSA.

Conceptually, the NSA included the purchase of flowage easements over the lands that were previously provided flood protection by the levees within the Three Amigos in lieu of the levee breach locations being repaired. This required modification to the maintenance manuals for these Reclamation Districts to eliminate the need to perform levee maintenance (i.e. the levees would be maintained in a breached condition as the levees no longer provide flood protection to the district lands). The USACE offered to construct ring levees around existing structures that would be exposed to more frequent flooding under the implementation of the NSA, however ring levees were not constructed at the request of the landowner. Flowage easements were offered on lands outside of the Three Amigos to ensure that unintended flood damages were compensated; however two landowners rejected the offer. Until these remaining landowners accept the flowage easements, the maintenance manual cannot be modified. Today, implementation of the NSA is still largely supported by the resource agencies and the original signatories to the MOA, however the required flowage easements have not yet been offered or accepted.

The Three Amigos cover an area of approximately 3,200 acres. During the 1997 flood event, four failures occurred on the west or left bank levee along the San Joaquin River flooded RDs 2099, 2100, 2101, and 2102. These levees were subsequently repaired even as steps were being taken to implement the Non Structural Alternative. Since that time, however, the SJRNWR has continued to experience flooding, most recently in late December 2010, early January 2011, and late March 2011. This flooding occurs as high river flows back up the West Stanislaus Irrigation District intake canal, which cuts across the SJRNWR between RD 2100

(Hagemann Tract) and RD 2102 (Lara Tract). The canal was at one time protected at its mouth by a levee penetrated by a dual box culvert connection to the canal which was damaged and removed some years ago. The canal is bordered by berms that are prone to overtopping and breaching in high water. At the end of December 2010, flood water flowed through such a breach and flooded a portion of the Lara tract. Flooding in late March 2011 resulted in extensive flooding at the SJRNWR, including both the Lara tract and the Hagemann tract. Drainage of floodwaters from behind breached levees often requires active pumping. Following flooding in the spring of 2006, pumps were inaccessible and lands on the dry side of the RD 2100 levee (Hagemann tract) were inundated for months after the river levels had receded. Such long duration flooding has negative impacts to natural areas, as was documented by River Partners (2008).

Hydraulic modelling to support the restoration of lands formerly protected by the Three Amigos levees has shown that high-elevation refugia and appropriately located levee breaches are needed to ensure that the wildlife habitat requirements of resident populations are met. Since 1997, the levee slopes across the majority of the Three Amigos have been vegetated with brushy native plants to provide cover for terrestrial species fleeing floodwaters, and over 30 acres of elevated refugia have been constructed in consultation with wildlife experts, flood management engineers, and resource agency personnel.

In 2010, DWR has invested in the Ecosystem Restoration and Floodwater Attenuation (ERFA) project at the SJRNWR which includes 551 acres of habitat restoration within the Three Amigos footprint as well as the construction of enhanced reconnection facilities to increase the frequency of inundation of the floodplain fields and to decrease the residence time for impeded floodwaters on the dry side of the levees. The final implementation of this construction will require realization of the NSA in the form of a revised maintenance manual for the SPFC facilities within the Three Amigos. The agencies continue to work to implement this important demonstration project and to illustrate the pathway for removal of levee maintenance obligations from federal project levees. Should other RDs in the Central Valley wish to implement similar NSAs, lessons learned through the implementation of the Three Amigos project may provide a cost savings and a time savings, although the ultimate implementation of the NSA project has yet to be seen.

In 2012, the 1600-acre Dos Rios Ranch was purchased by River Partners for management as flood-prone wildlife habitat and potentially as a transient floodwater storage basin. Funding for the acquisition was provided by the USDA NRCS, California Wildlife Conservation Board, DWR, the California River Parkways Program, the San Francisco Public Utilities Commission, the USFWS North American Wetland Conservation Act (NAWCA), the US Bureau of Reclamation and USFWS Central Valley Project Conservation Program, and River Partners. The USDA NRCS holds a Wetland Reserve Program easement, the Tuolumne River Trust holds a Conservation Easement, and River Partners holds the fee title for the property. In 2013, the remaining 497 acres of flood-prone land within Reclamation District 2092 (Dos Rios) were purchased by River Partners for similar purposes. The Tuolumne River Trust holds a Conservation Easement on the property which expressly provides for the future development of habitat mitigation opportunities for SPFC impacts on 191 acres of the property, and River Partners owns the fee title. River Partners hopes to use the NSA example from the Three Amigos project as a model for floodplain reconnection on the RD 2092 properties. Habitat restoration is currently underway and is expected to be completed in phases over the next 8 to 10 years. Restoration activities include screening river pumps to protect juvenile salmonids, earthwork to create floodplain swales and benches as well as high-elevation refugia for terrestrial species, planting, and ongoing vegetation maintenance, and eventual modification to the existing levee to provide for floodplain reconnection and transient floodwater storage. Additional funding and permitting is required to complete the full build-out of the Dos Rios Ranch Habitat Restoration Project.

The following are additional references on this project:

Portion of AFRP website that features the project:

http://www.fws.gov/stockton/afrp/project.cfm?code=2001-09

USFWS, 2006. San Joaquin River National Wildlife Refuge Final Comprehensive Conservation Plan. September 29. (Available at http://www.fws.gov/Refuge/San_Joaquin_River/what_we_do/conservation.html)
USACE, 2000. Memorandum of Agreement Between the Department of the Army and the United States Fish and Wildlife Service for Implementation of Nonstructural Alternative to the Repair or Restoration of Levees for Reclamation Districts 2099, 2100, and 2102. June 27.
USACE, 1998. PL 84-99 Nonstructural Alternative to Structural Rehabilitation of Levees, San Joaquin River Sub-basins 12 and 13, Reclamation Districts 2099, 2100, and 2102, Sacramento District. September.
USACE, 1997. FONSI (with: Environmental Assessment: PL 84-99 Levee Rehabilitation, Reclamation District 2099, San Joaquin River Basin, Stanislaus County, CA. July 29).

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management, promote ecosystem functions, and promote multi-benefit projects.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

The project has reasonable assurance of being implemented by the lead, the San Joaquin River National Wildlife Refuge, which is committed to seeing the project through and has the support of the USACE and DWR in doing so.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).

Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

The project is currently more than 90% funded, and financial feasibility has therefore been evaluated as "High," despite having relatively high costs.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

It is possible that the transitory storage provided by the project could result in the reduction of loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

Enhanced floodplain reconnection at the SJRNWR and securing flood easements at lands at risk from project changes are expected to create at least a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project may allow for the cessation of maintenance of 6.9 miles of levee at the SJRNWR, more than 10% of the levee miles within the region. Because this aspect of the project benefits remains uncertain, we have assumed that the project will at least m

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

High

The project is consistent with CVFPP metrics 5a, Inundated Floodplain, and 5b, Riverine Geomorphic Processes, under metric 5, Ecosystem Processes - Improve and enhance natural dynamic hydrologic and geomorphic processes; metrics 6a, Shaded Riparian Aquatic (SRA) Cover, 6b, Riparian, under metric 6, Habitats - Increase and improve quantity, diversity, quality, and connectivity of riverine aquatic and floodplain habitats; metric 7, Species - Contribute to the recovery and stability of native species populations and overall biotic community diversity, for Central Valley steelhead, Central Valley fall-run Chinook salmon, and other species (specific species metrics for the CVFPP haven't been developed yet); and metric 8b, Levees, under metric 8, Stressors - Reduce stressors related to the development and operation of the flood management system that negatively affect important species.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

The project improves institutional support by providing perpetual land management by the federal government. Prior to the project, the lands were managed by three local districts lacking the resources to manage the flood project.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

High

The project would provide material recreational, water quality, public access, and possibly groundwater recharge benefits at a locally-significant scale or better.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The project is very cost-effective relative to other projects with similar outcomes (more than 3,000 acres restored for less than $50m invested to date).

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No significant dis-benefits are identified. A minor reduction in the tax base is an expected dis-benefit. While the property is currently subject to a lower tax rate through a Williamson Act contract, the property value is expected to descrease after project implementation, which would reduce the property tax collected.

Project Name: Tuolumne River Flood Management Feasibility Study

Project Lead: Stanislaus County

Potential Project Partners:
City of Modesto, USACE

Short Project Description:
Complete a USACE Feasibility Study, or a study similar in scope, that evaluates how the management of the Tuolumne River could be revised to improve flood control, enhance aquatic habitat, and improve water quality.

Long Project Description:
The Northern California Streams, Tuolumne River, California, Reconnaissance Study, Section 905(b) Analysis was prepared by the USACE and published in October 1998. The purpose of the investigation was to document flooding and related problems, and to identify potential opportunities for flood protection and environmental restoration in the Lower Tuolumne River Watershed. Stanislaus County and the City of Modesto were identified as potential non-federal sponsors of the feasibility analysis, which is the next phase of analysis per the USACE protocol. Several measures were identified during the process that were deemed worthy of further analysis at the feasibility level to be included as part of this project. These measures included the evaluation of 1) detention/wetland habitat basin along Dry Creek; 2) a potential site for small off-stream multi-purpose reservoir along the Tuolumne River for flood control storage, habitat, and water supply below La Grange Dam; 3) the construction of levees from below the City of Modesto Wastewater Treatment Plant to approximately two miles east of the airport along the Tuolumne River for flood control and environmental restoration; 4) the riparian corridor from below La Grange Dam to the confluence of the San Joaquin and Tuolumne Rivers (approximately 52 miles); 5) a low-flow meandering channel within the riparian corridor; 6) non-structural measures such as flood flow easements, relocation, elevating structures, ring levees, floodwalls, and floodplain management restrictions along Tuolumne River and Dry Creek; 7) channelization of the Tuolumne River at and downstream of the 9th Street Bridge in Modesto to relieve the Tuolumne River floodwater backwater effect in Dry Creek; and 8) the need to increase the channel capacity of the Tuolumne River at the 9th Street Bridge from 9,000 to 20,000 cubic feet per second (cfs).

Since publication of the Northern California Streams, Tuolumne River, California, Reconnaissance Study, Section 905(b) Analysis, the need for at least one additional analysis has been identified and is included as part of this project. A hydraulic analysis of current conditions is needed to identify any existing constrictions or structures at risk of flood damage along the Tuolumne River. The hydraulic analysis should analyze flood releases of 9,000-15,000 cfs with Dry Creek flows of 5,000-6,000 cfs. With this information in hand, agencies responsible for flood management would be better able to focus future flood damage reduction projects while also improving flood operations of Don Pedro Dam. Other necessary analyses may be identified in the reevaluation of the scope of the feasibility study, which would be necessary given that the reconnaissance study was published more than 15 years ago in 1998.

Unique Project Characteristics:
This project would protect human life and property. It marries flood management and habitat restoration.

Project Status:	Dormant
Project Cost:	$3,000,000
Project Timeframe:	Approximately 5 years
Cost-sharing:	USACE, Stanislaus County, and City of Modesto

Multi-benefit Project: Yes
Types of benefits: The project would improve flood risk management and institutional support.
Source of Project: USACE

Background Information:
See the Northern California Streams, Tuolumne River, California, Reconnaissance Study, Section 905(b) Analysis (October 1998)

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management, institutional support, and water quality, making it a multi-benefit project.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified co-leads, the City of Modesto and Stanislaus County.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

The project cost is undetermined, and local cost-share partners have not been identified. It is anticipated that the City of Modesto and Stanislaus County can either supply the local share or form local cost-share partnerships. However, the local cost share is anticipated to be greater than $20,000, so the project has been assessed as having "Medium" financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Medium

The study would generate information that would inform flood management and lead to actions that would reduce loss of life in Modesto, which has the highest population in the planning area.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.

- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Medium

The study would generate information that would inform flood management and may lead to actions that would result in the reduction of flood risk in terms of loss of life in the relatively populated river corridor.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

Low

Several measures related to ecosystem rehabilitation are included in the scope of the proposed study, but the magnitude of benefits that will flow from actions recommended by the study have not been defined. A score of "Low" has been selected to represent a modest expectation of ultimate project outcomes flowing from this study.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

Ecosystem rehabilitation has the potential to improve water quality. The study includes an analysis of detention/wetland habitat along Dry Creek, which, if implemented, would be expected to improve water quality. A score of "Low" has been selected to represent a modest expectation of ultimate project outcomes flowing from this study.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.

Note: if the project is a study, score as "Medium."

To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated. (Betty, would you consider funding a study rather than an implementable project a dis-benefit?)

Project Name: Tuolumne River Regional Park – Carpenter Road/West Modesto Flood Management and Park Development

Project Lead: Tuolumne River Regional Park Joint Powers Authority

Potential Project Partners:

City of Modesto, City of Ceres, Stanislaus County, Tuolumne River Trust

Short Project Description:

Help reduce flood damages in West Modesto neighborhoods while developing the adjacent Tuolumne River Regional Park.

Long Project Description:

The January 1997 flood caused major damage to many areas throughout the Central Valley. In Stanislaus County, one area that was heavily impacted is West Modesto adjacent to the Carpenter Road area of the Tuolumne River Regional Park and has been identified in the 2008 FEMA 100-year Flood Zone. Through this project, a small flood management levee is proposed to be constructed along the northern edge of the Tuolumne River Regional Park, south of the residences, which would protect the neighborhood while the undeveloped parkland is developed. Additionally, habitat restoration and park development activities would be undertaken in order to bring the undeveloped open space area back to a more riparian and natural riverine habitat while creating nature-based land forms to channel flood waters onto and through the Carpenter Road Area of the Tuolumne River Regional Park limiting flooding into the adjacent neighborhoods.

Unique Project Characteristics:

Installing a flood management levee would contribute to protecting human life and property during periods of high water flows in the Tuolumne River. This project marries flood management, habitat restoration, and park development and could be completed with other flood reduction, park development and habitat restoration projects on the Tuolumne River.

Project Status: Planning. The Tuolumne River Regional Park Master Plan, adopted in 2001, includes the overview for development of the Carpenter Road Area. Funding is required to implement the construction of the levee and to develop the Specific Plan for the Carpenter

Project Cost: $750,000

Project Timeframe: Approximately 2 years

Cost-sharing: No opportunities identified to date

Multi-benefit Project: Yes

Types of benefits: The project would improve flood risk management, promote ecosystem functions, and improve recreation, making it a multi-benefit project.

Source of Project: City of Modesto on behalf of the Tuolumne River Regional Park JPA

Background Information:

None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management, promote ecosystem functions, and improve recreation, making it a multi-benefit project.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

The project has broad support and capable project co-leads, the Tuolumne River Regional Park and Tuolumne Joint Powers Authority.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

The project co-leads do not have the resources to meet the local cost share, and no funding partners have been identified. Additionally, the local cost share is anticipated to be greater than $20,000, so the project has been assessed as having "Medium" financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Medium

The project would improve flood protection in West Modesto neighborhoods, and is expected to reduce loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

The project would improve flood protection in West Modesto neighborhoods, and is expected to reduce flood damages at a locally-significant level.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified. The project would add flood management facilities and, therefore, would add to operations, maintenance, and repair requirements. This is noted under RC-10.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

High

The project is consistent with CVFPP metrics 6a, Shaded Riparian Aquatic (SRA) Cover, and 6b, Riparian, under metric 6, Habitats - Increase and improve quantity, diversity, quality, and connectivity of riverine aquatic and floodplain habitats. The project is also consistent with the Habitat Restoration Plan for the Lower Tuolumne River.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project would materially increase recreation and public access benefits on the Tuolumne River at a locally-significant scale.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The score is "High" because the project would provide flood risk reduction, park development, and habitat enhancement in an important urban center at a relatively low cost.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc. Note: if the project is a study, score as "Medium."

To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

Project Name: Tuolumne River Regional Parkway

Project Lead: Tuolumne River Regional Park Joint Powers Authority

Potential Project Partners:

City of Modesto, City of Ceres, Stanislaus County, Tuolumne River Trust

Short Project Description:

Continued development of the undeveloped areas of the Tuolumne River Regional Park including the Gateway Parcel.

Long Project Description:

Development of these two areas of TRRP will focus on protecting and enhancing sensitive habitats and natural areas, including wetlands and riparian corridors; preserving and enhancing existing wildlife habitat areas; protecting and enhancing aquatic species and habitat; promoting a flood management program that provides protection from catastrophic flooding and contributes to the ecological values of the river corridor; developing educational programs that emphasize individual and community responsibility for resource protection and conservation and design areas within the overall park to accommodate multiple purposes and changes in recreational preferences over time while creating active and passive areas within the park.

Development of the 87-acre Gateway Parcel will provide a high-profile public gathering place, close to the commercial centers of Modesto and Ceres and accessible to the rest of the region along major arterial streets and California state Highway 99. In addition to the public gathering areas the park will include a substantial trail network, river access points, active and passive recreational zones, extensive riparian restoration work, storm water purification wetlands and educational interpretive elements.

Development of the 185-acre Carpenter Road Area will provide area for active use of a planned-for sports complex along with a place for land and water reclamation and restoration and educational interpretation. The site will include an extensive river promenade trail network, a mile and half of riparian corridor restoration and more the 100 acres of new forests and meadows along with storm water purification wetlands. Lastly, the development of the Carpenter Road Area will include a nature interpretive center to be located near the sports complex and will host exhibits about the riparian restoration in the park, new forests and meadows, and the many wildlife species that live in and along the river.

Unique Project Characteristics:

The continued development of TRRP will promote conservation and open space along the 7 river miles long park while limiting catastrophic flooding in the neighborhoods adjacent to TRRP. This overall project marries flood management, habitat restoration, educational opportunities, park development and open space conservation.

Project Status:	Planning and construction
Project Cost:	$60,000,000
Project Timeframe:	15-25 years to completion
Cost-sharing:	City of Modesto, County of Stanislaus, State of California Natural Resources Agency have all contributed over $1 million each to this project with grants from the State of California totaling approximately $5.5 million to date.
Multi-benefit Project:	Yes
Types of benefits:	The project would promote ecosystem functions and recreation, making it a multi-benefit project.
Source of Project:	City of Modesto on behalf of the Tuolumne River Regional Park JPA

Background Information:
None provided

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.
Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project would improve flood risk management, promote ecosystem functions, and promote recreation, making it a multi-benefit project.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified co-leads, Tuolumne River Regional Park and the Tuolumne Joint Powers Authority.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).

Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Low

Significant funding has been provided by cost sharing partners. However, while substantial, the funding is a small part of the estimated cost of the project. Because the local cost share is anticipated to be greater than $500,000, the project has been assessed as having "Low" financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

The project would limit catastrophic flooding in the neighborhoods adjacent to the TRRP, which may reduce loss of life.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

The project would limit catastrophic flooding in the neighborhoods adjacent to the TRRP, which would create a locally-significant reduction in flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-6. ***Ecosystem function*****.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

High

The project is consistent with CVFPP metrics 6a, Shaded Riparian Aquatic (SRA) Cover, 6b, Riparian, and 6c, Marsh, under metric 6, Habitats - Increase and improve quantity, diversity, quality, and connectivity of riverine aquatic and floodplain habitats. The project is also consistent with the Habitat Restoration Plan for the Lower Tuolumne River.

RC-7. ***Institutional support*****.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

N/A

No benefits identified.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project would materially increase recreation and public access benefits on the Tuolumne River at a locally-significant scale.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc. Note: if the project is a study, score as "Medium."

To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

Project Name: Westside Creeks On-Farm Multi-Benefit Program

Project Lead: Audubon California

Potential Project Partners:

West Stanislaus Resource Conservation District, irrigation districts, Natural Resources Conservation Service, United States Fish and Wildlife Service, California Wildlife Conservation Board

Short Project Description:

Provide outreach and technical assistance to landowners in the Stanislaus County Westside Creek watersheds for multi-benefit flood risk reduction projects.

Long Project Description:

This project would involve Audubon California reaching out to farmers and coordinating multi-benefit flood protection projects throughout entire watersheds on Del Puerto, Ingram-Hospital, and Orestimba Creeks. By addressing an entire watershed, as opposed to supporting piecemeal restoration projects, this project's efforts will match the scale of the solution to the scale of the problem. A three-year program is envisioned that reduces flood risk, prevents erosion, improves water quality, and enhances wildlife habitat and pollinator services on 20 miles or more of creek.

This program proposes supporting project development (landowner outreach, grant writing, permitting, and planning). Various entities will be engaged that could include the West Stanislaus Resource Conservation District , a Conservation Corps (either the California Conservation Corps or the San Joaquin County Regional Conservation Corps), or a local Audubon Society chapter, as well as the landowner, in the on-the-ground implementation, including site preparation, plant installation, and maintenance for two to three years. Typical maintenance tasks include drip irrigation, weed control, and possibly replanting in the case of plant failure

Prior to establishing a combination of native trees, shrubs, forbs, grasses and sedges, the project will likely involve the landowners and NRCD engineers to reduce, or lay back, the bank slope to facilitate plant establishment. This practice has the benefit of increasing channel capacity in the upper portion, thereby reducing flood risk. We then stabilize the new slope by plugging sedges and rushes, which both stabilize the slope, through their root action, and filter water going into the creek.

Unique Project Characteristics:

The project lead, Audubon California, has a proven track record of working with farmers to enhance the wildlife value of farms. Over the past 15 years, Audubon staff has worked with over 100 landowners throughout the Sacramento Valley. The Audubon approach is to use their expertise to reach out to farmers, help identify multiple funders, seek permits, and plan restoration projects. They work closely with the farmer, Resource Conservation Districts, and Conservation Corps to implement the projects.

Project Status: This project is in the concept phase, but since the project lead is currently conducting very similar work in the Sacramento Valley; thus, work could begin very quickly if funding were allocated.
Project Cost: $75,000
Project Timeframe: 3 years
Cost-sharing: The project lead, Audubon California, has been very successful in attracting partners for on-farm habitat restoration. We regularly work with NRCS, USFWS Partners of Fish and Wildlife Program, and the Wildlife Conservation Board. The project lead has also been able to leverage this funding to attract considerable foundation support. During the past two years, the project lead has brought in over $1,000,000 from

state, federal, and private sources to support ten projects. The project lead anticipates that this project will also be funded by multiple sources.

NRCS's Bay Delta Initiative is funding $6,000,000 over five years of water-quality projects on Ingram-Hospital Creek, and this project would incorporate water-quality benefits, so we may be able to use those funds as a cost share. NRCS' EQIP program could also potentially be tapped for wildlife benefits.

The Partners of Fish and Wildlife Program office for the area is potentially interested in contributing $75,000 over three years to these multi-benefit projects. Further, they think there may be potential funding from the regional office for a large-scale program.

Multi-benefit Project: Yes

Types of benefits: The project is anticipated to improve flood risk management; operations and maintenance; and institutional support.

Source of Project: Through the project lead's relationship with the West Stanislaus RCD, they have met several landowners in these watersheds who have asked Audubon California for help implementing this kind of project.

Background Information:

Audubon California has been planning and implanting on-farm habitat restoration projects for 15 years. This work in Yolo County began by the invitation of local farmers. Since that time, Audubon has sought to increase the pace, scope, and scale of our work by expanding into Solano, Colusa, San Joaquin, Stanislaus, and Merced Counties. One of the primary practices is to vegetate waterways that carry agricultural drainage water, as these channels often have available moisture in the summer, which enhances the success of plant installation. When this is done, the channel is widened, and the slope reduced, as it provides space for the vegetation we establish, and reduces erosion.

Audubon California collaborates with The Nature Conservancy and Point Blue Conservation Science in the Migratory Bird Conservation Partnership, where each organization lends its strength to the larger effort of enhancing migratory bird populations in the Central Valley. One of Audubon California's roles in the partnership is reaching out to farmers and providing technical assistance on farm edge plantings, and ensuring that the projects we develop provide food, shelter, and nest sites for migratory and resident birds. In the last few years, several landowners on Del Puerto Creek have asked Audubon California for help with identifying funding opportunities and grant writing, permitting, and planning multi-benefit flood control projects. Audubon's interest is in establishing demonstration projects on working farms that benefit birds and other wildlife, and will lead to large-scale adoption of these practices.

Audubon has observed that many growers are farming to the edge of Del Puerto Creek, and the banks are steep and failing in many places. According to anecdotal evidence, the channel capacity is inadequate in places to carry flood flows during the significant rain events which occur every two to three years. Audubon's typical farm edge planting practice is to reduce the bank slope to facilitate plant establishment. This practice has the added benefit of increasing channel capacity, thereby reducing flood risk.

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

High

The project is anticipated to improve flood risk management; operations and maintenance; and institutional support as well as promote ecosystem functions and multi-benefit projects.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.
Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

Medium

The score is "Medium" because the project has been developed as a concept, has a description, and identified lead, Audubon California.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

Medium

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).
Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan, projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.
- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the

planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

High

Audubon may be able to fundraise to supply the local cost share. Because the estimated project local cost share is quite modest, the financial feasibility is evaluated as "High."

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

Low

If improved coordination among Westside Creeks landowners results in reduced flood risk, loss of life may also be reduced.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

If improved coordination among Westside Creeks landowners results in reduced flood risk, a reduction in damages could occur at a locally-significant scale.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.

- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

The project is anticipated to materially improve channel maintenance at a locally-significant scale.

RC-6. ***Ecosystem function*.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

Medium

Audubon is specifically interested in supporting efforts that incorporate a restoration goal. While project benefits and magnitudes have not specifically been identified at this stage, the project is expected to increase ecosystem function at some level, and would support the Central Valley Joint Venture Implementation Plan and the Riparian Bird Conservation Plan.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project would materially increase institutional support at a locally-significant level. It is anticipated to provide education, funding planning, and design support to landowners along the targeted waterways.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Low

Audubon is specifically interested in supporting efforts that incorporate a restoration goal. While project benefits and magnitudes have not specifically been identified at this stage, the project is expected to at least improve water quality at some level, and a score of "Low" has therefore been assigned.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

High

The cost of the project is very low when compared to the benefits.

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.
- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

High

No dis-benefits are anticipated.

Project Name: WSID Fish Screen and Change in Point of Diversion Project

Project Lead: West Stanislaus Irrigation District

Potential Project Partners:

Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Services (USFWS), U.S. Bureau of Reclamation (USBR)

Short Project Description:

This project will help support three phases of the West Stanislaus Irrigation District (WSID) Fish Screen Project, which will significantly improve site-specific and regional flood management and resilience as well as ecosystem enhancement. Phase 1 would provide cost-share to complete the planning, design and permitting of mutually beneficial fish screen alternatives. Phase 2 funding would contribute to the required 50% non-federal cost-share for construction of WSID's preferred alternative fish screen project. Phase 3 would provide cost-share contribution to help develop and complete the planning, design and permitting of integrated and mutually beneficial flood management and resilience and ecosystem enhancements along 90% of the WSID intake canal and alignment across the SJRNWR.

Long Project Description:

The WSID Fish Screen Project is a state and federal agency priority, and has been included in numerous published conservation and enhancement and restoration plans. These include: 1) Department of Fish and Game. 1990. Central Valley Salmon and Steelhead Restoration and Enhancement Plan (page 107); 2) USFWS. 1995. Working Paper on restoration needs and habitat restoration actions to double natural production of anadromous fish in the Central Valley of California. Volumes 1-3. May 9, 1995. (page 3-Xd-43 and 3-Xd-50-51; 3) USFWS. 2001. Final Restoration Plan for the Anadromous Fish Restoration Program. Adopted January 9, 2001. (page 82"); 4) numerous publications of the CalFed Ecosystem Restoration Program that document the project priorities and progress of this major state/federal/private conservation effort.; and 5) support documents from state and federal agencies responsible for protecting and restoring listed (federal and /or state) fish such as steelhead, and other native fish of concern such as splittail, unique lamprey, white sturgeon, and others that exist in the San Joaquin Basin. Finally, the USFWS management plans and objectives for the San Joaquin River National Wildlife Refuge would be facilitated as a result of planning, permitting, and constructing this proposed project. The three project phases are described below.

Phase 1: Funds would augment non-federal cost-share to the state (existing) and federal (pending) grants to complete the planning, design, and permitting of a "Flood Safe-friendly" fish screen on WSID's water diversion facilities from the San Joaquin River (SJR). This work includes the development of fish screening alternatives at several sites, including new locations to the north near the Highway 132 Bridge over the SJR. Should the District and the partners view this new northern location as a preferred alternative fish screen site(s), this alternative would include new or refurbished linear canals extending west and south from the new diversion and connecting to the District's main canal. It will also require design and permitting for the continued long term use of a short segment (approximately 10%) of the existing WSID intake canal (the extreme western end) as a re-regulating pool to efficiently connect the "fish free" water from the new screen location to the remainder of the District water supply infrastructure (at/near Pump Station 1A).

Phase 2: Should the District select a preferred alternative Fish Screen Project at the Highway 132 site(s), they and their partners will need to secure additional non-federal cost-share funding contributions to complete the construction of the new fish screen and associated infrastructure. The current cost estimate to construct a new fish screen located near Highway 132 is approximately $30M. The federal agencies (USBR/USFWS) require a 50% non-federal cost-share commitment. The District believes that significant benefits to nearby

(proposed) flood management and ecosystem restoration projects will accrue if such a preferred alternative is selected. Hence, Phase 2 of this RFMP Project proposes a significant cost share contribution (to be determined) to help match a 50% federal cost share commitment to the WSID Fish Screen Project.

Phase 3: Either concurrent with or following completion of construction (if at the Highway 132 site(s)), this phase of this RFMP proposal requests cost-share funding contribution for the planning, design, and permitting of a project(s) that uses the remaining 90% of the existing intake canal/alignment across SJRNWR in a mutually-beneficial manner. Clearly, the District will be working very closely with the SJRNWR and other partners on this project phase. The District recognizes that the Three Amigos Project, or similar projects, overlap geographically and functionally and will need to be well-integrated to eventually reach a construction phase. If this phase of the RFMP project is successful, a construction phase would likely be proposed by an appropriate entity.

Unique Project Characteristics:

Reduced operations and maintenance costs and improved efficiency in flood management/maintenance activities would occur over the short and long term in this central portion of the Region upon completion of this proposed project in conjunction with several non-structural flood control projects proposed there. Successful planning, permitting, and construction of this proposed project would also increase institutional and local support for several non-structural flood control projects proposed by the USFWS and River Partners in this central portion of river within the Mid-SJR RFMP planning area.

Project Status: Planning, design, and permitting
Project Cost: **$**38,000,000
Project Timeframe: 1-5 years
Cost-sharing: WSID, CDFW and BR/FWS have thus far invested more than $3.5 M in preliminary planning, advanced planning, design and the permitting of this Intake/Fish Screen Project. The preliminary estimates for construction costs range from $25-30M. This cost estimate is not unlike many other fish screens built throughout the Pacific Northwest. CDFW has made clear that the State needs to obtain cost-share partner in the construction phase, as have the BR/FWS representatives. WSID has continued to participate as a significant cost-share partner in each phase of the project, and has agreed to the long term maintenance and operations costs to operate the new fish screen once completed. In the interim, they continue to operate and maintain their current intake on the SJR just upstream of the Tuolumne River confluence.
Multi-benefit Project: Yes
Types of benefits: The project would improve flood risk management as the diversion would be relocated to a more readily protected location. The WSID diversion would be consolidated with other existing diversions, reducing the number of locations that would be exposed to fl
Source of Project: West Stanislaus Irrigation District

Background Information:

There are reports and other materials available through the West Stanislaus Irrigation District.

Screening-level assessment

SC-1. ***Consistency with RFMP goals.*** Consistent with CVFPP goals: improve flood risk management, improve operations and maintenance, promote ecosystem functions, improve institutional support, promote multi-benefit projects.

Note: If the project is a study, evaluate the goals of the ultimate project that would flow from the study.

- **Low** if it meets *only* the multi-benefit project supporting objective.
- **Medium** as long as it meets 1-2 of the primary and/or supporting objectives and does not qualify as "Low."
- **High** if it includes meeting 3 or more of the primary and/or supporting objectives.

Medium

The project would improve flood management and water supply reliability and protect fish from entrainment, making it a multi-benefit project.

SC-2. ***Implementation feasibility.*** Consider existing laws or regulations, community opposition/support, or other factors affecting implementation feasibility.

