

9. Levee Maintaining Agency Projects

9.1. Overview

This chapter summarizes the known deficiencies identified for each local levee maintaining agency (LMA) within the Regions. Note that although the focus of the 2012 CVFPP and DWR's BWFS is State Plan of Flood Control (SPFC) facilities, the non-SPFC facilities operated and maintained by Rock Creek Reclamation District, Reclamation District 2140, and the Colusa Basin Drainage District play an important role in the Regions' flood control system, and therefore their projects have also been included in this chapter. The potential projects to be described in this chapter will be assessed and prioritized in coordination with stakeholders as described later in this document.

The deficiencies included in the RFMP have been developed from existing information including:

- Locally provided information and studies;
- DWR and USACE Levee Inspection Reports;
- DWR Flood System Repair Project Information; and
- DWR NULE and ULE Information.

This chapter contains a number of tables detailing known levee deficiencies. Some of the deficiencies identified may have already been corrected by the LMA after the DWR and USACE levee inspection reports were published. The acronyms and abbreviations contained in the tables are explained below:

Hazard Level A. When water reaches the assessment water surface elevation, 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, there is a moderate likelihood of either levee failure or the need to flood-fight to prevent levee failure.

Hazard Level C. When water reaches the assessment water surface elevation, there is a high likelihood of either levee failure or the need to flood-fight to prevent levee failure.

A – Acceptable. All inspection items are rated as acceptable.

M – Minimally Acceptable. One or more inspection items are rated as Minimally Acceptable or one or more items are rated as Unacceptable and an engineering determination concludes that the Unacceptable inspection items would not prevent the segment/system from performing as intended during the next flood event.

U – Unacceptable. One or more inspection items are rated as Unacceptable and would prevent the segment/system from performing as intended, or a serious deficiency noted in past inspections (previous Unacceptable items in a Minimally Acceptable overall rating) has not been corrected within the established timeframe, not to exceed two years.

LD - Lacking Sufficient Data. The levee segment is currently lacking sufficient data about past performance or hazard indicators to be able to assign a hazard level, or there is poor correlation between past performance and hazard indicators. Category LD may be further divided into subcategories, like LD(A) or LD(B or C), to indicate how the segment could be assessed when additional data is gathered and analyzed.

NA - Not Assessed

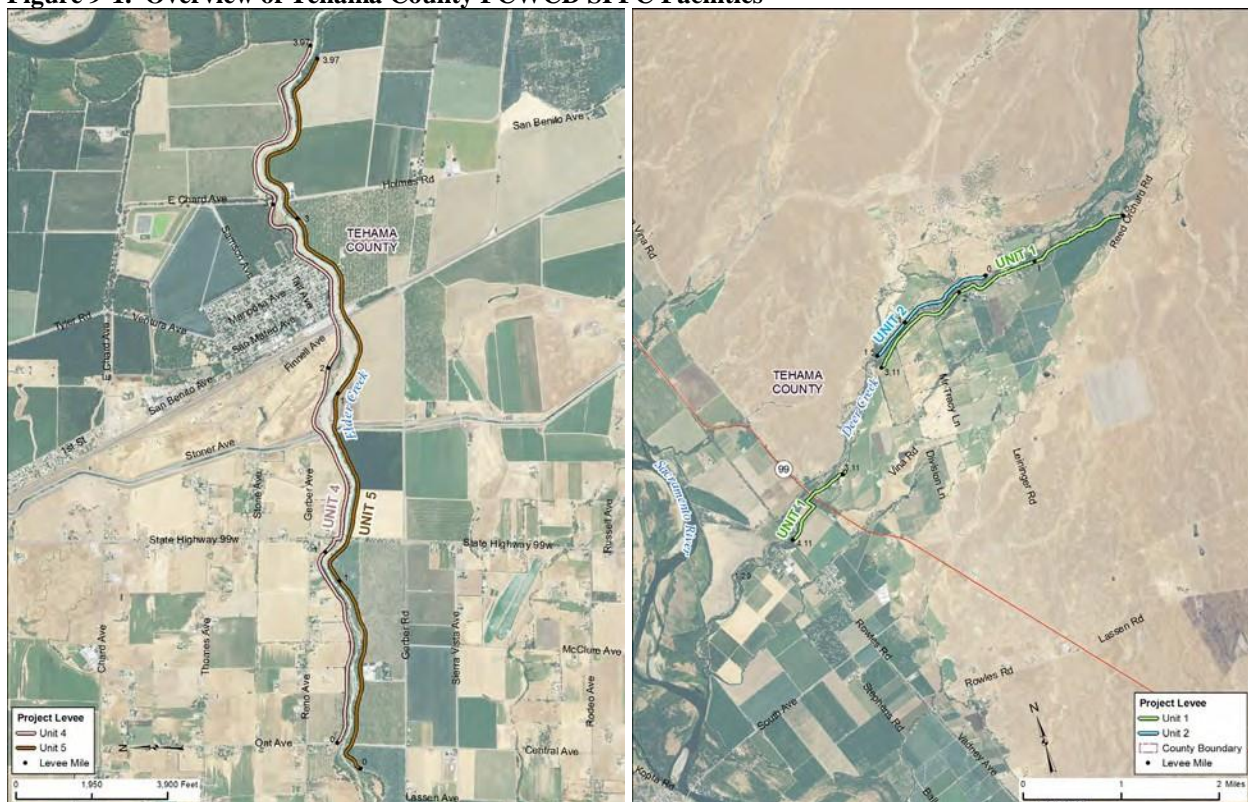
Assessment Water Level - Water level used for freeboard and structural evaluation of levee segments. It is either the 1957 water surface profile or a level 3 feet below the existing crest if 1957 water surface profile is not defined for the segment.

Note that in addition to the geotechnical failure modes, freeboard and geometry deficiencies were also assessed as either meeting or not meeting applicable criteria, but no hazard level category was assigned.

9.2. Tehama County Flood Control and Water Conservation District

Tehama County Flood Control & Water Conservation District (FCWCD) was originally established in 1957 by the Tehama County Flood Control and Water Conservation District Act. This Act defined the boundary and territory of the District as follows: "all that territory of the County of Tehama lying within the exterior boundaries thereof." In the context of this RFMP, Tehama County FCWCD is responsible for the maintenance of approximately 13.6 miles of SPFC levees along Deer Creek and Elder Creek. The Deer Creek levees primarily protect rural agricultural lands in addition to the rural area of Vina. Elder Creek levees protect the small community of Gerber in addition to rural agricultural areas.

Figure 9-1. Overview of Tehama County FCWCD SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve 'Active' status in the USACE RIP and regain PL84-99 compliance for Elder Creek levees.
- Remove excess vegetation that significantly impacts access, visibility and channel conveyance.

The following tables summarize the existing known levee deficiencies.

Table 9-1. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
NA0019	Tehama County Flood Control and Water Conservation District	U	M	M	A	M	M	M

Table 9-2. Summary of Tehama County FCWCD Levee Units

Unit	Bank	Length (Miles)
Unit No. 01	Deer Creek LB	4.11
Unit No. 02	Deer Creek RB	1.50
Unit No. 04	Elder Creek LB	4.07
Unit No. 05	Elder Creek RB	3.96

Table 9-3. DWR Levee Inspection Summary for Tehama County FCWCD

NA0019	Total LMA Miles	13.64											
	Fall 2012				Fall 2013				Change				
	Overall LMA Rating		M		Overall LMA Rating		M						
			M+4U	Thresh.			M+4U	Thresh.			M+4U	Thresh.	
Rated Item	M	U	Miles	%	M	U	Miles	%	M	U	Miles	%	
<i>Earthen Levee</i>													
Vegetation	1.40		1.40	10.26	1.40		1.40	10.26					0.00
Encroachments	0.09		0.09	0.66	0.08		0.08	0.59	-0.01		-0.01		-0.07
Animal Control	0.03		0.03	0.22	0.07		0.07	0.51	0.04		0.04		0.29
Slope Stability	0.31		0.31	2.27	0.33		0.33	2.42	0.02		0.02		0.15
Erosion / Bank Caving	0.01		0.01	0.07	0.04		0.04	0.29	0.03		0.03		0.22
<i>Supplemental</i>													
USACE Erosion Survey	0.16		0.16	1.17	0.16		0.16	1.17					0.00
LMA Totals:	2.00	0.00	2.00	14.66	2.08	0.00	2.08	15.25	0.08	0.00	0.08		0.59

Table 9-4. DWR Channel Inspection Summary for Tehama County FCWCD

Channel Name	Overall Rating
McClure Creek	A
Salt Creek	A

Table 9-5. USACE 2012 Sacramento River Erosion Summary for Tehama County FCWCD

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
Unit No. 1 Deer Creek LB: DEC_2-4_L	0.00	2.98	3.00	eroding	M
Unit No. 2 Deer Creek RB: DEC_0-9_R	0.00	0.86	0.91	eroding	M
Unit No. 4 Elder Creek LB: ELC_1-4_L	0.00	1.44	1.51	eroding	M
Unit No. 5 Elder Creek RB: ELC_3-0_R	0.00	3.08	3.10	eroding	M

Table 9-6. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
Deer Creek left bank, Unit 1 east - Tehama County	3.09	Active	N/A	N/A

Deer Creek left bank, Unit 1 west - Tehama County	1.14	Active	N/A	N/A
Deer Creek right bank, Unit 2 - Tehama County	1.45	Active	N/A	N/A
Elder Creek left bank, Unit 4 - Gerber levee	4.64	Inactive	09/30/2012	U
Elder Creek left bank, Unit 4 east	0.83	Inactive	09/30/2012	U
Elder Creek right bank, Unit 5	3.86	Inactive	09/30/2012	U

Table 9-7. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
Unit N/A: Obsrv-131070	Serious	Erosion			Right
Unit N/A: 24-4	Serious	Stability	000+10 to SRGL-R		Right
Unit No. 1 Deer Creek: DWR_NA0019_01_s_2012_1	Serious	Erosion	2.98	3.00	Left
Unit No. 1 Deer Creek: 56-3	Serious	Erosion	3.64	3.66	Left
Unit No. 4 Elder Creek: DWR_NA0019_04_s_2012_9	Critical	Erosion	1.38	1.51	Left
Unit No. 5 Elder Creek: 59-10	Serious	Other	2.35		Right
Unit No. 5 Elder Creek: DWR_NA0019_05_R_2012_03	Critical	Other	2.56		Right
Unit No. 5 Elder Creek: 59-9	Serious	Other	2.65		Right

Table 9-8. Summary of NULE Results for Tehama County FCWCD

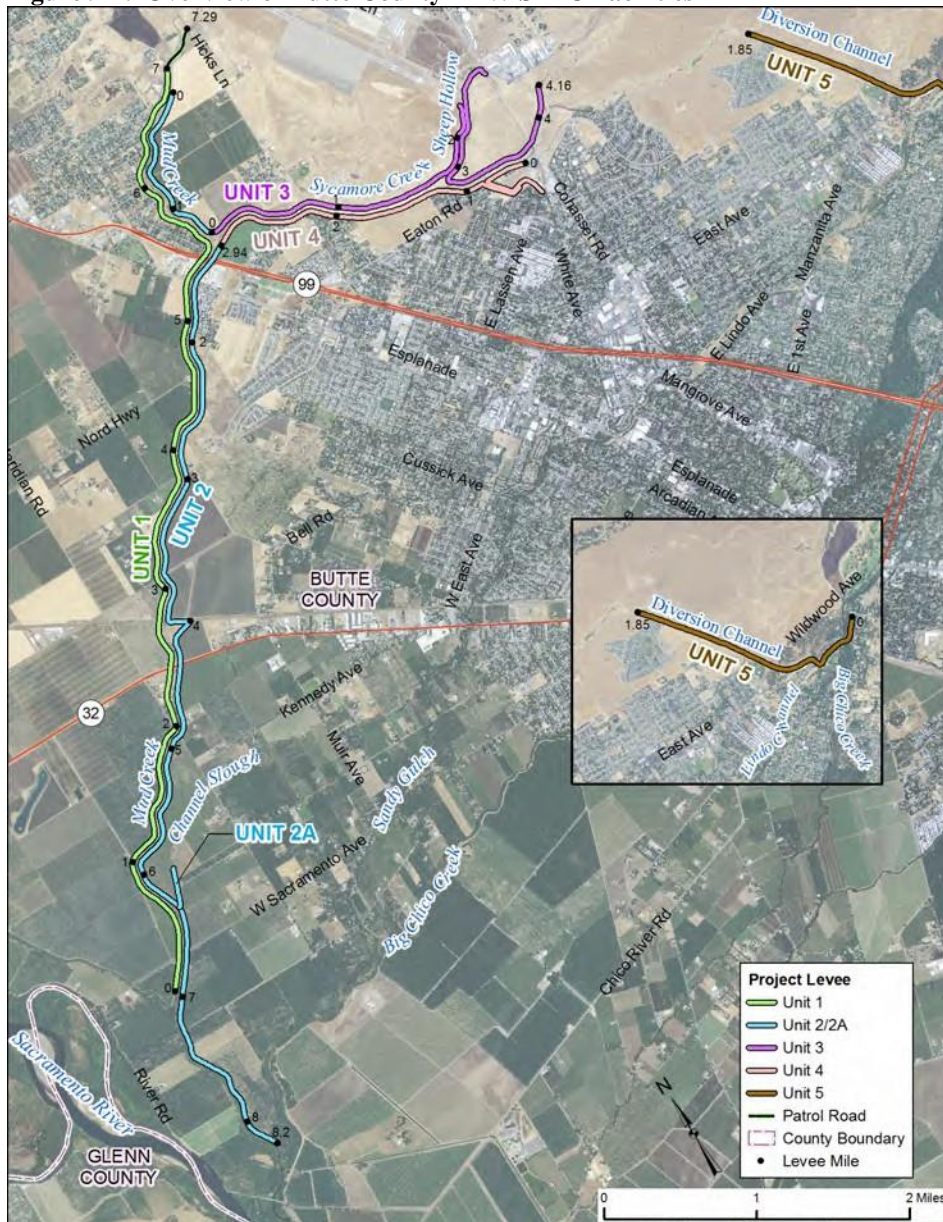
Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
24	Gerber Levee	C	B	A	C	B	Not Assessed
54	Deer Creek Unit 1b	C	LD	A	LD	C	Not Assessed
55	Deer Creek Unit 2	C	LD	A	A	C	Not Assessed
56	Deer Creek Unit 1a	C	A	A	A	C	Not Assessed
57	Elder Creek Unit 4a - Tehama County	B	LD	A	A	B	No
58	Elder Creek Unit 4b - Tehama County	B	LD	A	LD	B	No
59	Elder Creek Unit 5 - Tehama County	B	LD	A	LD	B	No

See Appendix E for a summary of the identified flood control improvement projects.

