Meeting of the Central Valley Flood Protection Board
November 20, 2015

Staff Report – Transmittal for Cache Creek – RD 2035 – Willow Slough Bypass Levee System: Letter of Intent to Submit a System-Wide Improvement Framework Plan to the U.S. Army Corps of Engineers

County of Yolo

1.0 – ITEM

Consider authorizing the Executive Officer to send a letter (see Attachment 1) to the U.S. Army Corps of Engineers (USACE) transmitting a Letter of Intent (LOI) for a System-Wide Improvement Framework (SWIF) Plan prepared by Reclamation District No. 2035 (RD 2035) on behalf of the County of Yolo and Department of Water Resources (DWR), for the Cache Creek – RD 2035 – Willow Slough Bypass Levee System (Levee System) as defined by the USACE's Periodic Inspection dated June 20, 2014.

2.0 – LOCATION

The Levee System is located within the County of Yolo. The levees covered by the proposed LOI for a SWIF consist of the following (see Attachment 2, Figure 2):

- Cache Creek – Right Bank, County of Yolo Public Works (segment CCKY); 0.47 miles
- Cache Creek – Unit 2, Right Bank, DWR (segment CCK2); 11.43 miles
- Yolo Bypass – Unit 2, Right Bank, RD 2035 (segment CON2); 7.65 miles
- Yolo Bypass – Unit 3, Left Bank, RD 2035 (segment CON3); 2.56 miles
- Willow Slough Bypass – Unit 1, Left Bank, DWR (segment WBP1); 5.05 miles

3.0 – AGENCY

The local maintaining agencies (LMAs) in the Levee System are RD 2035, the County of Yolo, and DWR. The LMAs have the responsibility of maintaining the Levee System, and play a key role in planning, coordinating, and implementing flood risk reduction activities within this Levee System.

RD 2035 will be taking the lead in developing a SWIF plan with the support and assistance of the County of Yolo, DWR and CVFPB staff, as well as collaboration with USACE and environmental, cultural, and historical resource agencies, and with interested parties.

4.0 – USACE PERIODIC INSPECTION

In December 2012 through January 2013, the USACE performed a Periodic Inspection (PI) of the Levee System. PIs are conducted to verify proper operation and maintenance; evaluate operational adequacy and structural stability; identify features to monitor over time; and improve the ability to communicate the overall levee condition. The PI report produced by the USACE for the Levee System determined that the Levee System was "Unacceptable," and "Inactive" for

the USACE Public Law 84-99 (PL 84-99) Rehabilitation Program (RP), due to unacceptable encroachments, slope stability, erosion and bank caving, and animal control.

5.0 – PURPOSE OF THE LOI AND SWIF

USACE approval of the LOI will allow the LMAs to move forward with the preparation of a SWIF that is intended to meet the policy and public safety objectives of USACE and the State. Concurrently, the LMAs will be making improvements that address system-wide issues and correct unacceptable inspection items in a prioritized manner to optimize flood risk reduction. USACE approval of the LOI will allow the Levee System to remain active in the PL 84-99 RP for a period of two years while the SWIF is being prepared.

RD 2035, the County of Yolo, and DWR are aware of the USACE interim policy effective March 21, 2014, that established a subset of inspection categories used to determine PL 84-99 eligibility. The SWIF will include plans to address all of the inspection categories, but will place the subset of inspection categories as higher priority.

If the SWIF is accepted by the USACE, the Levee System will remain active in the USACE PL84-99 RP while the local levee maintainers perform the work described in the SWIF.

6.0 – STAFF RECOMMENDATION

As agreed to in the initial operations and maintenance assurances to the USACE, the CVFPB serves as the non-federal sponsor for all State-federal project levees within the jurisdiction of the Sacramento-San Joaquin Drainage District, including this Levee System. In this capacity, it is the CVFPB's responsibility to transmit the LOI and subsequent SWIF to the USACE on behalf of the LMAs.

Staff has reviewed the draft LOI (see Attachment 2) submitted by RD 2035, and finds that it adequately addresses the six requirements for submitting a LOI for a SWIF as described in the USACE's November 29, 2011 Policy for Development and Implementation of SWIFs (see Attachment 4).

Staff has received formal statements of support for the LOI from the Levee System's LMAs (see Attachment 3). In order to submit the LOI as soon as possible, RD 2035 has requested that the CVFPB authorize the Executive Officer to transmit the LOI once finalized and signed. Staff agrees with this request and is recommending that the CVFPB authorize the Executive Officer to finalize a letter of transmittal (see Attachment 1) and forward it with the LOI to the USACE.

7.0 – ATTACHMENTS

1. Draft Letter of Transmittal to USACE.
2. Letter of Intent Prepared by RD 2035
3. Letters of Support from the County of Yolo and DWR for an LOI for a SWIF.
4. Excerpt from USACE Policy for Development and Implementation of System-Wide Improvement Frameworks, dated November 29, 2011.