Note: If the project is a study, evaluate only the implementation feasibility of completing the study.

- **Low** if the project is judged to face significant odds (e.g., a similar project has already been forcefully pursued and has failed to progress, and there is little reason to expect a different outcome now.)
- **Medium** if the project has been developed as a concept and has a description and an identified lead.
- **High** if the project has already gone through feasibility analysis and been found feasible, if appropriate, or the project already has reasonable assurance of being implemented by a capable project lead.

High

The project has been partially designed and the environmental review process is underway.

Ranking-level assessment

RC-1. ***Implementation feasibility.*** (As in Screening-level assessment guidance.)

High

RC-2. ***Financial feasibility.*** Capacity to cover local share, with funding availability, or all project costs).

Note: project costs should be considered to include both the initial costs and the ongoing operations, maintenance, and repair costs, though this information may not be available. If the project is a study, evaluate only the financial feasibility of completing the study.

- **Low** if the anticipated project lead does not have the resources to either 1) carry out the project; or 2) supply any needed local cost share. Given the findings of the Financial Plan,

projects are identified as "Low" if the anticipated local cost share exceeds $500,000, unless the project has been successful in attracting grant funding so far.

- **Medium** if the project does not meet the criteria for "Low" or "High" Financial Feasibility.
- **High** if the anticipated project lead has the resources to either 1) carry out the project; or 2) supply any needed local cost share and a plausible funding source for the balance has been identified. Given the findings of the Financial Plan, we estimate that for most entities in the planning area, local cost shares will need to be less than $20,000 to be funded. For projects having an anticipated local cost share exceeding $500,000, the project will be scored "High" if it has been successful in attracting most of the needed funding already.

Medium

While the cost of this project is quite high relative to other projects in the planning area, the District has been able to attract some funding to the project thus far. As a result, the project is assessed as having "Medium" financial feasibility.

RC-3. ***Flood risk reduction - life risk***. Change in the number of lives potentially at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project may reduce loss of life.
- **Medium** if the project is expected to reduce loss of life based on a qualitative assessment.
- **High** if the project has been analyzed for effect on loss of life and is expected to reduce it.

N/A

No benefits identified.

RC-4. ***Flood risk reduction - flood damage.*** Change in the value of assets at risk, at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to create a locally-significant reduction in flood risk.
- **Medium** if the project is expected to create a regionally-significant reduction in flood risk.
- **High** if the project is expected to create a significant reduction in flood risk from a regional perspective and beyond.

Low

The project is anticipated to reduce exposure of WSID diversion and delivery infrastucture to flood risk.

RC-5. ***Operations, maintenance and repair.*** Improvement in efficiency and effectiveness, or reduction of need at present and over the long term.

Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to only modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project would materially improve O&M at a locally-significant level. Specifically, the O&M of the berms adjacent to the diversion canal will be reduced as a result of relocating these facilities.

RC-6. ***Ecosystem function*.** Consistency with ecosystem priorities and goals of the (Draft) CVFPP metrics, the (Draft) Conservation Strategy (if available) and/or adopted conservation or recovery plans.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to increase ecosystem function compared to current conditions, but is not specifically consistent with the priorities and goals of the Draft CVFPP metrics or other adopted conservation or recovery plans.
- **Medium** if the project is consistent with the priorities and goals of one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.
- **High** if the project is if the project is consistent with the priorities and goals of more than one of the following: 1) the Draft CVFPP metrics or 2) other adopted conservation or recovery plans.

High

This project would screen the largest remaining unscreened diversion along the San Joaquin River. (Note that the diversions/screens metric was removed from the BWFS/CS metrics; the table states that diversions are outside of the scope of the CVFPP and BWFS.) As described in the long project description, the project is consistent with several conservation and recovery plans.

RC-7. ***Institutional support*.** Improved support for entities contributing to flood management.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

Medium

The project would materially improve institutional support at a locally significant level.

RC-8. ***Other benefits.*** "Multiple benefits" not addressed by criteria above, e.g., water quality, recreation, public access, water supply, groundwater recharge, economic, etc.
Note: if the project does not directly incorporate this benefit, score as "N/A." If a study, evaluate the anticipated benefits of the ultimate project that would flow from the study.

- **Low** if the project is expected to modestly increase such benefits compared to current conditions and into the future.
- **Medium** if the project is expected to materially increase such benefits at a locally-significant level compared to current conditions and into the future.
- **High** if the project is expected to materially increase such benefits at a regionally-significant level compared to current conditions and into the future.

High

The project would increase water supply reliability and protect fish from entrainment. Benefits would be realized on a regionally-significant scale.

RC-9. ***Cost-effectiveness.*** Benefits vs costs compared to other projects accomplishing similar benefits.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the lower third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of benefits provided for the given project cost.
- **High** if the project is expected to fall within the upper third of the projects considered in terms of the mix of benefits provided for the given project cost.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

RC-10. ***Low potential for dis-benefits (post-mitigation).*** Low potential for negative outcomes after mitigation; a "High" score indicates very low probability; a "Low" score indicates high probability, etc.
Note: if the project is a study, score as "Medium."
To the extent that projects have a similar mix of dis-benefits types and magnitudes, they can be compared. Where direct comparison is not possible, projects should be assumed to fall into the "Medium" category unless there is a clear reason to differentiate them as "Low" or "High."

- **Low** if the project is expected to fall within the upper third of the projects considered in terms of the mix of anticipated dis-benefits.
- **Medium** if the project is expected to fall within the middle third of the projects considered in terms of the mix of anticipated dis-benefits.

- **High** if the project is expected to fall within the lower third of the projects considered in terms of the mix of anticipated dis-benefits.

Medium

The score is "Medium" because there is not a clear reason to differentiate this project as "Low" or "High."

H = High; valued as 3 points
M = Medium; valued as 2 points
L = Low; valued as 1 point
N/A = Not Applicable; valued as 0 point

Project Name	SC-1 Consistency with RFMP goals	SC-2 Implementation feasibility	RC-1 Implementation feasibility	RC-2 Financial feasibility	RC-3 Flood risk reduction - life risk	RC-4 Flood risk reduction - flood damage	RC-5 Operations, maintenance, and repair	RC-6 Ecosystem function	RC-7 Institutional support	RC-8 Other benefits	RC-9 Cost-effectiveness	RC-10 Low potential for dis-benefits	Total
Black Gulch Storm Drainage Study	2	2	2	3	1	1	0	0	0	0	2	2	11
City of Newman/Bureau of Reclamation Flood L	2	2	2	3	2	1	0	0	0	2	2	2	14
Consolidation of O&M	3	2	2	2	1	2	3	0	3	2	2	3	20
Dennett Dam Removal	3	3	3	2	3	1	0	3	0	2	3	3	20
Dos Rios Ranch Floodplain Expansion and Eco	3	3	3	3	1	1	2	3	0	3	3	3	22
Dry Creek Watershed Detention Reconnaissanc	2	2	2	3	2	2	0	0	0	0	2	2	13
Emergency Response Plan – Debris Manageme	2	2	2	3	1	1	1	0	2	3	3	3	19
Emergency Response Plan – Local Planning an	3	3	3	3	2	2	3	0	3	0	3	3	22
Flood Risk Education	3	2	2	3	1	2	1	0	1	1	3	3	17
Gomes Lake / Harding Drain Improvements	2	2	2	2	1	1	2	0	0	0	2	3	13
Hydraulic and Channel Migration Studies	2	2	2	2	1	1	2	0	0	0	2	3	13
Integrated Levee Vegetation Management – Flo	3	3	3	2	0	0	3	3	0	1	2	3	17
La Grange Floodplain Restoration and Spawnin	3	2	2	2	1	1	0	3	0	2	3	3	17
Little Salado Creek	2	3	3	2	1	1	0	0	0	2	2	3	14
Modesto WWTP - Reduce Flood Risk	2	3	3	1	2	1	0	0	0	2	2	2	13
Orestimba Creek Flood Risk Management Proje	2	3	3	1	2	2	0	0	2	0	2	2	14
Patterson WWTP – Reduce Flood Risks	2	2	2	3	1	1	0	0	0	1	2	2	12
RD 1602 Resilience	3	2	2	1	1	1	2	0	2	2	1	3	15
RD 2031 Resilience	3	2	2	3	1	1	2	0	2	2	2	3	18
RD 2063 Resilience	3	2	2	3	1	1	2	0	2	2	2	3	18
RD 2091 Resilience	3	2	2	3	1	1	2	0	2	2	3	3	19
RD 2101 Resilience	3	2	2	1	1	1	2	0	2	2	1	3	15
Reducing Sediment Loading into the San Joaqu	3	3	3	1	1	1	1	0	0	2	1	3	13
Regional Maintenance Technical Support	3	2	2	3	1	2	3	1	3	1	3	3	22
Riverfront Park Project	3	2	2	2	1	1	0	3	0	2	1	3	15
Salado Creek Flood Management Project	2	2	2	2	1	1	0	0	0	0	2	2	10
SB5 Compliance – City of Modesto	3	3	3	3	2	1	0	0	1	1	3	2	16
SB5 Compliance – City of Newman	3	3	3	3	2	1	0	0	1	1	3	2	16
SB5 Compliance – City of Patterson	3	3	3	3	2	1	0	0	1	1	3	2	16
Sediment Management Investigation	3	2	2	2	0	0	1	1	0	0	3	3	12
Storm Drainage Enhancements along Salado C	2	2	2	2	1	1	0	0	0	2	2	2	12
Three Amigos (also known as the Non-structura	3	3	3	3	1	1	2	3	1	3	3	3	23
Tuolumne River Flood Management Feasibility S	3	2	2	2	2	2	0	1	0	1	2	3	15
Tuolumne River Regional Park – Carpenter Roa	3	3	3	2	2	1	0	3	0	2	3	2	18
Tuolumne River Regional Parkway	3	2	2	1	1	1	0	3	0	2	2	2	14
Westside Creeks On-Farm Multi-Benefit Prograı	3	2	2	3	1	1	1	2	2	1	3	3	19
WSID Fish Screen and Change in Point of Diver	2	3	3	2	0	1	2	3	2	3	2	2	20



APPENDIX G
Project Concept Descriptions

Concept Name: Develop Expedited Permitting Programs for Maintenance Actions

Short Concept Description: Coordinate with all permitting agencies to develop a permitting program that will reduce the time and cost required to permit routine maintenance actions.

Long Concept Description: Most of the native riparian and aquatic species in the Central Valley are extirpated, extinct, listed as threatened or endangered, or have populations that have been significantly diminished; additionally, waterways have been altered in ways that diminish water quality and habitat value. As a result, maintenance activities often require permits from resource management agencies, including the California Department of Fish and Wildlife (CDFW), United States Fish and Wildlife Service (USFWS), Regional Water Quality Control Board, Central Valley Flood Protection Board, National Marine Fisheries Service, and the United States Army Corps of Engineers (USACE). The Local Maintaining Agencies (LMAs) in the Mid San Joaquin River Region (Mid SJR Region) are small entities with few staff and limited budgets. Legal requirements to protect Central Valley steelhead, Chinook salmon, riparian brush rabbit, riparian woodrat, valley elderberry longhorn beetle, least Bell's vireo, giant garter snake, and Swainson's hawk habitat during the execution of maintenance and construction of flood system maintenance projects are a challenge to meet, and the process to obtain the required permits can be lengthy and expensive. If permits cannot be obtained for levee maintenance, levees often fail to meet criteria established by USACE and are rated as "Unacceptable" in periodic inspections, making those levees ineligible for rehabilitation assistance from USACE under Public Law (PL) 84-99 in the event of a flood. While permitting requirements can make flood system maintenance challenging, protecting species is crucial. Loss of these species - particularly commercially important species like Chinook salmon - could have significant impacts on recreation, quality of life, and the local and regional economy. A program that allows for habitat protection and timely, cost-effective flood system maintenance needs to be developed and implemented.

Source of Concept: Stakeholder idea, developed by the Mid SJR Region's Project Team

Concept Name: Ecosystem Restoration Along Waterways (both in the Mid SJR and the Upper San Joaquin Regions)

Short Concept Description: Similar to routing flood flows onto agricultural land, an alternative approach would be to acquire agricultural properties along the San Joaquin River and allow for seasonal floodplain inundation to provide fish rearing habitat as well as the diversion of flood flows, and, in some areas, the direct recharge of groundwater. This type of project could be implemented as a conservation easement, part of the Central Valley Habitat Exchange, or an ecosystem mitigation bank.

Long Concept Description: Aquatic, riparian, and floodplain habitats along the San Joaquin River have been degraded by a variety of human activities. In recent years, there has been a considerable effort to identify opportunities for habitat rehabilitation along portions of the San Joaquin River within, updstream, and downstream of the Mid SJR Region. It has been determined that large areas exist along the San Joaquin River that could be restored and also used for temporary flood flow storage. Similar to the concept of diverting flood flows to agricultural and refuge lands, flood flows would be diverted to refuge areas or agricultural land that was purchased and returned to floodplain habitat. These areas could be managed in a coordinated way to reduce peak flow and provide temporary storage during a flood event as well as provide floodplain habitat. This concept differs from the Divert Floodflows to Agricultural Lands concept in that it includes an ecosystem rehabilitation and management component. After inundation during high flows, water would recede and return to the channel and percolate into the ground. The United States Army Corps of Engineers Reconnaissance Report, San Joaquin River, Mainstem (January 1993) describes this concept and identifies specific sites that could be used in a network of ecosystem restoration and temporary flood storage areas.

Source of Concept: Stakeholder idea, developed by the Mid SJR Region's Project Team

Concept Name: Divert Flood Flows to Agricultural Lands (both in the Mid and the Upper San Joaquin River Regions)

Short Concept Description: Diverting flood flows onto nearby agricultural and refuge land along the San Joaquin River could decrease peak flows within the channels.

Long Concept Description: Large areas exist along the San Joaquin River that could be used for temporary flood flow storage. With agriculture as the primary land use in the floodplains of the Mid and Upper San Joaquin River regions and the presence of large wildlife refuges along the river, a series of designated areas could be managed in a coordinated way to reduce peak flow and provide temporary storage during a flood event. In some places, this is essentially a "no-action" alternative since it already occurs. Depending on the topography, the types of crops, and the willingness of the landowners, agricultural properties and refuge lands could be utilized as detention basins where excess flood flows would be stored temporarily until water percolates back into the ground. Other agricultural lands would be temporarily flooded and the waters would be routed back into the channel after the high flows recede. The United States Army Corps of Engineers Reconnaissance Report, San Joaquin River, Mainstem (January 1993) describes this concept and identifies specific sites that could be used in a network of temporary flood storage areas.

Source of Concept: Stakeholder idea, developed by the Mid SJR Region's Project Team

Concept Name: Emergency Response Improvement

Short Concept Description: Implement the following measures to improve emergency response in the planning area: 1) develop local flood fight plans with support from larger agencies, such as Modesto and Stanislaus County; 2) develop public safety agency evacuation plans; 3) clarify and document the command structure for areas with flood risk; 4) better define operational area logistical support for flood fight operations; and 5) form a Stanislaus Operational Area flood response working group.

Long Concept Description: A detailed description of each measure listed above is provided below.

Develop Local Flood Fight Plans

In regard to flood fight operations, develop local flood fight plans as the highest priority response improvement project. These plans would document: 1) historic and flood fight knowledge of current and past district responders; 2) current response procedures for levee flood fight; and 3) options for containing floods from a breach. Reclamation districts, as the local jurisdiction responsible for maintaining the project levees and general flood control within their boundaries, would prepare the plans with the assistance of other local jurisdictions such as Modesto and Stanislaus County.

A standard template for development of such flood fight plans (also called flood safety plans or tactical flood plans in other contexts) is emerging in the Central Valley and is supported by the California Department of Water Resources (DWR) and Federal Emergency Management Agency (FEMA). This template uses a map format to display information with a concise written description of the reclamation district emergency operations plan. The standard template is consistent with FEMA preparedness planning guidance and has been approved by DWR.

Develop Public Safety Agency Evacuation Plans

It is recommended that public safety agency evacuation plans and maps be developed, at a minimum, for the areas protected by RDs 1604, 2063, and 2091. Evacuation procedures for these rural districts could be included in the applicable flood contingency map or displayed on separate evacuation maps. Formal urban evacuation maps should also be developed for those populated areas of the cities of Newman, Patterson, and Modesto that are exposed to sheet flow or flood water back-up from area streams and creeks. These urban evacuation maps would be developed in accordance with the Guide to Urban Evacuation Mapping available at www.sjmap.org/oesmg. Evacuation procedures shown on these maps should also address rural evacuation issues such as locations of dairies and storage of bulk hazardous materials with detailed procedures for their orderly evacuation and temporary storage. All evacuation maps would display the emergency response command organization for conducting these operations and the response organization structure. These plans and maps would be developed in cooperation with local law and fire agencies and the RDs.

Clarify Command and Control

It is a high priority that local jurisdictions clarify and document the command structure for areas threatened by floods. In particular, it is important to clarify how the flood fight commands and public safety agency commands will interact. These protocols could be included on flood contingency and evacuation maps or shown on a separate flood fight unified command map. Reclamation districts should

also adopt a formal mechanism for clearly designating a flood fight incident commander as part of their flood safety plans.

Form a Stanislaus Operational Area Flood Response Working Group

The Stanislaus Operational Area should form a flood response working group composed of the reclamation districts and public safety agencies with jurisdiction within the flood plain. This working group should be created through a written agreement or protocol that defines meeting frequency, objectives, and specific review items. This group could then ensure that flood contingency maps, evacuation plans, and training standards developed in past preparedness projects are maintained. This process would also ensure that there is ongoing communication between jurisdictions and that new officials are properly briefed on current preparedness plans and their status.

Additionally, the working group, should develop an agreement or procedure outlining the specific process and characteristics for providing levee flood fight support and mutual aid to RDs. Potential support would include assistance with levee patrol, flood fight crews, and funds for the acquisition of private contractors and bulk materials. In particular, the provision of funds, or purchasing support, for acquisition of private vendors or bulk materials should be clearly defined. Total dependence on the state or federal governments for emergency funding of response to threats to levee integrity could lead to delays that result in levee failure. Local jurisdictions should identify circumstances in which they will intervene to support reclamation district response financially to protect their interests and the general public.

Source of Concept: Peterson-Brustad Engineers, Inc. 2013. Flood Emergency Response Assessment Technical Memorandum. June.

Concept Name: Improve Upstream Reservoir Operations

Short Concept Description: Update and improve upstream reservoir operations through enhancements to coordination among operating entities; use of additional information, including forecasting; broader communications with others, including local communities; improved and accessible gaging; and updated flood control manuals. Analyze and implement actions to modify upstream reservoir operations to improve flood management; aquatic, riparian, and floodplain habitat; water quality; and recreation.

Long Concept Description: The major rainfall events in December 1996 and January 1997 necessitated nearly simultaneous high releases from all reservoirs on the system and uncontrolled emergency releases at Don Pedro and Friant dams. Prior to the large storms in late December 1996, many reservoirs had water elevations at or slightly into their flood storage before the storm arrived. The uncontrolled reservoir releases may have been avoided if controlled releases had been made in advance of the storms based on forecast information. Reservoir operators made initial release decisions on an individual basis without coordinating with other reservoir operators. This resulted in significant and rapid increases in flow on the San Joaquin River downstream of these reservoirs. It is believed that coordinating these outflows may also have significantly reduced flooding in the San Joaquin Valley in January 1997. Forecast-based operations were not possible in 1996/1997, but are now becoming feasible with advances in technology.

Consistent with this concept, DWR's Forecast-Coordinated Operations (F-CO) and Forecast-Based Operations (F-BO) Programs are a component of the FloodSAFE Flood Emergency Response Program and includes a focus on the San Joaquin Watershed. The F-CO Program seeks to coordinate flood releases from the reservoirs located in various tributaries of major rivers to optimize the use of downstream channel capacity, the use of total available flood storage space in the system, and eventually to reduce overall peak floodflows downstream from these reservoirs. The first phase of the program is currently underway and has included a preliminary inventory and assessment of hydrologic gaging networks, evaluation of historical data used to support real-time flood forecasting and emergency operations, use of a decision support system for real-time analysis of data and reservoir scheduling, evaluation of hydrologic constraints and opportunities for improved gaging, forecasting, and operations of major reservoirs and flood facilities. DWR's F-BO Program anticipates the use of improved long-term runoff forecasting and operating within the parameters of an existing flood control diagram.

This project concept includes the DWR F-CO and F-BO Program but goes beyond the scope of that effort. It includes an initial analysis of how upstream reservoirs could be operated differently to improve flood management; aquatic, riparian, and floodplain habitat; water quality; and recreation, followed by the pursuit by federal, state and local operators of forecast-coordinated and forecast-based operations to enhance and more efficiently and effectively operate existing reservoirs. The operators would update and improve upstream reservoir operations through enhancements to coordination among operating entities; use of additional information, including forecasting; broader communications with others in advance of and during flood operations, including local communities and downstream landowners; improved and accessible gage data; and updated flood control manuals.

Source of Concept: DWR, stakeholders participating in development of the Mid and Lower SJR RFMPs

Concept Name: San Joaquin River National Wildlife Refuge - Proposed Expansion

Short Concept Description: The United States Fish and Wildlife Service (USFWS) is considering expanding the San Joaquin River National Wildlife Refuge in two sections to restore and enhance habitat to benefit birds migrating along the Pacific Flyway and many other wildlife species that may be compatible or complementary with flood conveyance and transient floodwater storage on floodplains in the Mid San Joaquin River region.

Long Concept Description: Long-term management of flood-prone lands is an ongoing and widely recognized challenge in integrated floodplain management. If successful, enrollment of additional lands within the San Joaquin River National Wildlife Refuge could allow the USFWS to play an important role in regional and system-wide flood management as a long-term land manager and environmental steward. The USFWS is currently working through the National Environmental Policy Act (NEPA) process to attain approval to expand the congressionally-approved acquisition boundary of the San Joaquin River National Wildlife Refuge. The USFWS is proposing to expand this administrative boundary so that flood-prone lands within the expanded boundary (which is primarily within Stanislaus County) can be acquired or ultimately owned by the USFWS for uses consistent with the National Wildlife Refuge System, including wildlife habitat and wetland habitat management. This Refuge is located in Merced and Stanislaus counties. Many of the parcels within the proposed boundary expansion may also be managed to provide expanded floodway, enhanced channel meander, and increased transient floodwater storage. The current proposal includes ~ 11,000 acres of floodplain lands immediately adjacent to the San Joaquin River. The refuge would be expanded to the north and south of the existing boundary along the San Joaquin River. The northern portion includes a 15-mile reach of the San Joaquin River from the existing boundary north to a point west of Manteca in San Joaquin County. The southern portion lies between the San Joaquin River National Wildlife Refuge and the San Luis National Wildlife Refuge, 26 miles to the south. Once completed, the boundary expansion will allow the USFWS to acquire lands from willing sellers and retain ownership and management responsibilities for lands that contribute towards the mission of the NWR system.

Source of Concept: Stakeholder idea, developed by River Partners and the Mid SJR Region's Project Team

Concept Name: San Joaquin River Basin Sediment Status and Dynamics Study

Short Concept Description: For the entire San Joaquin River basin 1) develop a reach-based sediment budget and conceptual model of sediment processes and then 2) develop one or more sediment transport models and analyze transport processes to develop sediment management recommendations at a basin-wide scale.

Long Concept Description: The San Joaquin River is central to a large number of water and habitat resource management efforts. Sediment transport and associated erosion and deposition in different reaches affects and is affected by many of these resource management efforts. For example, erosion and deposition patterns are affected by changes to the flow release schedule of dams to support fisheries or to reduce flood risk from dams upstream, while flood capacity and the quality of aquatic and riparian habitat are affected by changes in erosion and deposition. Sediment transport studies of the Sacramento River have revealed important trends that influence river management (e.g., the long-term reduction in sediment load and associated problems of channel erosion, loss of fish cover from turbidity, and impacts on rates of tidal wetland accretion in the San Francisco Bay). Data that might provide equivalent insights into the San Joaquin River are lacking because the baseline studies and long-term data are not available.

To develop such information a two-phase approach is recommended. In Phase 1, a holistic geomorphic understanding of the river would be established through development of a sediment budget and identification of the long term trends of aggradation and erosion and lateral migration and stability for different reaches of the river using historical data such as aerial photos, United States Geological Survey (USGS) rating curves, and cross section data. Phase 2 would include assembling existing hydraulic models for the river, filling in data gaps, and parameterizing and developing sediment transport models to allow more predictive assessments to be made under subsequent efforts. Potential tasks under each phase are listed below.

Phase 1 – Perform a geomorphic assessment of sediment transport reaches

1. Map and measure amount and rate of bank migration in different reaches
2. Identify changes in channel thalweg and cross section
3. Review USGS gauge rating curves to look for evidence of channel incision and cross section change
4. Develop sediment rating curves and budgets for USGS gauges on the San Joaquin River at key locations

Phase 2 – Develop sediment transport model for the San Joaquin River

1. Identify the most up-to-date hydraulic models for each reach and fill any data gaps
2. Quantify smaller tributaries and large return flows if these are not currently well represented in hydraulic model
3. Collect bed sediment data
4. Identify and obtain available calibration data sets
5. Choose appropriate sediment transport program and develop the model

Source of Concept: Stakeholder idea, developed by the Mid SJR Region's Project Team



APPENDIX H

Financial Plan Technical Memorandum

Financial Plan
Technical Memorandum



Peterson-Brustad, Inc.
Mid-San Joaquin River

Regional Flood Management Plan
August 2014

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Abbreviations & Acronyms

ACEP……Agricultural Conservation Easement Program
CESCF……Cooperative Endangered Species Conservation Fund
CEQA…….. California Environmental Quality Act
CNRA……California Natural Resource Agency
CRCHP……..California Riparian Habitat Conservation Program
CVFPB……....Central Valley Flood Protection Board
CVP……..Central Valley Project
CVPCP……Central Valley Project Conservation Program
CVPIA……..Central Valley Project Improvement Act
DWR……Department of Water Resources
EIP……Early Implementation Project
EIR……..Environmental Impact Report
EQIP……Environmental Quality Incentives Program
ER……Emergency Response
ESA……Endangered Species Act
F-CO……..Forecast-Coordinated Operations
FCP……Flood Corridor Program
FESSRO…….. FloodSAFE Environmental Stewardship and Statewide Resources Office
FMA……...Flood Mitigation Assistance
FOA……Funding Opportunity Announcement
FSRP……Flood System Repair Project
FWO……...Fish and Wildlife Office
HCP……Habitat Conservation Plan
HCF……Habitat Conservation Fund
HRP……Habitat Restoration Program
IRWMP……Integrated Regional Water Management Plan
IWCP……Inland Wetlands Conservation Program
LLAP……...Local Levee Assistance Program
LMA……Local Maintaining Agency
LOI……..Letter of Intent
LWCF……..Land and Water Conservation Fund
NAWCA……North American Wetlands Conservation Act
NCRS……National Resource Conservation Service
NFIP……National Flood Insurance Plan
O&M……..Operations and Maintenance
OMB……Office of Management and Budget
PDM……Pre-Disaster Mitigation
RAP……...Regional Acceptance Process
RD/District……Reclamation District

Region……Mid San Joaquin River Region
RFMP……Regional Flood Management Plan
RFP……Request for Proposal
RLA……Recovery Land Acquisition
RWMG……Regional Water Management Group
SCFRR……Small Community Flood Risk Reduction
SFRR……Systemwide Flood Risk Reduction
SPFC……State Plan of Flood Control
State……State of California
SWIF……Systemwide Improvement Framework
TM……Technical Memorandum
UFRR……Urban Flood Risk Reduction
USACE……United States Army Corps of Engineers
USBR……United States Bureau of Reclamation
USDA……United States Department of Agriculture
USFWS……United States Fish and Wildlife Service
WCB……Wildlife Conservation Board

1 Introduction

This Financial Plan Technical Memorandum (TM) is intended to provide a high level overview of the capacity of the Region to fund projects identified in the RFMP. To this end, this TM contains information on Potential Funding Sources, Potential Funding Sources matched to each project, and a summary of funding challenges in the Mid SJR Region planning area. General findings and recommendations for future bond funding are also included.

Many of the identified Federal and State funding programs identified are competitive and have limited available funding, so there is no assurance a project will be selected to receive funding if/when the project moves forward. These funding programs are nevertheless a very important part of getting a project funded, as local agencies must leverage as much outside funding as possible.

The RFMP team researched many different funding sources and compared eligibility requirements to project descriptions to determine funding sources that might be applicable to each project. Based on this information, the RFMP team used professional judgment to estimate potential State and Federal cost shares.

Cost share estimates provided in this TM are based on the assumption that the potential funding sources will be available at the time a given project moves forward. Additionally, cost share estimates provided herein are intended for planning purposes only. A specific financial plan will be necessary if/when each project moves forward.

2 Methodology/Assumptions

The methodology used and the assumptions made within this report are outlined below.

Methodology

The following steps were taken to obtain the data within this report:

- *Project Review*
  - Project descriptions were reviewed to identify key elements of the project, such as location (urban vs. rural, San Joaquin River vs. Tuolumne River, etc.) and main objective (restoration, flood control, etc.)
  - Project Costs were estimated from a number of sources, including existing studies and information from project stakeholders.
    - For PL84-99 projects lacking existing data, a unit cost of $2 million per mile of unacceptable levee was used to estimate a costs.
- *Potential Funding source Research and Review*
  - Potential Funding Sources within the region were researched to determine how much funding was available in each funding source, what type of cost share was offered, and what types of projects were eligible.
- *Project and Cost Share Matching*
  - Once key elements of both projects and funding sources were identified they were used to match projects to funding sources that they met the criteria for.
- *Application of Cost Share Information to Project Cost Data*
  - Once projects were matched with their Potential Funding Sources, the cost share percentages from the funding sources were applied to the project cost to get a cost share (in dollars) at the Federal, State, and Local level. The assumptions made during this process are described below.
- *Local Assessment Analysis*
  - An analysis of potential local assessments was performed by separating the region into land use types and applying the average assessment rates of each land use type. Details of the analysis can be found under the Local Funding Source section.

Assumptions

The following assumptions were made to estimate cost shares for each project:

- When projects matched with multiple funding sources, the lowest cost share percentage was used in order to obtain the most conservative cost share estimate.
- When projects had a cost range, the highest cost was used to obtain the most conservative estimate of cost share.

- DWR programs were assumed to have a 50%-90% cost share range per the DWR's "Guidelines for Establishing Local Agency Cost Sharing Formulas for Select Flood Programs and Projects" (2010) unless it was otherwise stated in grant guidelines.

3 Summary of Financial Challenges in the Region

General Overview

The Mid San Joaquin River Region is predominantly characterized by agriculture and rural land uses. It should be noted that these land use types will not change as long as the land is classified as zone A flood zone. Therefore, raising local funds to implement significant system improvements can be more difficult in this Region compared to more developed areas. Local funding for routine O&M and small repairs is typically provided by landowners within each District. The table below summarizes the approximate annual revenue and expenditures for LMAs in the Region.

LMA	Approx. Levee Miles Maintained	Approx. Annual O&M Expenditures	O&M Funding Sources
RD 1602	6.29	$10,000 - $12,000	Individual Property Owners
RD 2031	13.19	$30,000	Individual Property Owners
RD 2063	10.63	$83,000	Assessments
RD 2091	7.89*	$40,000 - $50,000	Assessments
RD 2092	3.76	$10,000 - $12,000	Individual Property Owners
RD 2101	3.51	$25,000	Individual Property Owner
Gomes Lake	0.3	$14,000 - $35,000	JPA (TID, Stanislaus County, City of Turlock, RD 2091, RD 2063)

*0.3 miles are maintained by TID under the Gomes Lake JPA

During interviews with stakeholders in the Region, many LMAs noted they are comfortable funding basic O&M responsibilities, but given their limited financial resources, they are not able to provide the capital needed to implement large-scale levee repairs. DWR grant programs can help LMAs with these expenses, but financial resources of the LMAs are limited, making it difficult for them to provide the local cost share requirements. Furthermore, LMA staff limitations, combined with the fact that district staff are typically working and/or managing farms full-time, means there is little time left to apply for DWR funding.