9.3. Butte County Department of Public Works

In the context of this RFMP, the Butte County Department of Public Works Department (DPW) maintains approximately 24.7 miles of SPFC levees along Mud Creek, Sycamore Creek, Sheep Hollow Creek, Dry Creek, and Big Chico Creek Diversion Channel. These levees protect the City of Chico and neighboring rural agricultural area.

Figure 9-2. Overview of Butte County DPW SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve 'Active' status in the USACE RIP and regain PL84-99 compliance for the Big Chico Creek-Mud Creek levee system.
- Repair identified erosion sites.

The following tables summarize the existing known levee deficiencies.

Table 9-9. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
NA0003	Butte County Department of Public Works	A	A	A	A	A	A	A

Table 9-10. Summary of Butte County Department of Public Works Levee Units

Unit	Bank	Length (Miles)
Unit No. 01 Mud Creek	RB	7.29
Unit No. 02 Mud Creek	LB	8.20
Unit No. 02A Channel Slough	LB	0.30
Unit No. 03 Sycamore and Sheep Hollow Creeks	RB	4.13
Unit No. 04 Sycamore and Dry Creeks	RB	2.94
Unit No. 05 Big Chico Diversion	LB	1.85

Table 9-11. DWR Levee Inspection Summary for Butte County Department of Public Works

NA0003	Total LMA		24.71									
	Fall 2012				Fall 2013				Change			
	Overall LMA		A		Overall LMA		A					
Rated Item			M+4U	Thresh.			M+4U	Thresh.			M+4U	Thresh.
	M	U	Miles	%	M	U	Miles	%	M	U	Miles	%
Earthen Levee												
Vegetation					0.08		0.08	0.32	0.08		0.08	0.32
Encroachments	0.05		0.05	0.20	0.05		0.05	0.20	0.08			0.00
Animal Control					0.01		0.01	0.04	0.01		0.01	0.04
Slope Stability	0.01		0.01	0.04	0.01		0.01	0.04				0.00
Supplemental												
USACE	0.05		0.05	0.20	0.05		0.05	0.20				0.00
LMA Totals:	0.11	0.00	0.11	0.45	0.20	0.00	0.20	0.81	0.09	0.00	0.09	0.36

Table 9-12. DWR Channel Inspection Summary for Butte County Department of Public Works

Channel Name	Overall Rating
No Channels Inspected in this District	

Table 9-13. USACE 2012 Sacramento River Erosion Summary for Butte County Department of Public Works

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
MUD_4-4_R	0.00	4.32	4.37	eroding	M

Table 9-14. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
Chico Creek-Mud Creek - Unit 1	6.80	Inactive	09/30/2012	U
Chico Creek-Mud Creek - Unit 3 east, Sycamore right	1.87	Inactive	09/30/2012	U
Chico Creek-Mud Creek - Unit 4 east, Sycamore left	0.71	Inactive	09/30/2012	U
Chico Creek-Mud Creek - Unit 5, diversion levee	1.80	Inactive	09/30/2012	U
Chico Creek-Mud Creek - Units 2 north and 3	3.35	Inactive	09/30/2012	U
Chico Creek-Mud Creek - Units 2 south and 4	9.23	Inactive	09/30/2012	U

Table 9-15. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
USACE_CESPK_CM2A_2010_p_0075	Serious	Stability	5.73	6.05	Left

Table 9-16. Summary of NULE Results for Butte County Department of Public Works

Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
45 Reach 1	Chico-Mud Unit 1a	B	A	A	A	B	Yes
45 Reach 2	Chico-Mud Unit 1a	LD (A or B)	LD	A	LD	A	Not Assessed
47	Chico-Mud Unit 3a	LD (A or B)	LD	A	A	A	No
48 Reach 1	Chico-Mud Unit 3c	LD (A or B)	LD	A	A	A	Not Assessed
48 Reach 2	Chico-Mud Unit 3c	B	LD	A	A	B	No
269	Chico-Mud Unit 2a	LD (A or B)	LD	A	A	A	Not Assessed
379	Chico-Mud Unit 2b	A	A	A	A	A	No
1008	Non-Project Levee	B	A	A	A	B	Not Assessed
1010	Non-Project Levee	LD	LD	A	A	A	Not Assessed
1011	Non-Project Levee	B	A	A	A	B	Not Assessed
1014	Non-Project Levee	B	A	A	A	B	Not Assessed

See Appendix E for a summary of the identified flood control improvement projects.

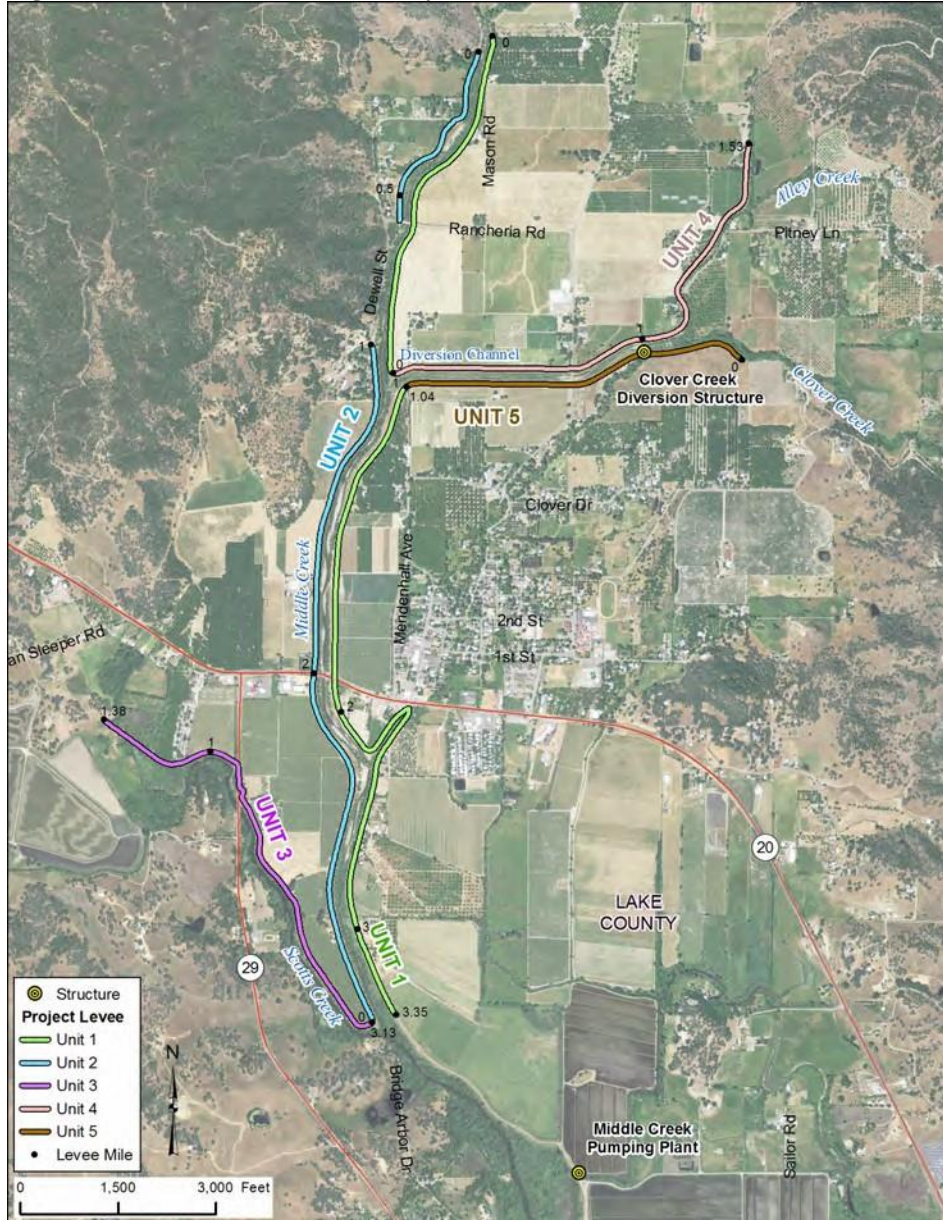
9.4. Lake County Watershed Protection District

The Lake County Watershed Protection District (WPD), was originally created as the Lake County Flood Control and Water Conservation District as a political subdivision of the State of California established under the Lake County Flood Control and Water Conservation Act, of the State Water Code in 1951. The District is administered by the Lake County Director of Water Resources who reports to the County Board of Supervisors, which acts as its Board of Directors.

The Watershed Protection District administers the National Flood Insurance Program for Lake County; plans and implements flood control projects including preliminary engineering and contract administration for Master Plans of Drainage, aerial photography, groundwater management planning, watershed management planning and development of grant proposals. The District is responsible for maintaining 10.5 miles of levees along Middle Creek, Scotts Creek, Alley Creek, Clover Creek, and the Clover Creek Diversion Channel. The District maintains 13.4 miles of creeks in four zones of benefit and a groundwater detention structure on Kelsey Creek. The District also operates and maintains the Adobe Creek Reservoir, the Highland Creek Reservoir, and the Highland Springs Park.

In the context of this RFMP, Lake County WPD maintains approximately 10.5 miles of SPFC levees as described above. This levee system protects the small community of Upper Lake, along with the neighboring rural agricultural areas.

Figure 9-3. Overview of Lake County WPD SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve ‘Active’ status in the USACE RIP and regain PL84-99 compliance for the Middle Creek levee system.
- Continue with implementation of the Middle Creek Flood Relief and Restoration Project

The following tables summarize the existing known levee deficiencies.

Table 9-17. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
NA0009	Lake County Watershed Protection District	M	A	A	A	A	A	A

Table 9-18. Summary of Lake County Watershed Protection District Levee Units

Unit	Bank	Length (Miles)
Unit No. 01 Middle Creek	LB	3.42
Unit No. 02 Middle Creek	RB	3.13
Unit No. 03 Scotts Creek	LB	1.35
Unit No. 04 Poge, Alley, and Clover Creek Diversion	RB	1.53
Unit No. 05 Clover Creek and Clover Creek Diversion	LB	1.04

Table 9-19. DWR Levee Inspection Summary for Lake County Watershed Protection District

NA0009	Total LMA		10.47									
	Fall 2012				Fall 2013				Change			
	Overall LMA		A		Overall LMA		A					
Rated Item			M+4U	Thresh.			M+4U	Thresh.			M+4U	Thresh.
	M	U	Miles	%	M	U	Miles	%	M	U	Miles	%
Earthen Levee												
Vegetation	0.27		0.27	2.58	0.22		0.22	2.10	-0.05		-0.05	-0.48
Trim / Thin	0.13		0.13	1.24	0.34		0.34	3.25	0.21		0.21	2.01
Encroachments	0.01		0.01	0.10	0.01		0.01	0.10				0.00
Slope Stability	0.01		0.01	0.10	0.05		0.05	0.48	0.04		0.04	0.38
LMA Totals:	0.42	0.00	0.42	4.01	0.62	0.00	0.62	5.92	0.20	0.00	0.20	1.91

Table 9-20. DWR Channel Inspection Summary for Lake County Watershed Protection District

Channel Name	Overall Rating
No Channels Inspected in this District	N/A

Table 9-21. USACE 2012 Sacramento River Erosion Summary for Lake County Watershed Protection District

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
No Supplemental Erosion Sites	N/A	N/A	N/A	N/A	N/A

Table 9-22. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
Middle Creek left bank - Unit 1 north	2.56	Inactive	03/05/2013	U
Middle Creek left bank - Unit 5 and part of 1	2.34	Inactive	03/05/2013	U
Middle Creek right bank - Unit 2	3.44	Inactive	03/05/2013	U
Middle Creek right bank - Unit 2 north	0.58	Active	03/07/2013	M

Table 9-23. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
No POI Repair Sites	N/A	N/A	N/A	N/A	N/A

Table 9-24. Summary of NULE Results for Lake County Watershed Protection District