The Region identified approximately 37 projects with a total estimated cost of approximately $340M. Assuming a minimal local cost share of 10%, this equates to nearly $34M. Even if these improvements were spread over a 20-year timeframe, it appears the current system of flood control infrastructure funding and implementation may be unsustainable unless other benefits can be provided for other uses or even other regions.

Public Law 84-99 (PL84-99) Program Challenges

Many of the levees in the Mid San Joaquin River Region are part of a Federal flood protection system (i.e., Project levees), and are therefore eligible to participate in the PL 84-99 program. PL 84-99 is a Federal program that provides financial support to eligible and actively enrolled levee systems in the event of a flood event. Specifically, PL 84-99 gives USACE the authority to undertake activities including the following:

- Disaster preparedness
- Advance measures
- Emergency response operations
- Rehabilitation of flood control works threatened or destroyed by flood

In order to receive rehabilitation assistance, a Project levee must be eligible and enrolled in the PL 84-99 program prior to the flood event. An eligible system would be restored to its pre-disaster status at no cost to the owner (typically the owner of a project levee is the State of California).

In order to remain eligible for PL 84-99 damage assistance, Project levees need to receive an Acceptable (A) or Minimally Acceptable (M) rating on the Periodic Inspection Report (PIR) conducted by USACE. If any part of a Project levee system receives an Unacceptable (U) rating, the system is put on probation, and if it receives another Unacceptable rating the following year, it is placed on "inactive" status and is ineligible for the PL 84-99 program until the problems are fixed. Only one LMA in the Mid San Joaquin River Region is currently Active in the PL 84-99 program. The table below summarizes the current status of the Reclamation Districts in the Region:

Maintaining Agency	Overall Rating (2013)	Primary Concerns	PL 84-99 Status
RD 1602 – Del Puerto	U	Animal control & vegetation	Inactive
RD 2031 - Elliot	M*	Tree trimming & animal control	Inactive
RD 2063 – Crow's Landing	M*	Vegetation & erosion/bank caving	Inactive
RD 2091 – Chase	A		Inactive
RD 2092 – Dos Rios	A		Active
RD 2101 - Blewett	U	Animal control & erosion	Inactive
TID – Gomes Lake	n/a	n/a	n/a
RD 2099 El Solyo Ranch	n/a	n/a	n/a
RD 2100 – White Lake Ranch	n/a	n/a	n/a
RD 2102 – Lara Ranch	n/a	n/a	n/a

* Overall LMA Threshold Percent is less than 10%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

Many of the concerns noted by USACE are due to O&M challenges. The result is often levees which fail to meet criteria established by USACE, are rated as Unacceptable in periodic inspections, and are no longer eligible for disaster assistance under the PL 84-99 program.

USACE offers a process through the system-wide improvement framework (SWIF) which allows LMAs to remain temporarily eligible for PL 84-99 assistance while they correct unacceptable deficiencies as part of a broader, system-wide improvement to the levee systems. Submitting a SWIF is a two-step process:

a Letter of Intent (LOI) is submitted followed by submission of a SWIF plan. The applicant has up to two years to develop the SWIF following the acceptance of the LOI by USACE.

A SWIF provides committed sponsors the opportunity to transition their levees to USACE standards. By using a SWIF, sponsors can prioritize deficiencies to address the highest risk first to achieve system-wide risk reduction.

The downside to this is that preparing and implementing a SWIF is an expensive and time-consuming process and the financial benefits are only received in the event of a flood. Even then, the benefits are only directed toward repair of the levee. So the question then becomes "is the cost of regaining active status in the PL 84-99 program economically justified?"

The LOI and SWIF process can cost as much as $200,000 for each LMA. Necessary animal and vegetation control can be expensive due to regulatory constraints, and addressing erosion issues can also be a significant undertaking. The total investment could be up to $500,000 or more for each LMA to regain active status in the PL 84-99 program.

With such a large cost associated with getting back into the PL84-99 program, RDs have started to question the economic benefits of being in the program. Since funds for the program are not spent or even appropriated without support from Congress, and the fact that it is very unlikely that many of the RDs in the Region could meet the cost benefit analysis requirements needed to get funding, many RDs have decided that the money spent on activities such as SWIF preparation might be better used to maintain levees, particularly since it is difficult for them to raise assessments.

4 Available Funding Sources

This section provides an overview of some of the funding sources available in the region. Due to the changing nature of funding sources, this list is not intended to detail every funding source available, but instead includes the most common funding sources in the Region. This section describes funding sources at the Federal and State level, separated into conservation, structural, and non-structural programs. Each program description includes an overview of the program, eligibility information, and information on the application process. A summary table is included at Appendix II.

4.1 Federal Programs

Conservation Funding Sources

4.1.1 Agricultural Conservation Easement Program (ACEP)

Program Overview

Funded by: USDA NCRS

The Agricultural Conservation Easement Program (ACEP) provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. The ACEP consists of two components: Agricultural Land Easement and Wetlands Reserves Easements. Under the Agricultural Land Easements component, NRCS helps Indian tribes, state and local governments and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under the Wetlands Reserve Easements component, NRCS helps to restore, protect and enhance enrolled wetlands. Each of these components is explained in more detail below.

Agricultural Land Easements

NRCS provides financial assistance to eligible partners for purchasing Agricultural Land Easements that protect the agricultural use and conservation values of eligible land. In the case of working farms, the program helps farmers and ranchers keep their land in agriculture. The program also protects grazing uses and related conservation values by conserving grassland, including rangeland, pastureland and shrubland. Eligible partners include Indian tribes, state and local governments and non-governmental organizations that have farmland or grassland protection programs.

Under the Agricultural Land component, NRCS may contribute up to 50 percent of the fair market value of the agricultural land easement. Where NRCS determines that grasslands of special environmental significance will be protected, NRCS may contribute up to 75 percent of the fair market value of the agricultural land easement.

Wetland Reserve Easements

NRCS also provides technical and financial assistance directly to private landowners and Indian tribes to restore, protect, and enhance wetlands through the purchase of a wetland reserve easement. For acreage owned by an Indian tribe, there is an additional enrollment option of a 30-year contract.

Through the wetland reserve enrollment options, NRCS may enroll eligible land through:

Permanent Easements – Permanent Easements are conservation easements in perpetuity. NRCS pays 100 percent of the easement value for the purchase of the easement. Additionally, NRCS pays between 75 to 100 percent of the restoration costs.

30-year Easements – 30-year easements expire after 30 years. Under 30-year easements, NRCS pays 50 to 75 percent of the easement value for the purchase of the easement. Additionally, NRCS pays between 50 to 75 percent of the restoration costs.

Term Easements - Term easements are easements that are for the maximum duration allowed under applicable State laws. NRCS pays 50 to 75 percent of the easement value for the purchase of the term easement. Additionally, NRCS pays between 50 to 75 percent of the restoration costs.

30-year Contracts – Term easements are easements that are for the maximum duration allowed under applicable State laws. NRCS pays 50 to 75 percent of the easement value for the purchase of the term easement. Additionally, NRCS pays between 50 to 75 percent of the restoration costs.

For wetland reserve easements, NRCS pays all costs associated with recording the easement in the local land records office, including recording fees, charges for abstracts, survey and appraisal fees, and title insurance.

Eligibility Information

Land eligible for agricultural easements includes cropland, rangeland, grassland, pastureland and nonindustrial private forest land. NRCS will prioritize applications that protect agricultural uses and related conservation values of the land and those that maximize the protection of contiguous acres devoted to agricultural use.

Land eligible for wetland reserve easements includes farmed or converted wetland that can be successfully and cost-effectively restored. NRCS will prioritize applications based the easement's potential for protecting and enhancing habitat for migratory birds and other wildlife.

To enroll land through agricultural land easements, NRCS enters into cooperative agreements with eligible partners. Each easement is required to have an agricultural land easement plan that promotes the long-term viability of the land.

To enroll land through wetland reserve easements, NRCS enters into purchase agreements with eligible private landowners or Indian tribes that include the right for NRCS to develop and implement a wetland reserve restoration easement plan. This plan restores, protects, and enhances the wetland's functions and values.

Application Process

To enroll land through agricultural land easements, eligible partners may submit proposals to NRCS to acquire conservation easements on eligible land.

To enroll land through wetland reserve easements, landowners may apply at any time at the local USDA Service Center.

Sources:

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/easements/acep/?cid=stelprdb1242695

4.1.2 Anadromous Fish Restoration Program and Anadromous Fish Screen Program

Program Overview

Funded by: USFWS

The Anadromous Fish Restoration Program is designed to:

- Protect, restore, and enhance fish, wildlife, and associated habitats in the Central Valley and Trinity River basins of California;
- Address impacts of the Central Valley Project on fish, wildlife and associated habitats;
- Improve the operational flexibility of the Central Valley Project;
- Increase water-related benefits provided by the Central Valley Project to the State of California through expanded use of voluntary water transfers and improved water conservation;
- Contribute to the State of California's interim and long-term efforts to protect the San Francisco Bay/Sacramento-San Joaquin Delta Estuary;
- Achieve a reasonable balance among competing demands for use of Central Valley Project water, including the requirements of fish and wildlife, agricultural, municipal and industrial and power contractors.

Funding Information

Grant Size/Amount Available: The estimated grant size for FY 14 is $9 million. Individual grant size estimated to be $10,000 - $300,000.

Cost Share: 50%

Eligibility Information

Applicants may be State, local governments, Native American Organizations, other public nonprofit institutions/organizations, private nonprofit/organization. No other Federal agency may apply.

Eligible Activities Include:

- Research to improve management and increase Anadromous fish resources
- Land Acquisition
- Spawning area improvements
- Installation of fish passages
- Construction of fish protection devices
- Data collection

Application Process

The White House's office of Management and Budget (OMB) issues circulars to provide instructions of information to Federal Agencies. OMB Circular No. A-102 and OMB Circular No. A-110 apply to this program. The basic application (SF 424 Application for Federal Assistance form) requires a request for proposal narrative, scope of work with deliverables, budget (SF 424A), and Assurances. Information (SF424B) submitted to the Stockton Fish and Wildlife Office (FWO) for review by a locally convened panel. The panel will select the awardee and forward the information to the station project leader for final approval. No state plan required.

Contact Info:

Ren Lohoefner,
2800 Cottage Way, Suite W2606, Sacramento, California 95825
Phone: (916) 414-6464
Fax: (916) 414-6464.

Sources:

- https://www.cfda.gov/index?s=program&mode=form&tab=core&id=200daf76afcc578965460cdc9537b261
- http://www.whitehouse.gov/omb/circulars_default
- http://www.grants.gov/web/grants/forms/sf-424-instructions.html;jsessionid=hCvzT5VFSf2DQdvL8sbq7nFtKhqLv1fx5Z0v9J6G169pw8CQHKGV

4.1.3 Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program

Program Overview

Funded by: USFWS and USBR

The Central Valley Project Conservation Program (CVPCP) and the Central Valley Project Improvement Act Habitat Restoration Program (HRP) represent highly integrated efforts to restore and protect species and habitats impacted by the Central Valley Project (CVP).

The CVPCP and HRP are managed cooperatively by the U.S. Bureau of Reclamation (USBR) and the U.S. Fish and Wildlife Service (USFWS), and receive management input from the California Department of Fish and Game. Both programs are guided by a Technical Team comprised of biologists and managers from these three agencies.

While the programs were established under separate regulatory and legislative authorities, they share the same overall objective of improving conditions for CVP impacted species and habitats. For this reason, the CVPCP and HRP receive proposals and evaluate those proposals under a single integrated process. Proposal submission deadline is in October of each fiscal year.

Funding Information

Grant Size/Amount Available: Available Funding in 2014 Funding Opportunity Announcement (FOA): $2,250,000 with individual awards ranging from $25,000 to $1 million.

Cost Share: There is no cost sharing requirement, but partnering (i.e., cost sharing provided by entities, through cash or in-kind services, which are contributing towards the proposed project) is highly encouraged and the level of partnering is considered during application evaluation.

Eligibility Information

Applicants eligible under this FOA include State or local government agencies, private non-profit or profit organizations, individuals, and educational institutions. Federal agencies are not eligible to submit an application under this FOA. Interested Federal agencies should contact the Program Managers about how to apply for funding, such as through an interagency or intra-agency agreement.

Eligible Activities Include:

- Fee Title/Easement Acquisition: Protection of species or existing habitats impacted by the CVP through the purchase of fee title or conservation easements on lands where threats to these lands are significant. At least 50 percent of the CVPCP and HRP funds will be targeted towards this category of activity. The CVPCP/HRP cannot fund any acquisition projects which would result in mitigation credits for the applicant or seller.

- Habitat Restoration: Restoration of CVP impacted habitats or species populations on lands permanently protected for conservation where restoration actions would markedly improve conditions for impacted species. The CVPCP/HRP cannot fund any restoration projects which would result in mitigation credits for the grant recipient.
- Research: Research addressing status and habitat needs to facilitate species recovery.
- Captive Propagation and Reintroduction: Captive propagation and reintroduction of listed species in order to increase numbers of individuals in a population.

Application Process

The CVPCP and HRP utilize a proposal solicitation process to fund and carry out conservation actions within the Programs' project areas. A single process is applied to both Programs.

At the beginning of each funding cycle, a Funding Opportunity Application (FOA) is posted on www.grants.gov. A brief notice announcing the FOA posting is mailed to prospective applicants using an established mailing list. Proponents who wish to be included on this list should contact Program Managers and provide address information. Contact information for the Program Managers can be found below.

Daniel Strait	Caroline Prose
Manager, CVP Conservation Program & CVPIA Habitat Restoration Program Bureau of Reclamation, MP-152 2800 Cottage Way, Sacramento, CA 95825 (916) 978-5052	Manager, CVPIA Habitat Restoration Program U.S. Fish and Wildlife Service Pacific Southwest Region 2800 Cottage Way, Room W-2606 Sacramento, CA 95825 Phone: (916) 414-6575

Federal agencies are not eligible to submit proposals under the FOA, however they are eligible to receive program funding. Interested federal agencies should contact the Program Managers to discuss how to apply for funding.

The FOA provides up to date information regarding Program priorities and other submission guidelines. The deadline for submitting an application will be indicated in the posted FOA. Generally, deadlines are in mid-November or early December.

Proposals should be submitted in the Programs' standard format indicated in the FOA. All proposals are ranked using a numerical ranking process, but final funding decisions can be based on additional factors.

The following documents and links provide prospective applicants all the information needed to submit a proposal to the Programs:

Documents

CVP/HRP FOA (pdf - 690 KB)

CVPCP/HRP Priority Project Area Map

CVPCP/HRP Priority Species List (pdf - 70 KB)

Sources:

- http://www.usbr.gov/mp/cvpcp/
- http://www.grants.gov/web/grants/view-opportunity.html?oppId=236611

4.1.4 Endangered Species Act Section 6 Grant Program

Program Overview

Funded by: USFWS and CDFW

The Cooperative Endangered Species Conservation Fund (CESCF), provides grants to states and territories to participate in a wide array of voluntary conservation projects for candidate, proposed, and listed species. The program provides funding to states and territories for species and habitat conservation actions on non-federal lands.

Four grant programs are available through the CESCF; they include the "Traditional" Conservation grants and the Nontraditional Habitat Conservation Plan (HCP) Land Acquisition, Habitat Conservation Planning Assistance, and Recovery Land Acquisition Grants (RLA).

"Traditional" Conservation Grants: The "Traditional" Conservation Grants program provides financial assistance to States to implement conservation projects for candidate, listed, and recently recovered species. Funded activities include habitat restoration, species status surveys, public education and outreach, captive propagation and reintroduction, nesting surveys, genetic studies, and development of management plans.

Funding Information

Grant Size/Amount Available: Individual projects can receive $10,000 to $1 million in funding.

Cost Share: Maximum Federal cost share is 75%. If two or more States or territories implement a joint project the Federal cost share can be up to 90%.

Eligibility Information

Participation in the CESCF programs is only available to State agencies that have a current cooperative agreement with the Secretary of the Interior. However, individuals or groups (for example land conservancies, cities, counties, community organizations, or conservation organizations) may work with a State agency that has a cooperative agreement on conservation efforts that are mutually beneficial, as a sub-grantee.

Eligible Activities Include:

- Habitat restoration
- Species status surveys
- Public education and outreach
- Captive propagation and reintroduction
- Nesting surveys,
- Genetic studies

- Development of management plans

Application Process

Project proposals can be submitted by hard copy or through electronic submission through grants.gov. Applicants should refer to the grant announcement for specific requirements.

Project proposals will consist of a narrative description of the project and an Application for Federal Assistance (SF 424) form. The proposal must include a reasonably detailed budget indicating how the funding will be used and how each partner is contributing to the project. The proposal must also indicate the time commitment for maintaining the project's benefits.

Applicants are encouraged to contact the Regional Program Coordinator with any questions regarding what information must be submitted with the project proposal, as incomplete proposals will not be considered for funding. The contact information can be found below.

Regional Director

Dan Cox (HCP)
(916) 414-6539

Lisa Ellis
(916) 414-6741

U.S. Fish and Wildlife Service
Federal Building, 2800 Cottage Way, Room W-2606
Sacramento, CA 95825-1846

Full project application information, including suggested project narrative format, can be found in the grant announcement which can be found at the link below.

Sources:

- http://www.fws.gov/endangered/esa-library/pdf/FY%2014%20CESCF%20RFP%20Grant%20Announcement%20Standard%20Format.FINAL.pdf

4.1.5 Environmental Quality Incentives Program (EQIP)

Program Overview

Funded by: USDA NRCS

The Environmental Quality Incentives Program (EQIP) provides financial and technical assistance to agricultural producers in order to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, reduced soil erosion and sedimentation, and improved or created wildlife habitat.

Eligible program participants receive financial and technical assistance to implement conservation practices, or activities like conservation planning, that address natural resource concerns on their land. Payments are made to participants after conservation practices and activities identified in an EQIP plan of operations are implemented. Contracts can last up to ten years in duration.

Funding Information

Grant Size/Amount Available: Selected projects can receive funding up to $450,000.

Cost Share: Up to 50% Federal cost share.

Eligibility Information

Agricultural producers and owners of non-industrial private forestland and Tribes are eligible to apply for EQIP. Eligible land includes cropland, rangeland, pastureland, non-industrial private forestland and other farm or ranch lands.

Socially disadvantaged, beginning and limited resource farmers, Indian tribes and veterans are eligible for an increased payment rate and may receive advance payment of up to 50 percent to purchase materials and services needed to implement conservation practices included in their EQIP contract.

Applicants must:

- Control or own eligible land
- Comply with adjusted gross income limitation (AGI) provisions
- Be in compliance with the highly erodible land and wetland conservation requirements
- Develop an NRCS EQIP plan of operations

Application Process

NRCS will help eligible producers develop an EQIP plan of operations, which will become the basis of the EQIP contract.

EQIP applications will be ranked based on a number of factors, including the environmental benefits and cost effectiveness of the proposal.

Visit your local USDA Service Center to apply or visit www.nrcs.usda.gov/getstarted.

For more details please visit the NRCS Website.

Sources:

- http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/

4.1.6 Land and Water Conservation Fund (LWCF)

Program Overview

Funded by: USFWS

The Land and Water Conservation Fund (LWCF) Program provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities (as well as funding for shared federal land acquisition and conservation strategies). The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities and to stimulate non-federal investments in the protection and maintenance of recreation resources across the United States.

Funding Information

Grant Size/Amount Available: Individual project awards can range from $10,000 to several million.

Cost Share: Up to 50% Federal cost share.

Eligibility Information

Eligible applicants include State governments and local governments (via States).

Eligible Activities Include:

- Land Acquisition
- Design
- Construction
- Material Acquisition
- Recreation

Application Process

Two application packets (one with original signatures and one copy) must be sent to the Office of Grants and Local Service by February 3rd of each year. Unsuccessful applications from one year can be resubmitted for a subsequent year if the proposed project is eligible and the requirements of the application are complete.

For full details describing what should be included in the application packet and necessary forms please see the LWCF application guide. A link to the guide can be found below.

Sources:

- http://www.parks.ca.gov/pages/1008/files/lwcf%20application%20guide_%20final%20draft%2010.10.2013.pdf
- http://www.nps.gov/lwcf/
- http://www.nps.gov/ncrc/programs/lwcf/grants.html
- http://www.nps.gov/ncrc/programs/lwcf/manual/lwcf.pdf

4.1.7 North American Wetlands Conservation Act (NAWCA)

Program Overview

Funded by: USFWS

The North American Wetlands Conservation Act (NAWCA) of 1989 provides matching grants to organizations and individuals who have developed partnerships to carry out wetlands conservation projects in the United States, Canada, and Mexico for the benefit of wetlands-associated migratory birds and other wildlife.

There is a Standard and a Small Grants Program. Both are competitive grants programs and require that grant requests be matched by partner contributions at no less than a 1-to-1 ratio. Funds from Federal sources may contribute towards a project, but are not eligible as match.

The Standard Grants Program supports projects in Canada, the United States, and Mexico that involve long-term protection, restoration, and/or enhancement of wetlands and associated uplands habitats. In Mexico, partners may also conduct projects involving technical training, environmental education and outreach, organizational infrastructure development, and sustainable-use studies.

The Small Grants Program operates only in the United States. It supports the same type of projects and adheres to the same selection criteria and administrative guidelines as the U.S. Standard Grants Program. However, project activities are usually smaller in scope and involve smaller awards.

Funding Information

The Congressional appropriation to fund the Act's Grants Program in FY 2014 is $31,175. Additional program funding comes from fines, penalties, and forfeitures collected under the Migratory Bird Treaty Act of 1918; from Federal fuel excise taxes on small gasoline engines; and from interest accrued on the fund established under the Federal Aid in Wildlife Restoration Act of 1937. In FY 2013 these other sources provided almost $31.5 million in additional grant funds.

Grant Size/Amount Available: $30 million (estimated) available in FY 2014. For the Small Grants Program requests may not exceed $75,000, and funding priority is given to grantees or partners new to the Act's Grants Program. No maximum requests were given for the standard grant program.

Cost Share: Up to 50% Federal Cost Share.

Eligibility Information

Wetland conservation projects in the US, Canada, and Mexico for the benefit of wetlands associated migratory birds and other wildlife are eligible for this program.

Application Process

The U.S. Fish and Wildlife Service's Division of Bird Habitat Conservation is responsible for facilitating the Act's Grants Program.

Standard Grants Program: The process for receiving and preliminarily reviewing project proposals is handled slightly differently for each country and enjoys the active participation of each federal government.

Once a slate of eligible proposals has been determined per each country-program's process, the proposals are further reviewed and ranked by the North American Wetlands Conservation Council, a nine-member council established by the Act. The Council then recommends projects to the Migratory Bird Conservation Commission, a seven-member commission authorized by NAWCA to give final funding approval to projects. The Division administers the grants for all approved Standard Grants Program projects.

Small Grants Program: The process follows that of the U.S. Standard Grants Program, except for the timing of the final funding approval. Each year, the Commission pre-approves the total amount of funding to be distributed to projects in the next fiscal year. Final project-selection authority is delegated to the Council, which then reports its selections back to the Commission. The Division administers the grants for all approved Small Grants Program projects.

Sources:

- http://www.fws.gov/birdhabitat/Grants/NAWCA/index.shtm

Structural Flood Control Funding Sources

4.1.8 Flood Mitigation Assistance (FMA)

Program Overview

The FMA Grant Program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4104c) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP).

The FMA program is a grant program that provides funding to States, territories, tribal entities and communities to assist in their efforts to reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program (NFIP).

Funding Information

Grant Size/Amount Available: $89 million. Individual planning grants using FMA funds shall not exceed $50,000 to any Applicant or $25,000 to any sub applicant.

Cost Share: Up to 75% Federal cost share (base cost share).

Availability under the FMA Grant Program of depends on the type of properties included in the grant. Severe repetitive loss properties may receive up to 100-percent Federal funding and repetitive loss properties may receive up to 90-percent. Insured properties and planning grants may receive up to 75-percent of the eligible cost of activities. Structures with varying cost share requirements can be submitted in one application. Applicants must provide documentation in the project application showing how the final cost share was derived. The final cost share will be entered into the eGrants system and documentation showing how the final cost share was derived must be attached to the application.

Eligibility Information

Entities eligible to apply for FMA grants include the emergency management agency or a similar office of the 50 States (e.g., the office that has primary emergency management or floodplain management responsibility. Each State, territory, commonwealth, or Indian tribal government shall designate one agency to serve as the Applicant for each FMA program.

Eligible activities for the FMA Grant Program include:

1 Property Acquisition and Structure Demolition or Relocation
2 Structure Elevation
3 Dry Flood-Proofing
4 Minor Localized Flood Reduction Projects
5 Hazard Mitigation Planning (Flood Portion)
6 Non-structural Retrofitting of Existing Buildings and Facilities
7 Management Costs

Application Process

Applications and subapplications for FMA are submitted via the eGrants system https://portal.fema.gov/famsVuWeb/home . If a subapplicant does not use the eGrants system, the Applicant must enter the paper subapplication(s) into the eGrants system on the sub applicant's behalf. Blank applications that conform to the eGrants format are available for printing from the eGrants system https://portal.fema.gov/famsVuWeb/home. Supporting documentation that cannot be electronically attached to the eGrants application (e.g., engineering drawings, photographs, and maps) must be submitted to the appropriate FEMA Regional Office. The entire application, including all paper documentation, must be received by the appropriate FEMA Regional Office no later than the application deadline.

Sources:

- http://www.fema.gov/flood-mitigation-assistance-program
- http://www.ak-prepared.com/grants/FY%2014%20FOA%20-%20FMA%20-%20GPD%20Final%20%282%29%204-15-2014.pdf

4.1.9 Pre-Disaster Mitigation (PDM)

Program Overview

The Pre Disaster Mitigation (PDM) Grant Program was created by Section 203 of the Stafford Act, 42 U.S.C. 5133 with the goal of reducing overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding from future disasters. The PDM Grant Program is designed to assist States, Territories, Indian Tribal governments, and local communities to implement a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding from future disasters.

Funding Information

Grant Size/Available Funding: Funding for the PDM program is $23,000,000 with up to $3 million in funding per project.

Cost Share: Up to 75% Federal cost share (base cost share).

For the PDM Grant Program, Federal funding for project and planning activities is generally available for up to 75-percent of the eligible activity costs. The remaining 25-percent of eligible activity costs are derived from non-Federal sources. Small impoverished communities may be eligible for up to a 90-percent Federal cost share. Indian Tribal Grantees meeting the definition of a small impoverished community are eligible for a non-Federal cost share of 10-percent for management costs.

Eligibility Information

Entities eligible to apply for PDM grants include the emergency management agency or a similar office of the 50 States (e.g., the office that has primary emergency management or floodplain management responsibility), the District of Columbia, American Samoa, Guam, the U.S. Virgin Islands, Puerto Rico, the Northern Mariana Islands, and Indian Tribal governments. Each State, Territory, Commonwealth, or Indian Tribal government shall designate one agency to serve as the Applicant for each HMA program. For the definition of the term Indian Tribal government refer to 44 CFR Section 201.2.

Eligible activities for the PDM Grant Program include:

- Property Acquisition and Structure Demolition or Relocation
- Structure Elevation
- Dry Flood-Proofing
- Minor Localized Flood Reduction Projects
- Structural Retrofitting of Existing Buildings
- Non-structural Retrofitting of Existing Buildings
- Safe Room Construction
- Infrastructure Retrofit

- Soil Stabilization
- Wildfire Mitigation
- Hazard Mitigation Planning
- Management Costs

Application Process

Applications and subapplications for PDM are submitted via the eGrants system https://portal.fema.gov/famsVuWeb/home. If a subapplicant does not use the eGrants system, the Applicant must enter the paper subapplication(s) into the eGrants system on the sub applicant's behalf. Blank applications that conform to the eGrants format are available for printing from the eGrants system. Supporting documentation that cannot be electronically attached to the eGrants application (e.g., engineering drawings, photographs, and maps) must be submitted to the appropriate FEMA Regional Office. The entire application, including all paper documentation, must be received by the appropriate FEMA Regional Office no later than the application deadline.

Sources:

- http://www.ak-prepared.com/grants/FY%2014%20FOA%20-%20PDM%20-%20%204-15-2014%20FINAL.pdf

4.1.10 USACE Funding

Program Overview

USACE will provide cost share for improvements to a Federal flood facility if it is determined that there is a Federal interest. Federal cost share information from the Water Resources Development Act of 1986 and its update, the Water Resources Act of 1999 can be found below.

Feasibility Studies

The non-Federal Partner must agree by contract to contribute 50 percent of the cost for such study during the period of such study. Not more than one-half of such non-Federal contribution may be made by the provision of services, materials, supplies, or other in-kind services necessary to prepare the feasibility report.

Structural Flood Control

The non-Federal partners for a structural flood control project shall:

- Pay 5 percent of the cost of the project assigned to flood control during the construction of the project.
- Provide all lands, easements, rights-of-way, and dredged material disposal required only for flood control and perform all related necessary relocations
- Provide that portion of the join costs of lands, easements, rights-of-way, dredged material disposal areas, and relocations which is assigned to flood control.

The non-Federal partners will also have a 35 percent minimum contribution. If the value of the contributions required from the above items is less than 35 percent for the project, the non-Federal partners shall pay during construction of the project such additional amounts as are necessary so that the total contribution is equal to 35 percent of the cost of the project. The non-Federal cost share shall not exceed 50 percent of the total project cost. For non-Federal cost shares that exceed 30 percent of the project cost, the excess amount may be paid over a time period of up to 15 years.

Non-Structural Flood Control

The non-Federal share of the cost of non-structural flood control measures shall be 35 percent of the cost of such measures. The non-Federal interests for any such measures shall be required to provide all lands, easements, rights-of-way, dredged material disposal areas, and relocations necessary for the project, but shall not be required to contribute any amount in cash during construction of the project

Funding Information

Grant Size/Amount Available: N/A

Cost Share: USACE has separate cost share guidelines for different project types. The Federal cost share for the different project types is listed below:

- Feasibility Studies: 50%
- Structural Flood Control: 50% - 65%
- Non Structural Flood Control: 65%

It should be noted that cost share data was taken from the Water Resources Development Acts of 1986 and 1999

Eligibility Information

Eligible Entities include CVFPB with local sponsor.

Eligible activities for the USACE/CVFPB Projects include:

- Land Acquisition
- Design
- Construction

Application Process

A feasibility study is needed in order to determine Federal interest in a project.

Sources:

- http://www.gpo.gov/fdsys/pkg/PLAW-106publ53/pdf/PLAW-106publ53.pdf
- http://www.epw.senate.gov/wrda86.pdf

Non-Structural Flood Control Funding Sources

4.1.11 Emergency Watershed Protection Program – Floodplain Easement Option (EWP-FPE)

Program Overview

Funded by: USDA NCRS

The Emergency Watershed Protection - Floodplain Easement Program (EWP-FPE) provides an alternative measure to traditional EWP recovery, where it is determined that acquiring an easement in lieu of recovery measures is the more economical and prudent approach to reducing a threat to life or property.

The easement area will be restored to the maximum extent practicable to its natural condition. Restoration utilizes structural and nonstructural practices to restore the flood storage and flow, erosion control, and improve the practical management of the easement.

Floodplain easements restore, protect, maintain and enhance the functions of floodplains while conserving their natural values such as fish and wildlife habitat, water quality, flood water retention and ground water recharge. Structures, including buildings, within the floodplain easement must be demolished and removed, or relocated outside the 100-year floodplain or dam breach inundation area.

Funding Information

Grant Size/Amount Available: Information Unavailable

Cost Share: Up to 100% Federal cost share.

A permanent easement is the only enrollment option available for EWP-FPE floodplain easements. Permanent FPE easements are available on the following types of land:

1. Agricultural or open lands. In these cases, NRCS will pay up to 100% of the easement value and up to 100% of the costs for easement restoration.
2. Lands primarily used for residential housing. In these cases, NRCS will pay up to 100% of the easement value and up to 100% of the structure's value if the landowner chooses to have it demolished. If the landowner wished to relocate their residence instead of demolishing it, the NRCS will pay 100% of the costs associated with relocating it to a location outside of the floodplain. A project sponsor is required for these projects and is required to purchase the remaining lot after structures are removed.