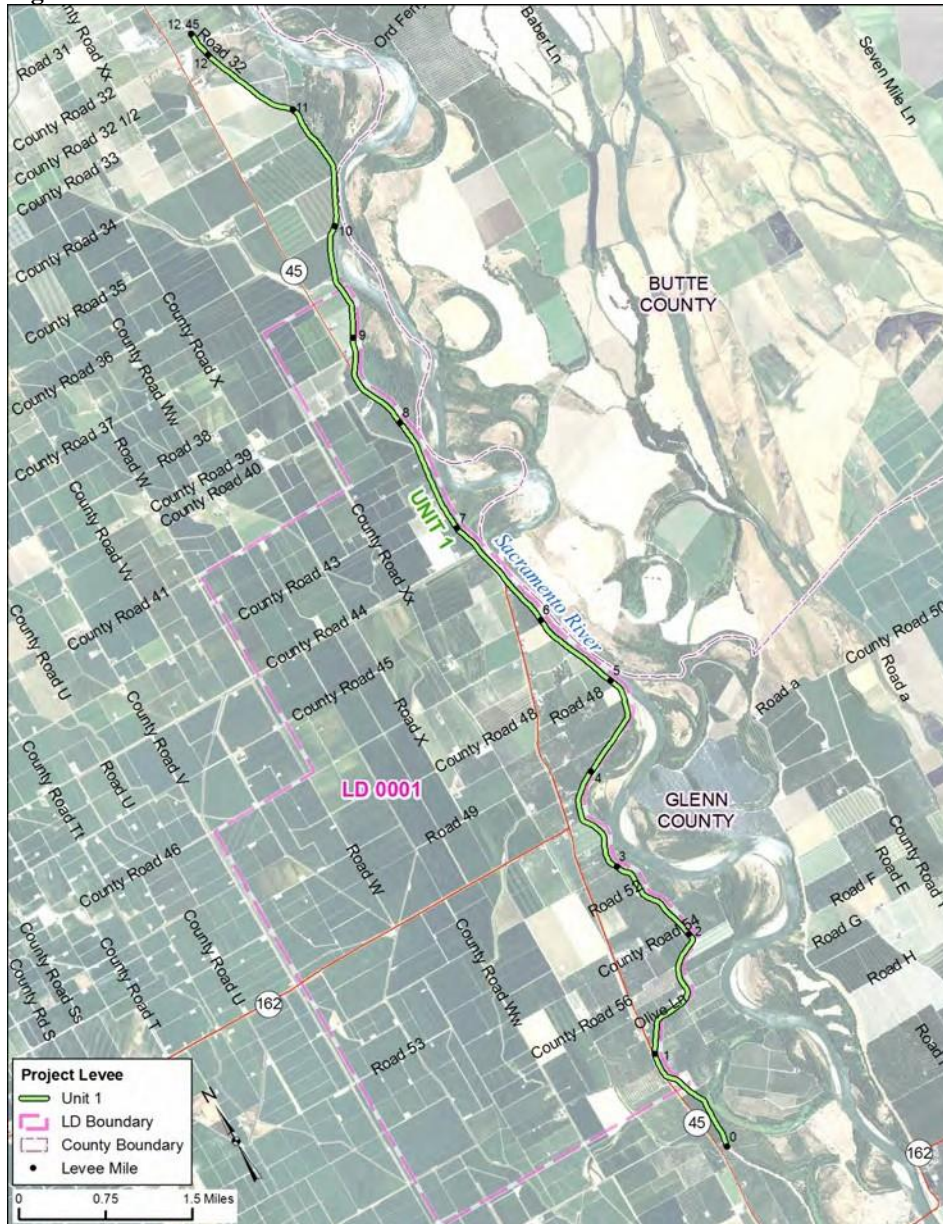
Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
77	Middle Creek - Unit 2a	A	A	A	A	A	No
78	Middle Creek - Unit 1a	B	A	A	LD	B	No
79	Middle Creek - Unit 1b	LD (A or B)	LD	A	LD	A	No
80	Middle Creek - Unit 3 - Scotts Creek	LD (A or B)	LD	LD	LD	A	No
81 Reach 1	Middle Creek - Unit 1e	C	LD	LD	A	A	No
81 Reach 2	Middle Creek - Unit 1e	B	B	B	C	C	No
237	Middle Creek - Unit 4 Alley Creek-Channel	LD (A, B or C)	LD	A	LD	A	No
267	Middle Creek - Unit 5 Alley Creek-Channel	LD (A, B or C)	LD	A	LD	A	No
268	Middle Creek - Unit 3b Scotts Creek	LD (A or B)	LD	A	LD	A	No

See Appendix E for a summary of the identified flood control improvement projects.

9.5. Levee District 1 (Glenn)

Levee District 1 (LD1) maintains 12.45 miles of SPFC levee along the right bank of the Sacramento River.

Figure 9-4. Overview of LD 1 SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve 'Active' status in the USACE RIP and regain PL84-99 compliance for the Sacramento River West Bank levee system.

The following tables summarize the existing known levee deficiencies.

Table 9-25. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
LD0001G	Levee District No. 0001G (Glenn County)	U	M	M	U	M	A	A

Table 9-26. Summary of Levee District 1 (Glenn) Levee Units

Unit	Bank	Length (Miles)
Unit No. 1, Sacramento River	RB	12.45

Table 9-27. DWR Levee Inspection Summary for Levee District 1 (Glenn)

LD0001G	Total LMA		12.45									
	Fall 2012				Fall 2013				Change			
	Overall LMA		A		Overall LMA		A					
Rated Item			M+4U	Thresh.			M+4U	Thresh.			M+4U	Thresh.
	M	U	Miles	%	M	U	Miles	%	M	U	Miles	%
Earthen Levee												
Vegetation	0.06		0.06	0.48	0.06		0.06	0.48				0.00
Trim / Thin	0.11		0.11	0.88	0.11		0.11	0.88				0.00
Encroachments	0.05		0.05	0.40	0.04		0.04	0.32	-0.01		-0.01	-0.08
Animal Control	0.23		0.23	1.85	0.15		0.15	1.21	-0.08		-0.08	-0.64
Slope Stability					0.01		0.01	0.08	0.01		0.01	0.08
Supplemental												
DWR UCIP												0.00
LMA Totals:	0.45	0.00	0.45	3.61	0.37	0.00	0.37	2.97	-0.08	0.00	-0.08	-0.64

Table 9-28. DWR Channel Inspection Summary for Levee District 1 (Glenn)

Channel Name	Overall Rating
No Channels Inspected in this District	N/A

Table 9-29. USACE 2012 Sacramento River Erosion Summary for Levee District 1 (Glenn)

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
No Supplemental Erosion Sites.	N/A	N/A	N/A	N/A	N/A

Table 9-30. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
Sacramento River West Bank	119.72	Inactive	04/03/2013	U

Table 9-31. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
No POI Repair Sites	N/A	N/A	N/A	N/A	N/A

Table 9-32. Summary of NULE Results for Levee District 1 (Glenn)

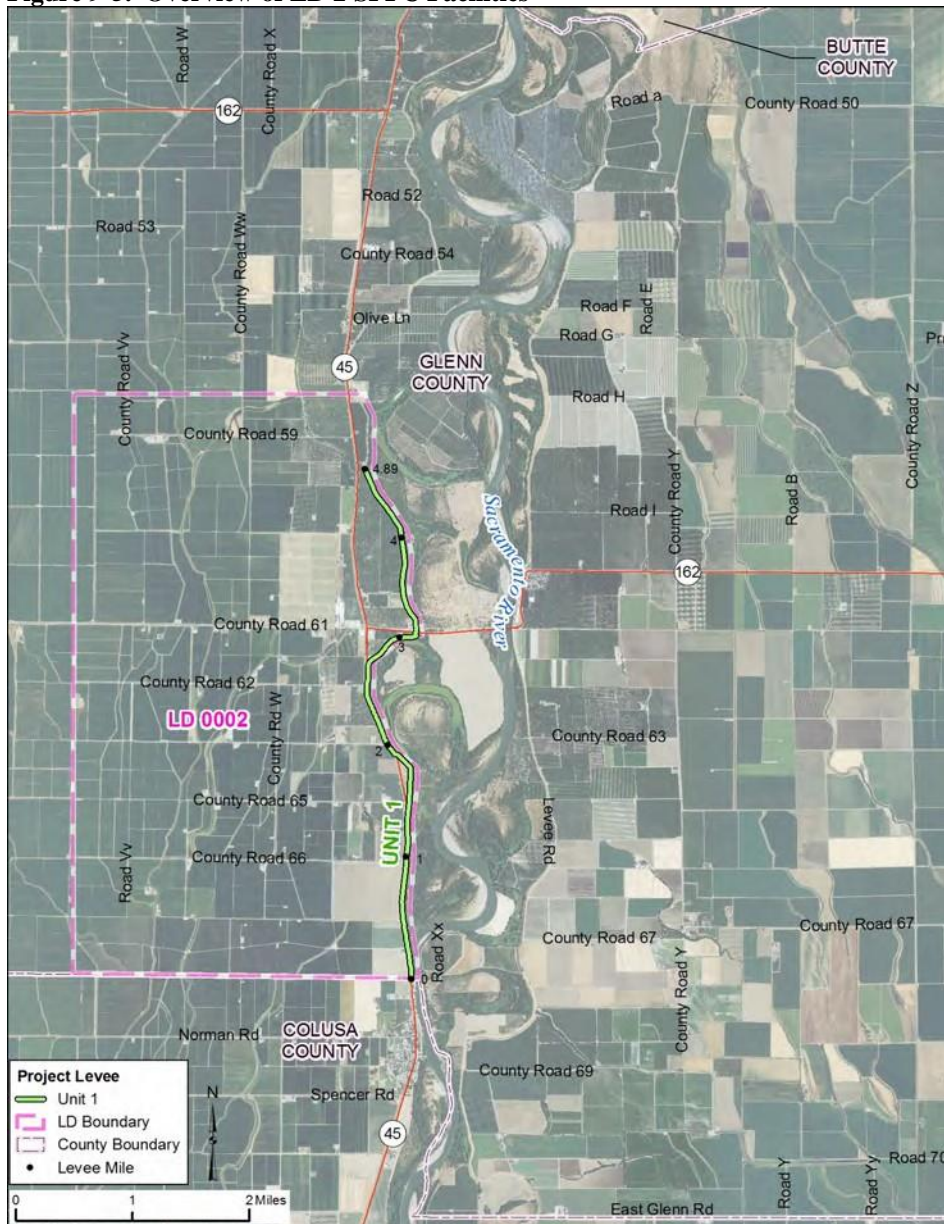
Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
65	Levee District 1- Glenn, Sacramento River	B	B	A	LD	B	Yes

See Appendix E for a summary of the identified flood control improvement projects.

9.6. Levee District 2 (Glenn County)

Levee District 2 (LD 2) maintains 4.9 miles of SPFC levee along the right bank of the Sacramento River.

Figure 9-5. Overview of LD 2 SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve ‘Active’ status in the USACE RIP and regain PL84-99 compliance for the Sacramento River West Bank levee system.

The following tables summarize the existing known levee deficiencies.

Table 9-33. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
LD0002	Levee District No. 0002	A	A	A	A	A	A	A

Table 9-34. Summary of Levee District 2 (Glenn County) Levee Units

Unit	Bank	Length (Miles)
Unit No. 1, Glenn County Sacramento River	RB	4.89

Table 9-35. DWR Levee Inspection Summary for Levee District 2 (Glenn County)

LD0002	Total LMA		4.89									
	Fall 2012				Fall 2013				Change			
	Overall LMA		A		Overall LMA		A					
			M+4U	Thresh.			M+4U	Thresh.			M+4U	Thresh.
Rated Item	M	U	Miles	%	M	U	Miles	%	M	U	Miles	%
Earthen Levee												
Animal Control	0.25		0.25	5.11	0.32		0.32	6.54	0.07		0.07	1.43
Slope Stability	0.01		0.01	0.20					-0.01		-0.01	-0.20
Supplemental												
USACE	0.01		0.01	0.20	0.01		0.01	0.20				0.00
DWR UCIP												0.00
LMA Totals:	0.27	0.00	0.27	5.52	0.33	0.00	0.33	6.75	0.06	0.00	0.06	1.23

Table 9-36. DWR Channel Inspection Summary for Levee District 2 (Glenn County)

Channel Name	Overall Rating
No Channels Inspected in this District	N/A

Table 9-37. USACE 2012 Sacramento River Erosion Summary for Levee District 2 (Glenn County)

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
SAC_164-7_R	164.70	0.08	0.08	eroding	M

Table 9-38. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
Sacramento River West Bank	119.72	Inactive	04/03/2013	U

Table 9-39. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
DWR_LD0002_01_s _ 2012_6	Serious	Erosion	0.02	0.02	Right

Table 9-40. Summary of NULE Results for Levee District 2 (Glenn County)

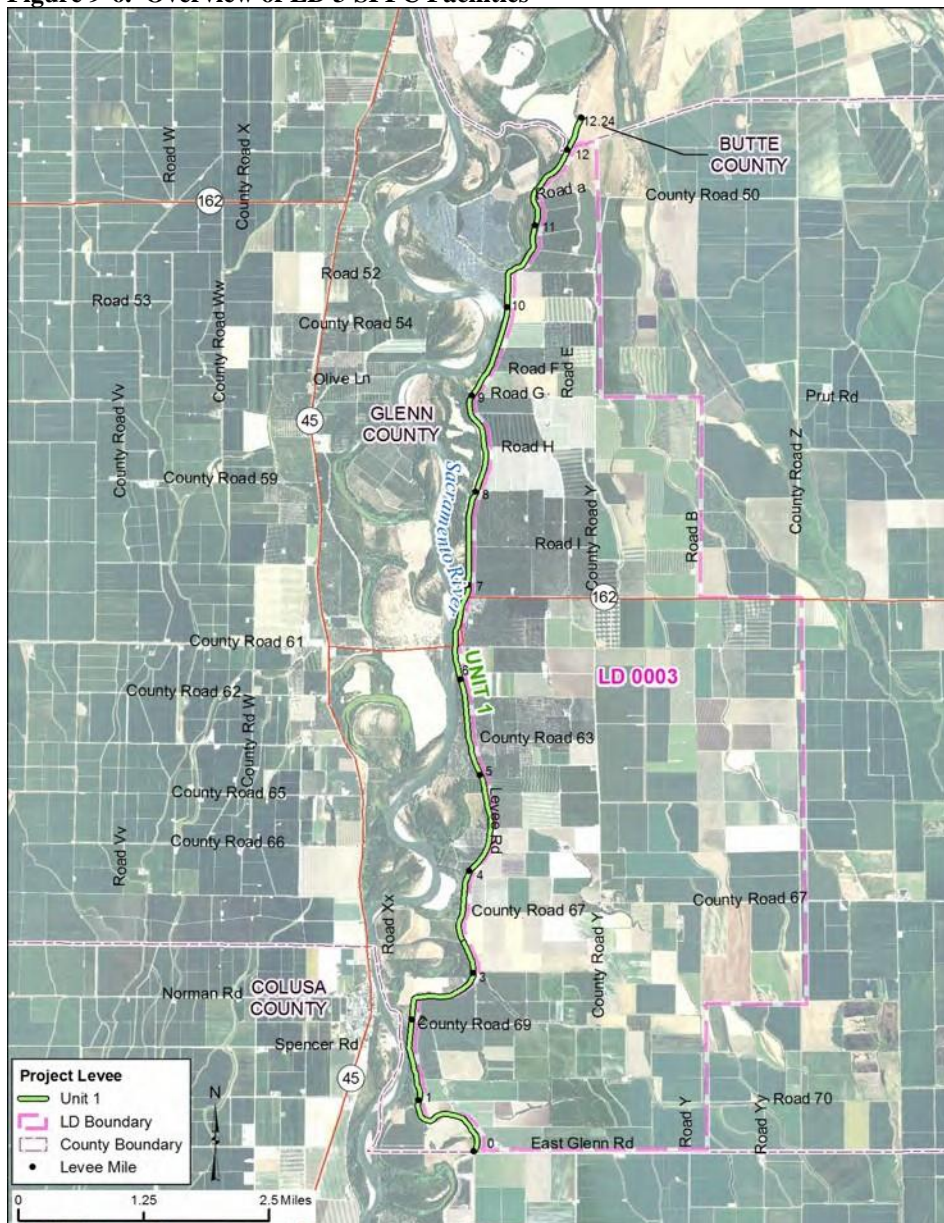
Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
67	Levee District 2- Glenn, Sacramento River	B	B	A	LD	A	Yes

See Appendix E for a summary of the identified flood control improvement projects.

9.7. Levee District 3 (Glenn County)

Levee District 3 (LD 3) maintains 12.25 miles of SPFC levee along the left bank of the Sacramento River.

Figure 9-6. Overview of LD 3 SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve 'Active' status in the USACE RIP and regain PL84-99 compliance for the Sacramento River East levee system.
- Addressing critical erosion sites.
- Enhancing rodent control activity.

The following tables summarize the existing known levee deficiencies.

Table 9-41. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
LD0003	Levee District No. 0003	A	A	A	U	U	M	U

Table 9-42. Summary of Levee District 3 (Glenn County) Levee Units

Unit	Bank	Length (Miles)
Unit No. 1, Glenn County Sacramento River	LB	12.24

Table 9-43. DWR Levee Inspection Summary for Levee District 3 (Glenn County)

LD0003	Section Summary for Project Number 12-0003 (Grand County)											
	Total LMA		12.24									
	Fall 2012				Fall 2013				Change			
	Overall LMA		M		Overall LMA		U					
Rated Item			M+4U	Thresh.			M+4U	Thresh.			M+4U	Thresh.
	M	U	Miles	%	M	U	Miles	%	M	U	Miles	%
Earthen Levee												
Vegetation					0.01		0.01	0.08	0.01		0.01	0.08
Trim / Thin	0.19		0.19	1.55	0.19		0.19	1.55	0.00			0.00
Encroachments	0.20		0.20	1.63	0.21		0.21	1.72	0.01		0.01	0.08
Animal Control	1.79		1.79	14.62	1.94		1.94	15.85	0.15		0.15	1.23
Slope Stability	0.06		0.06	0.49	0.07		0.07	0.57	0.01		0.01	0.08
Supplemental												
USACE	0.03		0.03	0.25	0.03		0.03	0.25				0.00
DWR UCIP												0.00
LMA Totals:	2.27	0.00	2.27	18.55	2.45	0.00	2.45	20.02	0.18	0.00	0.18	1.47

Table 9-44. DWR Channel Inspection Summary for Levee District 3 (Glenn County)

Channel Name	Overall Rating
No Channels Inspected in this District	

Table 9-45. USACE 2012 Sacramento River Erosion Summary for Levee District 3 (Glenn County)

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
SAC_163-0_L	163.00	1.35	1.35	eroding	M
SAC_168-3_L	168.30	5.96	5.96	eroding	M
SAC_172-0_L	172.00	9.60	9.60	eroding	M

Table 9-46. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
Sacramento River East Levee - LD 3 Glenn County	38.36	Inactive	05/08/2013	U

Table 9-47. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
68-12	Serious	Erosion	11.25	11.25	Left
DWR_LD0003_01_s _ 2012_52	Critical	Erosion	9.60	9.87	Left
DWR_LD0003_01_s _ 2012_40	Critical	Erosion	9.88	9.88	Left

Table 9-48. Summary of NULE Results for Levee District 3 (Glenn County)

Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
68	Levee District 3- Glenn, Sacramento River (Glenn Co)	B	B	A	LD	B	Yes

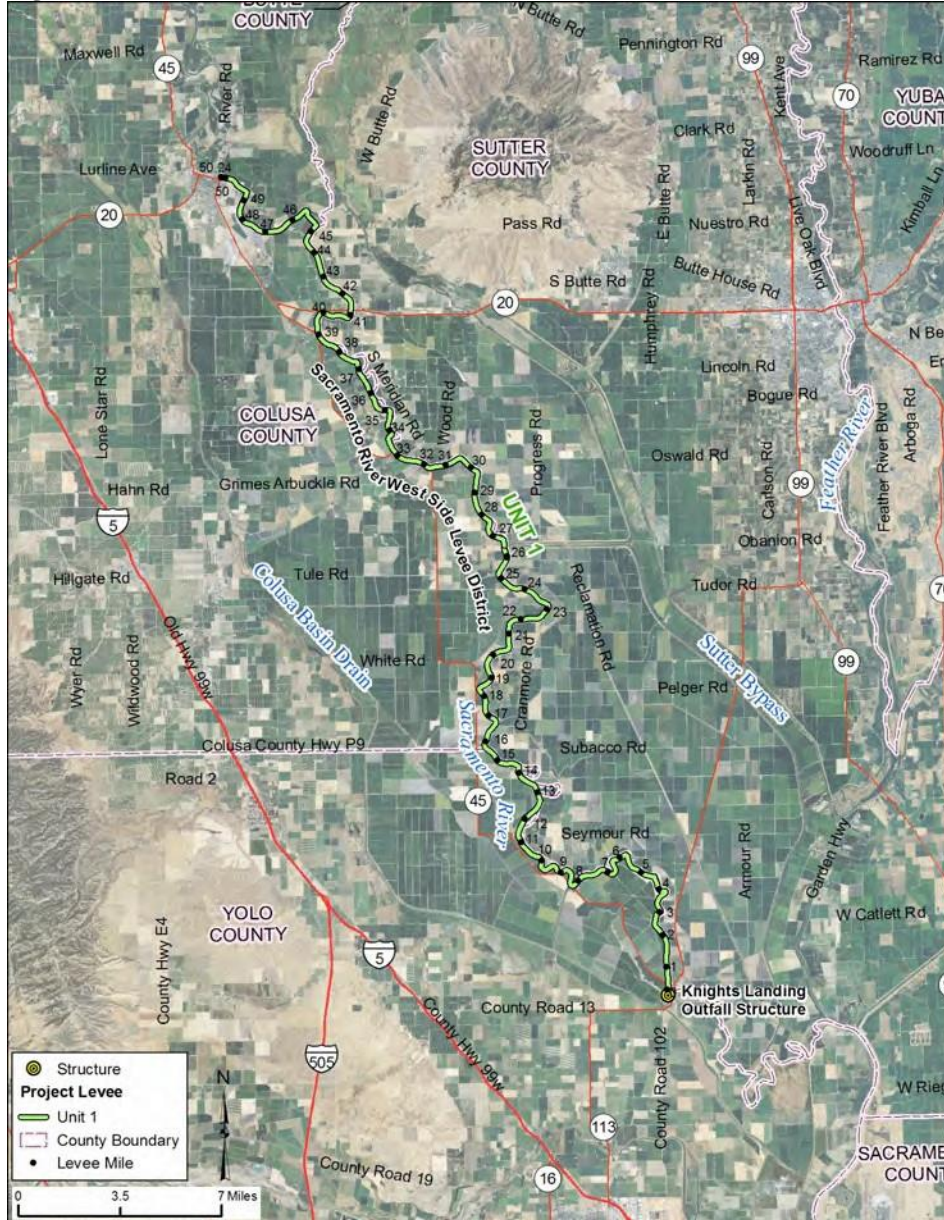
See Appendix E for a summary of the identified flood control improvement projects.

9.8. Sacramento River West Side Levee District

In 1915 the Sacramento River West Side Levee District (SRWLD) was created by the legislature with the purpose of forming a flood protection district for the area bounded by the Sacramento River on the east, the Colusa Drain on the west, between Colusa in the north and Knights Landing in the south. The SRWLD operates in coordination with RD 108. RD 108 uses its personnel to perform the maintenance of the levees and is reimbursed by the SRWLD.

The Sacramento River West Side Levee District levee segments were initially built in the 1800s by local interests. A construction project to raise the levee began around 1915, and a second raise was completed in 1919. The levee crest elevation has remained essentially unchanged from the grade completed in 1919. Levees were completed to USACE's Project grade by 1940. Since the late 1930s, SRWLD levees have experienced multiple erosion events, sand boils, rodent activity, overtopping, multiple bank caving/failure, erosion, seepage, sand boil, and sinkhole events.

Figure 9-7. Overview of Sacramento River West Side LD SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve ‘Active’ status in the USACE RIP and regain PL84-99 compliance for the Sacramento River West Bank levee system.

The following tables summarize the existing known levee deficiencies.

Table 9-49. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
NA0016	Sacramento River West Side Levee District	U	M	M	M	A	A	A

Table 9-50. Summary of Sacramento River West Side Levee District Levee Units

Unit	Bank	Length (Miles)
Unit No. 1, Sacramento River	RB	50.21

Table 9-51. DWR Levee Inspection Summary for Sacramento River West Side Levee District

NA0016	Total LMA		50.21									
	Fall 2012				Fall 2013				Change			
	Overall LMA		A		Overall LMA		A					
Rated Item	M	U	M+4U Miles	Thresh. %	M	U	M+4U Miles	Thresh. %	M	U	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation					0.01		0.01	0.02	0.01		0.01	0.02
Trim / Thin	0.01		0.01	0.02					-0.01		-0.01	-0.02
Encroachments	0.02		0.02	0.04	0.02		0.02	0.04				0.00
Animal Control					0.01		0.01	0.02	0.01		0.01	0.02
Supplemental												
USACE	0.26		0.26	0.52	0.26		0.26	0.52	0.00			0.00
DWR UCIP Field Study												0.00
LMA Totals:	0.29	0.00	0.29	0.58	0.30	0.00	0.30	0.60	0.01	0.00	0.01	0.02

Table 9-52. DWR Channel Inspection Summary for Sacramento River West Side Levee District

Channel Name	Overall Rating
No Channels Inspected in this District	N/A

Table 9-53. USACE 2012 Sacramento River Erosion Summary for Sacramento River West Side Levee District

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
SAC_101-3_R	101.30	11.48	11.48	eroding	M
SAC_101-3_R	101.30	11.48	11.48	eroding	M
SAC_111-0_R	111.00	18.74	18.74	eroding	M
SAC_115-9_R	115.90	23.54	23.54	eroding	M
SAC_118-0_R	118.00	25.90	26.05	eroding	M
SAC_122-0_R	122.00	29.67	29.67	eroding	M
SAC_122-3_R	122.30	29.93	29.93	eroding	M
SAC_123-7_R	123.70	31.42	31.42	eroding	M
SAC_125-6_R	125.60	33.27	33.27	eroding	M
SAC_127-9_R	127.90	35.21	35.21	eroding	M
SAC_136-6_R	136.60	42.93	42.93	eroding	M
SAC_141-5_R	141.50	47.61	47.61	eroding	M
SAC_143-5_R	143.50	49.44	49.44	eroding	M

Table 9-54. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
Sacramento River West Bank	119.72	04/03/2013	Inactive	U

Table 9-55. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
DWR_NA0016_01_s_2012_2	Critical	Erosion	19.00	19.00	Right
DWR_NA0016_01_s_2012_2	Critical	Erosion	19.00	19.00	Right
158-40	Serious	Seepage	2.6	5.8	Right
288-57	Serious	Seepage	34.15	35.13	Right
288-226	Serious	Seepage	34.75	35.5	Right
288-54	Critical	Seepage	35.08		Right
158-221	Serious	Seepage	4.8	6.72	Right
USACE_CESPK_SWS2_2010_p_0279	Serious	Erosion	44.014		Right
158-29	Serious	Seepage	6.16		Right
158-30	Serious	Seepage	6.72		Right
158-222	Serious	Seepage	9.1	11	Right

Table 9-56. Summary of NULE Results for Sacramento River West Side Levee District

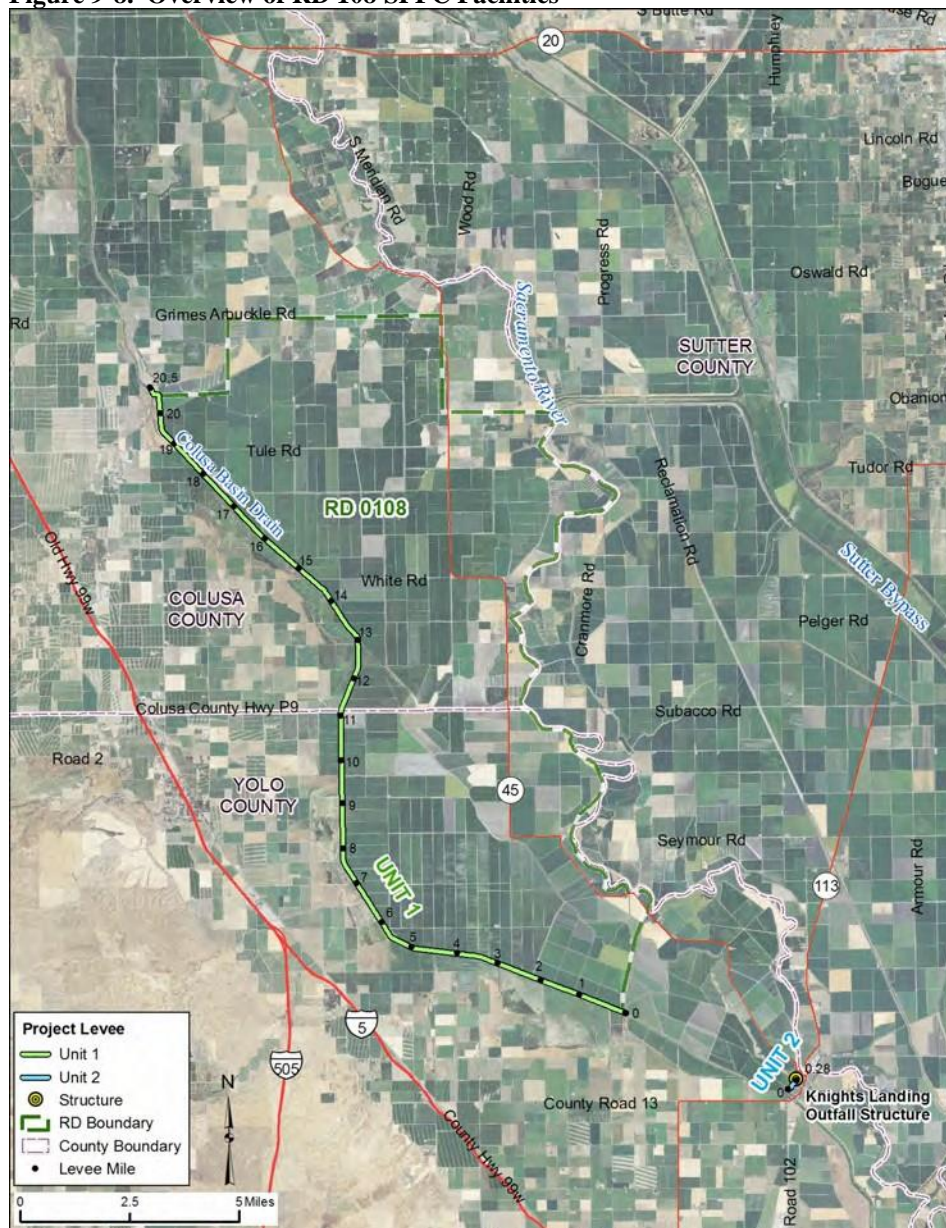
Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
287	Sacramento River West Side Levee District	C	C	LD	B	B	No
288	Sacramento River West Side Levee District	C	C	LD	LD	B	Yes

See Appendix E for a summary of the identified flood control improvement projects.