Eligibility Information

NRCS may purchase EWP-FPE permanent easements on floodplain lands that:

- The floodplain lands were damaged by flooding at least once within the previous calendar year or have been subject to flood damage at least twice within the previous 10 years [1].
- Other lands within the floodplain are eligible, provided the lands would contribute to the restoration of the flood storage and flow, provide for control of erosion, or that would improve the practical management of the floodplain easement.
- Lands would be inundated or adversely impacted as a result of a dam breach.

[1]If FPE is being offered as recovery for a specific natural disaster, at least one of the instances of flooding must have been a result of that natural disaster.

Application Process

If you are interested in applying for EWP-FPE, please review the documents listed below as they will need to be completed when you apply. More information about the EWP-FPE can be obtained from your local USDA NRCS Field Office.

Form AD-1153, Application for Long-Term Contracted Assistance

Form AD-1157, Option Agreement to Purchase

Form AD-1161, Application for Payment

Sources:

- http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/ewp/?cid=nrcs143_008225

Other Suggested Federal Funding Sources

The Federal funding sources detailed in the previous section was not meant to represent an exhaustive list of opportunities, but are meant to give a broad overview of some of the most common funding sources available. While it would be difficult to list every funding source available the RFMP team would like the most complete list possible. To that end, a list of Federal funding sources that were suggested to the RFMP team too late to make it into the main document.

- Clean Water Act Non-Point Source (NPS) Grant Program

4.2 State Programs

Conservation Funding Sources

4.2.1 California Riparian Habitat Conservation Program (CRCHP)

Program Overview

Funded by: California Wildlife Conservation Board (CA WCB)

The goals of the CRHCP are to protect, preserve, restore and enhance riparian habitat throughout California. To achieve these goals the program has adopted the following seven objectives:

- Assess the current amount and status of riparian habitat throughout the state.
- Identify those areas which are critical to the maintenance of California's riparian ecosystems.
- Identify those areas which are in imminent danger of destruction or significant degradation.
- Prioritize protection needs based on the significance of the site and potential loss or degradation of habitat.
- Develop and fund project-specific strategies to protect, enhance, or restore significant riparian habitat.
- Develop, administer, and fund a grants program for riparian habitat conservation.
- Provide a focal point for statewide riparian habitat conservation efforts.

Funding Information

Grant Size/amount available: $3 million will be available annually for restoration and acquisitions until the year 2020. Grants awards range from $2,000 to $2 million.

Cost Share: 50% - 90%.

Eligibility Information

Eligible entities include nonprofit organizations, local government agencies, state departments, and federal agencies.

Eligible Activities Include:

- Riparian Conservation
- Land Acquisition

Application Process

The WCB accepts applications for funding on a continuous basis.

For information about how to apply for funding for riparian habitat restoration, please contact the Riparian Program Manager (see Contact Information). The application guidelines for restoration projects are available on the website.

Contact Information

Wildlife Conservation Board Riparian Program Manager
1807 13th Street
Sacramento, CA 95814-7117
Phone: 9164451072
Fax: 9163230280

Sources:

- http://rlch.org/funding/california-riparian-habitat-conservation-program
- http://www.privatelandownernetwork.org/yellowpages/resource.aspx?id=14402
- https://www.wcb.ca.gov/Programs/Riparian.aspx

4.2.2 California River Parkways Program

Program Overview

Funded by: California Natural Resource Agency

The California River Parkways Program is a competitive grant program first created under the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Proposition 50). The program is administered by the Office of the Secretary for Resources and awards funds to public agencies and non-profit organizations to acquire, restore, protect or develop river parkways.

Funding Information

Grant Size/Amount Available: Information Unavailable

Cost Share: 50%-90%

Eligibility Information

Eligible entities include public agencies and California nonprofit organizations

Projects must meet at least two of the following statutory conditions:

- Recreation - Provide compatible recreational opportunities including trails for strolling, hiking, bicycling and equestrian uses along rivers and streams.
- Habitat - Protect, improve, or restore riverine or riparian habitat, including benefits to wildlife habitat and water quality.
- Flood Management - Maintain or restore the open-space character of lands along rivers and streams so that they are compatible with periodic flooding as part of a flood management plan or project.
- Conversion to River Parkways - Convert existing developed riverfront land into uses consistent with River Parkways.
- Conservation and Interpretive Enhancement - Provide facilities to support or interpret river or stream restoration or other conservation activities.

Other Requirements exist. See source documents.

Application Process

The Grant Application has three sections:

1. One Page Summary– Include the following:

- Summarize the specific project you are requesting funds for and the need for it.
- If the project is part of a larger parkway plan, briefly describe the larger parkway plan and how it incorporates this specific project.

- What specific components of the Project will be funded by this grant? Include amounts for each component.
- Eligibility question: How does your Project provide Public Access?

2. Project Evaluation Questions– Please answer all Project Evaluation Questions in Section VI (Page 5) that correspond with the two Statutory Conditions you checked on the Application Form.

3. Supporting Documents– See "What to Submit" section for detailed list (Page 13, source document)

Sources:

- http://bondaccountability.resources.ca.gov/plevel1.aspx?id=22&pid=4
- http://resources.ca.gov/bonds_prop50riverparkway.html
- http://resources.ca.gov/bonds_docs/P50_Grant_Guidelines_FINAL.pdf

4.2.3 Central Valley Flood System Conservation Framework and Strategy

Program Overview

Funded by: DWR FESSRO (Prop 1E)

The program funds planning and implementation of projects in support of the Central Valley Flood System Conservation Framework and the Conservation Strategy. This program intends to incorporate environmental stewardship and sustainability principles into State Plan of Flood Control flood management activities.

Funding Information

Grant Size/Amount Available: $25 million available with a maximum award of $5 million per project.

Cost Share: 50%-90%

Applicants can increase state cost share up to a maximum of 90% by contributing to one or more objectives such as habitat (up to 20% increase), open space (up to 20% increase), recreation (up to 20% increase), combination of habitat, open space, and recreation (up to 20% increase), state facilities (up to 20% increase), and Disadvantaged Area (up to 40% increase). More information can be found in the LLAP Guidelines and Project Solicitation Package (PSP).

Eligibility Information

Eligible entities include Federal, State and local public agencies; private mitigation banks, and Non-profits.

Eligible Activities Include:

- Evaluation, repair, rehabilitation, reconstruction or replacement of levees, weirs, bypasses, and facilities of the SPFC.
- Must incorporate agricultural and environmental stewardship and sustainability into the flood management activities through funding of activities that restore natural ecological processes and/or habitats to provide mitigation for facilities of the SPFC.
- Should provide or lead to ecological improvements including but not limited to
    - Substantial habitat improvements in terms of increased area and/or inundation of floodplain, or increased area of riparian, wetland, or floodplain habitats supporting sensitive species; and
    - A strategic location that substantially improves regional connectivity and/or provides essential habitats in accordance with larger conservation plans.

Application Process

Applicants for funding need to file a project proposal with DWR in response to issuance of an RFP. DWR will not revise the RFP requirements during any period in which project proposals are being solicited. Project proposal requirement details can be found in the funding guidelines. (see sources)

Sources:

- http://www.water.ca.gov/floodsafe/fessro/docs/flood11_guidelines.pdf

4.2.4 Flood Corridor Program (FCP)

Program Overview

The Flood Corridor Program (FCP) funds multi-objective, flood risk reduction projects that protect and restore floodplains and preserve or enhance wildlife habitat and agriculture. The program funds primarily non-structural projects, including acquiring and conserving floodplains, removing structures and precluding development in flood prone areas, and constructing earthen detention basins, along with restoring habitat and protecting agricultural land. Setback levees are also included when they enable a more naturally functioning floodplain.

Flood Corridor Program includes three flood protection grant programs:

- Flood Protection Corridor Program (Propositions 13 and 84);
- Floodway Corridor Program (Proposition 1E); and
- Central Valley Nonstructural Grants Program (Proposition 1E).

Funding Information

Grant Size/Amount Available: Approximately $11million available for grant program. Grant size has a $5 million maximum.

Cost Share: 50%-90%

Eligibility Information

Eligible entities include local public agencies (county, city, district or joint powers authority), nonprofit organizations, California Native American tribes registered as a nonprofit organization or partner of a nonprofit or local public agency.

Also, direct expenditure funding to other government agencies (local, State, or federal), nonprofit organizations, or contractors for projects proposed by DWR that are in the State's interest to fulfill program goals.

Eligible activities for the FCP include:

- Land Acquisition
- Design
- Construction

Application Process

Applicants for competitive grant funding under the program need to file a complete grant application package with DWR. DWR will not revise the grant application package requirements during any period in which competitive project proposals are being solicited.

More program details can be found within the FCP guidelines and online at water.ca.gov. (see sources)

Contact Person:

David Wright
David.Wright@water.ca.gov
(916) 574-1191

Sources:

- http://www.water.ca.gov/floodmgmt/fpo/sgb/fpcp/docs/Final_Flood_Corridor_Guidelines.pdf
- http://www.water.ca.gov/floodmgmt/fpo/sgb/fpcp/funding_cycle.cfm
- FloodSAFE Implementation Programs (January 2014) Draft Table

4.2.5 Habitat Conservation Fund (HCF) Program

Program Overview

Funded by: State General Fund through the CA Dept. of Parks and Recreation

Provides funds to local entities to protect threatened species, to address wildlife corridors, to create rails, and to provide for nature interpretation programs which bring urban residents into park and wildlife areas

Funding Information

Grant Size/Amount Available: $2 million Funded annually through FY 2019/2020. Grants requests generally do not exceed $200,000 however there are not maximum or minimum grants amounts.

Cost Share: 50%

Eligibility Information

Eligible entities include cities, counties, and districts.

Eligible Activities Include:

- Deer/Mountain Lion Habitat
- Rare, Endangered, Threatened, or Fully-Protected Species Habitat
- Wetlands
- Riparian Habitat
- Anadromous Salmonids and Trout Habitat
- Trails
- Wildlife Area Activities

Application Process

The following are the instructions given in the application guide for submitting the application packet

- Each project must have its own application.
- Applicants may apply for more than one PROJECT.
- All applicants are required to submit one, unbound, original application packet.
- Application items should be provided in the order shown in the checklist in the application guide.
- Each application must include a Table of Contents based on the checklist.
- All pages must be numbered.
- If an item is not applicable to the project, the applicant shall respond with “N/A” (not applicable), with an explanation as to why.

- Send only the items on the checklist. Power point presentations, videos, CDs, or letters of support should not be submitted.
- Directions and forms for each checklist item can be found in the application guide.

Sources:

- http://www.parks.ca.gov/pages/1008/files/Riparian%201.1.12%20Final%20Application%20Guide.pdf
- http://www.parks.ca.gov/?page_id=21361
- http://www.parks.ca.gov/pages/1008/files/hcf%20fact%20sheet%203.13.13.pdf

4.2.6 Inland Wetlands Conservation Program (IWCP)

Program Overview

Funded by: California Wildlife Conservation Board (CA WCB)

The Inland Wetlands Conservation Program (IWCP) was created to assist the Central Valley Joint Venture (CVJV) in its mission is to protect, restore, and enhance wetlands and associated habitats. The CVJV, a partnership of twenty two public and private organizations and agencies, has identified through its Implementation Plan specific goals to increase populations of six bird groups: wintering waterfowl, breeding waterfowl, non-breeding shorebirds, breeding shorebirds, waterbirds, and breeding riparian songbirds. The IWCP has a wide range of options to accomplish these goals, including acquisitions of land or water for wetlands or wildlife friendly agriculture, acquisition of conservation easements, restoration of public or private lands, or enhancement of existing degraded habitats. In addition, the program will work toward providing long term reliable water for wetlands and winter-flooded agricultural lands.

Funding Information

Grant Size/Amount Available: $1,000 to 1,000,000

Cost Share: The program offers up to 50 percent cost share.

The landowners share can be met through cash expenditures or in-kind services, such as providing for the long term maintenance of the project.

Eligibility Information

Eligible entities include nonprofit organizations, local governmental agencies and State departments

Eligible Activities Include:

- Fee simple land acquisition
- Leases from landowners for specified period
- Easement land acquisition
- Develop wetland habitat for migrating and wintering waterfowl: construct levees, swales and islands; develop water conveyance and drainage systems; install water control structures; and prepare soil and plant desirable vegetation;
- Develop waterfowl breeding habitat: construct brood water ponds, establish and fence upland nesting habitat, and provide cover and feeding areas;
- Develop waterfowl friendly agricultural practices: fence upland nesting habitat, encourage wildlife friendly grazing practices, and promote winter flooding of croplands; and
- Assist with the development of conjunctive use projects by which multiple objectives are achieved, e.g., restore wetlands to assist with flood control and ground water recharge efforts.

Application Process

WCB meets four times a year, typically in February, May, August and November. Processing time for applications can vary depending on completeness of the application, project benefits, and funding availability. Allow a minimum of six months from submittal of application to project approval.

WCB accepts proposals on a continuous basis, and will notify applicants about whether or not the proposal is acceptable or complete. All proposals will be evaluated with assistance from the California Department of Fish and Wildlife. If a proposed project is accepted, and funding is available, a grant agreement or contract will be prepared for the applicant, and the proposal will be scheduled for consideration at a future WCB meeting.

Once the project is ready for submittal, submit one hard copy of the completed application form, including all attachments. Please include a CD that contains your application (or email the completed application directly to the WCB Project Manager). Include the budget and include any digital photos and maps. Please note: all information that you submit is subject to the unqualified and unconditional right of the WCB to use, reproduce, publish, or display, free of charge.

Applications should be sent to:
John P. Donnelly, Executive Director
Wildlife Conservation Board
1807 13th Street, Suite 103
Sacramento, California 95811-7137

Sources:

- http://ceres.ca.gov/wetlands/introduction/inland_easement.html
- http://rlch.org/funding/california-inland-wetlands-conservation-program

4.2.7 Urban Greening for Sustainable Communities - Planning

Program Overview

Funded by: California Natural Resource Agency (CNRA)

Because of the built-out nature of California's urban areas, the Urban Greening Planning Program will provide funds to assist entities in developing a master urban greening plan that will ultimately result in projects to help the State meet its environmental goals and the creation of healthy communities. The plan must be consistent with the State's planning policies and any applicable general or regional plan. The plan must outline or layout projects that reduce greenhouse gas emissions and provide multiple benefits including, but not limited to, decreasing air and water pollution, reducing the consumption of natural resources and energy, increasing the reliability of local water supplies, or increasing adaptability to climate change.

Funding Information

Grant Size/Amount Available: $20 million to be available in round 3 for the Urban Greening for Sustainable Communities Program. Requests for funding are limited to a maximum of $250,000. Larger grant awards may be considered for organizations that work together to develop joint planning documents that cover all jurisdictions involved.

Cost Share: No matching funds are required for this program, but the Strategic Growth Council encourages leveraging of all resources, including other sources of funds.

Eligibility Information

Eligible entities include a council of governments, countywide authority, a metropolitan planning organization, local government, nonprofit organization, special district, or joint powers authorities where at least one entity qualifies as an eligible applicant.

This grant program is meant to help in developing master urban greening plans. These plans must meet the following criteria:

- Serve as the master document guiding and coordinating greening projects in the applicant's jurisdiction. For the purpose of this program an urban area is a geographic area where the existing or planned-for average density within a half mile radius of the project or an adjacent geographically-equivalent area (minus existing or planned for open space including the proposed project and non-residential uses) is approximately ten (10) dwelling units per acre.
- Be consistent with the state's planning policies pursuant to Section 65041.1 of the Government Code, as they pertain to the following priorities:
    - Promote infill development and equity
    - Protect environmental and agricultural resources
    - Encourage efficient development patterns

- Be consistent with the jurisdiction's general plan or regional plan, where one exists.
- Include projects that will reduce, on as permanent a basis that is feasible, greenhouse gas emissions consistent with the California Global Warming Solutions Act of 2006 (Division 25.5 (commencing with Section 38500) of the Health and Safety Code), and any applicable regional plan.
- Comply with the California Environmental Quality Act (CEQA), Division 13 (commencing with Section 21000 of the Public Resources Code), if the plan will be incorporated into the jurisdiction's general plan or applicable regional plan.

Application Process

For technical assistance in preparing the application, the applicant should contact a Grants Administrator at (916) 653-2812.

The grant application consists of a response to questions, a work plan and supporting documents. Additional information can be found in source documents below.

Sources:

- http://resources.ca.gov/grant_programs.html#
- http://resources.ca.gov/bond/Urban_Greening_PLANNING_Guidelines_October_2012.pdf

4.2.8 Urban Greening for Sustainable Communities - Project

Program Overview

Funded by: California Natural Resource Agency (CNRA)

Because of the built-out nature of California's urban areas, the Urban Greening for Sustainable Communities Program (Program) provides funds to preserve, enhance, increase or establish community green areas such as urban forests, open spaces, wetlands and community spaces (e.g., community gardens). The goal is for these greening projects to incrementally create more viable and sustainable communities throughout the State.

Funding Information

Grant Size/Amount Available: $20 million to be available in round 3 for the Urban Greening for Sustainable Communities Program.

Cost Share: No matching funds are required for this program, but the Strategic Growth Council encourages leveraging of all resources, including other sources of funds.

Eligibility Information

Grant funds will be awarded to a city, county, special district, or nonprofit organization, or joint powers authorities where at least one entity qualifies as an eligible applicant.

Urban Greening Projects must accomplish the following criteria:

- Use natural systems, or systems that mimic natural systems, or Create, enhance, or expand community green spaces.
- Provide multiple benefits including, but not limited to
    - A decrease in air and water pollution, or
    - A reduction in the consumption of natural resources and energy, or
    - An increase in the reliability of local water supplies, or
    - An increased adaptability to climate change.
- Be consistent with the State's planning policies pursuant to Section 65041.1 of the Government Code specific to the following state wide priorities–
    - Promote infill development and invest in existing communities,
    - Protect, preserve and enhance environmental, agricultural and recreational resources,
    - Encourage location and resource efficient new development
- Reduce, on as permanent a basis that is feasible, greenhouse gas emissions consistent with the California Global Warming Solutions Act of 2006 (Division 25.5 (commencing with Section 38500) of the Health and Safety Code), and any applicable regional plan.

Application Process

For technical assistance in preparing the application, the applicant should contact a Grants Administrator at (916) 653-2812.

The grant application consists of a response to questions, a work plan and supporting documents. Additional information can be found in source documents below.

Sources:

- http://resources.ca.gov/bond/Urban_Greening_PROJECT_Guidelines_October_2012.pdf

4.2.9 Urban Streams Restoration Program

Program Overview

Funded by: DWR

Program provides grants for stream restoration projects that reduce flooding or erosion and associated property damages; restore, enhance, or protect the natural environment; and promote community involvement, education, and stewardship in urban streams.

Funding Information

Grant Size/Amount Available: $8 million available. $1 million maximum per eligible project.

Cost Share: Matching contributions are not required but are strongly encouraged to be competitive. Evaluations of projects will consider the financial resources available to the applying partners.

Eligibility Information

Eligible entities include combined sponsorship between Local government agencies and citizen's groups/nonprofits.

Eligible Activities Include:

- Habitat Restoration projects on urban streams
- Recreation
- Flood Management
- Conversion to River Parkways
- Conservation and Interpretive Enhancements

Application Process

Each application form should reflect the total grant dollars being requested for the project. Additional information can be found in source documents below.

Sources:

- http://www.water.ca.gov/urbanstreams/docs/guidelines.pdf

Structural Flood Control Funding Sources

4.2.10 Flood System Repair Project (FSRP)

Program Overview

The Flood System Repair Project (FSRP) is designed to evaluate (feasibility), design, and construct repairs on non-urban SPFC facility (levees, channels, structures, etc.) deficiencies.

Funding Information

Grant Size/Amount Available: Up to $150 million Proposition 1E funds may be allocated to the FSRP through fiscal year 2017. The maximum cost share amount per project will be $5 million.

Cost Share: 50% - 90%

Applicants can increase state cost share up to a maximum of 90% by contributing to one or more objectives such as habitat (up to 20% increase), open space (up to 20% increase), recreation (up to 20% increase), combination of habitat, open space, and recreation (up to 20% increase), state facilities (up to 20% increase), and Disadvantaged Area (up to 40% increase). More information can be found in the LLAP Guidelines and Project Solicitation Package (PSP).

Eligibility Information

Eligible Entities include local agencies or joint powers authority

Eligible activities for the FSRP include:

- Design
- Construction

Application Process

For each eligible repair site or set of repair sites specific to an LMA, DWR will submit an Eligibility Notice to the LMA. The Eligibility Notice will contain:

- A description of the eligible repair site(s), including classification (i.e., critical or proactive repairs).
- Estimated cost of construction.
- A request for an Intent to Participate Letter from the LMA for entering into a Project Agreement with DWR.
- A list of documentation that must accompany the Intent to Participate Letter.

The requirements of the Intent to Participate Letter will be limited to confirmation that the LMA is authorized to contract with the state and intends to implement the project under DWR oversight and with cost share.

The Eligibility Notice will specify a response deadline when Intent to Participate Letters must be either mailed (postmarked), submitted in person, or submitted electronically to DWR, as specified in the Eligibility Notice. An LMA receiving an Eligibility Notice will be encouraged to submit any questions to DWR that might help clarify Intent to Participate Letter requirements within 2 weeks of when the Eligibility Notice was provided. Incomplete Intent to Participate Letters submitted after the response deadline may be considered; however, DWR will reserve the right to delay consideration of such applications until the selection process for previously submitted Intent to Participate Letters is completed.

Please see FSRP Draft Guidelines for more information. (see sources)

Contact Person:

David Wright
David.Wright@water.ca.gov
(916) 574-1191

Sources:

- FloodSAFE Implementation Programs (January 2014) Draft Table
- http://www.water.ca.gov/floodmgmt/fmo/docs/FSRP-Draft-Guidelines-0221.2013.pdf

4.2.11 Integrated Regional Water Management (IRWMP)

Program Overview

Funded by: DWR

The IRWMP program provides funds for development and updates of IRWMP Plans, and implementation of projects in IRWMP Plans. The goals of the program are to assist local public agencies to meet long-term water management needs of the State, including the delivery of safe drinking water, flood risk reduction, and protection of water quality and the environment.

Funding Information

Grant Size/Amount Available: Bond funding allocation for the entire program is $1billion. Prop 84 allots grant funding to 11 funding areas.

Guidelines contain information on how potential funding of multiple IRWMP efforts within a funding area will occur and maximum grant amount per funding area.

Cost Share: 75% (maximum)

Eligibility Information

Applicant must be a local public agency or nonprofit representing an accepted IRWMP Region. Other IRWMP partners may access funds through their own agreements with the applicant/grantee.

Eligible Activities Include:

- Projects and programs that provide immediate regional drought preparedness
- Increase local water supply reliability and the delivery of safe drinking water
- Assist water suppliers and regions to implement conservation programs and measures that are not locally cost-effective
- Reduce water quality conflicts or ecosystem conflicts created by the drought

Application Process

Grant application processes will utilize electronic submittals when possible. Submission of applications will be through DWR's Grant Review and Tracking System (GRanTS). The PSP for any given solicitation will contain specific instructions and links to the GRanTS system.

Additional information can be found in the source documents below.

Sources:

- http://www.water.ca.gov/IRWMP/grants/docs/Guidelines/P84_IRWMP_GL_Drought2014_PublicReviewDraft.pdf

4.2.12 Local Levee Assistance Program (LLAP)

Program Overview

The Local Levee Assistance Program (LLAP) is for projects to immediately repair and improve critically-damaged local levees, evaluate levee stability and levee seepage and underseepage, and to perform design or alternatives analysis. Local levees are levees throughout the State that are not part of the State Plan of Flood Control for the Central Valley and are located outside the Sacramento-San Joaquin Delta.

The LLAP has two components. The Local Levee Critical Repair (LLCR) Program provides for design and repairs of critically-damaged levees. The Local Levee Evaluation (LOLE) Program provides funds for feasibility studies and geotechnical evaluation of levees.

Funding Information

Grant Size/Amount Available: $13 million available. There is a $5 million maximum for LLCR and a $2 million maximum for LOLE.

Cost Share: Both programs offer a 50% base cost share.

Applicants can increase state cost share up to a maximum of 90% by contributing to one or more objectives such as habitat (up to 20% increase), open space (up to 20% increase), recreation (up to 20% increase), combination of habitat, open space, and recreation (up to 20% increase), state facilities (up to 20% increase), and Disadvantaged Area (up to 40% increase). More information can be found in the LLAP Guidelines and Project Solicitation Package (PSP).

Eligibility Information

Eligible Entities include Local Public Agencies or Joint Powers Authorities that are outside of the Legal Delta, are responsible for local (non-SPFC) levees, and are qualified to contract with the state.

Eligible activities for the FCP include:

- Design and Repairs of critically damaged levees (LLCR)
- Feasibility studies and geotechnical evaluation of levees (LOLE)

Application Process

The LLAP program will utilize the Bond Management System (BMS) for solicitation and management of its funding applications and projects. An application must be submitted via the internet using BMS. A series of questions must be answered on BMS and any additional information must be uploaded by the application date.

Specific application information can be found in the LLAP Grant Guidelines. (see sources).

Contact Person:
David Wright
(916) 574-2644
dwright@water.ca.gov

Sources:

- http://www.water.ca.gov/floodmgmt/docs/LLAP_Guidelines_2011_new.pdf
- http://bondaccountability.resources.ca.gov/plevel1.aspx?id=114&pid=4
- http://www.water.ca.gov/floodsafe/docs/local-levee-guidelines.pdf
- http://www.floodplain.org/files/LLAPProgramOverviewPresentation_2011_Sacramento_Luncheon.pdf

4.2.13 Small Community Flood Risk Reduction (SCFRR)

Program Overview

The Small Community Risk Reduction Program is designed to help implement projects to reduce flood risk in small, rural, and agricultural communities in the Central Valley. Funds support non-routine O&M, O&M plan updates, evaluations, feasibility studies, design, and construction of proactive repairs to flood control facilities of the SPFC and appurtenant non-project levees.

Funding Information

Grant Size/Amount Available: $31 million is currently set aside for SCFRR. There will be a $2 million max for evaluations and feasibility studies, $5 million max for implementation or design projects.

Cost Share: 50%-90%

Applicants can increase state cost share up to a maximum of 90% by contributing to one or more objectives such as habitat (up to 20% increase), open space (up to 20% increase), recreation (up to 20% increase), combination of habitat, open space, and recreation (up to 20% increase), state facilities (up to 20% increase), and Disadvantaged Area (up to 40% increase). More information can be found in the LLAP Guidelines and Project Solicitation Package (PSP).

Eligibility Information

Eligible Entities include Local agencies that are responsible for SPFC facilities that protect small and rural communities in the Central Valley that have been designated by the CVFPP to have a high or moderate-high flood threat level.

Eligible activities for the SCFRR include:

- Study
- Design
- Construction
- Non-Routine O&M

Application Process

Information unavailable.

Contact Person:

Constantin Mercea
Constantin.Mercea@water.ca.gov
(916) 574-1429

Sources:

- FloodSAFE Implementation Programs (January 2014) Draft Table
- http://resources.ca.gov/bond/Agency_Grants_and_Loans_June_2013xlsx.pdf

4.2.14 Storm Water Flood Management Program

Program Overview

Funded by: DWR (Proposition 84)

The Storm Water Flood Management Program is design to help fund storm water management projects that reduce flood damage and provide at least one other type of benefit. This program is part of the IRWMP Grant Program and is only available to projects within existing IRWMP regions.

Funding Information

Grant Size/Amount Available: $91 million was made available for awards in round 2. A maximum award of $30 million per project was set. Round 2 awards were announced in September 2013, with Round 3 expected in the near future. This program is in need of additional funding allocation for future rounds of funding.

Cost Share: 75%

For IRWMP implementation projects that address the needs of a Disadvantaged Community (DAC) and are seeking Proposition 84 funds, funding match may be waived. Funding match may include, but is not limited to, federal funds, local funding, or donated service from non-State sources.

Eligibility Information

Eligible entities include Local agencies or nonprofits representing an IRWMP effort.

Project must be part of an existing IRWMP Plan and be consistent with applicable Water Quality Basin Plan, and cannot be a part of a SPFC facility.

Eligible Activities Include:

- Flood Risk Reduction (related to storm water management)

Application Process

An entity representing an IRWMP region that meets one of the following conditions should submit Region Acceptance Process (RAP) materials on behalf of the proposed IRWMP region:

- Has not already been granted region acceptance
- Is currently conditionally accepted and seeking full acceptance status
- Has made significant modifications to the region's characteristics that necessitate reevaluation of the region

The entity submitting (RAP) materials on behalf of the Regional Water Management Group (RWMG) must have been granted specific consent by the RWMG.

To view full application process please see grant guidelines. (see sources)

Sources:

- http://www.water.ca.gov/IRWMP/grants/docs/Guidelines/P84_IRWMP_GL_Drought2014_PublicReviewDraft.pdf

4.2.15 Systemwide Flood Risk Reduction (SFRR)

Program Overview

The Systemwide Flood Risk Reduction Program is designed to help implement recommendations of the Basin-Wide Feasibility Studies currently being completed by DWR.

SFRR Guidelines are currently under development. These documents will provide detailed information on the following:

- The criteria and process development of the SFRR Program
- The criteria used to select successful applicants
- The timeline for selecting, evaluating and approving SFRR projects
- Outreach activities to notify Agencies within non-urban areas as to when and how funding availability will be made
- Criteria for funding accountability and work performance
- Identifying flood risk management needs
- Flooding Characteristics

Funding Information

Grant Size/Amount Available: To be determined once program guidelines are complete.

Cost Share: To be determined once program guidelines are complete. A 50% - 90% range is used for purposes of this report based on other DWR programs.

Eligibility Information

Eligible entities include local public agencies or joint powers authorities

Eligible activities for the SFRR include:

- Study
- Land Acquisition
- Design
- Construction

Application Process

Process will be detailed in SFRR Guidelines when they are released.

Contact Person:

Constantin Mercea
Constantin.Mercea@water.ca.gov
(916) 574-1429

Sources:

- FloodSAFE Implementation Programs (January 2014) Draft Table
- http://bondaccountability.resources.ca.gov/plevel1.aspx?id=124&pid=5

4.2.16 Urban Flood Risk Reduction (UFRR)

Program Overview

The Urban Flood Risk Reduction (UFRR) Program is designed to help improve urban SPFC levees within the Central Valley to a 200-year level of protection.

The UFRR Program is being developed as a result of the passage of the Central Valley Flood Protection Plan in June 2012. The UFRR Program will replace the Early Implementation Program (EIP) which was developed in 2007 by the Flood Projects Office. The goals of the UFRR Guidelines and associated projects will tie to the mission of DWR, the objectives of FloodSAFE, and the statutory obligations of DWR for improvements to elements of the flood control system. The Guidelines will define the Flood Projects Office's UFRR program purpose, goals, objectives, program elements, program components, strategies, priorities, and overall schedule and budget. It will describe detailed activities and measurable objectives under each of the composite program elements, and provides strategic program direction for the Flood Projects Office. Projects selected for bond funding (as well as those receiving General Funds) are to be consistent with the Flood Projects Office's UFRR Guidelines.

Funding Information

Grant Size/amount available: To be determined in Grant Guidelines when released.

Cost Share: To be determined in Grant Guidelines when released. For purposes of this plan a range of 50-90% is assumed based on other DWR programs.

Eligibility Information

Eligible Entities include local public agencies or joint powers authorities

Eligible activities for the UFRR include:

- Study
- Land Acquisition
- Design
- Construction

Application Process

The application process remains to be determined. More information will become available in the Grant Guidelines when they are released (anticipated late 2014).

Contact Person:

Kelly Fucciolo
Kelly.Fucciolo@water.ca.gov
(916) 574-0918

Sources:

- http://bondaccountability.resources.ca.gov/plevel1.aspx?id=99&pid=5

Non-Structural Flood Control Funding Sources

4.2.17 Flood Emergency Response – Forecast- Coordinated Operations (F-CO)

Program Overview

This program is designed to further participation of reservoir operators (affecting the Central Valley) in the F-CO program, especially in obtaining necessary decision support system tools & equipment and field measuring equipment

Funding Information

Grant Size/Amount Available: up to $6 million will be available for the direct grant program through 2015.

Cost Share: 50-90%

Applicants can increase state cost share up to a maximum of 90% by contributing to one or more objectives such as habitat (up to 20% increase), open space (up to 20% increase), recreation (up to 20% increase), combination of habitat, open space, and recreation (up to 20% increase), state facilities (up to 20% increase), and Disadvantaged Area (up to 40% increase). More information can be found in the LLAP Guidelines and Project Solicitation Package (PSP).

Eligibility Information

Eligible Entities include Federal Agencies, State Agencies, or California Local Public Agencies with responsibility for operating a reservoir that has flood control reservation pool and is willing to participate in the Forecast-Coordinated Operations program and willing to coordinate its reservoir releases with other reservoir operators in the river system during flood events

Eligible activities for the F-CO include:

- Study
- Land Acquisition
- Design
- Construction
- Material Acquisition
- Program Enhancement

Application Process

The application package will be considered complete and will be evaluated for funding once the applicants complete the following documents and submit an original signed hard copy to the DWR program manager:

- Application Cover Letter to DWR program manager
- A-1 Application Cover Sheet
- A-2 Applicant's Representatives
- A-3 Project Costs and Budget
- A-4 Local Agency Resolution
- A-5 Applicant's Authority and Capacity
- Attachment B-1- Project Scope of Work and Tasks (including Exhibit A and Exhibit B)
- Attachment B-2 - Environmental Information Form
- A checklist of the materials required for a complete application

DWR Program Manager:
Mr. Jon Ericson
Department of Water Resources
Hydrology and Flood operation Office
Hydrology Branch
3310 El Camino Ave
Sacramento, CA 95821

Contact Person:
Boone Lek
Boone.Lek@water.ca.gov
(916) 574-2633

Sources:

- FloodSAFE Implementation Programs (January 2014) Draft Table
- http://www.water.ca.gov/floodsafe/docs/FCO_Program_Grant_Guidelines.pdf

4.2.18 Flood Emergency Response Statewide Emergency Response Grants

Program Overview

This program is designed to provide support for local Emergency Action Plans (EAPs) or related flood preparedness and response activities. Funding is available for material acquisition such as emergency communications equipment to improve emergency response preparedness, and program enhancement activities that improve emergency response.

Funding Information

Grant Size/Amount Available: $15 million

Cost Share: 50-90%

Applicants can increase state cost share up to a maximum of 90% by contributing to one or more objectives such as habitat (up to 20% increase), open space (up to 20% increase), recreation (up to 20% increase), combination of habitat, open space, and recreation (up to 20% increase), state facilities (up to 20% increase), and Disadvantaged Area (up to 40% increase). More information can be found in the LLAP Guidelines and Project Solicitation Package (PSP).

Eligibility Information

Eligible Entities include California public agencies with responsibility for flood emergency response and are willing to participate and work with DWR to actively improve flood emergency preparedness and response.

Eligible activities for the Statewide ER Grants include:

- Material Acquisition
- Program Enhancement

Application Process

Applicants for grant funding under the Program will file a complete grant application package with the Department. The Department will not revise the grant application package requirements during any period in which project proposals are being solicited. A sample grant application package can be found in the grant guidelines.

Contact Person:

Pat Clark
Patricia.Clark@water.ca.gov
(916) 574-1249

Sources:

- FloodSAFE Implementation Programs (January 2014) Draft Table
- http://www.water.ca.gov/floodmgmt/hafoo/fob/floodER//122112_statewide_flood_er_guidelines_final.pdf

4.2.19 Watershed and Environmental Improvement Program

Program Overview

The Watershed and Environmental Improvement Program is a 10-year, $50 million, program to proactively manage, protect and restore environmental resources affected by our system operations. Funded in part by Water System Improvement Program Measure A bond funds and in part by operating funds, the Program spans the Peninsula, Alameda, and Tuolumne Watersheds, as well areas in San Francisco.

The portion of the program that is applicable to the MSJ Region is the Lower Tuolumne River (downstream of Don Pedro Reservoir). The program is focused on protection of low lying floodplain areas through permanent conservations easements and/or fee title purchase of the property from willing landowners.

Funding Information

Grant Size/Amount Available: $6 million is expected to be spent in the Tuolumne River Watershed. Individual grant size is negotiable, from $10,000 to more than $2 million.

Cost Share: Information Unavailable

Eligibility Information

Information Unavailable

Eligible Activities Include:

- Land Acquisition

Application Process

Information Unavailable

Sources:

- http://www.sfwater.org/modules/showdocument.aspx?documentid=4628

Other Suggested State Funding Sources

The State funding sources detailed in the previous section was not meant to represent an exhaustive list of opportunities, but are meant to give a broad overview of some of the most common funding sources available. While it would be difficult to list every funding source available the RFMP team would like the most complete list possible. To that end, a list of State funding sources that were suggested to the RFMP team too late to make it into the main document.

- CalFED ERP
  - http://calwater.ca.gov/calfed/contracts_and_grants.html
- The California State Parks Division of Boating and Waterways Facility Grants and Loans Program
  - http://www.dbw.ca.gov/Funding/Facilities.aspx#BLFG

4.3 Local Funding Sources

The following sections detail potential sources of funding for the local cost share that is required by many Federal and State grant programs.

4.3.1 Proposition 218 Assessments

This section uses existing assessment data along with a planning level analysis of the Mid SJR Region's potential assessments to give an estimate of the Region's capacity to fund the local cost share for projects in the RFMP. A more detailed, in depth capacity analysis will be needed in the future in order to determine more accurate estimates of what would be affordable in each district.

In order to get this planning level estimate of the Region's potential for future assessments, the Mid SJR Region was separated into five hypothetical benefit areas, using reclamation district and Mid SJR Region boundaries acting as a guide. This method resulted in benefit areas that closely align with the reclamation districts in the Region, only going outside reclamation district boundaries in benefit area 2, which includes a substantial amount of rural acreage east of RD 2031. The portions of the Mid SJR Region that have been converted to refuge land were left out of the analysis.

It should be noted that only areas that contain portions of the Mid SJR Region area were included in the Proposition 218 assessment analysis. Areas outside of the Region are outside of the scope of this report and will require a more in depth approach for calculating assessment potential due to more complicated land use and demographics. While these areas, which include the cities of Modesto, Newman, and Patterson are not included in the assessment analysis, current available funding for these cities is discussed under Local Government funding.

A map of the Mid SJR Region and the identified benefit areas can be found in Figure 1.

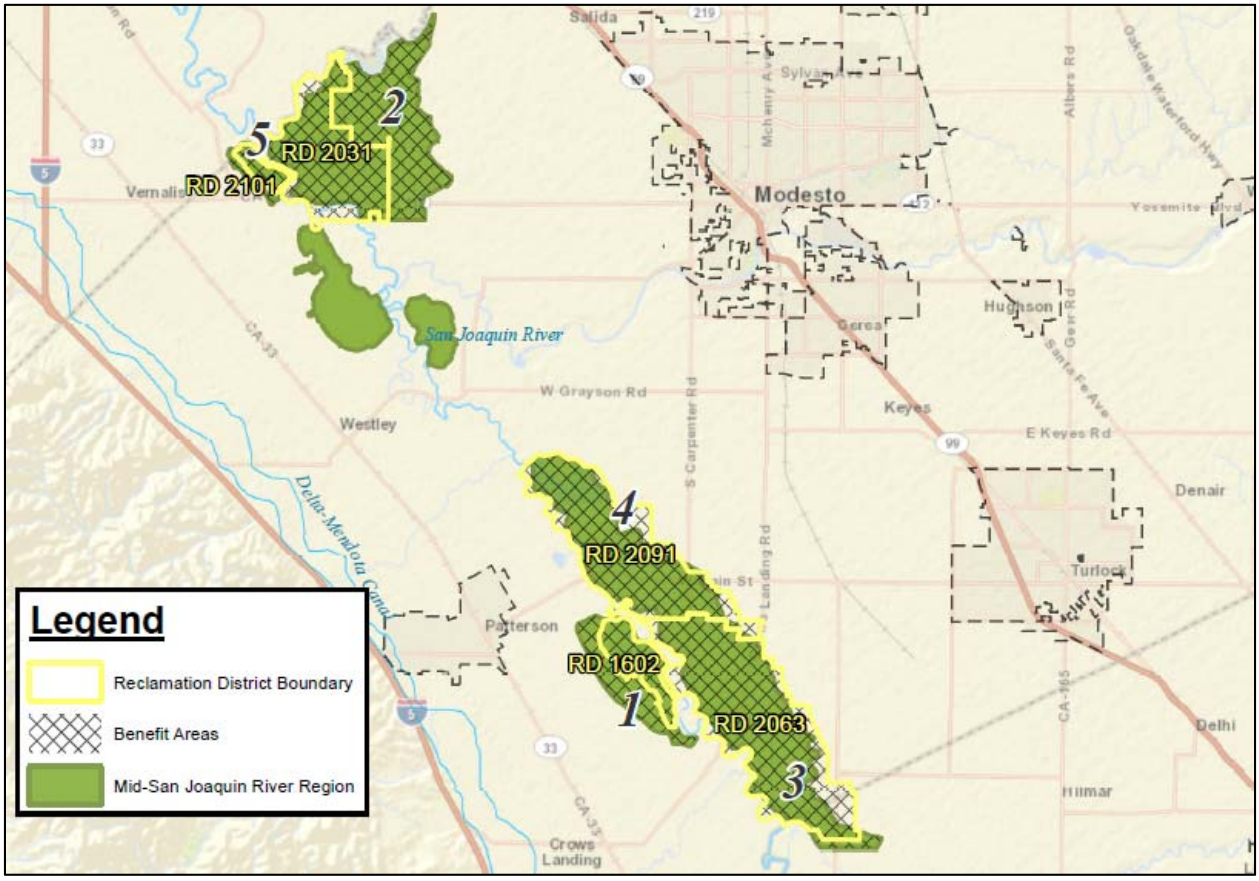


Figure 1: Map of Benefit Areas in Mid SJR Region

Current Assessment and Expenditure Data

The first step in calculating the hypothetical assessment potential of each benefit area was to examine current annual assessment and expenditures of the districts within them. Current assessment data was obtained from the Special Districts Annual Report[1] for the fiscal year ended June 30, 2012. Due to the fact that many districts in the region did not report any assessments, information obtained in meetings with district staff on annual flood control expenditures were substituted for assessment data. A table containing the current assessments and expenditures of each district is given below.

Table 1: Current Assessments and Expenditures of Districts within Benefit Areas

Benefit Area	District Within Benefit Area	Current Assessment
1	1602	$12,000*
2	2031	$30,000*
3	2063	$56,000
4	2091	$50,000*
5	2101	$25,000*
Total		$56,000
*Expenditures for annual O&M.		

Analysis of Assessment Potential

A simplified approach to estimating the Mid SJR Region's assessment potential was taken due to the regions agricultural nature. The analysis involved two variables: land use types within the Mid SJR Region and average assessments of land use types in the Central Valley.

Land use in the Mid SJR Region was divided into two categories: Urban and Built-Up Land and Rural and Agricultural Land, using data provided by DWR in the RFMP atlas map package[2].

For the analysis, hypothetical assessment rates were obtained from the Lower San Joaquin / Delta South Regional Flood Management Plan: Financial Plan Draft Funding Capacity Analysis (2014)[3]. The hypothetical assessment rates contained in the Funding Capacity Analysis are derived from averaging rates for different land use types from several recently approved assessments throughout the Central Valley. Since the basis for these assessment rates are approved assessments within the Central Valley, they can also be used for the Mid SJR Region. Due to the simplified process used for the Mid SJR Region,

[1] California State Controller's Special Districts Annual Report (2013)

[2] DWR RFMP Atlas Map GIS Land Use Data

[3] Lower San Joaquin / Delta South Regional Flood Management Plan: Financial Plan Draft Funding Capacity Analysis, Larsen Wurzel & Associated Inc., 2014

conservative values of $400.00/acre for Urban and Built-Up Land and $7.00/acre for Rural and Agricultural Land were selected. Table 2 details the number of acres of each land use type within the benefit areas and their potential assessments.

Table 2: Land Use and Hypothetical Assessment Potential for Benefit Areas

Benefit Area	District Within Benefit Area	Land Use (acres)		Hypothetical Assessment Potential ($)		
		Urban and Built-Up	Rural and Agricultural	Urban and Built-Up	Rural and Agricultural	Total
1	1602	0	2968	$0	$20,778	$20,778
2	2031	0	10065	$0	$70,461	$70,461
3	2063	37	9572	$14,857	$67,006	$81,864
4	2091	0	7185	$0	$50,298	$50,298
5	2101	8	677	$3,336	$4,739	$8,075

*Benefit area 2 includes additional acreage east of RD 2031.

Net Assessment Potential Table

The hypothetical net annual assessment potential for each benefit area was calculated by subtracting the total current assessment and expenditures from the total hypothetical assessment potential. The results are tabulated in Table 3.

Table 3: Hypothetical Net Assessment Potential

Benefit Area	District Within Benefit Area	Hypothetical Assessment Potential	Total Current Assessments	Hypothetical Net Assessment Potential
1	1602	$20,778	$12,000	$8,778
2	2031	$70,461	$30,000	$40,461
3	2063	$81,864	$56,000	$25,864
4	2091	$50,298	$50,000	$298
5	2101	$8,075	$25,000	$0*
Total				$75,400

*If current assessments were found to be greater than assessment potential, net assessment potential was found to be 0.

It should be noted that benefit area 5 was found to have a higher current assessment than its hypothetical assessment potential. This is an anomaly in the Region, as RD 2101 is small relative to the other districts in the region, but reports expenditures close to that of RD 2031, which contains more than ten times its acreage. Since it was found that benefit area 5 was already being assessed in excess of its potential the net assessment potential was assumed to be 0.

It should also be noted that RD 2063 is currently spending $83,000 per year on O&M responsibilities and is only assessing $56,000 per year. Even if the district assessed up to its hypothetical assessment potential of $81,864 it would not assess enough to meet the current demand. This situation is not sustainable. Since RD 2091 and the Gomes Lake Facilities both depend on RD 2063 for protection, a solution involving funds from these areas could be feasible and should be explored in more detail.

Projected Future Funding Potential

Calculating funding potential using the $75,400 yearly assessment, and assuming a 4% interest rate compounded annually over a 30 year period, would yield $1.3 million in present day dollars.

4.3.2 Local Government Funding

City Governments

The cities of Modesto, Patterson, and Newman are not within the boundaries of the Mid SJR Region as defined by DWR, but are important urban centers to the Mid SJR Regional planning area, have a flood nexus to the Region, and have projects identified in the RFMP effort. Furthermore, the City of Modesto is a key property owner in RD 2091 and the City of Turlock is a beneficiary in the Gomes Lake Facility within RD 2091. Discussions with city staff indicate that there is no existing budget available for flood control projects, and that any contribution would have to come from the City's general fund. These funds are already committed in many cases, thus, any contribution from them would be difficult to obtain.

Stanislaus County

Discussions with County staff found that there is little to no allowance in the existing budget for flood control, with the exceptions of funding for Office of Emergency Service (OES) and funding for the Gomes Lake facility in RD 2091. With this being the case, any contribution from the County for capital improvement projects would likely have to come from their general fund. With so many demands already on the general fund it will be a challenge to divert any additional funds to go toward fulfilling the local cost share for flood control projects. Therefore, County contributions to the local cost share of projects should not be expected.

4.3.3 NGO Funding in the Region

Funding from NGO's in the region is one possible way to raise the local cost share that projects will require. Below are some NGOs with funding programs that could possibly contribute to the required local cost share for projects.

California Water Foundation

The California Water Foundation (CWF), an initiative of Resources Legacy Fund (RLF), awards grants in our three principal program areas – Increasing Water Use Efficiency, Improving Groundwater

Management, and Restoring River Systems – as well as the overarching program area of Advancing Integrated Water Management.

http://www.californiawaterfoundation.org/

National Fish and Wildlife Foundation

NFWF supports conservation efforts in all 50 states, U.S. territories and abroad. Grants are made through a competitive process and awarded to some of the nation's largest environmental organizations, as well as some of the smallest. NFWF specializes in bringing all parties to the table – individuals, government agencies, nonprofit organizations and corporations in order to protect and restore imperiled species, promote healthy oceans and estuaries, improve working landscapes for wildlife, advance sustainable fisheries and conserve water for wildlife and people.

http://nfwf.org/Pages/default.aspx

Stanislaus Community Foundation

Stanislaus Community Foundation supports high impact opportunities within Stanislaus County. Working in partnership with local agencies, the foundation brings funding and resources to the community for grants and scholarships.

http://www.stanislauscommunityfoundation.org/

Trust for Public Land

The Trust for Public Land (TPL) helps communities to raise funds for conservation, conduct conservation research and planning, acquire and protect land, and design and renovate parks, gardens, and playgrounds. The TPL does this by helping state and local governments design, pass, and implement legislation and ballot measures that create new public funds.

https://www.tpl.org/

5 General Findings and Recommendations

5.1 General Findings

The total costs for all projects identified within the Mid SJR Region planning area for this RFMP effort is on the order of $340 million dollars. Below these projects are discussed in two sections: projects within the Mid SJR Region and those outside the Region but within the planning area.

The total estimated cost of all identified projects within the Mid SJR Region is approximately $219 million. Based on the assumed cost share for each project (see Appendix I) this equates to an estimated Federal cost share of $ 135 million, a State cost share of $42 to $71 million, and local funding in the amount of $13 million to $42 million.

According to the assessment analysis, the districts within the Mid SJR Region could hypothetically raise local cost share funds in the range of $1.3 million over the next 30 years. Subtracting that amount from the total required local cost share for all projects within the Mid SJR Region leaves a total of $12 million to $41 million of local cost share deficit. With this amount of local cost share deficit it is clear that the Region will need assistance from sources other than assessments.

Projects that are located outside of the Mid SJR Region, but within the Mid SJR Region planning area totaled approximately $120 million. State cost share for these projects is in the range of $29 million to $54 million, leaving a local cost share range of $6 million to $30 million.

An assessment analysis of the regions outside the boundaries of the Region was not within the scope of this report, but due to the urban nature of many of the areas which these projects are located, it can be assumed that the assessment potential in a successful proposition 218 election would be much larger than that of the rural districts within the boundaries of the Mid SJR Region.

5.2 Recommendations

Due to this Mid SJR Region's lack of local funding potential, the recommendation of the RFMP team is that the State make higher cost shares available for projects in the Region. These higher cost shares will be necessary in order to accomplish many of the projects identified by the RFMP effort. The RFMP team identified two ways of making these higher State cost shares possible. The first is for the State to revisit its grant guidelines, with special consideration to the local ability to pay provisions. This could allow projects that are unable to pay the local cost share the chance to be funded. The second is for the State to consider increasing its contributions for projects that have major ecosystem benefits due to the public benefit such projects provide. Since many of the projects in the Mid SJR Region planning area contain restoration elements this could help make up for the lack of local funding potential.

It is also recommended that the State develop a program to replace the Federal PL84-99 program. This State program could consider the special circumstances of California levees and help rectify the precarious situation that many of the RDs in the Mid SJR Region planning area find themselves in.

Given the estimated State cost share and the local funding deficiencies, additional bond funding on the order of $85 million may be needed in the region. If projects outside of the RFMP boundary are included, this estimate could grow closer to 145 million. These future bond funding estimates are intended for planning purposes only and should only be used for such.

6 Projects Paired with Funding Sources

This section matches each project identified by the RFMP team with applicable funding sources. Each section contains a short description of the project, a brief description of applicable funding sources, and tables detailing project cost share information. An overall summary table has been included in appendix I and III.

6.1 Black Gulch Storm Drainage Study

Short Project Description

There is a permitted spillway into the Delta Mendota Canal (DMC) from Black Gulch, a drainage situated between Salado and Del Puerto Creek, which keeps a local commercial area in Patterson from flooding. A study needs to be performed to determine what alternative solutions might be appropriate if/when the DMC Authority decides to not renew the permit.

Potential Funding Sources

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Storm Water Flood Management Program – This funding source is designed to help fund storm water management projects that reduce flood damage and provide at least one other type of benefit. In order to qualify this project would have to add a multi-benefit element and become part of an IRWMP, as well as be consistent with the applicable Water Quality Basin Plan.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Black Gulch Storm Drainage Study	$28,000	-	-	Integrated Regional Water Management Plan	50% - 75%
		-	-	Storm Water Flood Management Program	50% - 75%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
0%	50%	75%	25%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Black Gulch Drainage Study	$28,000	$0	$28,000	$14,000	$21,000	$7,000	$14,000

6.2 City of Newman/Bureau of Reclamation Flood Levee Rehabilitation

Short Project Description

Rehabilitate a flood protection levee on Bureau of Reclamation property between the Newman Wasteway and the City of Newman Wastewater Treatment Plant.

Potential Funding Sources

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Local Levee Assistance Program (LLAP) –This funding source requires that funds be used on local levees (Non-SPFC) that are not within the Sacrament-San Joaquin Delta. This project meets both of these requirements.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
City of Newman / Bureau of Reclamation Flood Levee Rehabilitation	$225,000	Pre-Disaster Mitigation (PDM)	75% - 90%	Integrated Regional Water Management Plan (IRWMP)	50% - 75%
		-	-	Local Levee Assistance Program	50%-90%

Short Project Description

Rehabilitate a flood protection levee on Bureau of Reclamation property between the Newman Wasteway and the City of Newman Wastewater Treatment Plant.

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
City of Newman/ Bureau of Reclamation Flood Levee Rehabilitation	$225,000	$168,750	$56,250	$28,125	$50,625	5,625	$28,125

6.3 Consolidation of O&M

Short Project Description

Two or more Reclamation Districts form a formal partnership to share technical, financial, and/or operational capacity to perform necessary O&M. As an initial step, invest 2 person-years to investigate potential governance options and design and implement a pilot maintenance agreement project.

Potential Funding Sources

Small Community Flood Risk Reduction – This funding source is designed to help implement projects to reduce flood risk in small, rural, and agricultural communities in the Central Valley. This project would fit this criteria because it will benefit rural and agricultural communities by making O&M more manageable while at the same time creating flood risk reduction due to better quality O&M.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Consolidation of O&M	$200,000	-	-	Small Community Flood Risk Reduction (SCFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
0%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Consolidation of O&M	$200,000	$0	$200,000	$100,000	$180,000	$20,000	$100,000

6.4 Dennet Dam Removal

Short Project Description

Removal of Dennett Dam, an abandoned low-head dam located on the lower Tuolumne River in Modesto, California. The dam has been an in stream barrier to anadromous fish passage, controlling local hydraulic and sediment transport conditions, for over 60 years, while also impeding water flow in the river. It is also a significant safety hazard adjacent to a major park, and has been the location of three drowning deaths in the last five years, including two children.

Potential Funding Sources

Anadromous Fish Restoration Program and Anadromous Fish Screen Program – This funding source is meant to help fund projects that protect, restore, or enhance fish, wildlife, and associated habitat throughout the Central Valley and Trinity River Basins of California. The Dennet Damn project meets the criteria of the funding source due to its benefit to anadromous fish.

Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program – This funding source is meant to restore and protect species and habitats impacted by the Central Valley Project (CVP).

Endangered Species Act Section 6 Grant Program – This funding source provides grants to states and territories to participate in a wide variety of voluntary conservation projects for candidate, proposed, and listed species on non-federal lands. This project would qualify for funding due to its benefit to endangered species.

Land and Water Conservation Fund – This funding source provides matching grants to States and local governments for the acquisition and development of public outdoor recreation area and facilities, as well as funding for shared federal land acquisition and conservation strategies. This project meets the criteria of the funding source due to the benefit that it will create to recreational activities near the dam (swimming, boating, etc.).

North American Wetland Conservation Act (NAWCA) – This funding source provided matching grants to help fund projects that offer wetlands conservation for benefit of wetlands-associated migratory birds and other wildlife. This project qualifies for this program due to the fish and habitat benefits that it provides.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

California Riparian Habitat Conservation Program – The goals of the CRHCP are to protect, preserve, restore and enhance riparian habitat throughout California. This program will fund programs that further these goals, which this project does with the riparian vegetation restoration element.

California River Parkways Program – This funding source awards funds to public agencies and non-profit organizations to acquire, restore, protect or develop river parkways. Projects must be multi-benefit. Since this project will provide better and safer access to the Tuolumne River and has multi-benefit components it would qualify for funding.

Habitat Conservation Fund Program – This funding source provides funds to local entities to protect threatened species, to address wildlife corridors, to create rails, and to provide nature interpretation programs which bring urban residents into park and wildlife areas. Since this project will protect endangered species and provide better and safer access to the Tuolumne River it will qualify for this program.

Urban Streams Restoration Program – This funding source provides grants for stream restoration projects that reduce flooding or erosion and associated property damages. Projects should restore, enhance, or protect their natural environment and promote community involvement, education, and stewardship in urban streams. This project meets this criteria since it will be restoring habitat along the project area.

Integrated Regional Water Management Plan (IRWMP) – This Project could possibly be included in IRWMP due to flood protection and restoration benefits, which would make it eligible for funding through the Plan. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Dennet Dam Removal	$700,000	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	50%	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Central Valley Project Improvement Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	California River Parkways Program	50%-90%

		Endangered Species Act Section 6 Grant Program	75% - 90%	Habitat Conservation Fund (HCF) Program	50%
		Land and Water Conservation Fund	50%	Urban Streams Restoration Program	Not Req.
		North American Wetlands Conservation Act (NAWCA)	50%	Integrated Regional Water Management Plan (IRWMP)	50% - 75%
		Pre-Disaster Mitigation (PDM)	75% - 90%		

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Dennet Dam Removal	$700,000	$350,000	$350,000	$175,000	$315,000	$35,000	$175,000

6.5 Dos Rios Ranch Floodplain Expansion and Ecosystem Restoration Project and Hidden Valley Ranch Mitigation Project

Short Project Description

Project to restore flooding and transient floodwater storage to ~1,000 acres of historic floodplain, restore riparian habitats, and promote river physical processes of scour and deposition along 6 river miles. Remove levee maintenance obligations from SPFC and modify Corps O&M manual to allow breaching and other modification to the existing levees. Provide 191 acres of habitat mitigation for future regional SPFC environmental impacts.

Potential Funding Sources

Anadromous Fish Restoration Program and Anadromous Fish Screen Program – This funding source is meant to help fund projects that protect, restore, or enhance fish, wildlife, and associated habitat throughout the Central Valley and Trinity River Basins of California. This project meets the criteria of the funding program due to its benefit to anadromous fish.

Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program – This funding source is meant to restore and protect species and habitats impacted by the Central Valley Project (CVP).

Endangered Species Act Section 6 Grant Program – This funding program provides grants to states and territories to participate in a wide variety of voluntary conservation projects for candidate, proposed, and listed species on non-federal lands. This project would qualify for funding due to its benefit to endangered species.

Land and Water Conservation Fund – This funding program provides matching grants to States and local governments for the acquisition and development of public outdoor recreation area and facilities, as well as funding for shared federal land acquisition and conservation strategies. This project meets the criteria of the funding program due to the benefit that it will create to recreational activities near the dam (swimming, boating, etc.).

North American Wetland Conservation Act (NAWCA) – This funding source provided matching grants to help fund projects that offer wetlands conservation for benefit of wetlands-associated migratory birds and other wildlife. This project qualifies for this source due to the fish and habitat benefits that it provides.

California Riparian Habitat Conservation Program – The goals of the CRHCP are to protect, preserve, restore and enhance riparian habitat throughout California. This program will fund programs that further these goals, which this project does with the riparian vegetation restoration element.

Central Valley Flood System Conservation Framework and Strategy – This funding source is meant to help implement projects in support of the Central Valley Flood System Conservation Framework and Conservation Strategy. Eligible projects will incorporate environmental stewardship and sustainability principles into State Plan of Flood Control flood management activities.

Flood Corridor Program (FCP) – This funding source is designed to fund non-structural flood risk reduction projects containing ecosystem and/or agricultural land conservation components. Since this project contains both a non-structural flood risk reduction component and ecosystem benefits it meets this programs criteria.

Habitat Conservation Fund Program – This funding source provides funds to local entities to protect threatened species, to address wildlife corridors, to create rails, and to provide nature interpretation programs which bring urban residents into park and wildlife areas. Since this project will protect endangered species and provide better and safer access to the Tuolumne River it will qualify for this program.

Inland Wetlands Conservation Program – This funding source was created to protect, restore, and enhance wetlands and associated habitats. Since this project will restore degraded floodplain habitat it meets the requirements of the funding source.

Integrated Regional Water Management Plan (IRWMP) – This Project could possibly be included in IRWMP due to flood protection benefits, which would make it eligible for funding through the Plan. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Systemwide Flood Risk Reduction (SWFRR) – This funding source is designed to help implement recommendations of the Basin-wide Feasibility Studies. Guidelines are currently under development. In order to qualify this project would have to become part of the Basin-wide Feasibility Study.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Dos Rios Ranch Floodplain Expansion and Ecosystem Restoration Project and Hidden Valley Ranch Mitigation Project	$8,000,000	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	50%	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	Central Valley Flood System Conservation Framework and Strategy	50% - 90%
		Endangered Species Act Section 6 Grant Program	75% - 90%	Flood Corridor (FCP)	50%-90%
		Land and Water Conservation Fund	50%	Habitat Conservation Fund (HCF) Program	50%
		North American Wetlands Conservation Act (NAWCA)	50%	Inland Wetlands Conservation Program	50%
				Integrated Regional Water Management (IRWM)	50%-75%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Dos Rios Ranch Floodplain Expansion and Ecosystem Restoration Project and Hidden Valley Ranch Mitigation Project	$8,000,000	$4,000,000	$4,000,000	$2,000,000	$3,600,000	$400,000	$2,000,000

6.6 Dry Creek Watershed Detention Reconnaissance Study

Short Project Description

Complete a reconnaissance study of potential options for reducing flood risks by detaining flood flows in the Dry Creek watershed, upstream of the City of Modesto.

Potential Funding Sources

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

USACE Funding – This funding source requires that USACE adopt the project. This project may qualify for USACE adoption.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Systemwide Flood Risk Reduction (SWFRR) – This funding source is designed to help implement recommendations of the Basin-Wide Feasibility Studies. Guidelines are currently under development. In order to qualify this project would have to become part of the Basin-Wide Feasibility Study.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Dry Creek Watershed Detention Reconnaissance Study	$250,000	Flood Mitigation Assistance (FMA)	75%-100%	Integrated Regional Water Management (IRWMP)	50% - 75%
		USACE Funding	50%	Systemwide Flood Risk Reduction (SFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Dry Creek Watershed Detention Reconnaissance Study	$250,000	$125,000	$125,000	$62,500	$112,500	$12,500	$62,500

6.7 Emergency Response Plan – Debris Management

Short Project Description

A debris management plan is needed to better prepare to restore public services and ensure public health and safety in the aftermath of a flood and to better position the Mid SJR Region for emergency response funding from the State of California, FEMA, and other participating entities. Stanislaus County proposes developing a comprehensive, countywide debris management plan.

Potential Funding Sources

Flood Emergency Response Statewide Emergency Response Grants – This funding source is intended to provide support local Emergency Action Plans (EAPs) or related flood preparedness and response activities. Funding is available for material acquisition such as emergency communications equipment, or for program enhancement activities meant to improve emergency response. Due to this projects emergency response element it is believed that it is eligible for this funding source.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Emergency Response Plan - Debri Management	$70,000 - $110,000	-	-	Flood Emergency Response Statewide Emergency Response Grants	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
0%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Emergency Response Plan - Debris Management	$110,000	$0	$110,000	$55,000	$99,000	$11,000	$55,000

6.8 Emergency Response Plan – Local Planning and Training

Short Project Description

Planning and training are necessary to improve coordination between local agencies so that emergency response can be improved in the planning area. A program would be developed and implemented to address this need.