9.9. Reclamation District 108

Reclamation District 108 was established in October of 1870. Originally, the left bank levee along the Colusa Drain was constructed from local soils and dredged materials from the areas along the existing river channel starting in 1910 through the 1920s. In the 1950's approximately 21 miles of the back or westerly levee of RD 108 along the Colusa Drain were reconstructed using federal funds and were accepted into the federal Sacramento River Flood Control Project. This work was completed in July 1956. Since the late 1950s, RD 108 levees have also experienced erosion and slope stability problems.

Figure 9-8. Overview of RD 108 SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve ‘Active’ status in the USACE RIP and regain PL84-99 compliance for the Sacramento River West Bank levee system.

The following tables summarize the existing known levee deficiencies.

Table 9-57. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
RD0108	Reclamation District No. 0108	A	A	A	A	A	A	A

Table 9-58. Summary of Reclamation District 108 Levee Units

Unit	Bank	Length (Miles)
Unit No. 01, Colusa Basin Drain	LB	20.59

Table 9-59. DWR Levee Inspection Summary for Reclamation District 108

RD0108	Total LMA		20.87									
	Fall 2012				Fall 2013				Change			
	Overall LMA		A		Overall LMA		A					
Rated Item	M	U	M+4U Miles	Thresh. %	M	U	M+4U Miles	Thresh. %	M	U	M+4U Miles	Thresh. %
Earthen Levee												
Animal Control	0.02		0.02	0.10					-0.02		-0.02	-0.10
Slope Stability					0.01		0.01	0.05	0.01		0.01	0.05
Cracking	0.01		0.01	0.05	0.05		0.05	0.24	0.04		0.04	0.19
Supplemental												
USACE	0.01		0.01	0.05	0.01		0.01	0.05				0.00
LMA Totals:	0.04	0.00	0.04	0.19	0.07	0.00	0.07	0.34	0.03	0.00	0.03	0.14

Table 9-60. DWR Channel Inspection Summary for Reclamation District 108

Channel Name	Overall Rating
No Channels Inspected in this District	N/A

Table 9-61. USACE 2012 Sacramento River Erosion Summary for Reclamation District 108

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
CBD_19-2_L	0.00	19.29	19.29	eroding	M

Table 9-62. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
Sacramento River West Bank	119.72	Inactive	04/03/2013	U

Table 9-63. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
Obsrv-131060	Serious	Erosion	11.5		Right
Obsrv-131062	Serious	Erosion	21.45		Right
Obsrv-131063	Serious	Erosion	39.8		Right
DWR_RD0108_01_R_2012_01	Critical	Stability	17.1	17.3	Left
DWR_RD0108_01_s_2012_3	Serious	Erosion	19.2		Left
116-2001	Serious	Stability	4.07		Left

Table 9-64. Summary of NULE Results for Reclamation District 108

Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
116	Reclamation District 0108 (Colusa Co, and Yolo Co)	LD (A or B)	A	C	A	B	No

See Appendix E for a summary of the identified flood control improvement projects.

9.10. Reclamation District 787

Reclamation District 787 is located just south of RD 108. Originally, the left bank levee along the Colusa Drain was constructed from local soils and dredged materials from the areas along the existing river channel starting in 1910 through the 1920s. In the 1950's the RD 787 levees were reconstructed using federal funds and were accepted into the federal Sacramento River Flood Control Project. This work was completed in July 1956. Since the late 1950s, RD 787 levees have experienced subsidence, erosion, cracking, and landside slope failure

Figure 9-9. Overview of RD 787 SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve 'Active' status in the USACE RIP and regain PL84-99 compliance for the Sacramento River West Bank levee system.

The following tables summarize the existing known levee deficiencies.

Table 9-65. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
RD0787	Reclamation District No. 0787	A	A	A	A	A	A	A

Table 9-66. Summary of Reclamation District 787 Levee Units

Unit	Bank	Length (Miles)
Unit No. 01, Colusa Basin Drain	LB	4.40

Table 9-67. DWR Levee Inspection Summary for Reclamation District 787

RD0787	Total LMA		4.40									
	Fall 2012				Fall 2013				Change			
	Overall LMA		A		Overall LMA		A					
			M+4U	Thresh.			M+4U	Thresh.			M+4U	Thresh.
Rated Item	M	U	Miles	%	M	U	Miles	%	M	U	Miles	%
Earthen Levee												
Animal Control	0.02		0.02	0.46					-0.02		-0.02	-0.46
Flood Preparedness & Training	0.04		0.04	0.91	0.04		0.04	0.91				0.00
Supplemental												
USACE	0.13		0.13	2.96	0.13		0.13	2.96				0.00
LMA Totals:	0.19	0.00	0.19	4.32	0.17	0.00	0.17	3.86	-0.02	0.00	-0.02	-0.45

Table 9-68. DWR Channel Inspection Summary for Reclamation District 787

Channel Name	Overall Rating
No Channels Inspected in this District	N/A

Table 9-69. USACE 2012 Sacramento River Erosion Summary for Reclamation District 787

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
CBD_0-5_L	0.00	0.39	0.51	eroding	M
CBD_0-9_L	0.00	0.67	0.67	eroding	M

Table 9-70. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
Sacramento River West Bank	119.72	Inactive	04/03/2013	U

Table 9-71. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
DWR_RD0787_01_s_2012_2	Serious	Erosion	0.667	0.847	Left
USACE_CESPK_FAIR_2010_p_0029	Serious	Erosion	0.715		Left
USACE_CESPK_FAIR_2010_p_0030	Serious	Erosion	0.772		Left
USACE_CESPK_FAIR_2010_p_0038	Serious	Stability	1.084	1.168	Left
USACE_CESPK_FAIR_2010_p_0044	Critical	Stability	1.461		Left

Table 9-72. Summary of NULE Results for Reclamation District 787

Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
137	Reclamation District 0787	C	A	C	A	B	No

See Appendix E for a summary of the identified flood control improvement projects.

9.11. Reclamation District 70

Reclamation District (RD) 70 maintains 8 miles of the right bank levee of the Sutter Bypass and 15.8 miles of the left bank levee of the Sacramento River.

Figure 9-10. Overview of RD 70 SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve ‘Active’ status in the USACE RIP and regain PL84-99 compliance for the Sutter Basin North levee system.

The following tables summarize the existing known levee deficiencies.

Table 9-73. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
RD0070	Reclamation District No. 0070	M	A	A	A	A	A	A

Table 9-74. Summary of Reclamation District 70 Levee Units

Unit	Bank	Length (Miles)
Unit No. 01, Sutter Bypass	RB	8.00
Unit No. 02, Sacramento River	LB	15.57

Table 9-75. DWR Levee Inspection Summary for Reclamation District 70

RD0070	Total LMA Miles			23.57									
	Fall 2012				Fall 2013				Change				
	Overall LMA		A		Overall LMA		A						
Rated Item			M+4U	Thresh.			M+4U	Thresh.			M+4U	Thresh.	
	M	U	Miles	%	M	U	Miles	%	M	U	Miles	%	
Earthen Levee													
Encroachments	0.06		0.06	0.26	0.06		0.06	0.26				0.00	
Slope Stability	0.03		0.03	0.13	0.03		0.03	0.13				0.00	
Erosion / Bank Caving					0.01		0.01	0.04	0.01		0.01	0.04	
Supplemental													
USACE	0.83		0.83	3.52	0.83		0.83	3.52				0.00	
LMA Totals:	0.92	0.00	0.92	3.90	0.93	0.00	0.93	3.95	0.01	0.00	0.01	0.04	

Table 9-76. DWR Channel Inspection Summary for Reclamation District 70

Channel Name	Overall Rating
No Channels Inspected in this District	N/A

Table 9-77. USACE 2012 Sacramento River Erosion Summary for Reclamation District 70

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
SAC_138-1_L	138.10	0.04	0.33	eroding	M
SAC_138-1_L	138.10	0.04	0.33	eroding	M
SAC_136-6_L	136.60	1.78	1.91	eroding	M
SAC_133-8_L	133.80	4.44	4.48	removed	A/W
SAC_133-0_L	133.00	5.30	5.52	removed	A/W
SAC_131-8_L	131.80	6.50	6.60	eroding	M
SAC_130-0_L	130.00	8.16	8.32	eroding	M
SAC_125-8_L	125.80	11.64	11.66	eroding	M
SAC_123-3_L	123.30	14.09	14.22	eroding	M

Table 9-78. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
RD 0070 and RD 1660 - Sutter Basin North	39.90	Inactive	10/18/2013	U

Table 9-79. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
Obsrv-131054	Serious	Erosion			RB
DWR_RD0070_02_s_2012_39	Serious	Erosion	4.472	4.512	Left

Table 9-80. Summary of NULE Results for Reclamation District 70

Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
115	Reclamation District 0070 Unit 2	C	C	B	LD	B	No
293	Reclamation District 0070 Unit 1	C	C	A	B	A	No

See Appendix E for a summary of the identified flood control improvement projects.

9.12. Reclamation District 1660

Reclamation District 1660 maintains 9 miles of the right bank levee of the Sutter Bypass and 3 miles of the left bank levee of the Sacramento River.

Figure 9-11. Overview of RD 1660 SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve 'Active' status in the USACE RIP and regain PL84-99 compliance for the Sutter Basin North levee system.

The following tables summarize the existing known levee deficiencies.

Table 9-81. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
RD1660	Reclamation District No. 1660	A	A	A	A	A	A	A

Table 9-82. Summary of Reclamation District 1660 Levee Units

Unit	Bank	Length (Miles)
Unit No. 01, Sacramento River	LB	3.00
Unit No. 02, Sutter Bypass	RB	9.14

Table 9-83. DWR Levee Inspection Summary for Reclamation District 1660

RD1660												
Total LMA												
12.14												
	Fall 2012				Fall 2013				Change			
	Overall LMA		A		Overall LMA		A					
			M+4U	Thresh.			M+4U	Thresh.			M+4U	Thresh.
Rated Item	M	U	Miles	%	M	U	Miles	%	M	U	Miles	%
Earthen Levee												
Encroachments	0.01		0.01	0.08	0.01		0.01	0.08				0.00
Slope Stability	0.05		0.05	0.41	0.05		0.05	0.41				0.00
Supplemental												
USACE	0.03		0.03	0.25	0.03		0.03	0.25				0.00
LMA Totals:	0.09	0.00	0.09	0.74	0.09	0.00	0.09	0.74	0.00	0.00	0.00	0.00

Table 9-84. DWR Channel Inspection Summary for Reclamation District 1660

Channel Name	Overall Rating
No Channels Inspected in this District	N/A

Table 9-85. USACE 2012 Sacramento River Erosion Summary for Reclamation District 1660

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
SAC_120-6_L	120.60	1.32	1.35	eroding	M

Table 9-86. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
RD 0070 and RD 1660 - Sutter Basin North	39.90	Inactive	10/18/2013	U

Table 9-87. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
248-17	Critical	Seepage	5.68		Right

Table 9-88. Summary of NULE Results for Reclamation District 1660

Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
149	Reclamation District 1660 Unit 1	LD (B or C)	LD	LD	LD	B	No
248	Reclamation District 1660 Unit 2	C	C	B	B	A	No

See Appendix E for a summary of the identified flood control improvement projects.

9.13. Reclamation District 1500

Reclamation District (RD) 1500 maintains 20.8 miles of the right bank levee of the Sutter Bypass and 33.6 miles of the left bank levee of the Sacramento River.

Figure 9-12. Overview of RD 1500 SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve ‘Active’ status in the USACE RIP and regain PL84-99 compliance for the Sutter Basin South levee system.

The following tables summarize the existing known levee deficiencies.

Table 9-89. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
RD1500	Reclamation District No. 1500	M	M	M	M	A	M	M

Table 9-90. Summary of Reclamation District 1500 Levee Units

Unit	Bank	Length (Miles)
Unit No. 01, Sacramento River	LB	33.58
Unit No. 02, Sutter Bypass	RB	20.77

Table 9-91. DWR Levee Inspection Summary for Reclamation District 1500

RD1500	Total LMA		54.35									
	Fall 2012				Fall 2013				Change			
	Overall LMA		M		Overall LMA		M					
Rated Item	M	U	M+4U Miles	Thresh. %	M	U	M+4U Miles	Thresh. %	M	U	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation												0.00
Trim / Thin	0.01	0.01	0.05	0.09	0.01	0.01	0.05	0.09				0.00
Encroachments	0.10		0.10	0.18	0.13		0.13	0.24	0.03		0.03	0.06
Animal Control	0.54	0.02	0.62	1.14	0.14	0.01	0.18	0.33	-0.40	-0.01	-0.44	-0.81
Erosion / Bank Caving	0.04		0.04	0.07					-0.04		-0.04	-0.07
Cracking	0.01		0.01	0.02					-0.01		-0.01	-0.02
Crown Surface / Depressions /	5.70		5.70	10.49					-5.70		-5.70	-10.49
Underseepage Relief Wells		0.01	0.04	0.07	0.42	0.01	0.46	0.85	0.42		0.42	0.77
Supplemental												
USACE	0.10		0.10	0.18	0.10		0.10	0.18				0.00
LMA Totals:	6.50	0.04	6.66	12.25	0.80	0.03	0.92	1.69*	-5.70	-0.01	-5.74	-10.56

Table 9-92. DWR Channel Inspection Summary for Reclamation District 1500

Channel Name	Overall Rating
No Channels Inspected in this District	

Table 9-93. USACE 2012 Sacramento River Erosion Summary for Reclamation District 1500

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
SAC_86-3_L	86.30	1.34	1.34	eroding	M
SAC_86-3_L	86.30	1.34	1.34	eroding	M
SAC_87-1_L	87.10	2.31	2.31	eroding	M
SAC_92-8_L	92.80	8.26	8.26	eroding	M
SAC_95-8_L	95.80	11.79	11.79	eroding	M