Potential Funding Sources

Flood Emergency Response Statewide Emergency Response Grants – This funding source is intended to provide support local Emergency Action Plans (EAPs) or related flood preparedness and response activities. Funding is available for material acquisition such as emergency communications equipment, or for program enhancement activities meant to improve emergency response. Due to this projects emergency response element it is believed that it is eligible for this funding source.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Emergency Response Plan - Local Planning and Training	$70,000 - $110,000	-	-	Flood Emergency Response Statewide Emergency Response Grants	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
0%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Emergency Response Plan - Local Planning and Training	$110,000	$0	$110,000	$55,000	$99,000	$11,000	$55,000

6.9 Flood Risk Education

Short Project Description

Develop and implement a regional flood risk management educational program to raise awareness of flood risks and elevate the level of public understanding with respect to flood risk management needs and the value of investments to address them. For the LMAs, include education on their role in flood risk management and provide technical guidance/assistance on levee maintenance activities and permitting requirements.

Potential Funding Sources

Central Valley Flood System Conservation Framework and Strategy – This funding source is meant to help implement projects in support of the Central Valley Flood System Conservation Framework and Conservation Strategy. Eligible projects will incorporate environmental stewardship and sustainability principles into State Plan of Flood Control flood management activities. This project is believed to be eligible for this funding due to its ability to educate LMAs in both flood risk management and in sustainability.

Urban Flood Risk Reduction (UFRR) – This funding source is designed to help improve urban SPFC levees within the Central Valley to a 200-year level of protection. Since this project would educate LMAs that are responsible for urban SPFC levees it is believed that it would qualify for funding under this program.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Flood Risk Education	Ranges from a one time $30,000 cost to an annual cost of $100,000	Central Valley Project Improvement Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	Urban Flood Risk Reduction (UFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Flood Risk Education	$30,000	$15,000	$15,000	$7,500	$13,500	$1,500	$7,500

6.10 Gomes Lake / Harding Drain Improvements

Short Project Description

This project includes multiple components to enhance the function, reliability, flexibility and capacity of the Gomes Lake facility, which stores and drains stormwater and return flows, providing flood risk reduction behind the east bank levees of the San Joaquin River.

Potential Funding Sources

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Storm Water Flood Management Program – This funding source is designed to help fund storm water management projects that reduce flood damage and provide at least one other type of benefit. In order to qualify this project would have to add a multi-benefit element and become part of an IRWMP, as well as be consistent with the applicable Water Quality Basin Plan.

Urban Flood Risk Reduction (UFRR) – This funding source is designed to help improve urban SPFC levees within the Central Valley to a 200-year level of protection. Since this project would provide flood risk reduction to the east bank levees on the San Joaquin River it would qualify.

The table on the next page details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Gomes Lake / Harding Drain Improvements	$1,000,000-$1,700,000	Flood Mitigation Assistance (FMA)	75%-100%	Integrated Regional Water Management (IRWMP)	50% - 75%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Storm Water Flood Management Program	75%
		-	-	Urban Flood Risk Reduction (UFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Gomes Lake / Harding Drain Improvements	$1,700,000	$1,275,000	$425,000	$212,500	$382,500	$42,500	$212,500

6.11 Hydraulic and Channel Migration Studies

Short Project Description

Two regional studies (mainstem San Joaquin River flood hydraulics and channel migration) and three focused hydraulic studies are needed to better inform flood management in the Mid SJR Region.

Potential Funding Sources

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Hydraulic and Channel Migration Studies	$200,000	-	-	Integrated Regional Water Management (IRWMP)	50% - 75%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
0%	50%	75%	25%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Hydraulic and Channel Migration Studies	$200,000	$0	$200,000	$100,000	$150,000	$50,000	$100,000

6.12 Integrated Levee Vegetation Management – Flood Maintenance and Habitat

Short Project Description

This project includes re-establishing appropriate vegetation on levee slopes to promote terrestrial wildlife survival during floods – either native sod on active levees, or native brush vegetation on inactive levees (RDs 2099, 2100, 2102, and 2092 in the future).

Potential Funding Sources

Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program – This funding source is meant to restore and protect species and habitats impacted by the Central Valley Project (CVP). Since this project involves adding habitat for native species it is believed that it will be eligible for this funding.

Endangered Species Act Section 6 Grant Program – This funding source provides grants to states and territories to participate in a wide variety of voluntary conservation projects for candidate, proposed, and listed species on non-federal lands. This project would qualify for funding due to its benefit to endangered species.

California Riparian Habitat Conservation Program – The goals of the CRHCP are to protect, preserve, restore and enhance riparian habitat throughout California. This program will fund programs that further these goals, which this project does with the riparian vegetation restoration element.

Central Valley Flood System Conservation Framework and Strategy – This funding source is meant to help implement projects in support of the Central Valley Flood System Conservation Framework and Conservation Strategy. Eligible projects will incorporate environmental stewardship and sustainability principles into State Plan of Flood Control flood management activities. This project provides environmental benefits along levees which is consistent with the goals of the funding source.

Integrated Regional Water Management Plan (IRWMP) – This Project could possibly be included in IRWMP due to environmental and wildlife benefits, which would make it eligible for funding through the Plan. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

The table on the following page details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Integrated Levee Vegetation Management - Flood Maintenance and Habitat	$6,400,000	Central Valley Project Improvement Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Endangered Species Act Section 6 Grant Program	75% - 90%	Central Valley Flood System Conservation Framework and Strategy	50% - 90%
		-	-	Integrated Regional Water Management (IRWMP)	50% - 75%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The table on the following pages provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Integrated Levee Vegetation Management - Flood Maintenance and Habitat	$6,400,000	$4,800,000	$1,600,000	$800,000	$1,440,000	$160,000	$800,000

6.13 La Grange Floodplain Restoration and Spawning Gravel Augmentation

Short Project Description

Restore 77 acres of degraded floodplain habitat along the Tuolumne River in La Grange while developing a program of spawning gravel to improve and enhance existing spawning beds in the Tuolumne River.

Potential Funding Sources

Anadromous Fish Restoration Program and Anadromous Fish Screen Program – This funding source is intended to help fund projects that protect, restore, or enhance fish, wildlife, and associated habitat throughout the Central Valley and Trinity River Basins of California. This project meets the criteria of the funding source due to its benefit to anadromous fish.

Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program – This funding source is meant to restore and protect species and habitats impacted by the Central Valley Project (CVP). This project meets the criteria of this funding source due to its benefit to anadromous fish and to riparian habitat.

Endangered Species Act Section 6 Grant Program – This funding source provides grants to states and territories to participate in a wide variety of voluntary conservation projects for candidate, proposed, and listed species on non-federal lands. This project would qualify for funding due to its benefit to endangered species.

North American Wetland Conservation Act (NAWCA) – This funding source provides matching grants to help fund projects that offer wetlands conservation for benefit of wetlands-associated migratory birds and other wildlife. This project qualifies for this program due to the fish and habitat benefits that it provides.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to allow for flood inundation within the natural floodplain, which would alleviate stress on downstream levees, it would meet the criteria for this funding source.

California Riparian Habitat Conservation Program – The goals of the CRHCP are to protect, preserve, restore and enhance riparian habitat throughout California. This program will fund programs that further these goals, which this project does with the riparian vegetation restoration element.

Central Valley Flood System Conservation Framework and Strategy – This funding source is meant to help implement projects in support of the Central Valley Flood System Conservation Framework and Conservation Strategy. Eligible projects will incorporate environmental stewardship and sustainability principles into State Plan of Flood Control flood management activities. Since this project would benefit

SPFC facilities downstream and incorporates habitat and wildlife restoration, it would fulfill the criteria of this funding source.

Flood Corridor Program (FCP) – This funding source is designed to fund non-structural flood risk reduction projects containing ecosystem and/or agricultural land conservation components. Since this project contains both a non-structural flood risk reduction component and ecosystem benefits it meets this programs criteria.

Habitat Conservation Fund Program – This funding source provides funds to local entities to protect threatened species, to address wildlife corridors, to create rails, and to provide nature interpretation programs which bring urban residents into park and wildlife areas. Since this project will protect endangered species, provide ecosystem restoration opportunities, and provide recreational opportunities it meets the requirements of this funding source.

Inland Wetlands Conservation Program – This funding source was created to protect, restore, and enhance wetlands and associated habitats. Since this project will restore degraded floodplain habitat it meets the requirements of the funding source.

Watershed and Environmental Improvement Program – This funding source is primarily focused on protection of low lying floodplain areas along the Lower Tuolumne River through permanent conservation easements and/or fee title purchase of property from willing landowners. Since the project is to restore a natural floodplain this funding source would apply.

The table on the following page details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
La Grange Floodplain Restoration and Spawning Gravel Augmentation	$1,500,000	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	50%	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	Central Valley Flood System Conservation Framework and Strategy	50%-90%
		Endangered Species Act Section 6 Grant Program	75% - 90%	Flood Corridor (FCP)	50%-90%
		North American Wetlands Conservation Act (NAWCA)	50%	Habitat Conservation Fund (HCF) Program	50%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Inland Wetlands Conservation Program	50%
		-		Watershed and Environmental Improvement Program	Not Req.

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	State Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
La Grange Floodplain Restoration and Spawning Gravel Augmentation	$1,500,000	$750,000	$750,000	$375,000	$675,000	$75,000	$375,000

6.14 Little Salado Creek

Short Project Description

Construction of a project to partially divert, retain and percolate the 1030 cfs of Little Salado Creek.

Potential Funding Sources

Flood Mitigation Assistance – This funding program provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project may qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

USACE Funding – This funding source requires that USACE adopt the project. This project may have the potential to be adopted by USACE.

Flood System Repair Project (FSRP) - The Flood System Repair Project (FSRP) is designed to evaluate (feasibility), design, and construct repairs on non-urban SPFC facility (levees, channels, structures, etc.) deficiencies. Since this project involves repairing SPFC levees in non-urban areas it meets the criteria for this funding source.

Integrated Regional Water Management Plan (IRWMP) – This Project could possibly be included in IRWMP due to flood protection benefits, which would make it eligible for funding through the Plan. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Small Community Flood Risk Reduction – This funding program is designed to help implement projects to reduce flood risk in small, rural, and agricultural communities in the Central Valley. This project would fit this criteria because it will benefit rural and agricultural communities by reducing flood risk.

Storm Water Flood Management Program – This funding program is designed to help fund storm water management projects that reduce flood damage and provide at least one other type of benefit. In order to qualify this project would have to add a multi-benefit element and become part of an IRWMP, as well as be consistent with the applicable Water Quality Basin Plan.

Systemwide Flood Risk Reduction (SWFRR) – This funding source is designed to help implement recommendations of the Basin-wide Feasibility Studies. Guidelines are currently under development. In order to qualify this project would have to become part of the Basin-wide Feasibility Study.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Little Salado Creek	$5,000,000	Flood Mitigation Assistance (FMA)	75%-100%	Flood System Repair Project (FSRP)	50% - 90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Integrated Regional Water Management (IRWM)	50%-75%
		USACE Funding	50%	Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Storm Water Flood Management Program	50% - 75%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Little Salado Creek	$5,000,000	$2,500,000	$2,500,000	$1,250,000	$2,250,000	$250,000	$1,250,000

6.15 Modesto WWTP – Reduce Flood Risk

Short Project Description

Develop and evaluate potential solutions to existing flood hazards at the Modesto Sutter and Jennings WWTPs, including completion of two studies (Sutter Plant Relocation Feasibility Study and a Wastewater Treatment Facilities Master Plan) that are currently in process, and implement the preferred alternative.

Potential Funding Sources

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Integrated Regional Water Management Plan (IRWMP) – This Project could possibly be included in IRWMP due to flood protection benefits, which would make it eligible for funding through the Plan. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Systemwide Flood Risk Reduction (SWFRR) – This funding source is designed to help implement recommendations of the Basin-wide Feasibility Studies. Guidelines are currently under development. In order to qualify this project would have to become part of the Basin-wide Feasibility Study.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Modesto WWTP - Reduce Flood Risk	$80,000,000	Flood Mitigation Assistance (FMA)	75%-100%	Integrated Regional Water Management (IRWM)	50%-75%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Systemwide Flood Risk Reduction (SWFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Modesto WWTP - Reduce Flood Risk	$80,000,000	$60,000,000	$20,000,000	$10,000,000	$18,000,000	$2,000,000	$10,000,000

Table to be updated when cost data is made available.

6.16 Orestimba Creek Flood Management Project

Short Project Description

Construction of 4 mile chevron levee along east bank of CCID Main Canal and a 1 mile cross levee to reduce flood risk to Newman and adjacent agricultural areas, providing a 200-year level of protection. The chevron levee would include 3 feet of freeboard above the mean 200-year water surface elevation.

Potential Funding Sources

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

USACE Funding – This funding source requires that USACE adopt the project. This project has been identified in the Orestimba Creek Feasibility Study and would therefore be eligible for Federal cost share through USACE.

Urban Flood Risk Reduction (UFRR) – This funding source is designed to help improve urban SPFC levees within the Central Valley to a 200-year level of protection. While this project does not deal specifically with SPFC levees, it does protect an urban area (City of Newman) that has many assets.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Orestimba Creek Flood Management Project	$44 million (Design and construction) $100,000/yr (O&M)	Flood Mitigation Assistance (FMA)	75%-100%	Urban Flood Risk Reduction (UFRR)	50%-90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	-	
		USACE Funding	50%		

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Orestimba Creek Flood Management Project	$44,000,000	$22,000,000	$22,000,000	$11,000,000	$19,800,000	$2,200,000	$11,000,000

6.17 Patterson WWTP - Reduce Flood Risk

Short Project Description

Develop and evaluate potential solutions to existing flood hazards at the City of Patterson Waste Water Treatment Plant.

Potential Funding Sources

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Local Levee Assistance Program (LLAP) –This funding source requires that funds be used on local levees (Non-SPFC) that are not within the Sacrament-San Joaquin Delta. This project meets both of these requirements.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Patterson WWTP - Reduce Flood Risk	$27,000	Pre-Disaster Mitigation (PDM)	75% - 90%	Integrated Regional Water Management (IRWM)	50% - 75%
		-	-	Small Community Flood Risk Reduction (SCFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Patterson WWTP - Reduce Flood Risk	$27,000	$20,250	$6,750	$3,375	$6,075	$675	$3,375

6.18 Reclamation District 1602 Resilience

Short Project Description

This project would address the current deficiencies of the levees under the jurisdiction of RD 1602. This would include the costs of becoming active in the SWIF process and completion of the necessary repairs and upgrades to bring the levee system back into "Active" status for PL84-99 eligibility. Necessary actions can be found in RD inspection reports from 2013 – all "U" ratings need to be fixed immediately and all "M" ratings need to be fixed within 2 years or less.

Potential Funding Sources

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Flood System Repair Project (FSRP) - The Flood System Repair Project (FSRP) is designed to evaluate (feasibility), design, and construct repairs on non-urban SPFC facility (levees, channels, structures, etc.) deficiencies. Since this project involves repairing SPFC levees in non-urban areas it meets the criteria for this funding source.

Small Community Flood Risk Reduction – This funding source is designed to help implement projects to reduce flood risk in small, rural, and agricultural communities in the Central Valley. This project would fit this criteria because it will benefit rural and agricultural communities by repairing and upgrading the levees protecting them.

Systemwide Flood Risk Reduction (SWFRR) – This funding source is designed to help implement recommendations of the Basin-Wide Feasibility Studies. Guidelines are currently under development. In order to qualify this project would have to become part of the Basin-Wide Feasibility Study.

The table on the following page details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Reclamation District 1602 Resilience Project	$4,700,000	Flood Mitigation Assistance (FMA)	75%-100%	Flood System Repair Project (FSRP)	50% - 90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Reclamation District 1602 Resilience	$4,700,000$	$3,525,000	$1,175,000	$587,500	$1,057,500	$117,500	$587,500

6.19 Reclamation District 2031 Resilience

Short Project Description

This project would address the current deficiencies of the levees under the jurisdiction of RD 2031. This would include the costs of becoming active in the SWIF process and completion of the necessary repairs and upgrades to bring the levee system back into "Active" status for PL84-99 eligibility. Necessary actions can be found in RD inspection reports from 2013 – all "U" ratings need to be fixed immediately and all "M" ratings need to be fixed within 2 years or less.

Potential Funding Sources

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Flood System Repair Project (FSRP) - The Flood System Repair Project (FSRP) is designed to evaluate (feasibility), design, and construct repairs on non-urban SPFC facility (levees, channels, structures, etc.) deficiencies. Since this project involves repairing SPFC levees in non-urban areas it meets the criteria for this funding source.

Small Community Flood Risk Reduction – This funding source is designed to help implement projects to reduce flood risk in small, rural, and agricultural communities in the Central Valley. This project would fit this criteria because it will benefit rural and agricultural communities by repairing and upgrading the levees protecting them.

Systemwide Flood Risk Reduction (SWFRR) – This funding source is designed to help implement recommendations of the Basin-Wide Feasibility Studies. Guidelines are currently under development. In order to qualify this project would have to become part of the Basin-Wide Feasibility Study.

The table on the following page details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Reclamation District 2031 Resilience Project	$2,000,000	Flood Mitigation Assistance (FMA)	75%-100%	Flood System Repair Project (FSRP)	50% - 90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Reclamation District 2031 Resilience	$2,000,000	$1,500,000	$500,000	$250,000	$450,000	$50,000	$250,000

6.20 Reclamation District 2063 Resilience

Short Project Description

This project would address the current deficiencies of the levees under the jurisdiction of RD 2063. This would include the costs of becoming active in the SWIF process and completion of the necessary repairs and upgrades to bring the levee system back into "Active" status for PL84-99 eligibility. Necessary actions can be found in RD inspection reports from 2013 – all "U" ratings need to be fixed immediately and all "M" ratings need to be fixed within 2 years or less.

Potential Funding Sources

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Flood System Repair Project (FSRP) - The Flood System Repair Project (FSRP) is designed to evaluate (feasibility), design, and construct repairs on non-urban SPFC facility (levees, channels, structures, etc.) deficiencies. Since this project involves repairing SPFC levees in non-urban areas it meets the criteria for this funding source.

Small Community Flood Risk Reduction – This funding source is designed to help implement projects to reduce flood risk in small, rural, and agricultural communities in the Central Valley. This project would fit this criteria because it will benefit rural and agricultural communities by repairing and upgrading the levees protecting them.

Systemwide Flood Risk Reduction (SWFRR) – This funding source is designed to help implement recommendations of the Basin-Wide Feasibility Studies. Guidelines are currently under development. In order to qualify this project would have to become part of the Basin-Wide Feasibility Study.

The table on the following page details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Reclamation District 2063 Resilience Project	$3,500,000	Flood Mitigation Assistance (FMA)	75%-100%	Flood System Repair Project (FSRP)	50% - 90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Reclamation District 2063 Resilience	$3,500,000	$2,625,000	$875,000	$437,500	$787,500	$87,500	$437,500

6.21 Reclamation District 2091 Resilience

Short Project Description

This project would address the current deficiencies of the levees under the jurisdiction of RD 2091. This would include the costs of becoming active in the SWIF process and completion of the necessary repairs and upgrades to bring the levee system back into "Active" status for PL84-99 eligibility. Necessary actions can be found in RD inspection reports from 2013 – all "U" ratings need to be fixed immediately and all "M" ratings need to be fixed within 2 years or less.

Potential Funding Sources

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Flood System Repair Project (FSRP) - The Flood System Repair Project (FSRP) is designed to evaluate (feasibility), design, and construct repairs on non-urban SPFC facility (levees, channels, structures, etc.) deficiencies. Since this project involves repairing SPFC levees in non-urban areas it meets the criteria for this funding source.

Small Community Flood Risk Reduction – This funding source is designed to help implement projects to reduce flood risk in small, rural, and agricultural communities in the Central Valley. This project would fit this criteria because it will benefit rural and agricultural communities by repairing and upgrading the levees protecting them.

Systemwide Flood Risk Reduction (SWFRR) – This funding source is designed to help implement recommendations of the Basin-Wide Feasibility Studies. Guidelines are currently under development. In order to qualify this project would have to become part of the Basin-Wide Feasibility Study.

The table on the following page details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Reclamation District 2091 Resilience Project	$400,000	Flood Mitigation Assistance (FMA)	75%-100%	Flood System Repair Project (FSRP)	50% - 90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Reclamation District 2091 Resilience	$400,000	$300,000	$100,000	$50,000	$90,000	$10,000	$50,000

6.22 Reclamation District 2101 Resilience

Short Project Description

This project would address the current deficiencies of the levees under the jurisdiction of RD 2101. This would include the costs of becoming active in the SWIF process and completion of the necessary repairs and upgrades to bring the levee system back into "Active" status for PL84-99 eligibility. Necessary actions can be found in RD inspection reports from 2013 – all "U" ratings need to be fixed immediately and all "M" ratings need to be fixed within 2 years or less.

Potential Funding Sources

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Flood System Repair Project (FSRP) - The Flood System Repair Project (FSRP) is designed to evaluate (feasibility), design, and construct repairs on non-urban SPFC facility (levees, channels, structures, etc.) deficiencies. Since this project involves repairing SPFC levees in non-urban areas it meets the criteria for this funding source.

Small Community Flood Risk Reduction – This funding source is designed to help implement projects to reduce flood risk in small, rural, and agricultural communities in the Central Valley. This project would fit this criteria because it will benefit rural and agricultural communities by repairing and upgrading the levees protecting them.

Systemwide Flood Risk Reduction (SWFRR) – This funding source is designed to help implement recommendations of the Basin-Wide Feasibility Studies. Guidelines are currently under development. In order to qualify this project would have to become part of the Basin-Wide Feasibility Study.

The table on the following page details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Reclamation District 2101 Resilience Project	$2,500,000	Flood Mitigation Assistance (FMA)	75%-100%	Flood System Repair Project (FSRP)	50% - 90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Reclamation District 2101 Resilience	$2,500,000	$1,875,000	$625,000	$312,500	$562,500	$62,500	$312,500

6.23 Reducing Sediment Loading into the San Joaquin River from Westside Agricultural Lands

Short Project Description

Improve irrigation technology with buried drip and sprinkler irrigation systems that allow for the capacity to irrigate a variety of crop types and effectively eliminate erosion of sediment off of farm fields when compared to traditional, flood irrigation practices. Sediment loading results in reduced capacity of and increased flooding in Westside Creeks and the San Joaquin River.

Potential Funding Sources

Environmental Quality Incentives Program (EQIP) – This funding sources is designed to provide financial and technical assistance to agricultural producers in order to address natural resource concerns and deliver environmental benefits. This project meets the criteria of this funding source since it involves agricultural producers and has an environmental benefit.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Reducing Sediment Loading into San Joaquin River from Westside Agricultural Lands	$65,000,000	Environmental Quality Incentives Program (EQIP)	50%	Integrated Regional Water Management (IRWM)	50% - 75%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	75%	25%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	State Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Reducing Sediment Loading into San Joaquin River from Westside Agricultural Lands	$65,000,000	$32,500,000	$32,500,000	$16,250,000	$24,375,000	$8,125,000	$16,250,000

Note: Project cost is based on 65,000 acres at $1,000 per acre.

6.24 Regional Maintenance Technical Support

Short Project Description

Development and implementation of a shared staffing position to support LMA fulfillment of maintenance responsibilities within the Mid SJR Region.

Potential Funding Sources

Integrated Regional Water Management Plan (IRWMP) – This Project could possibly be included in IRWMP due to flood protection benefits, which would make it eligible for funding through the Plan. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Small Community Flood Risk Reduction – This funding program is designed to help implement projects to reduce flood risk in small, rural, and agricultural communities in the Central Valley. This project would fit this criteria because it will benefit rural and agricultural communities by making O&M more manageable while at the same time creating flood risk reduction due to better quality O&M.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Regional Maintenance Technical Support	$100,000			Integrated Regional Water Management (IRWM)	50%-75%
				Small Community Flood Risk Reduction (SCFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
0%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Regional Maintenance Technical Support	$100,000	$0	$100,000	$50,000	$90,000	$10,000	$50,000

6.25 Riverfront Park Project

Short Project Description

Creation of a riverfront park, recreational trail, and enhanced habitat along the western bank of the San Joaquin River between Old Las Palmas Avenue and Eucalyptus Avenue.

Potential Funding Sources

Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program – This funding source is meant to restore and protect species and habitats impacted by the Central Valley Project (CVP). This project meets the criteria for this funding source due to its habitat restoration elements.

Land and Water Conservation Fund – This funding source provides matching grants to States and local governments for the acquisition and development of public outdoor recreation area and facilities, as well as funding for shared federal land acquisition and conservation strategies. This project meets the criteria of the funding source due to the fact that it will create to recreational opportunities with the planned recreational trail.

North American Wetland Conservation Act (NAWCA) – This funding source provided matching grants to help fund projects that offer wetlands conservation for benefit of wetlands-associated migratory birds and other wildlife. This project qualifies for this program due to the habitat restoration benefits that it provides.

California Riparian Habitat Conservation Program – The goals of the CRHCP are to protect, preserve, restore and enhance riparian habitat throughout California. This program will fund programs that further these goals, which this project does with the riparian vegetation restoration element.

California River Parkways Program – This funding source awards funds to public agencies and non-profit organizations to acquire, restore, protect or develop river parkways. Projects must be multi-benefit. Since this project will create a River Parkway that will restore habitat and has multi-benefit elements like the recreational trail it meets this funding sources criteria.

Flood Corridor Program (FCP) – This funding source is designed to fund non-structural flood risk reduction projects containing ecosystem and/or agricultural land conservation components. Since this project contains both a non-structural flood risk reduction component and ecosystem benefits it meets this programs criteria.

Habitat Conservation Fund Program – This funding source provides funds to local entities to protect threatened species, to address wildlife corridors, to create rails, and to provide nature interpretation programs which bring urban residents into park and wildlife areas. Since this project will restore riparian vegetation and create recreational opportunities it meets this programs criteria.

Inland Wetlands Conservation Program – This funding source was created to protect, restore, and enhance wetlands and associated habitats. Since this project will restore degraded habitat it meets the requirements of this funding source.

Urban Streams Restoration Program – This funding source provides grants for stream restoration projects that reduce flooding or erosion and associated property damages. Projects should restore, enhance, or protect their natural environment and promote community involvement, education, and stewardship in urban streams. This project meets this criteria since it will be restoring habitat and promoting community involvement with recreational opportunities.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Riverfront Park Project	$2,500,000	Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Land and Water Conservation Fund	50%	California River Parkways Program	50%-90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Flood Corridor (FCP)	50%-90%
		-	-	Habitat Conservation Fund (HCF) Program	50%
				Inland Wetlands Conservation Program	50%
				Urban Streams Restoration Program	Not Req.

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Riverfront Park Project	$2,500,000	$1,250,000	$1,250,000	$625,000	$1,125,000	$125,000	$625,000

6.26 Salado Creek Flood Management Project

Short Project Description

Widening of Salado Creek from the Delta Mendota Canal to the city limits.

Potential Funding Sources

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Urban Streams Restoration Program – This funding source provides grants for stream restoration projects that reduce flooding or erosion and associated property damages. Projects should restore, enhance, or protect their natural environment and promote community involvement, education, and stewardship in urban streams. This project meets the flood reduction criterion but will need to add a multi-benefit element to qualify for this funding source.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Storm Water Flood Management Program – This funding source is designed to help fund storm water management projects that reduce flood damage and provide at least one other type of benefit. In order to qualify this project would have to add a multi-benefit element and become part of an IRWMP, as well as be consistent with the applicable Water Quality Basin Plan.

Urban Flood Risk Reduction (UFRR) – This funding source is designed to help improve urban SPFC levees within the Central Valley to a 200-year level of protection. While this project does not deal specifically with urban SPFC levees it could benefit urban SPFC levees downstream of the project area.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Salado Creek Flood Management Project	$600,000	North American Wetlands Conservation Act (NAWCA)	50%	Urban Streams Restoration Program	Not Req.
		Flood Mitigation Assistance (FMA)	75%-100%	Integrated Regional Water Management (IRWMP)	50% - 75%
		-	-	Storm Water Flood Management Program	50% - 75%
				Urban Flood Risk Reduction (UFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	75%	25%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Salado Creek Flood Management Project	$600,000	$300,000	$300,000	$150,000	$225,000	$75,000	$150,000

6.27 SB5 Compliance – City of Modesto

Short Project Description

Comply with SB 5 regulations through update of the City's relevant planning documents and completion of a preliminary engineering report to identify potential alternatives on how the City can provide 200-year flood protection.

Potential Funding Sources

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Urban Flood Risk Reduction (UFRR) – This funding source is designed to help improve urban SPFC levees within the Central Valley to a 200-year level of protection. Since this project deals with urban SPFC levees it would qualify for funding.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
SB5 Compliance - City of Modesto	Phase I - $30,000 Phase II - $100,000	Flood Mitigation Assistance (FMA)	75%-100%	Integrated Regional Water Management (IRWMP)	50% - 75%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Urban Flood Risk Reduction (UFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table on the previous page, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
SB5 Compliance - City of Modesto	$130,000	$97,500	$32,500	$16,250	$29,250	$3,250	$16,250

6.28 SB5 Compliance – City of Newman

Short Project Description

Comply with SB 5 regulations through update of the City's relevant planning documents and completion of a preliminary engineering report to identify potential alternatives on how the City can provide 200-year flood protection.

Potential Funding Sources

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Urban Flood Risk Reduction (UFRR) – This funding source is designed to help improve urban SPFC levees within the Central Valley to a 200-year level of protection. Since this project deals with urban SPFC levees it would qualify for funding.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
SB5 Compliance - City of Newman	Phase I - $75,000 Phase II - $50,000	Flood Mitigation Assistance (FMA)	75%-100%	Integrated Regional Water Management (IRWMP)	50% - 75%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Urban Flood Risk Reduction (UFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table on the previous page, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
SB5 Compliance - City of Newman	$125,000	$93,750	$31,250	$15,625	$28,125	$3,125	$15,625

6.29 SB5 Compliance – City of Patterson

Short Project Description

Comply with SB 5 regulations through update of the City's relevant planning documents and completion of a preliminary engineering report to identify potential alternatives on how the City can provide 200-year flood protection.

Potential Funding Sources

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Urban Flood Risk Reduction (UFRR) – This funding source is designed to help improve urban SPFC levees within the Central Valley to a 200-year level of protection. Since this project deals with urban SPFC levees it would qualify for funding.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
SB5 Compliance - City of Patterson	Phase I - $105,000 Phase II - $100,000	Pre-Disaster Mitigation (PDM)	75% - 90%	Integrated Regional Water Management (IRWMP)	50% - 75%
		-	-	Urban Flood Risk Reduction (UFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
SB5 Compliance - City of Patterson	$205,000	$153,750	$51,250	$25,625	$46,125	$5,125	$25,625

6.30 Sediment Management Investigation

Short Project Description

Complete a study that identifies sediment-induced chokepoints along the San Joaquin River in the planning area, the dynamics that create them, and potential actions to improve flood conveyance in those areas.

Potential Funding Sources

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Small Community Flood Risk Reduction – This funding source is designed to help implement projects to reduce flood risk in small, rural, and agricultural communities in the Central Valley. This project would fit this criteria because it will benefit rural and agricultural communities by providing a plan to improve flood conveyance along their levees.

Systemwide Flood Risk Reduction (SWFRR) – This funding source is designed to help implement recommendations of the Basin-Wide Feasibility Studies. Guidelines are currently under development. In order to qualify this project would have to become part of the Basin-Wide Feasibility Study.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Sediment Management Investigation	$250,000	-	-	Integrated Regional Water Management (IRWMP)	50% - 75%
				Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Systemwide Flood Risk Reduction (SFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
0%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Sediment Management Investigation	$250,000	$0	$250,000	$125,000	$225,000	$25,000	$125,000

6.31 Storm Drainage Enhancements along Salado Creek

Short Project Description

Installation of reinforced concrete pipelines under the California Northern Railroad wooden bridge to improve storm drainage along Salado Creek.

Potential Funding Sources

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Storm Water Flood Management Program – This funding source is designed to help fund storm water management projects that reduce flood damage and provide at least one other type of benefit. In order to qualify this project would have to add a multi-benefit element and become part of an IRWMP, as well as be consistent with the applicable Water Quality Basin Plan.

Urban Flood Risk Reduction (UFRR) – This funding source is designed to help improve urban SPFC levees within the Central Valley to a 200-year level of protection. While this project does not deal with SPFC levees in particular, it does reduce flood risk in an urban area.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Storm Drainage Enhancements along Salado Creek	$880,000	Pre-Disaster Mitigation (PDM)	75% - 90%	Integrated Regional Water Management (IRWMP)	50% - 75%
		-	-	Storm Water Flood Management Program	50%-75%
				Urban Flood Risk Reduction (UFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
75%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Storm Drainage Enhancements along Salado Creek	$880,000	$660,000	$220,000	$110,000	$198,000	$22,000	$110,000

6.32 Three Amigos (also known as the Non-structural Alternative at the San Joaquin River National Wildlife Refuge)

Short Project Description

Project to restore flooding and transient floodwater storage to more than 3,100 acres of historic floodplain, restore riparian habitats, and promote river physical processes of scour and deposition along 3 miles of the San Joaquin River. While the lands have been purchased, additional investment is needed to implement flood risk reduction goals consistent with the Refuge's habitat management goals. Needed efforts include planning and design of the Refuge for flood management as well as removal of levees from the federal project.

Potential Funding Sources

Anadromous Fish Restoration Program and Anadromous Fish Screen Program – This funding source is meant to help fund projects that protect, restore, or enhance fish, wildlife, and associated habitat throughout the Central Valley and Trinity River Basins of California. This project meets the criteria of the funding source due to its benefit to anadromous fish.

Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program – This funding source is meant to restore and protect species and habitats impacted by the Central Valley Project (CVP). This project meets the criteria of this funding source due to its benefit to riparian vegetation.

Emergency Watershed Protection Program-Floodplain Easement Option (EWP-FPE) – This funding source is designed to provide and alternative measure to traditional EWP recovery, where it is determined that acquiring an easement in lieu of recovery measures is the more economical and prudent approach to reducing threat to life or property. This project has purchased all land necessary land but may use this resource if more land were being considered.

California Riparian Habitat Conservation Program – The goals of the CRHCP are to protect, preserve, restore and enhance riparian habitat throughout California. This program will fund programs that further these goals, which this project does with the riparian vegetation restoration element.

Central Valley Flood System Conservation Framework and Strategy – This funding source is meant to help implement projects in support of the Central Valley Flood System Conservation Framework and Conservation Strategy. Eligible projects will incorporate environmental stewardship and sustainability principles into State Plan of Flood Control flood management activities. This project meets the criteria of this funding source by integrating environmental sustainability and restoration with flood risk reduction.

Flood Corridor Program (FCP) – This funding source is designed to fund non-structural flood risk reduction projects containing ecosystem and/or agricultural land conservation components. Since this

project contains both a non-structural flood risk reduction component and ecosystem benefits it meets this programs criteria.

Inland Wetlands Conservation Program – This funding source was created to protect, restore, and enhance wetlands and associated habitats. Since this project will restore floodplain habitat it meets the requirements of the funding source.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Systemwide Flood Risk Reduction (SFRR) – This funding source is designed to help implement recommendations of the Basin-Wide Feasibility Studies. Guidelines are currently under development. In order to qualify this project would have to become part of the Basin-Wide Feasibility Study.

The table on the following page details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Three Amigos (also known as the Non-structural Alternative at the San Joaquin River National Wildlife Refuge)	$5,500,000	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	50%	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	Central Valley Flood System Conservation Framework and Strategy	50%-90%
		Emergency Watershed Protection Program – Floodplain Easement Option (EWP-FPE)	Not Req.	Flood Corridor (FCP)	50%-90%
		-	-	Inland Wetlands Conservation Program	50%
				Integrated Regional Water Management (IRWMP)	50%-75%
				Systemwide Flood Risk Reduction (SFRR)	50%-90%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Three Amigos (also known as the Non-structural Alternative at the San Joaquin River National Wildlife Refuge)	$5,500,000	$2,750,000	$2,750,000$0	$1,375,000	$2,475,000	$275,000	$1,375,000

6.33 Tuolumne River Flood Management Feasibility Study

Short Project Description

Complete a USACE Feasibility Study, or a study similar in scope, that evaluates how the management of the Tuolumne River could be revised to improve flood control, enhance aquatic habitat, and improve water quality.

Potential Funding Sources

USACE Funding – This funding source requires that USACE adopt the project. It is believed that this project has the potential to be adopted by USACE.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Tuolumne River Flood Management Feasibility Study	$3,000,000	USACE Funding	50%	Integrated Regional Water Management (IRWMP)	50%-75%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	75%	25%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Tuolumne River Flood Management Feasibility Study	$3,000,000	$1,500,000	$1,500,000	$750,000	$1,125,000	$375,000	$750,000

Note: Table to be updated once cost information is provided.

6.34 Tuolumne River Regional Park – Carpenter Road/West Modesto Flood Management and Park Development

Short Project Description

Help reduce flood damages in West Modesto neighborhoods while developing the adjacent Tuolumne River Regional Park.

Potential Funding Sources

Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program – This funding source is meant to restore and protect species and habitats impacted by the Central Valley Project (CVP). This project meets the CVPIA criteria due to its riparian habitat restoration component.

Land and Water Conservation Fund – This funding source provides matching grants to States and local governments for the acquisition and development of public outdoor recreation area and facilities, as well as funding for shared federal land acquisition and conservation strategies. This project meets criteria of this funding source due to its park development element.

North American Wetland Conservation Act (NAWCA) – This funding source provided matching grants to help fund projects that offer wetlands conservation for benefit of wetlands-associated migratory birds and other wildlife. This project qualifies for this program due to the habitat benefits that it provides.

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

California Riparian Habitat Conservation Program – The goals of the CRHCP are to protect, preserve, restore and enhance riparian habitat throughout California. This program will fund programs that further these goals, which this project does with the riparian vegetation restoration element.

California River Parkways Program – This funding source awards funds to public agencies and non-profit organizations to acquire, restore, protect or develop river parkways. Projects must be multi-benefit. This project meets the criteria of this funding source due to the park development and habitat restoration elements.

Habitat Conservation Fund Program – This funding source provides funds to local entities to protect threatened species, to address wildlife corridors, to create rails, and to provide nature interpretation programs which bring urban residents into park and wildlife areas. Since this project will develop a park for urban residents and will restore riparian vegetation it meets the criteria of this funding source.

Inland Wetlands Conservation Program – This funding source was created to protect, restore, and enhance wetlands and associated habitats. Since this project will restore degraded floodplain habitat it meets the requirements of the funding source.

Integrated Regional Water Management Plan (IRWMP) – This project could be included in the next IRWMP due to flood protection benefits, which would make it eligible for funding through IRWMP funding. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Tuolumne River Regional Park – Carpenter Road/West Modesto Flood Management and Park Development	$750,000	Central Valley Project Improvement Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Land and Water Conservation Fund	50%	California River Parkways Program	50%-90%
		North American Wetlands Conservation Act (NAWCA)	50%	Habitat Conservation Fund (HCF) Program	50%
		Flood Mitigation Assistance (FMA)	75%-100%	Inland Wetlands Conservation Program	50%
		-	-	Integrated Regional Water Management (IRWMP)	50%-75%

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Tuolumne River Regional Park – Carpenter Road/West Modesto Flood Management and Park Development	$750,000	$375,000	$375,000	$187,500	$337,500	$37,500	$187,500

6.35 Tuolumne River Regional Parkway

Short Project Description

Continued development of the undeveloped areas of the Tuolumne River Regional Park including the Gateway Parcel.

Potential Funding Sources

Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program – This funding source is meant to restore and protect species and habitats impacted by the Central Valley Project (CVP). This project meets the CVPIA criteria due to its riparian habitat restoration component.

Land and Water Conservation Fund – This funding source provides matching grants to States and local governments for the acquisition and development of public outdoor recreation area and facilities, as well as funding for shared federal land acquisition and conservation strategies. This project meets criteria of this funding source due to its park development element.

North American Wetland Conservation Act (NAWCA) – This funding source provided matching grants to help fund projects that offer wetlands conservation for benefit of wetlands-associated migratory birds and other wildlife. This project qualifies for this program due to the habitat benefits that it provides.

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

California Riparian Habitat Conservation Program – The goals of the CRHCP are to protect, preserve, restore and enhance riparian habitat throughout California. This program will fund programs that further these goals, which this project does with the riparian vegetation restoration element.

California River Parkways Program – This funding source awards funds to public agencies and non-profit organizations to acquire, restore, protect or develop river parkways. Projects must be multi-benefit. This project meets the criteria of this funding source due to the park development and habitat restoration elements.

Habitat Conservation Fund Program – This funding source provides funds to local entities to protect threatened species, to address wildlife corridors, to create rails, and to provide nature interpretation programs which bring urban residents into park and wildlife areas. Since this project will develop a park for urban residents and will restore riparian vegetation it meets the criteria of this funding source.

Inland Wetlands Conservation Program – This funding source was created to protect, restore, and enhance wetlands and associated habitats. Since this project will restore degraded floodplain habitat it meets the requirements of the funding source.

Urban Greening for Sustainable Communities – Planning – This funding source is designed to assist entities in developing a master urban greening plan that will ultimately result in project to help the State meet its environmental goals and the creating of healthy communities. The plan must outline or layout projects that reduce greenhouse gas emission and provide multiple benefits. This project meets this criteria due to its planning element, as well as it multi-benefit elements.

Urban Greening for Sustainable Communities – Project – This funding source is designed to provide funds to preserve, enhance, increase, or establish community green areas such as urban forests, open spaces, wetlands, and community spaces (e.g. community gardens). This project meets this criteria due to its restoration and parkway development elements, as well as other multi-benefit aspects.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Tuolumne River Regional Parkway	$60,000,000	Central Valley Project Improvement Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Land and Water Conservation Fund	50%	California River Parkways Program	50%-90%
		North American Wetlands Conservation Act (NAWCA)	50%	Habitat Conservation Fund (HCF) Program	50%
		Flood Mitigation Assistance (FMA)	75%-100%	Inland Wetlands Conservation Program	50%
		-	-	Urban Greening for Sustainable Communities - Planning	Not Req.
				Urban Greening for Sustainable Communities - Project	Not Req.

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non-Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Tuolumne River Regional Parkway	$60,000,000	$30,000,000	$30,000,000	$15,000,000	$27,000,000	$3,000,000	$15,000,000

6.36 Westside Creeks On-Farm Multi-Benefit Program

Short Project Description

Provide outreach and technical assistance to landowners in the Stanislaus County Westside Creek watersheds for multi-benefit flood risk reduction projects.

Potential Funding Sources

Anadromous Fish Restoration Program and Anadromous Fish Screen Program – This funding source is meant to help fund projects that protect, restore, or enhance fish, wildlife, and associated habitat throughout the Central Valley and Trinity River Basins of California. This project meets the criteria of the funding program due to its benefit to anadromous fish.

Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program – This funding source is meant to restore and protect species and habitats impacted by the Central Valley Project (CVP). This project meets the CVPIA criteria due to its riparian habitat restoration component.

Endangered Species Act Section 6 Grant Program – This funding program provides grants to states and territories to participate in a wide variety of voluntary conservation projects for candidate, proposed, and listed species on non-federal lands. This project would qualify for funding due to its benefit to endangered species.

Environmental Quality Incentives Program (EQIP) – This funding sources is designed to provide financial and technical assistance to agricultural producers in order to address natural resource concerns and deliver environmental benefits. This project meets the criteria of this funding program since it involves agricultural producers and has an environmental benefit.

North American Wetland Conservation Act (NAWCA) – This funding source provided matching grants to help fund projects that offer wetlands conservation for benefit of wetlands-associated migratory birds and other wildlife. This project qualifies for this program due to the habitat benefits that it provides.

Flood Mitigation Assistance – This funding source provides grants in order to implement projects that reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program. This project would qualify for this funding source since it has the potential to reduce flood risk to qualifying buildings and structures.

Pre-Disaster Mitigation (PDM) – This funding source requires that a project help implement a sustained pre-disaster hazard mitigation program to reduce risk in future hazard events. Since this is a proactive project designed to avoid future flood control issues it meets this criteria.

California Riparian Habitat Conservation Program – The goals of the CRHCP are to protect, preserve, restore and enhance riparian habitat throughout California. This program will fund programs that further these goals, which this project does with the riparian vegetation restoration element.

Flood Corridor Program (FCP) – This funding source is designed to fund non-structural flood risk reduction projects containing ecosystem and/or agricultural land conservation components. Since this project contains both a non-structural flood risk reduction component and ecosystem benefits it meets this programs criteria.

Inland Wetlands Conservation Program – This funding source was created to protect, restore, and enhance wetlands and associated habitats. Since this project will restore degraded floodplain habitat it meets the requirements of the funding source.

Integrated Regional Water Management Plan (IRWMP) – This Project could possibly be included in IRWMP due to flood protection benefits, which would make it eligible for funding through the Plan. In order to be included in the IRWMP the project must be suggested to the lead agency preparing the IRWMP update.

Small Community Flood Risk Reduction – This funding program is designed to help implement projects to reduce flood risk in small, rural, and agricultural communities in the Central Valley. This project would fit this criteria because it will benefit rural and agricultural communities by making O&M more manageable while at the same time creating flood risk reduction due to better quality O&M.

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Westside Creeks On-Farm Multi-Benefit Program	$75,000	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	50%	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	Flood Corridor (FCP)	50%-90%
		Endangered Species Act Section 6 Grant Program	75% - 90%	Inland Wetlands Conservation Program	50%
		Environmental Quality Incentives Program (EQIP)	50%	Integrated Regional Water Management (IRWM)	50% - 75%
		North American Wetlands Conservation Act (NAWCA)	50%	Small Community Flood Risk Reduction (SCFRR)	50% - 90%
		Flood Mitigation Assistance (FMA)	75% - 100%		
		Pre-Disaster Mitigation (PDM)	75% - 90%		

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
Westside Creeks On-Farm Multi-Benefit Program	$75,000	$37,500	$37,500	$18,750	$33,750	$3,750	$18,750

6.37 WSID Fish Screen Project

Short Project Description

This RMFP Project will help support three (3) Phases of the WSID Fish Screen Project while significantly improving site specific and Regional flood management and resilience, and ecosystem enhancement. Phase 1 would provide cost-share to complete the planning, design and permitting of mutually beneficial fish screen alternatives. Phase 2 funding would contribute to the required 50% non-federal cost-share for construction of WSID's preferred alternative fish screen project. Phase 3 would provide cost-share contribution to help complete the planning, design and permitting of integrated and mutually beneficial flood management and resilience and ecosystem enhancements along 90% of the WSID intake canal and alignment across the SJRNWR.

Potential Funding Sources

Anadromous Fish Restoration Program and Anadromous Fish Screen Program – This funding source is meant to help fund projects that protect, restore, or enhance fish, wildlife, and associated habitat throughout the Central Valley and Trinity River Basins of California. This project meets the criteria of the funding program due to its benefit to anadromous fish.

Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program – This funding source is meant to restore and protect species and habitats impacted by the Central Valley Project (CVP). This project meets the CVPIA criteria due to its riparian habitat restoration component.

Endangered Species Act Section 6 Grant Program – This funding program provides grants to states and territories to participate in a wide variety of voluntary conservation projects for candidate, proposed, and listed species on non-federal lands. This project would qualify for funding due to its benefit to endangered species.

Flood Corridor Program (FCP) – This funding source is designed to fund non-structural flood risk reduction projects containing ecosystem and/or agricultural land conservation components. Since this project contains both a non-structural flood risk reduction component and ecosystem benefits it meets

The following table details the cost share of each funding source along with the cost associated with this project.

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
WSID Fish Screen Project	$38,000,000	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	50%	Flood Corridor (FCP)	50%-90%
		Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.		
		Endangered Species Act Section 6 Grant Program	75% - 90%		

Cost Share Information

Using project descriptions and the cost share data in the table above, estimates of cost shares for this project were calculated. The results are tabulated below, using a range of cost share values to account for uncertainty in the estimating process.

Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)	
	Low	High	Low	High
50%	50%	90%	10%	50%

The following table provides estimates for the Federal, State, and local cost shares using total project cost and the cost share percentages from the above table.

Project	Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range	
				Low	High	Low	High
WSID Fish Screen Project	$38,000,000	$19,000,000	$19,000,000	$9,500,000	$17,100,000	$1,900,000	$9,500,000

Appendix I Project Cost Share Table

Project Cost Share Table

Projects Within the Mid San Joaquin Region Boundary

Project	Cost Share (%)						Cost Share ($)								
	Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)		Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range		Local Cost Share Source		
		Low	High	Low	High				Low	High	Low	High	Private Land Owners	Local Government	Non-Profit Organization
Consolidation of O&M	0%	50%	90%	10%	50%	$200,000	$0	$200,000	$100,000	$180,000	$20,000	$100,000	X		
Dos Rios Ranch Floodplain Expansion and Ecosystem Restoration Project and Hidden Valley Ranch Mitigation Project	50%	50%	90%	10%	50%	$8,000,000	$4,000,000	$4,000,000	$2,000,000	$3,600,000	$400,000	$2,000,000			X
Emergency Response Plan - Debris Management	0%	50%	90%	10%	50%	$110,000	$0	$110,000	$55,000	$99,000	$11,000	$55,000		X	
Emergency Response Plan - Local Planning and Training	0%	50%	90%	10%	50%	$110,000	$0	$110,000	$55,000	$99,000	$11,000	$55,000		X	
Flood Risk Education	50%	50%	90%	10%	50%	$30,000	$15,000	$15,000	$7,500	$13,500	$1,500	$7,500			X
Gomes Lake / Harding Drain Improvements	75%	50%	90%	10%	50%	$1,700,000	$1,275,000	$425,000	$212,500	$382,500	$42,500	$212,500		X	
Hydraulic and Channel Migration Studies	0%	50%	75%	25%	50%	$200,000	$0	$200,000	$100,000	$150,000	$50,000	$100,000		X	
Integrated Levee Vegetation Management - Flood Maintenance and Habitat	75%	50%	90%	10%	50%	$6,400,000	$4,800,000	$1,600,000	$800,000	$1,440,000	$160,000	$800,000			X
Modesto WWTP - Reduce Flood Risk	75%	50%	90%	10%	50%	$80,000,000	$60,000,000	$20,000,000	$10,000,000	$18,000,000	$2,000,000	$10,000,000		X	
Reclamation District 1602 Resilience	75%	50%	90%	10%	50%	$4,700,000	$3,525,000	$1,175,000	$587,500	$1,057,500	$117,500	$587,500		X	
Reclamation District 2031 Resilience	75%	50%	90%	10%	50%	$2,000,000	$1,500,000	$500,000	$250,000	$450,000	$50,000	$250,000	X		
Reclamation District 2063 Resilience	75%	50%	90%	10%	50%	$3,500,000	$2,625,000	$875,000	$437,500	$787,500	$87,500	$437,500	X		
Reclamation District 2091 Resilience	75%	50%	90%	10%	50%	$400,000	$300,000	$100,000	$50,000	$90,000	$10,000	$50,000	X		
Reclamation District 2101 Resilience	75%	50%	90%	10%	50%	$2,500,000	$1,875,000	$625,000	$312,500	$562,500	$62,500	$312,500	X		
Reducing Sediment Loading into San Joaquin River from Westside Agricultural Lands	50%	50%	75%	25%	50%	$65,000,000	$32,500,000	$32,500,000	$16,250,000	$24,375,000	$8,125,000	$16,250,000		X	

Project Cost Share Table

Projects Within the Mid San Joaquin Region Boundary

Project	Cost Share (%)						Cost Share ($)								
	Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)		Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range		Local Cost Share Source		
		Low	High	Low	High				Low	High	Low	High	Private Land Owners	Local Government	Non-Profit Organization
Regional Maintenance Technical Support	0%	50%	90%	10%	50%	$100,000	$0	$100,000	$50,000	$90,000	$10,000	$50,000	**X**		
Sediment Management Investigation	0%	50%	90%	10%	50%	$250,000	$0	$250,000	$125,000	$225,000	$25,000	$125,000			**X**
Three Amigos (also known as the Non-structural Alternative at the San Joaquin River National Wildlife Refuge)	50%	50%	90%	10%	50%	$5,500,000	$2,750,000	$2,750,000	$1,375,000	$2,475,000	$275,000	$1,375,000			**X**
Westside Creeks On-Farm Multi-Benefit Program	50%	50%	90%	10%	50%	$75,000	$37,500	$37,500	$18,750	$33,750	$3,750	$18,750			**X**
WSID Fish Screen Project	50%	50%	90%	10%	50%	$38,000,000	$19,000,000	$19,000,000	$9,500,000	$17,100,000	$1,900,000	$9,500,000		**X**	
Totals						$218,775,000	$134,202,500	$84,572,500	$42,286,250	$71,210,250	$13,362,250	$42,286,250			

Project Cost Share Table

Projects Outside of the Mid San Joaquin Region Boundary

Project	Cost Share (%)						Cost Share ($)								
	Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)		Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range		Local Cost Share Source		
		Low	High	Low	High				Low	High	Low	High	Private Land Owners	Local Government	Non-Profit Organization
Black Gulch Drainage Study	0%	50%	75%	25%	50%	$28,000	$0	$28,000	$14,000	$21,000	$7,000	$14,000		X	
City of Newman/ Bureau of Reclamation Flood Levee Rehabilitation	75%	50%	90%	10%	50%	$225,000	$168,750	$56,250	$28,125	$50,625	$5,625	$28,125		X	
Dennet Dam Removal	50%	50%	90%	10%	50%	$700,000	$350,000	$350,000	$175,000	$315,000	$35,000	$175,000			X
Dry Creek Watershed Detention Reconnaissance Study	50%	50%	90%	10%	50%	$250,000	$125,000	$125,000	$62,500	$112,500	$12,500	$62,500		X	
La Grange Floodplain Restoration and Spawning Gravel Augmentation	50%	50%	90%	10%	50%	$1,500,000	$750,000	$750,000	$375,000	$675,000	$75,000	$375,000			X
Little Salado Creek	50%	50%	90%	10%	50%	$5,000,000	$2,500,000	$2,500,000	$1,250,000	$2,250,000	$250,000	$1,250,000		X	
Orestimba Creek Flood Management Project	50%	50%	90%	10%	50%	$44,000,000	$22,000,000	$22,000,000	$11,000,000	$19,800,000	$2,200,000	$11,000,000		X	
Patterson WWTP - Reduce Flood Risk	75%	50%	90%	10%	50%	$27,000	$20,250	$6,750	$3,375	$6,075	$675	$3,375		X	
Riverfront Park Project	50%	50%	90%	10%	50%	$2,500,000	$1,250,000	$1,250,000	$625,000	$1,125,000	$125,000	$625,000		X	
Salado Creek Flood Management Project	50%	50%	75%	25%	50%	$600,000	$300,000	$300,000	$150,000	$225,000	$75,000	$150,000		X	
SB5 Compliance - City of Modesto	75%	50%	90%	10%	50%	$130,000	$97,500	$32,500	$16,250	$29,250	$3,250	$16,250		X	
SB5 Compliance - City of Newman	75%	50%	90%	10%	50%	$125,000	$93,750	$31,250	$15,625	$28,125	$3,125	$15,625		X	
SB5 Compliance - City of Patterson	75%	50%	90%	10%	50%	$205,000	$153,750	$51,250	$25,625	$46,125	$5,125	$25,625		X	
Storm Drainage Enhancements along Salado Creek	75%	50%	90%	10%	50%	$880,000	$660,000	$220,000	$110,000	$198,000	$22,000	$110,000		X	
Tuolumne River Flood Management Feasibility Study	50%	50%	75%	25%	50%	$3,000,000	$1,500,000	$1,500,000	$750,000	$1,125,000	$375,000	$750,000		X	

Project Cost Share Table

Projects Outside of the Mid San Joaquin Region Boundary

Project	Cost Share (%)						Cost Share ($)								
	Federal Cost Share (%)	State Cost Share Range (%)		Local Cost Share Range (%)		Total Project Cost	Federal Cost Share	Non - Federal Project Cost	State Cost Share Range		Local Cost Share Range		Local Cost Share Source		
		Low	High	Low	High				Low	High	Low	High	Private Land Owners	Local Government	Non-Profit Organization
Tuolumne River Regional Park – Carpenter Road/West Modesto Flood Management and Park Development	50%	50%	90%	10%	50%	$750,000	$375,000	$375,000	$187,500	$337,500	$37,500	$187,500		**X**	
Tuolumne River Regional Parkway	50%	50%	90%	10%	50%	$60,000,000	$30,000,000	$30,000,000	$15,000,000	$27,000,000	$3,000,000	$15,000,000		**X**	
Totals						$119,920,000	$60,344,000	$59,576,000	$29,788,000	$53,344,200	$6,231,800	$29,788,000			

Appendix II Funding Source Description Table

Mid San Joaquin Funding Source Descriptions

Type	No.	Program Name	Funding Agency	Program Summary	Allowed Project Elements: Study	Land Acquisition	Design	Construction	Material Acquisition	Program Enhancement	Recreation	Who is Eligible to Apply	Award Amount	Cost Share
FEDERAL PROGRAMS														
Conservation	1	Agricultural Conservation Easement Program (ACEP)	USDA NCRS	The Agricultural Conservation Easement Program (ACEP) provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits		X						Indian Tribes, State Government, Local Government	Uknown	Varies 50%-75%
	2	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	USFWS	The Anadromous Fish Restoration Program is designed • To protect, restore, and enhance fish, wildlife, and associated habitats in the Central Valley and Trinity River basins of California; • To address impacts of the Central Valley Project on fish, wildlife and associated habitats; • To improve the operational flexibility of the Central Valley Project; • To increase water-related benefits provided by the Central Valley Project to the State of California through expanded use of voluntary water transfers and improved water conservation; • To contribute to the State of California's interim and long-term efforts to protect the San Francisco Bay/Sacramento-San Joaquin Delta Estuary; • To achieve a reasonable balance among competing demands for use of Central Valley Project water, including the requirements of fish and wildlife, agricultural, municipal and industrial and power contractors.	X	X	X	X	X	X	X	State, local governments, Native American Organizations, other public nonprofit institutions/organizations, private nonprofit/organization. No other Federal agency may apply	The estimated grant size for FY 14 is $9 million. Individual grant size estimated to be $10,000 - $300,000.	50%
	3	Central Valley Project Improvement Act (CVPIA) – Habitat Restoration Program and Conservation Program	USFWS and USBR	The Central Valley Project Conservation Program (CVPCP) and the Central Valley Project Improvement Act (CVPIA) Habitat Restoration Program (HRP) represent highly integrated efforts to restore and protect species and habitats impacted by the CVP.	X	X	X	X	X			Government agencies, private non-profit or profit organizations, individuals, and educational institutions. Federal agencies are not eligible to submit an application under this FOA	$25,000 to $1M	Not Required
	4	Endangered Species Act Section 6 Grant Program	USFWS, CDFW	The Cooperative Endangered Species Conservation Fund (section 6 of the ESA), provides grants to states and territories to participate in a wide array of voluntary conservation projects for candidate, proposed, and listed species. The program provides funding to states and territories for species and habitat conservation actions on non-federal lands.	X	X	X	X				Participation in the CESCF programs is only available to State agencies that have a current cooperative agreement with the Secretary of the Interior. However, individuals or groups (for example land conservancies, cities, counties, community organizations, or conservation organizations) may work with a State agency that has a cooperative agreement on conservation efforts that are mutually beneficial, as a subgrantee	negotiable- $10,000 to $1 million	75% 90% when two or more states implement a join project
	5	Environmental Quality Incentives Program (EQIP)	USDA NCRS	EQIP provides financial and technical assistance to agricultural producers in order to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, reduced soil erosion and sedimentation or improved or created wildlife habitat. Eligible program participants receive financial and technical assistance to implement conservation practices, or activities like conservation planning, that address natural resource concerns on their land.			X	X	X			Agricultural producers and owners of non-industrial private forestland and Tribes are eligible to apply for EQIP. Eligible land includes cropland, rangeland, pastureland, non-industrial private forestland and other farm or ranch lands.	$450,000 - Max	50%

Mid San Joaquin Funding Source Descriptions

Type	No.	Program Name	Funding Agency	Program Summary	Allowed Project Elements: Study	Land Acquisition	Design	Construction	Material Acquisition	Program Enhancement	Recreation	Who is Eligible to Apply	Award Amount	Cost Share
FEDERAL PROGRAMS														
Conservation	6	Land and Water Conservation Fund	USFWS	The LWCF Program provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities (as well as funding for shared federal land acquisition and conservation strategies). The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities and to stimulate non-federal investments in the protection and maintenance of recreation resources across the United States.		X	X	X	X		X	State Governments and Local Governments (through States governments)	$10,000 to several million	50%
	7	North American Wetlands Conservation Act (NAWCA)	USFWS	The North American Wetlands Conservation Act (Act, or NAWCA) of 1989 provides matching grants to organizations and individuals who have developed partnerships to carry out wetlands conservation projects in the United States, Canada, and Mexico for the benefit of wetlands-associated migratory birds and other wildlife.		X	X	X				Entities with the U.S., Canada, or Mexico pursuing wetland conservation projects	$75,000 (Small Grants Program)	50%
Structural Flood Control	8	Flood Mitigation Assistance (FMA)	FEMA	The FMA program is a grant program that provides funding to States, Territories, Tribal entities and communities to assist in their efforts to reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program (NFIP).		X	X	X	X			Native American tribal governments (Federally recognized), State governments, City or township governments, County governments	Uknown	75%-100%
	9	Pre-Disaster Mitigation (PDM)	FEMA	The PDM Grant Program is designed to assist States, Territories, Indian Tribal governments, and local communities to implement a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding from future disasters.		X	X	X	X			Native American tribal governments (Federally recognized), State governments, City or township governments, County governments	$3M - Max	75% 90% for small impoverished communities
	10	USACE Funding		Cost sharing with USACE on SPFC USACE studies and projects	X	X	X	X				CVFPB with local sponsor.	Uknown	50% - 65%
Non-Structural Flood Control	11	Emergency Watershed Protection Program – Floodplain Easement Option (EWP-FPE)	USDA NCRS	The Emergency Watershed Protection - Floodplain Easement Program (EWP-FPE) provides an alternative measure to traditional EWP recovery, where it is determined that acquiring an easement in lieu of recovery measures is the more economical and prudent approach to reducing a threat to life or property.		X						Landowners or Local and State Governments with Lands that meet program criteria. See Source Document.	Landowner will receive lowest of fair market value, geographic area cap, or a voluntary written offer from the land owner	Not Required

Mid San Joaquin Funding Source Description Table

Type	No.	Program Name	Funding Agency	Program Summary	Allowed Project Elements: Study	Land Acquisition	Design	Construction	Material Acquisition	Program Enhancement	Recreation	Who is Eligible to Apply	Award Amount	Cost Share
STATE PROGRAMS														
Conservation	12	California Riparian Habitat Conservation Program (CRCHP)	CA WCB	The goals of the CRHCP, as noted in its enabling legislation, are to protect, preserve, restore and enhance riparian habitat throughout California		X	X	X				Nonprofit organizations, local government agencies, state departments, and federal agencies.	$2,000 to $2M	50% - 90%
	13	California River Parkways Program	California Natural Resource Agency	The Proposition 50 California River Parkways Grant Program in the Resources Agency is a competitive grant program for river parkways projects. Eligible projects must provide public access or be a component of a larger parkway plan that provides public access. In addition, projects must meet two of the following conditions: Provide compatible recreational opportunities including trails for strolling, hiking, bicycling, and equestrian uses along rivers and streams. Protect, improve, or restore riverine or riparian habitat, including benefits to wildlife habitat and water quality. Maintain or restore the open-space character of lands along rivers and streams so that they are compatible with periodic flooding as part of a flood management plan or project. Convert existing developed riverfront land into uses consistent with river parkways. Provide facilities to support or interpret river or stream restoration or other conservation activities.	X	X	X	X	X		X	Public Agencies and California Nonprofit Organizations	Unknown	50% - 90%
	14	Central Valley Flood System Conservation Framework and Strategy	DWR FESSRO (Prop 1E)	The program funds planning and implementation of projects in support of the Central Valley Flood System Conservation Framework and the Conservation Strategy. The projects will incorporate environmental stewardship and sustainability principles into State Plan of Flood Control flood management activities.			X	X				Federal, State and Local public agencies; private mitigation banks, Non-profits (501(c)(3))	$5M - Maximum	50% - 90%
	15	Flood Corridor (FCP)	DWR-FloodSAFE	Non-structural flood risk reduction projects containing ecosystem and/or agricultural land conservation components		X	X	X				Local public agencies (county, city, district or joint powers authority), nonprofit organizations, California Native American Tribes registered as a nonprofit organization or partner of a nonprofit or local public agency.	$5M- Maximum	50% - 90%
	16	Habitat Conservation Fund (HCF) Program	CA Dept. of Parks and Recreation	Provides funds to local entities to protect threatened species, to address wildlife corridors, to create rails, and to provide for nature interpretation programs which bring urban residents into park and wildlife areas			X	X		X	X		Does not usually exceed $200,000 however there are not maximum or minimum amounts	50%

Mid San Joaquin Funding Source Description Table

Type	No.	Program Name	Funding Agency	Program Summary	Allowed Project Elements: Study	Land Acquisition	Design	Construction	Material Acquisition	Program Enhancement	Recreation	Who is Eligible to Apply	Award Amount	Cost Share
STATE PROGRAMS														
Conservation	17	Inland Wetlands Conservation Program	CA WCB	The Inland Wetlands Conservation Program (IWCP) was created to assist the Central Valley Joint Venture (CVJV) in its mission is to protect, restore, and enhance wetlands and associated habitats. The CVJV, a partnership of twenty two public and private organizations and agencies, has identified through its Implementation Plan specific goals to increase populations of six bird groups: wintering waterfowl, breeding waterfowl, non-breeding shorebirds, breeding shorebirds, waterbirds, and breeding riparian songbirds. The IWCP has a wide range of options to accomplish these goals, including acquisitions of land or water for wetlands or wildlife friendly agriculture, acquisition of conservation easements, restoration of public or private lands, or enhancement of existing degraded habitats. In addition, the program will work toward providing long term reliable water for wetlands and winter-flooded agricultural lands.		X	X	X				Nonprofit organizations, local governmental agencies and state departments	$1,000 to $1M	50%
	18	Urban Greening for Sustainable Communities - Planning	California Natural Resource Agency	Because of the built-out nature of California's urban areas, the Urban Greening Planning Program (Program) will provide funds to assist entities in developing a master urban greening plan that will ultimately result in projects to help the State meet its environmental goals and the creation of healthy communities. The plan must be consistent with the State's planning policies and any applicable general or regional plan. The plan must outline or layout projects that reduce greenhouse gas emissions and provide multiple benefits including, but not limited to, decreasing air and water pollution, reducing the consumption of natural resources and energy, increasing the reliability of local water supplies, or increasing adaptability to climate change.			X					A council of governments, countywide authority, a metropolitan planning organization, local government, nonprofit organization, special district, or joint powers authorities where at least one entity qualifies as an eligible applicant	$250,000 -Maximum	Not Req.
	19	Urban Greening for Sustainable Communities - Project	California Natural Resource Agency	Because of the built-out nature of California's urban areas, the Urban Greening for Sustainable Communities Program (Program) provides funds to preserve, enhance, increase or establish community green areas such as urban forests, open spaces, wetlands and community spaces (e.g., community gardens). The goal is for these greening projects to incrementally create more viable and sustainable communities throughout the State.				X	X		X	Grant Funds will be awarded to a city, county, special district, or nonprofit organization, or joint powers authorities where at least one entity qualifies as an eligible applicant.	Unknown	Not Req.
	20	Urban Streams Restoration Program		Program provides grants for stream restoration projects that reduce flooding or erosion and associated property damages; restore, enhance, or protect the natural environment; and promote community involvement, education, and stewardship in urban streams.			X	X		X			$1 million per eligible project	Not Req.