SAC_96-2_L	96.20	11.98	11.98	eroding	M
SAC_99-0_L	99.00	13.98	13.98	eroding	M
SAC_103-4_L	103.40	18.28	18.28	removed	A/W
SAC_104-0_L	104.00	18.38	18.38	eroding	M
SAC_104-5_L	104.50	19.16	19.16	eroding	M
SAC_116-0_L	116.00	30.60	30.60	eroding	M
SAC_116-5_L	116.50	30.94	30.94	eroding	M

Table 9-94. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
RD 1500 and Tisdale Bypass - Sutter Basin South	59.22	Inactive	08/21/2012	U

Table 9-95. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
DWR_RD1500_01_s_2012_29	Serious	Erosion	11.91	12.09	Left
DWR_RD1500_01_s_2012_34	Serious	Erosion	11.91	12.38	Left
294-35	Serious	Seepage	0.8	1.8	Right
294-11	Critical	Seepage	10.32		Right
294-12	Critical	Seepage	10.38		Right
294-13	Critical	Seepage	10.41		Right
294-39	Serious	Seepage	7.3		Right
Sac-14	Serious	Seepage	7.5		Right
294-06	Serious	Seepage	7.67		Right
294-99	Serious	Seepage	9.0	11.0	Right
294-07	Critical	Seepage	9.13		Right
294-08	Critical	Seepage	9.53		Right
294-114	Critical	Seepage	9.58		Right
294-10	Critical	Seepage	9.6		Right
294-115	Critical	Seepage	9.8		Right

Table 9-96. Summary of NULE Results for Reclamation District 1500

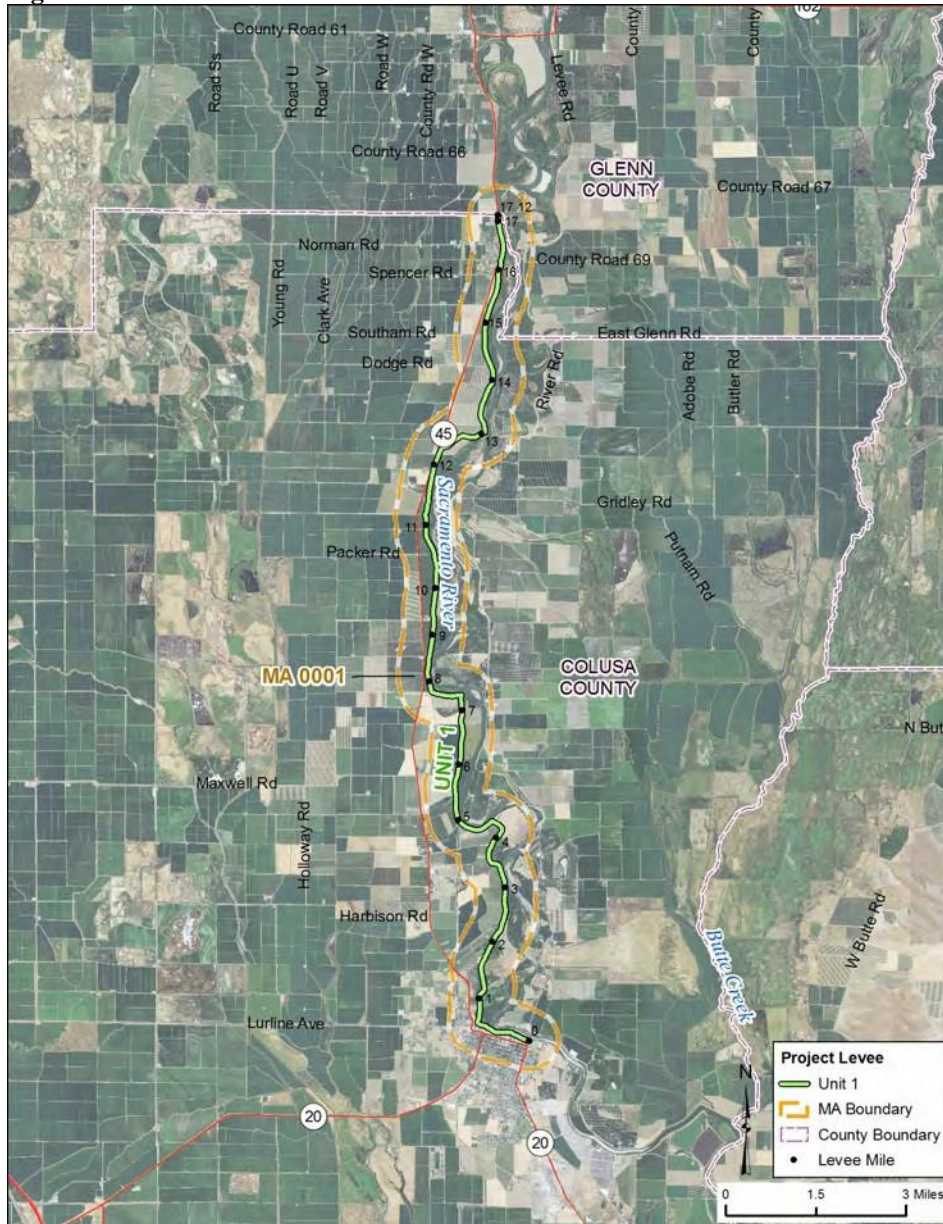
Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
146	Reclamation District 1500 Unit 1	C	C	B	C	B	No
294	Reclamation District 1500 Unit 2	C	C	B	B	B	No

See Appendix E for a summary of the identified flood control improvement projects.

9.14. DWR Sutter Yard Maintenance Area 1 (Colusa North)

Maintenance Area (MA) 1 maintains 17 miles of the right bank levee of the Sacramento River.

Figure 9-13. Overview of MA 1 SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve 'Active' status in the USACE RIP and regain PL84-99 compliance for the Sacramento River West Bank levee system.

The following tables summarize the existing known levee deficiencies.

Table 9-97. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
MA0001	Maintenance Area 0001	M	M	A	A	A	A	A

Table 9-98. Summary of DWR Sutter Yard Maintenance Area 1 (Colusa North) Levee Units

Unit	Bank	Length (Miles)
Unit No. 01, Sacramento River	RB	17.12

Table 9-99. DWR Levee Inspection Summary for DWR Sutter Yard Maintenance Area 1 (Colusa North)

MA0001	Total LMA		17.12									
	Fall 2012				Fall 2013				Change			
	Overall LMA		A		Overall LMA		A					
Rated Item	M	U	M+4U Miles	Thresh. %	M	U	M+4U Miles	Thresh. %	M	U	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.04		0.04	0.23	0.04		0.04	0.23				0.00
Animal Control	0.08		0.08	0.47	0.01		0.01	0.06	-0.07		-0.07	-0.41
Supplemental												
USACE Erosion Survey	0.66		0.66	3.86	0.66		0.66	3.86				0.00
DWR UCIP Field												0.00
LMA Totals:	0.78	0.00	0.78	4.56	0.71	0.00	0.71	4.15	-0.07	0.00	-0.07	-0.41

Table 9-100. DWR Channel Inspection Summary for DWR Sutter Yard Maintenance Area 1 (Colusa North)

Channel Name	Overall Rating
No Channels Inspected in this District	

Table 9-101. USACE 2012 Sacramento River Erosion Summary for DWR Sutter Yard Maintenance Area 1 (Colusa North)

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
SAC_151-0_R	151.00	5.00	5.38	eroding	M
SAC_154-0_R	154.00	7.42	7.43	repaired	C
SAC_157-7_R	157.70	10.30	10.38	eroding	M
SAC_164-3_R	164.30	16.49	16.69	eroding	M

Table 9-102. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
Sacramento River West Bank	119.72	Inactive	04/03/2013	U

Table 9-103. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
286-35	Serious	Seepage	15.55	16.08	Right
USACE_CESPK_MA1C_2010_p_0554	Serious	Erosion	17.009		Right
USACE_CESPK_MA1C_2010_p_0542	Serious	Erosion	17.024		Right
380-25	Serious	Other	9.01	9.03	Right

Table 9-104. Summary of NULE Results for DWR Sutter Yard Maintenance Area 1 (Colusa North)

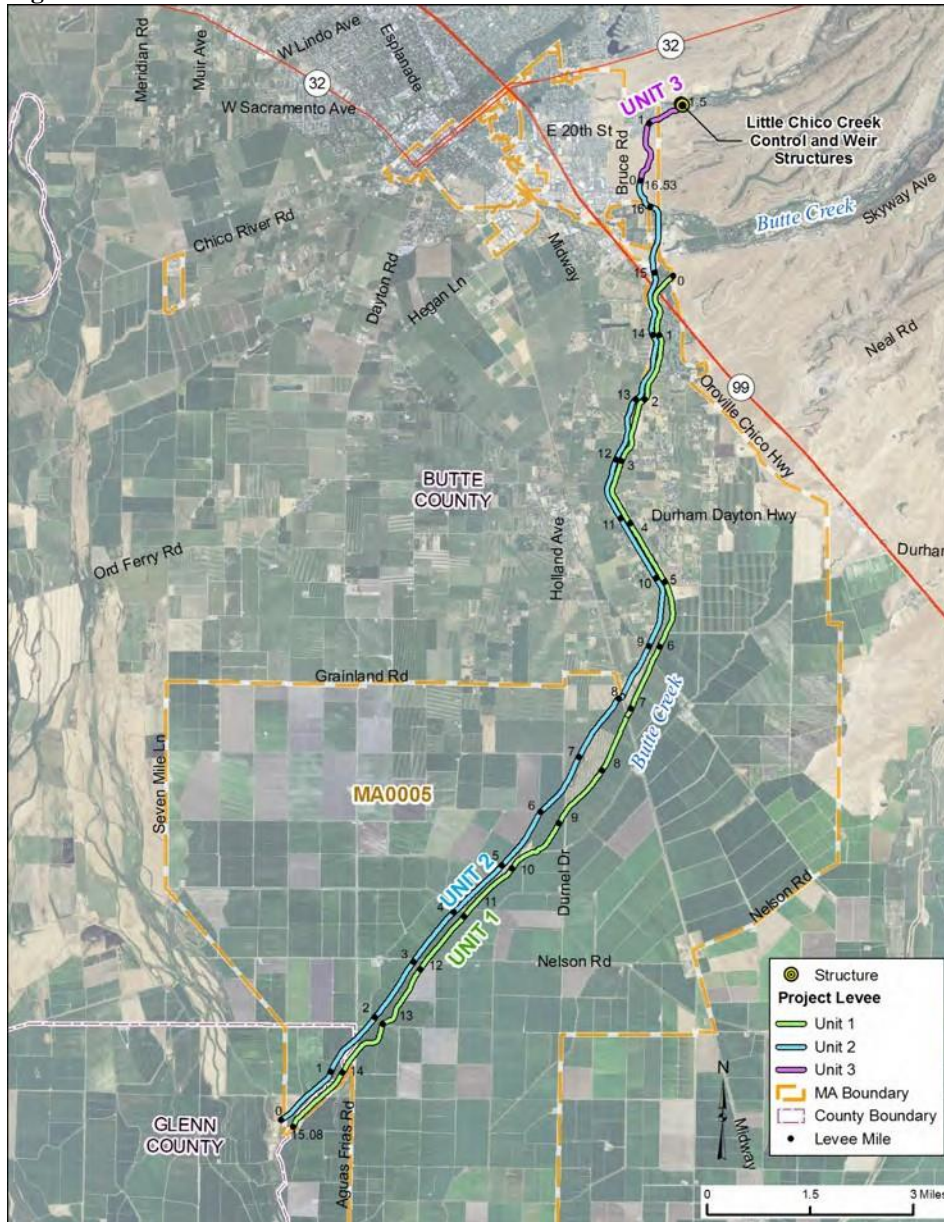
Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
286	Maintenance Area No. 01	B	B	A	LD	A	Yes
100	Maintenance Area No. 01	B	B	A	LD	A	Yes
380	Maintenance Area No. 01	C	C	A	B	B	Yes

See Appendix E for a summary of the identified flood control improvement projects.

9.15. DWR Sutter Yard Maintenance Area 5 (Butte Creek)

Maintenance Area (MA) 5 maintains 15.3 miles of the left bank levee of Butte Creek, 16.5 miles of the right bank levee of Butte Creek, and 1.5 miles of the left bank of the Little Chico Creek Diversion.

Figure 9-14. Overview of MA 5 SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve 'Active' status in the USACE RIP and regain PL84-99 compliance for the Butte Creek levee system.

The following tables summarize the existing known levee deficiencies.

Table 9-105. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
MA0005	Maintenance Area 0005	M	M	M	M	A	A	A

Table 9-106. Summary of DWR Sutter Yard Maintenance Area 5 (Butte Creek) Levee Units

Unit	Bank	Length (Miles)
Unit No. 01, Butte Creek 1	LB	15.29
Unit No. 02, Butte Creek 1	RB	16.53
Unit No. 03, Little Chico Creek Diversion 1	LB	1.50

Table 9-107. DWR Levee Inspection Summary for DWR Sutter Yard Maintenance Area 5 (Butte Creek)

MA0005	Total LMA		33.32									
	Fall 2012				Fall 2013				Change			
	Overall LMA		A		Overall LMA		A					
			M+4U	Thresh.			M+4U	Thresh.			M+4U	Thresh.
Rated Item	M	U	Miles	%	M	U	Miles	%	M	U	Miles	%
Earthen Levee												
Vegetation	0.02		0.02	0.06	0.02		0.02	0.06				0.00
Encroachments	0.09		0.09	0.27	0.08		0.08	0.24	-0.01		-0.01	-0.03
Animal Control	0.01		0.01	0.03	0.01		0.01	0.03				0.00
Slope Stability	0.05		0.05	0.15	0.04		0.04	0.12	-0.01		-0.01	-0.03
Repair Gates	0.02		0.02	0.06	0.01		0.01	0.03	-0.01		-0.01	-0.03
Supplemental												
DWR UCIP												0.00
LMA Totals:	0.19	0.00	0.19	0.57	0.16	0.00	0.16	0.48	-0.03	0.00	-0.03	-0.09

Table 9-108. DWR Channel Inspection Summary for DWR Sutter Yard Maintenance Area 5 (Butte Creek)

Channel Name	Overall Rating
No Channels Inspected in this District.	N/A

Table 9-109. USACE 2012 Sacramento River Erosion Summary for DWR Sutter Yard Maintenance Area 5 (Butte Creek)

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
BTC_2-5_R	0.00	2.50	2.51	removed	A/W

Table 9-110. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
MA 05 Unit 1 - Butte Creek left bank	15.08	Inactive	03/26/2013	U
MA 05 Unit 2 - Butte Creek right bank	16.71	Inactive	03/27/2013	U

Table 9-111. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
263-6	Serious	Seepage	10.7		Right
263-7	Serious	Seepage	10.76		Right

Table 9-112. Summary of NULE Results for DWR Sutter Yard Maintenance Area 5 (Butte Creek)

Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
103	Maintenance Area No. 05 - Unit 1	B	LD	LD	A	B	No
104	Maintenance Area No. 05 - Unit 2c	C	LD	LD	A	B	No
274 Reach 1	Maintenance Area No. 05 - Unit 2a	A	A	A	A	A	Yes
381 Reach 1	Maintenance Area No. 05 - Unit 1	B	B	A	LD	B	No
381 Reach 2		A	A	A	A	A	No

See Appendix E for a summary of the identified flood control improvement projects.