Mid San Joaquin Funding Source Description Table

Type	No.	Program Name	Funding Agency	Program Summary	Allowed Project Elements: Study	Land Acquisition	Design	Construction	Material Acquisition	Program Enhancement	Recreation	Who is Eligible to Apply	Award Amount	Cost Share
STATE PROGRAMS														
Structural Flood Control	21	Flood System Repair Project (FSRP)	DWR-FloodSAFE	The Flood System Repair Project (FSRP) is designed to evaluate (feasibility), design, and construct repairs on non-urban SPFC facility (levees, channels, structures, etc.) deficiencies.			X	X				An LMA sponsor for an FSRP repair project must be a levee district, reclamation district, or other agency with maintenance re sponsibilities for SPFC facilities.	$5M- Maximum	50%-90%
	22	Integrated Regional Water Management (IRWM)		Grant funds for development and revisions of IRWM Plans, and implementation of projects in IRWM Plans. Goals of Projects: to assist local public agencies to meet long-term water management needs of the State, including the delivery of safe drinking water, flood risk reduction, and protection of water quality and the environment.	X	X	X	X	X	X	X	Applicant must be a local public agency or nonprofit representing an accepted IRWM Region. Other IRWM partners may access funds through their own agreements with the applicant/grantee.	Uknown	50%-75%
	23	Local Levee Assistance Program (LLAP)	DWR-FloodSAFE	The Local Levee Assistance Program (LLAP) is for projects to immediately repair and improve critically-damaged local levees, evaluate levee stability and levee seepage and underseepage, and to perform design or alternatives analysis. Local levees are levees throughout the State that are not part of the State Plan of Flood Control for the Central Valley and are not located within the Sacramento-San Joaquin Delta. The LLAP has two components. The Local Levee Critical Repair (LLCR) Program provides for design and repairs of critically-damaged levees. The Local Levee Evaluation (LOLE) Program provides funds for feasibility studies and geotechnical evaluation of levees.	X		X	X				Local Public Agencies or Joint Powers Authorities that are outside of the Legal Delta, are responsible for local (non-SPFC) levees, and are qualified to contract with the state.	$1M - Maximum	50% - 90%
	24	Small Community Flood Risk Reduction (SCFRR)	DWR-FloodSAFE	The Small Community Risk Reduction Program is designed to help implement projects to reduce flood risk in small, rural, and agricultural communities in the Central Valley. Funds support non-routine O&M, O&M plan updates, evaluations, feasibility studies, design, and construction of proactive repairs to flood control facilities of the SPFC and appurtenant non-project levees.	X		X	X				Local agencies that are responsible for SPFC facilities that protect small and rural communities in the central valley that have been designated by the CVFPP to have a high or moderate-high flood threat level.	$2M Maximum for feasibility studies $5M Maximuim for implementatior design of projects	50% - 90%
	25	Storm Water Flood Management Program		The Storm Water Flood Management Program is design to help fund storm water management projects that reduce flood damage and provide at least one other type of benefit. Project must not be part of the State Plan of Flood Control. Project must be part of an existing IRWM Plan and be consistent with applicable Water Quality Basin Plan				X				Local agencies or nonprofits representing an IRWM effort.	Maximum- 30 million per project	50% - 75%
	26	Systemwide Flood Risk Reduction (SWFRR)	DWR-FloodSAFE	The Systemwide Flood Risk Reduction Program is designed to help implement recommendations of the Basin-wide feasibility studies. Guidelines are currently under development	X	X	X	X				Local public agencies or joint powers authorities	Uknown	50% - 90%
	27	Urban Flood Risk Reduction (UFRR)	DWR-FloodSAFE	The Urban Flood Risk Reduction Program is designed to help improve urban SPFC levees within the Central Valley to a 200-year level of protection.	X	X	X	X				Local public agencies or joint powers authorities	$200M-Maximum per project	50% - 90%

Mid San Joaquin Funding Source Description Table

Type	No.	Program Name	Funding Agency	Program Summary	Allowed Project Elements: Study	Land Acquisition	Design	Construction	Material Acquisition	Program Enhancement	Recreation	Who is Eligible to Apply	Award Amount	Cost Share
STATE PROGRAMS														
Non-Structural Flood Control	28	Flood Emergency Response – Forecast-Coordinate Operations (F-CO)	DWR-FloodSAFE	This program is designed to further participation of reservoir operators (affecting the Central Valley) in the F-CO program, especially in obtaining necessary decision support system tools & equipment and field measuring equipment	X	X	X	X	X	X		Federal Agencies, State Agencies, or California Local Public Agencies with responsibility for operating a reservoir that has flood control reservation pool and is willing to participate in the Forecast-Coordinated Operations program and willing to coordinate its reservoir releases with other reservoir operators in the river system during flood events	$6M	50% - 90%
	29	Flood Emergency Response Statewide Emergency Response Grants	DWR-FloodSAFE	This program is designed to provide support for local EAPs or related flood preparedness and response activities. Funding is available for material acquisition such as emergency communications equipment to improve emergency response preparedness, and program enhancement activities that improve emergency response.					X	X		California public agencies with primary responsibility for flood emergency response and coordination are eligible to apply.	$15M	50% - 90%
	30	Watershed and Environmental Improvement Program	SFPUC	The Watershed and Environmental Improvement Program is a 10-year, $50 million, program to proactively manage, protect and restore environmental resources affected by our system operations. Funded in part by Water System Improvement Program Measure A bond funds and in part by operating funds, the Program spans the Peninsula, Alameda, and Tuolumne Watersheds, as well areas in San Francisco. The portion of the program that is applicable to the MSJ Region is the Lower Tuolumne River (downstream of Don Pedro Reservoir). The program is focused on protection of low lying floodplain areas through permanent conservations easements and/or fee title purchase of the property from willing landowners.		X	X	X			X	Land owners and Agencies within the Lower Tuolumne watershed that are interested in obtaining permanent conservation easements.	$6 million is expected to be spent in the Tuolumne River Watershed. Invididual grant size is negotiable, from $10,000 to $2 million +	Not Req.

Appendix III Project Funding Sources Table

Mid San Joaquin Regional Projects Funding Sources

Project	Funding Sources																														
	Federal											State																		
	Conservation							Structural Flood Control			Non-Structural Flood Control	Conservation									Structural Flood Control							Non-Structural Flood Control		
	Agricultural Conservation Easement Program (ACEP)	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Endangered Species Act Section 6 Grant Program	Environmental Quality Incentives Program (EQIP)	Land and Water Conservation Fund	North American Wetlands Conservation Act (NAWCA)	Flood Mitigation Assistance (FMA)	Pre-Disaster Mitigation (PDM)	USACE Funding	Emergency Watershed Protection Program – Floodplain Easement Option (EWP-FPE)	California Riparian Habitat Conservation Program (CRCHP)	California River Parkways Program	Central Valley Flood System Conservation Framework and Strategy	Flood Corridor (FCP)	Habitat Conservation Fund (HCF) Program	Inland Wetlands Conservation Program	Urban Greening for Sustainable Communities - Planning	Urban Greening for Sustainable Communities - Project	Urban Streams Restoration Program	Flood System Repair Project (FSRP)	Integrated Regional Water Management (IRWM)	Local Levee Assistance Program (LLAP)	Small Community Flood Risk Reduction (SCFRR)	Storm Water Flood Management Program	Systemwide Flood Risk Reduction (SWFRR)	Urban Flood Risk Reduction (UFRR)	Flood Emergency Response – Forecast- Coordinate Operations (F-CO)	Flood Emergency Response Statewide Emergency Response Grants	Watershed and Environmental Improvement Program
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Black Gulch Storm Drainage Study																						X			X					
City of Newman/ Bureau of Reclamation Flood Levee Rehabilitation									X													X	X							
Consolidation of O&M																								X						
Dennett Dam Removal		X	X	X		X	X		X			X	X			X				X		X								
Dos Rios Ranch Floodplain Expansion and Ecosystem Restoration Project and Hidden		X	X	X		X	X	X	X		X	X		X	X	X	X					X				X				
Dry Creek Watershed Detention Reconnaissance Study								X		X												X				X				
Emergency Response Plan – Debris Management																													X	
Emergency Response Plan – Local Planning and Training																													X	
Flood Risk Education														X													X			
Gomes Lake / Harding Drain Improvements								X	X													X			X		X			
Hydraulic and Channel Migration Studies																						X								
Integrated Levee Vegetation Management – Flood Maintenance and Habitat			X	X								X		X								X								
La Grange Floodplain Restoration and Spawning Gravel Augmentation		X	X	X			X		X			X		X	X	X	X													X
Little Salado Creek								X	X	X											X	X		X	X	X				
Modesto WWTP-Reduce Flood Risk								X	X													X				X				
Orestimba Creek Flood Management Project								X	X	X																	X			
Patterson WWTP - Reduce Flood Risk									X													X	X							
Reclamation District 1602 Resilience								X	X												X			X		X				
Reclamation District 2031 Resilience								X	X												X			X		X				

Mid San Joaquin Regional Projects Funding Sources

Project	Federal: Conservation							Federal: Structural Flood Control			Federal: Non-Structural Flood Control	State: Conservation									State: Structural Flood Control							State: Non-Structural Flood Control		
	Agricultural Conservation Easement Program (ACEP)	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Endangered Species Act Section 6 Grant Program	Environmental Quality Incentives Program (EQIP)	Land and Water Conservation Fund	North American Wetlands Conservation Act (NAWCA)	Flood Mitigation Assistance (FMA)	Pre-Disaster Mitigation (PDM)	USACE Funding	Emergency Watershed Protection Program – Floodplain Easement Option (EWP-FPE)	California Riparian Habitat Conservation Program (CRCHP)	California River Parkways Program	Central Valley Flood System Conservation Framework and Strategy	Flood Corridor (FCP)	Habitat Conservation Fund (HCF) Program	Inland Wetlands Conservation Program	Urban Greening for Sustainable Communities - Planning	Urban Greening for Sustainable Communities - Project	Urban Streams Restoration Program	Flood System Repair Project (FSRP)	Integrated Regional Water Management (IRWM)	Local Levee Assistance Program (LLAP)	Small Community Flood Risk Reduction (SCFRR)	Storm Water Flood Management Program	Systemwide Flood Risk Reduction (SWFRR)	Urban Flood Risk Reduction (UFRR)	Flood Emergency Response – Forecast- Coordinate Operations (F-CO)	Flood Emergency Response Statewide Emergency Response Grants	Watershed and Environmental Improvement Program
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Reclamation District 2063 Resilience								X	X												X			X		X				
Reclamation District 2091 Resilience								X	X												X			X		X				
Reclamation District 2101 Resilience								X	X												X			X		X				
Reducing Sediment Loading into the San Joaquin River from Westside Agricultural Lands					X																	X								
Regional Maintnenace Technical Support																						X		X						
Riverfront Park Project			X			X			X			X	X		X	X	X			X										
Salado Creek Flood Management Project							X	X												X		X			X		X			
SB5 Compliance – City of Modesto								X	X													X					X			
SB5 Compliance – City of Newman								X	X													X					X			
SB5 Compliance – City of Patterson									X													X					X			
Sediment Management Investigation																						X		X		X				
Storm Drainage Enhancements along Salado Creek									X													X			X		X			
Three Amigos (also known as the Non-structural Alternative at the San Joaquin River National Wildlife Refuge)		X	X								X	X		X	X		X					X				X				
Tuolumne River Flood Management Feasibility Study										X												X								
Tuolumne River Regional Park – Carpenter Road/West Modesto Flood Management and			X			X	X	X				X	X			X	X					X								
Tuolumne River Regional Parkway			X			X	X	X				X	X			X	X	X	X											
Westside Creeks On-Farm Multi-Benefit Program		X	X	X	X		X	X	X			X			X		X					X		X						
WSID Fish Screen Project		X	X	X											X															

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Black Gulch Storm Drainage Study	$28,000			Integrated Regional Water Management (IRWM)	50%-75%
				Storm Water Flood Management Program	50%-75%
City of Newman / Bureau of Reclamation Flood Levee Rehabilitation	$225,000	Pre-Disaster Mitigation (PDM)	75% - 90%	Integrated Regional Water Management (IRWM)	50%-75%
				Local Levee Assistance Program	50%-90%
Consolidation of O&M	$200,000			Small Community Flood Risk Reduction (SCFRR)	50%-90%
Dennet Dam Removal	$700,000	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	50%	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Central Valley Project Improvement Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	California River Parkways Program	50%-90%
		Endangered Species Act Section 6 Grant Program	75% - 90%	Habitat Conservation Fund (HCF) Program	50%
		Land and Water Conservation Fund	50%	Urban Streams Restoration Program	Not Req.
		North American Wetlands Conservation Act (NAWCA)	50%	Integrated Regional Water Management (IRWM)	50%-75%
		Pre-Disaster Mitigation (PDM)	75% - 90%		
Dos Rios Ranch Floodplain Expansion and Ecosystem Restoration Project and Hidden Valley Ranch Mitigation Project	$8,000,000	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	50%	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	Central Valley Flood System Conservation Framework and Strategy	50% - 90%
		Endangered Species Act Section 6 Grant Program	75% - 90%	Flood Corridor (FCP)	50%-90%
		Land and Water Conservation Fund	50%	Habitat Conservation Fund (HCF) Program	50%
		North American Wetlands Conservation Act (NAWCA)	50%	Inland Wetlands Conservation Program	50%
				Integrated Regional Water Management (IRWM)	50%-75%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%
Dry Creek Watershed Detention Reconnaissance Study	$250,000	Flood Mitigation Assistance (FMA)	75%-100%	Integrated Regional Water Management (IRWM)	50%-75%
		USACE Funding	50%	Systemwide Flood Risk Reduction (SWFRR)	50%-90%
Emergency Response Plan - Debri Management	$70,000 - $110,000			Flood Emergency Response Statewide Emergency Response Grants	50%-90%
Emergency Response Plan - Local Planning and Training	$70,000 - $110,000			Flood Emergency Response Statewide Emergency Response Grants	50%-90%
Flood Risk Education	Ranges from One time $30,000 to annual $100,000	Central Valley Project Improvement Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Required	Urban Flood Risk Reduction (UFRR)	50%-90%
Gomes Lake / Harding Drain Improvements	$1,000,000-1,700,000	Flood Mitigation Assistance (FMA)	75%-100%	Integrated Regional Water Management (IRWM)	50%-75%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Storm Water Flood Management Program	50%-75%
				Urban Flood Risk Reduction (UFRR)	50%-90%
Hydraulic and Channel Migration Studies	$200,000			Integrated Regional Water Management (IRWM)	50%-75%
Integrated Levee Vegetation Management - Flood Maintenance and Habitat	$6,400,000	Central Valley Project Improvement Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Required	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Endangered Species Act Section 6 Grant Program	75% - 90%	Central Valley Flood System Conservation Framework and Strategy	50% - 90%
				Integrated Regional Water Management (IRWM)	50%-75%
Modesto WWTP - Reduce Flood Risk	$80,000,000	Flood Mitigation Assistance (FMA)	75%-100%	Integrated Regional Water Management (IRWM)	50%-75%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Systemwide Flood Risk Reduction (SWFRR)	50%-90%

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
La Grange Floodplain Restoration and Spawning Gravel Augmentation	$1,500,000	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	50%	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	Central Valley Flood System Conservation Framework and Strategy	50%-90%
		Endangered Species Act Section 6 Grant Program	75% - 90%	Flood Corridor (FCP)	50%-90%
		North American Wetlands Conservation Act (NAWCA)	50%	Habitat Conservation Fund (HCF) Program	50%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Inland Wetlands Conservation Program	50%
				Watershed and Environmental Improvement Program	Not Req.
Little Salado Creek	$5,000,000	Flood Mitigation Assistance (FMA)	75%-100%	Flood System Repair Project (FSRP)	50% - 90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Integrated Regional Water Management (IRWM)	50%-75%
		USACE Funding	50%	Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Storm Water Flood Management Program	50% - 75%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%
Orestimba Creek Flood Management Project	$44 million (planning) $100,000/yr (O&M)	Flood Mitigation Assistance (FMA)	75%-100%	Urban Flood Risk Reduction (UFRR)	50%-90%
		Pre-Disaster Mitigation (PDM)	75% - 90%		
		USACE Funding	50%		
Patterson WWTP - Reduce Flood Risk	$27,000	Pre-Disaster Mitigation (PDM)	75% - 90%	Integrated Regional Water Management (IRWM)	50%-75%
				Small Community Flood Risk Reduction (SCFRR)	50%-90%
Reclamation District 1602 Resilience Project	$4,700,000	Flood Mitigation Assistance (FMA)	75%-100%	Flood System Repair Project (FSRP)	50% - 90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%
Reclamation District 2031 Resilience Project	$2,000,000	Flood Mitigation Assistance (FMA)	75%-100%	Flood System Repair Project (FSRP)	50% - 90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%
Reclamation District 2063 Resilience Project	$3,500,000	Flood Mitigation Assistance (FMA)	75%-100%	Flood System Repair Project (FSRP)	50% - 90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%
Reclamation District 2091 Resilience Project	$400,000	Flood Mitigation Assistance (FMA)	75%-100%	Flood System Repair Project (FSRP)	50% - 90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%
Reclamation District 2101 Resilience Project	$2,500,000	Flood Mitigation Assistance (FMA)	75%-100%	Flood System Repair Project (FSRP)	50% - 90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%
Reducing Sediment Loading into San Joaquin River from Westside Agricultural Lands	$65,000,000	Environmental Quality Incentives Program (EQIP)	50%	Integrated Regional Water Management (IRWM)	50%-75%
Regional Maintenance Technical Support	$100,000			Integrated Regional Water Management (IRWM)	50%-75%
				Small Community Flood Risk Reduction (SCFRR)	50%-90%

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Riverfront Park Project	$2,500,000	Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Land and Water Conservation Fund	50%	California River Parkways Program	50%-90%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Flood Corridor (FCP)	50%-90%
				Habitat Conservation Fund (HCF) Program	50%
				Inland Wetlands Conservation Program	50%
				Urban Streams Restoration Program	Not Req.
Salado Creek Flood Management Project	$600,000	North American Wetlands Conservation Act (NAWCA)	50%	Urban Streams Restoration Program	Not Req.
		Flood Mitigation Assistance (FMA)	75%-100%	Integrated Regional Water Management (IRWM)	50%-75%
				Storm Water Flood Management Program	50% - 75%
				Urban Flood Risk Reduction (UFRR)	50%-90%
SB5 Compliance - City of Modesto	Phase I -$30,000 Phase II - $100,000	Flood Mitigation Assistance (FMA)	75%-100%	Integrated Regional Water Management (IRWM)	50%-75%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Urban Flood Risk Reduction (UFRR)	50%-90%
SB5 Compliance - City of Newman	Phase I -$75,000 Phase II - $50,000	Flood Mitigation Assistance (FMA)	75%-100%	Integrated Regional Water Management (IRWM)	50%-75%
		Pre-Disaster Mitigation (PDM)	75% - 90%	Urban Flood Risk Reduction (UFRR)	50%-90%
SB5 Compliance - City of Patterson	Phase I -$105,000 Phase II - $100,000	Pre-Disaster Mitigation (PDM)	75% - 90%	Integrated Regional Water Management (IRWM)	50%-75%
				Urban Flood Risk Reduction (UFRR)	50%-90%
Sediment Management Investigation	$250,000			Integrated Regional Water Management (IRWM)	50%-75%
				Small Community Flood Risk Reduction (SCFRR)	50%-90%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%
Storm Drainage Enhancements along Salado Creek	$880,000	Pre-Disaster Mitigation (PDM)	75% - 90%	Integrated Regional Water Management (IRWM)	50%-75%
				Storm Water Flood Management Program	50% - 75%
				Urban Flood Risk Reduction (UFRR)	50%-90%
Three Amigos (also known as the Non-structural Alternative at the San Joaquin River National Wildlife Refuge)	$5,500,000	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	50%	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Required	Central Valley Flood System Conservation Framework and Strategy	50%-90%
		Emergency Watershed Protection Program – Floodplain Easement Option (EWP-FPE)	Not Required	Flood Corridor (FCP)	50%-90%
				Inland Wetlands Conservation Program	50%
				Integrated Regional Water Management (IRWM)	50%-75%
				Systemwide Flood Risk Reduction (SWFRR)	50%-90%
Tuolumne River Flood Management Feasibility Study	$3,000,000	USACE Funding	50%	Integrated Regional Water Management (IRWM)	50%-75%
Tuolumne River Regional Park – Carpenter Road/West Modesto Flood Management and Park Development	$750,000	Central Valley Project Improvement Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Land and Water Conservation Fund	50%	California River Parkways Program	50%-90%
		North American Wetlands Conservation Act (NAWCA)	50%	Habitat Conservation Fund (HCF) Program	50%
		Flood Mitigation Assistance (FMA)	75%-100%	Inland Wetlands Conservation Program	50%
				Integrated Regional Water Management (IRWM)	50%-75%

Project	Estimated Cost	Potential Funding Opportunities			
		Federal		State	
		Program Name	Cost Share	Program Name	Cost Share
Tuolumne River Regional Parkway	$60,000,000	Central Valley Project Improvement Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Land and Water Conservation Fund	50%	California River Parkways Program	50%-90%
		North American Wetlands Conservation Act (NAWCA)	50%	Habitat Conservation Fund (HCF) Program	50%
		Flood Mitigation Assistance (FMA)	75%-100%	Inland Wetlands Conservation Program	50%
				Urban Greening for Sustainable Communities - Planning	Not Req.
				Urban Greening for Sustainable Communities - Project	Not Req.
Westside Creeks On-Farm Multi-Benefit Program	$75,000	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	50%	California Riparian Habitat Conservation Program (CRCHP)	50%-90%
		Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.	Flood Corridor (FCP)	50%-90%
		Endangered Species Act Section 6 Grant Program	75% - 90%	Inland Wetlands Conservation Program	50%
		Environmental Quality Incentives Program (EQIP)	50%	Integrated Regional Water Management (IRWM)	50% - 75%
		North American Wetlands Conservation Act (NAWCA)	50%	Small Community Flood Risk Reduction (SCFRR)	50% - 90%
		Flood Mitigation Assistance (FMA)	75% - 100%		
		Pre-Disaster Mitigation (PDM)	75% - 90%		
WSID Fish Screen Project	$38,000,000	Anadromous Fish Restoration Program and Anadromous Fish Screen Program	50%	Flood Corridor (FCP)	50%-90%
		Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program	Not Req.		
		Endangered Species Act Section 6 Grant Program	75% - 90%		

Appendix IV Sources

The following sources were used in determining information on funding sources.

1. Agricultural Conservation Easement Program (ACEP)

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/easements/acep/?cid=stelprdb1242695

2. Anadromous Fish Restoration Program and Anadromous Fish Screen Program

   - https://www.cfda.gov/index?s=program&mode=form&tab=core&id=200daf76afcc578965460cdc9537b261

3. Central Valley Project Implementation Act (CVPIA) – Habitat Restoration Program and Conservation Program

   - http://www.usbr.gov/mp/cvpcp/
   - http://www.grants.gov/web/grants/view-opportunity.html?oppId=236611

4. Endangered Species Act Section 6 Grant Program

   - http://www.fws.gov/endangered/esa-library/pdf/FY%2014%20CESCF%20RFP%20Grant%20Announcement%20Standard%20Format.FINAL.pdf

5. Environmental Quality Incentives Program (EQIP)

   - http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/

6. Land and Water Conservation Fund

   - http://www.nps.gov/lwcf/
   - http://www.nps.gov/ncrc/programs/lwcf/grants.html
   - http://www.nps.gov/ncrc/programs/lwcf/manual/lwcf.pdf
   - http://www.parks.ca.gov/pages/1008/files/lwcf%20application%20guide_%20final%20draft%2010.10.2013.pdf

7. North American Wetlands Conservation Act (NAWCA)

   - http://www.fws.gov/birdhabitat/Grants/NAWCA/index.shtm

8. Flood Mitigation Assistance (FMA)

   - 2013 Flood Mitigation Assistance FOA

9. Pre-Disaster Mitigation (PDM)

   - 2013 Pre Disaster Mitigation FOA

10. USACE Funding

- http://www.gpo.gov/fdsys/pkg/PLAW-106publ53/pdf/PLAW-106publ53.pdf
- http://www.epw.senate.gov/wrda86.pdf

11. Emergency Watershed Protection Program – Floodplain Easement Option (EWP-FPE)

- http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/ewp/?cid=nrcs143_008225

12. California Riparian Habitat Conservation Program (CRCHP)

- http://rlch.org/funding/california-riparian-habitat-conservation-program
- http://www.privatelandownernetwork.org/yellowpages/resource.aspx?id=14402
- https://www.wcb.ca.gov/Programs/Riparian.aspx

13. California River Parkways Program

- http://bondaccountability.resources.ca.gov/plevel1.aspx?id=22&pid=4
- http://resources.ca.gov/bonds_prop50riverparkway.html
- http://resources.ca.gov/bonds_docs/P50_Grant_Guidelines_FINAL.pdf

14. Central Valley Flood System Conservation Framework and Strategy

http://www.water.ca.gov/floodsafe/fessro/docs/flood11_guidelines.pdf

15. Flood Corridor Program (FCP)

- http://www.water.ca.gov/floodmgmt/fpo/sgb/fpcp/docs/Final_Flood_Corridor_Guidelines.pdf
- http://www.water.ca.gov/floodmgmt/fpo/sgb/fpcp/funding_cycle.cfm
- FloodSAFE Implementation Programs (January 2014) Draft Table

16. Habitat Conservation Fund (HCF) Program

- http://www.parks.ca.gov/?page_id=21361
- HCF fact sheet 3.13.13

17. Inland Wetlands Conservation Program

- http://ceres.ca.gov/wetlands/introduction/inland_easement.html
- http://rlch.org/funding/california-inland-wetlands-conservation-program

18. Urban Greening for Sustainable Communities - Planning

- http://resources.ca.gov/grant_programs.html#
- http://resources.ca.gov/bond/Urban_Greening_PLANNING_Guidelines_October_2012.pdf

19. Urban Greening for Sustainable Communities – Project

    - http://resources.ca.gov/bond/Urban_Greening_PROJECT_Guidelines_October_2012.pdf

20. Urban Streams Restoration Program

    - http://www.water.ca.gov/urbanstreams/docs/guidelines.pdf

21. Flood System Repair Project (FSRP)

    - FloodSAFE Implementation Programs (January 2014) Draft Table
    - http://www.water.ca.gov/floodmgmt/fmo/docs/FSRP-Draft-Guidelines-0221.2013.pdf

22. Integrated Regional Water Management (IRWMP)

23. Local Levee Assistance Program (LLAP)

    - http://www.water.ca.gov/floodmgmt/docs/LLAP_Guidelines_2011_new.pdf
    - http://bondaccountability.resources.ca.gov/plevel1.aspx?id=114&pid=4
    - http://www.water.ca.gov/floodsafe/docs/local-levee-guidelines.pdf
    - http://www.floodplain.org/files/LLAPProgramOverviewPresentation_2011_Sacramento_Luncheon.pdf

24. Small Community Flood Risk Reduction (SCFRR)

    - FloodSAFE Implementation Programs (January 2014) Draft Table
    - http://resources.ca.gov/bond/Agency_Grants_and_Loans_June_2013xlsx.pdf

25. Storm Water Flood Management Program

    - http://www.water.ca.gov/IRMWP/grants/docs/Guidelines/P84_IRMWP_GL_Drought2014_PublicReviewDraft.pdf

26. Systemwide Flood Risk Reduction (SWFRR)

    - FloodSAFE Implementation Programs (January 2014) Draft Table
    - http://bondaccountability.resources.ca.gov/plevel1.aspx?id=124&pid=5

27. Urban Flood Risk Reduction (UFRR)

    - http://bondaccountability.resources.ca.gov/plevel1.aspx?id=99&pid=5

28. Flood Emergency Response – Forecast- Coordinate Operations (F-CO)

    - FloodSAFE Implementation Programs (January 2014) Draft Table
    - http://www.water.ca.gov/floodsafe/docs/FCO_Program_Grant_Guidelines.pdf

29. Flood Emergency Response Statewide Emergency Response Grants

- FloodSAFE Implementation Programs (January 2014) Draft Table
- http://www.water.ca.gov/floodmgmt/hafoo/fob/floodER//122112_statewide_flood_er_guidelines_final.pdf

30. Watershed and Environmental Improvement Program

- http://www.sfwater.org/modules/showdocument.aspx?documentid=4628