9.16. DWR Sutter Yard Maintenance Area 12 (Colusa Drain)

Maintenance Area (MA) 12 maintains 11.3 miles of the left bank levee Colusa Basin Drain.

Figure 9-15. Overview of MA 12 SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Address identified deficiencies to achieve 'Active' status in the USACE RIP and regain PL84-99 compliance for the Sacramento River West Bank levee system.

The following tables summarize the existing known levee deficiencies.

Table 9-113. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
MA0012	Maintenance Area 0012	A	A	A	A	A	A	A

Table 9-114. Summary of DWR Sutter Yard Maintenance Area 12 (Colusa Drain) Levee Units

Unit	Bank	Length (Miles)
Unit No. 01, Colusa Drain	LB	11.31

Table 9-115. DWR Levee Inspection Summary for DWR Sutter Yard Maintenance Area 12 (Colusa Drain)

MA0012		Total LMA		11.31									
		Fall 2012				Fall 2013				Change			
		Overall LMA		A		Overall LMA		A					
Rated Item			M+4U	Thresh.			M+4U	Thresh.			M+4U	Thresh.	
	M	U	Miles	%	M	U	Miles	%	M	U	Miles	%	
Earthen Levee													
Animal Control					0.02		0.02	0.18	0.02		0.02	0.18	
Slope Stability					0.01		0.01	0.09	0.01		0.01	0.09	
Supplemental													
USACE	0.01		0.01	0.09	0.01		0.01	0.09				0.00	
DWR UCIP												0.00	
LMA Totals:	0.01	0.00	0.01	0.09	0.04	0.00	0.04	0.35	0.03	0.00	0.03	0.27	

Table 9-116. DWR Channel Inspection Summary for DWR Sutter Yard Maintenance Area 12 (Colusa Drain)

Channel Name	Overall Rating
No Channels Inspected in this District	N/A

Table 9-117. USACE 2012 Sacramento River Erosion Summary for DWR Sutter Yard Maintenance Area 12 (Colusa Drain)

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
SYC_9-3_L	0.00	9.02	9.02	eroding	M

Table 9-118. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
Sacramento River West Bank	119.72	Inactive	04/03/2013	U

Table 9-119. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
Obsrv-131055	Critical	Stability	8.1		left
Obsrv-131058	Serious	Stability	LM 1.3		Left Bank
DWR_MA0012_01_R_2012_01	Serious	Erosion	8.75		Left
DWR_MA0012_01_s_2012_7	Serious	Erosion	9.1		Left

Table 9-120. Summary of NULE Results for DWR Sutter Yard Maintenance Area 12 (Colusa Drain)

Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
107	Maintenance Area No. 12	LD (A or B or C)	LD	C	A	A	Yes

See Appendix E for a summary of the identified flood control improvement projects.

9.17. DWR Sutter Yard Maintenance Area 17 (Upper Lake)

Maintenance Area (MA) 17 maintains 3.9 miles of the left bank levee of Middle Creek in Lake County.

Figure 9-16. Overview of MA 17 SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Implementation of the Middle Creek Flood Relief and Restoration Project.

The following tables summarize the existing known levee deficiencies.

Table 9-121. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
MA0017	Maintenance Area 0017	U	U	U	U	U	U	U

Table 9-122. Summary of DWR Sutter Yard Maintenance Area 17 (Upper Lake) Levee Units

Unit	Bank	Length (Miles)
Unit No. 01, Lake County Sutter Maintenance Yard - Middle Creek	LB	3.90

Table 9-123. DWR Levee Inspection Summary for DWR Sutter Yard Maintenance Area 17 (Upper Lake)

MA0017	Total LMA		3.90									
	Fall 2012				Fall 2013				Change			
	Overall LMA Rating		U		Overall LMA Rating		U					
Rated Item	M	U	M+4U Miles	Thresh. %	M	U	M+4U Miles	Thresh. %	M	U	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation		3.13	12.52	321.03		3.13	12.52	321.03				0.00
Trim / Thin Trees		3.12	12.48	320.00		3.12	12.48	320.00				0.00
Supplemental												
DWR UCIP Field												0.00
LMA Totals:	0.00	6.25	25.00	641.03	0.00	6.25	25.00	641.03	0.00	0.00	0.00	0.00

Table 9-124. DWR Channel Inspection Summary for DWR Sutter Yard Maintenance Area 17 (Upper Lake)

Channel Name	Overall Rating
No Channels Inspected in this District	N/A

Table 9-125. USACE 2012 Sacramento River Erosion Summary for DWR Sutter Yard Maintenance Area 17 (Upper Lake)

Site ID	River Mile	Levee Mile Start	Levee Mile End	Status	Rating
No Supplemental Erosion Sites	N/A	N/A	N/A	N/A	N/A

Table 9-126. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
Middle Creek left bank - Unit 1 at Clear Lake	1.33	Inactive	03/05/2013	U
Middle Creek left bank - Unit 1 south	3.51	Active	03/07/2013	M

Table 9-127. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
81-10	Critical	Seepage	4.82	4.95	Left
81-11	Critical	Seepage	4.9		Left
81-12	Critical	Seepage	4.91		Left
81-8	Critical	Seepage	5.4	5.5	Left
Sac-10	Critical	Seepage	5.4	5.4	Left

Table 9-128. Summary of NULE Results for DWR Sutter Yard Maintenance Area 17 (Upper Lake)

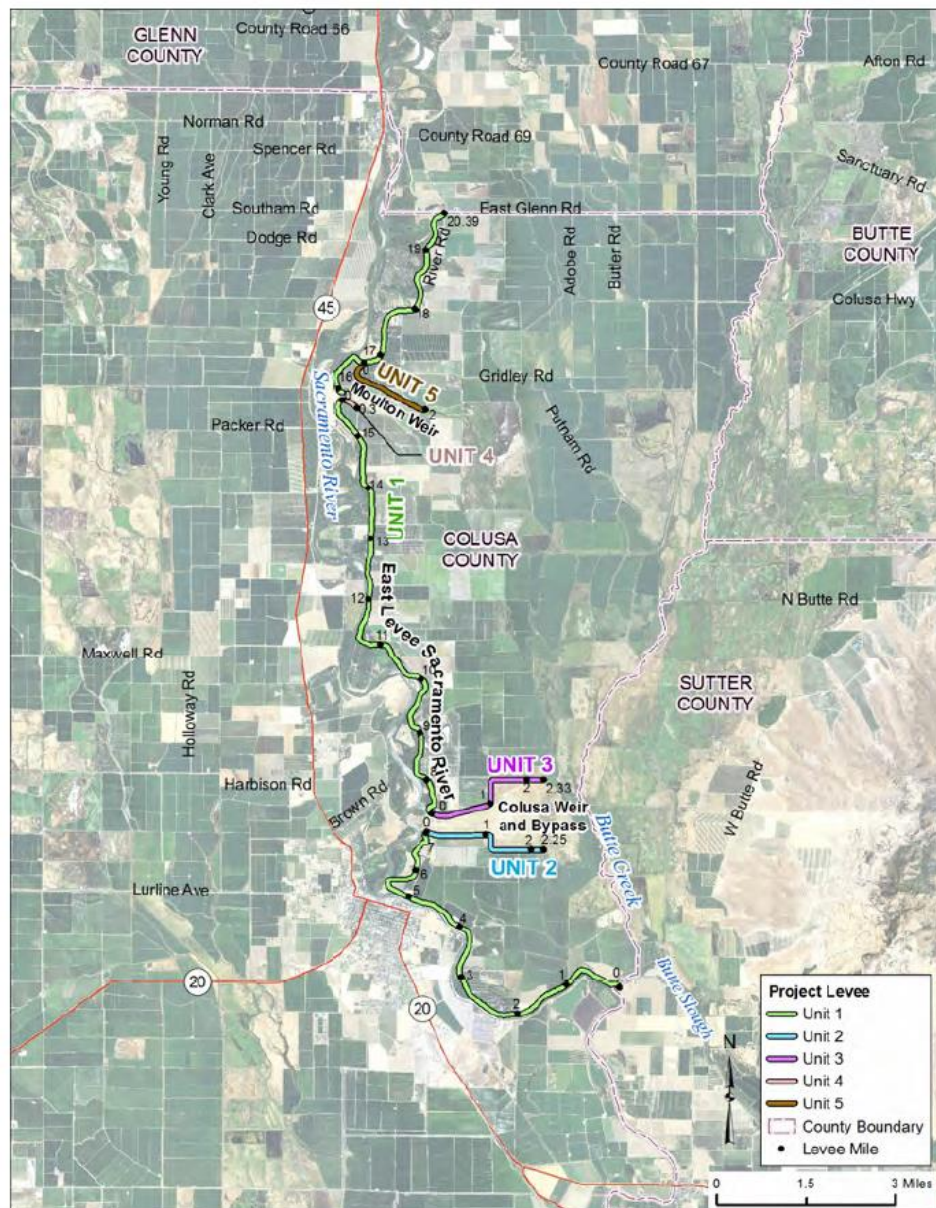
Segment	Description	Overall Categorization	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
78	Middle Creek - Unit 1a	B	A	A	LD	B	No
79	Middle Creek - Unit 1b	LD (A or B)	LD	A	LD	A	No
81 Reach 1	Middle Creek - Unit 1e	C	LD	LD	A	A	No
81 Reach 2	Middle Creek - Unit 1e	B	B	B	C	C	No

See Appendix E for a summary of the identified flood control improvement projects.

9.18. DWR Sutter Yard Sacramento River East Levee

The Sacramento East River Maintenance Area maintains 20.4 miles of the Sacramento River left bank levee, 2.2 miles of levees on both banks of the Colusa Bypass, 0.3 miles of the Moulton Bypass right bank levee, and 2.0 miles of the Moulton Bypass left bank levee.

Figure 9-17. Overview of Sutter Maintenance Yard East Levee Sacramento River SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Repairing erosion sites.

The following tables summarize the existing known levee deficiencies.

Table 9-129. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
ST0003	Sutter Maintenance Yard East Levee Sacramento River	A	A	A	A	A	A	A

Table 9-130. Summary of East Levee Sacramento River Levee Units

Unit	Bank	Length (Miles)
Unit No. 01 Sacramento River	LB	20.39
Unit No. 02 Colusa Bypass	RB	2.20
Unit No. 03 Colusa Bypass	LB	2.28
Unit No. 04 Moulton Bypass	RB	0.30
Unit No. 05 Moulton Bypass	LB	2.00

Table 9-131. DWR Levee Inspection Summary for East Levee Sacramento River

ST0003	Total LMA Miles		27.17									
	Fall 2012				Fall 2013				Change			
	Overall LMA Rating		A		Overall LMA Rating		A					
			M+4U	Thresh.			M+4U	Thresh.			M+4U	Thresh.
Rated Item	M	U	Miles	%	M	U	Miles	%	M	U	Miles	%
Earthen Levee												
Vegetation	0.05		0.05	0.18	0.04		0.04	0.15	-0.01		-0.01	-0.04
Trim / Thin Trees	0.01		0.01	0.04	0.01		0.01	0.04				0.00
Encroachments	0.25		0.25	0.92	0.25		0.25	0.92				0.00
Animal Control	0.08		0.08	0.29	0.01		0.01	0.04	-0.07		-0.07	-0.26
Slope Stability					0.02		0.02	0.07	0.02		0.02	0.07
Erosion / Bank Caving	0.19		0.19	0.70	0.20		0.20	0.74	0.01		0.01	0.04
Supplemental												
USACE Erosion Survey	0.07		0.07	0.26	0.07		0.07	0.26				0.00
DWR UCIP Field Study												0.00
LMA Totals:	0.65	0.00	0.65	2.39	0.60	0.00	0.60	2.21	-0.05	0.00	-0.05	-0.18

Table 9-132. DWR Channel Inspection Summary for East Levee Sacramento River

No Structures Inspected in this District.

Table 9-133. USACE Inspection Rating Summary

No Channels Inspected in this District.

Table 9-134. USACE 2012 Sacramento River Erosion Summary - Unit No. 01 Sacramento River, LB

SAC_150-2_L	150.20	10.46	10.46	removed	A/W
SAC_152-6_L	152.60	11.51	11.51	eroding	M
SAC_152-8_L	152.80	11.83	11.89	eroding	M

Table 9-135. DWR Flood System Repair Project Summary - Unit No. 01 Sacramento River

Sacramento River East Levee - LD 3 Glenn County	38.36	Inactive	05/08/2013	U
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Table 9-136. Summary of NULE Results for DWR East Levee Sacramento River

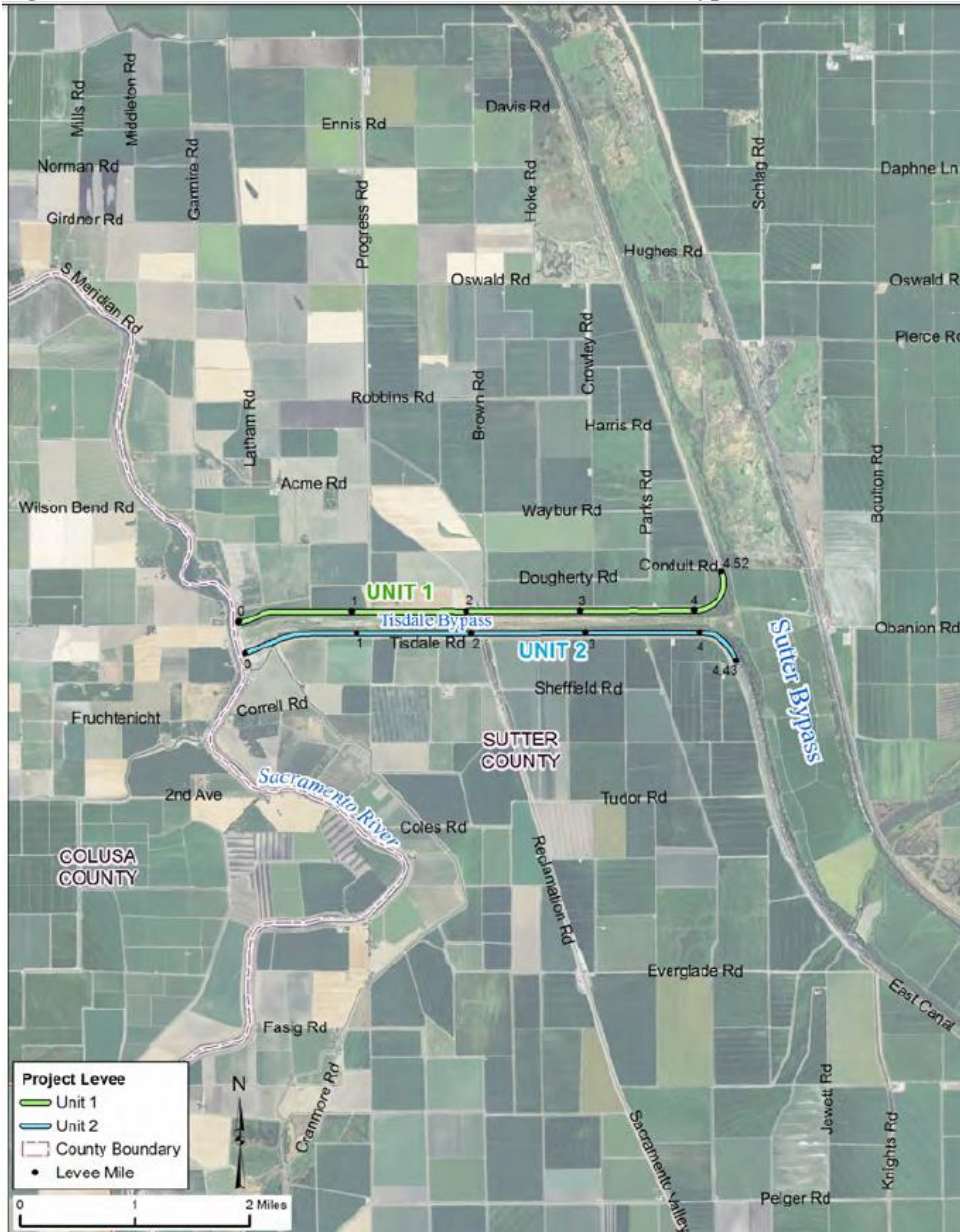
Segment	Description	Overall Categorization ²	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
159	Sacramento River East Levee Unit 1a	LD (A, B or C)	LD	A	LD	A	Yes
160	Sacramento River East Levee Unit 1b, and Unit 1c	C	B	A	LD	C	No
161	Sacramento River East Levee Unit 1d	B	B	A	LD	B	No

See Appendix E for a summary of the identified flood control improvement projects.

9.19. DWR Sutter Yard Tisdale Bypass

Sutter Yard maintains the left and right bank levees (4.5 miles each) of the Tisdale Bypass.

Figure 9-18. Overview of Sutter Maintenance Yard Tisdale Bypass SPFC Facilities



Based on an initial assessment of flood threats and local input, the high priority goals for the District include:

- Repairing erosion sites.

The following tables summarize the existing known levee deficiencies.

Table 9-137. DWR Overall Maintenance Area Rating

LMA Short Name	Area Name	Overall Rating						
		2007	2008	2009	2010	2011	2012	2013
ST0009	Tisdale Bypass	A	A	A	A	A	A	A

Table 9-138. Summary of Levee Units

Unit	Bank	Length (Miles)
Unit No. 01 Tisdale Bypass	LB	4.50
Unit No. 02 Tisdale Bypass	RB	4.43

Table 9-139. DWR Levee Inspection Summary for Tisdale Bypass

ST0009	Total LMA				8.93							
	Fall 2012				Fall 2013				Change			
	Overall LMA		A		Overall LMA		A					
Rated Item	M	U	M+4U Miles	Thresh. %	M	U	M+4U Miles	Thresh. %	M	U	M+4U Miles	Thresh. %
Earthen Levee												
Animal Control	0.01		0.01	0.11					-0.01		-0.01	-0.11
Erosion / Bank	0.01		0.01	0.11	0.03		0.03	0.34	0.02		0.02	0.22
Supplemental												
DWR UCIP Field												0.00
LMA Totals:	0.02	0.00	0.02	0.22	0.03	0.00	0.03	0.34	0.01	0.00	0.01	0.11

Table 9-140. DWR Structure Inspection Summary for Tisdale Bypass

No Structures Inspected in this District.

Table 9-141. DWR Channel Inspection Summary for Tisdale Bypass

No Channels Inspected in this District.

Table 9-142. USACE 2012 Sacramento River Erosion Summary

No Supplemental Erosion Sites.

Table 9-143. USACE Inspection Rating Summary

System Name	Length (Miles)	RIP Status	RIP Date	Rating
RD 0070 and RD 1660 - Sutter Basin North	39.90	Inactive	10/18/2013	U
RD 1500 and Tisdale Bypass - Sutter Basin South	59.22	Inactive	08/21/2012	U

Table 9-144. DWR Flood System Repair Project Summary

POI Number	Status	Failure Mode	Location Start	Location End	Bank
DWR_ST0009_02_s_2012_3	Serious	Erosion	1.01	1.01	Right

Table 9-145. Summary of NULE Results for Tisdale Bypass

Segment	Description	Overall Categorization²	Underseepage Categorization	Stability Categorization	Through Seepage Categorization	Erosion Categorization	Freeboard (Does segment meet Freeboard Criteria?)
165	Tisdale Bypass Unit 1 - north bank	B	B	B	A	A	No
166	Tisdale Bypass Unit 2 - south bank	C	C	B	B	A	No

See Appendix E for a summary of the identified flood control improvement projects.

9.20. Rock Creek Reclamation District

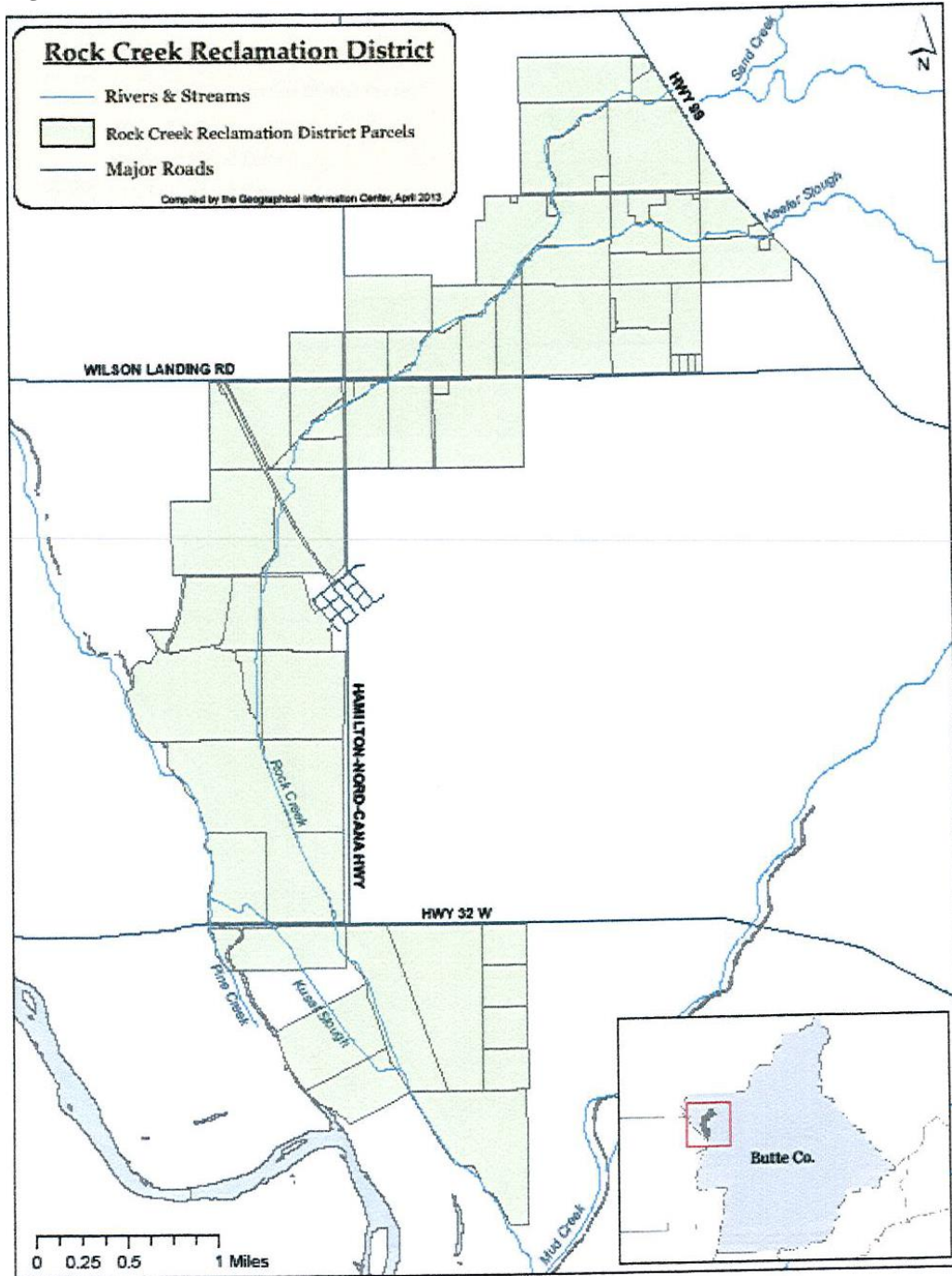
Rock Creek Reclamation District (RCRD) was initially formed in 1985 under the State Reclamation Act. The District provides flood control services to approximately 4,644 acres of agricultural and single-family residential parcels in an area surrounding Nord in northern Butte County. The District consists of large agricultural properties and low-density residential uses. Pine Creek forms a portion of the western boundary above Highway 32. Additionally, Rock Creek flows through the District and joins Mud and Big Chico Creeks in the southern portion of the District. The majority of the Rock Creek Reclamation District has been identified as a 100-year flood zone on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps. The primary sources of flooding include Rock Creek and Keefer Slough.

Rock Creek frequently floods farmlands within the Rock Creek Reclamation District, impacting 4,700 acres of farmland in total and affects the town of Nord and Highway 99. Sand Creek (or the North Fork of Rock Creek) is a major tributary, joining Rock Creek from the north just east of Hwy 99. At the Rock Creek-Keefer Slough confluence, sediment has accumulated on the Rock Creek side and the majority of flood flows are now routed down through Keefer Slough, causing flood damages to areas downstream and closing Highway 99. There is a potential to detain storm runoff within the Sand Creek system, which could significantly reduce the peak discharge in Rock Creek downstream. The lower reaches of Rock Creek periodically inundate the agricultural areas and leave the Town of Nord vulnerable to flooding. There have been several studies of the Rock Creek Keefer Slough drainage area dating back to 1979. The most recent study is the 1999 U.S. Army Corps of Engineers (USACE) Rock Creek – Keefer Slough Flood Protection Project Feasibility Study which has not been completed due to a lack of funding.

The proposed Rock and Sand Creek Flood Mitigation Project will build upon the work already completed by the USACE to develop and assess potential solutions to flooding from Rock Creek, focusing on the potential floodwater detention on Sand Creek. The project will assess potential hydrologic benefits of alternative detention strategies including creation of seasonal wetland habitats. The magnitude and timing of flood flows down Sand Creek and down the main-stem of Rock Creek will be analyzed. The analysis will be carried out through hydrologic modeling of storm runoff from the Sand Creek basin using HEC-HMS. The calculated runoff will be used as input to a HEC-RAS hydraulic model to evaluate the magnitude of flooding below the confluence of Sand and Rock Creeks under existing and proposed detention scenarios.

The project will include an assessment of potential detention dam sites and examine the potential ecological benefits of new seasonal wetlands and groundwater recharge. Deliverables will include a feasibility analysis and conceptual designs for the detention project.

Figure 9-19. Overview of Rock Creek Reclamation District



9.21. Reclamation District 2140

Reclamation District 2140, in conjunction with the County of Glenn, local landowners and other partners, coordinated the effort to obtain the participation of the State of California and the United States Army Corps of Engineers in the construction and financing of a new levee to replace the existing “J” Levee in Hamilton City.

The Hamilton City Flood Damage Reduction and Ecosystem Restoration Project is a multipurpose flood damage reduction and ecosystem restoration project. The project consists of the following main components:

- Construction of a 6.8 mile set-back levee to provide a 75-year level of flood protection to the community and agricultural areas
- Reconnection of approximately 1,400 acres to the Sacramento River floodplain and restoration of the acreage into native riparian habitat

Further details regarding this project can be found in Chapter 7 of this report.

9.22. Colusa Basin Drainage District

The Colusa Basin Drainage District (CBDD) was created in 1987 to remediate flooding issues that occur within the Colusa Basin Watershed. Currently, flooding in the Colusa Basin Watershed typically takes place between October and April. The primary cause of flooding is inadequate conveyance capacities in the Colusa Basin Drain and in the many ephemeral streams throughout the watershed. Flood flows from the foothill streams are extremely flashy and flow swiftly into the Colusa Basin Drain during rain events. MUSR RFMP stakeholders that are familiar with the local flooding patterns agreed that current flood control efforts should begin in the foothills on the west side of the watershed. They expressed the need to slow water down in the foothills in order to reduce flooding in the valley.

Beginning in 1991, CBDD commissioned a series of studies and investigations culminating in reports that assessed potential methods to reduce the potential for flood damage while improving overall watershed health. CBDD has identified measures to accomplish these goals including: increasing populations of perennial vegetation in the foothills to create a “sponge effect,” allowing streams to reconnect to flood plains, and creating detention basins in or adjacent to streams.

Further information regarding CBDD’s projects is found Chapter 10 of this report.