STATE OF CALIFORNIA – THE NATURAL RESOURCES AGENCY **EDMUND G. BROWN, JR.,** GOVERNOR

CENTRAL VALLEY FLOOD PROTECTION BOARD
3310 El Camino Ave., Rm. 151
SACRAMENTO, CA 95821
(916) 574-0609 FAX: (916) 574-0682

November 20, 2015

Colonel Michael J. Farrell, District Commander
U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, California 95814

Subject: Reclamation District No. 2035 Letter of Intent to Develop and Implement a System-Wide Improvement Framework Plan for the Cache Creek – RD 2035 – Willow Slough Bypass Levee System

Dear Colonel Farrell:

The Central Valley Flood Protection Board (CVFPB) and its local non-Federal sponsors, Reclamation District No. 2035 (RD 2035), the County of Yolo (Yolo County), and the Department of Water Resources (DWR), wish to notify the U.S. Army Corps of Engineers (USACE) by this letter, that the local maintaining agencies (LMA) for the Cache Creek – RD 2035 – Willow Slough Bypass Levee System (Levee System) intend to develop and implement a System-Wide Improvement Framework (SWIF) plan in order for the Levee System to regain eligibility for rehabilitation assistance as authorized under Public Law 84-99 (PL 84-99). RD 2035 will lead the SWIF effort.

The Levee System includes approximately 27 miles of levee embankments along the south (right bank) levee of Cache Creek, the west (right bank) levee of the Yolo Bypass, and the north (left bank) levee of the Willow Slough Bypass. These levees were originally constructed by local interests and the USACE, with improvements and remedial measures implemented over the course of their existence, to bring these levees up to federal standards. However, due to the less rigorous State and federal encroachment permitting standards of the past, the Levee System is currently ineligible in the PL 84-99 Rehabilitation Program (RP).

RD 2035 has hired a consulting firm to form a new benefit assessment district, or adjust its current assessments as necessary, to provide additional funding for operation and maintenance activities, and to address the deficiencies identified by the USACE in the PI Report.

RD 2035, Yolo County, and DWR are aware of the USACE interim policy effective March 21, 2014, that established a subset of inspection categories used to determine PL 84-99 eligibility. The SWIF will include plans to address all of the inspection categories, but will place the subset of inspection categories as the higher priority.

USACE approval of this LOI will allow RD 2035, Yolo County, and DWR to move forward with preparation of a SWIF intended to meet the policy and public safety objectives of USACE, the State of California, and the LMAs, concurrent with making Levee System improvements that address system-wide issues and correct deficiencies in a prioritized manner.

We respectfully submit this LOI on behalf of RD 2035, Yolo County, and DWR in accordance with the USACE November 29, 2011 *Policy for Development and Implementation of System-Wide Improvement Frameworks,* and request reinstatement of eligibility in the PL 84-99 Rehabilitation Program for the Levee System while RD 2035, the lead LMA, develops a SWIF. Upon approval of this LOI, RD 2035 will commence efforts to develop a SWIF for USACE approval.

Sincerely;

Leslie Gallagher
Executive Officer

Attachment: RD 2035 Letter of Intent for a System-Wide Improvement Framework

cc: Mr. Robert Thomas, President
Mr. Mike Hall, General Manager
Reclamation District No. 2035 (Conaway Ranch)
45332 County Road 25
Woodland, California 95776

Ms. Regina Espinosa
Manager of County Service Areas and Special Districts
Yolo County Planning and Public Works Department
292 West Beamer Street
Woodland, California 95695

Mr. Jonathan Kors, P.E.
Vice President
Wood Rodgers, Inc.
3301 C Street, Building 100-B
Sacramento, California 95816

Mr. Keith Swanson, DWR (via electronic copy)
Mr. Mark List, DWR (via electronic copy)
Mr. Russ Eckman, Sacramento Maintenance Yard (via electronic copy)
Mr. Eric McGrath, DWR (via electronic copy)
Mr. Wade Wylie, DWR (via electronic copy)

Ms. Mitra Emami, CVFPB (via electronic copy)
Mr. Michael C. Wright, CVFPB (via electronic copy)
Mr. Jon Tice, CVFPB (via electronic copy)

SUPPORTING INFORMATION FOR THE CACHE CREEK – RD 2035 – WILLOW BYPASS LEVEE SYSTEM LETTER OF INTENT

1.0 INTRODUCTION

Reclamation District 2035 (RD 2035) has taken the lead in coordinating and developing the supporting material for the Letter of Intent (LOI) to develop a System-Wide Improvement Framework (SWIF) for the Cache Creek – RD 2035 – Willow Bypass Levee System (System 412 per the USACE) to regain eligibility in the P.L. 84-99 Rehabilitation and Inspection Program (RP). This attachment describes levee system deficiencies and system-wide issues that will be addressed under the SWIF to meet the interim eligibility criteria. The RD 2035 levee system is currently inactive in the RP.

The U.S. Army Corps of Engineers (USACE) Sacramento District conducted a Periodic Inspection (PI) for the Cache Creek – RD 2035 – Willow Bypass Levee System from December 11, 2012 to January 7, 2013, and provided a copy of its PI report to the Central Valley Flood Protection Board (CVFPB) on June 20, 2014. This LOI will focus on the actions that are necessary to address deficiencies to meet the interim eligibility criteria outlined in paragraph 6 of the interim policy.

The required information for the LOI is presented below.

2.0 LEVEE SYSTEM AND SEGMENT IDENTIFICATION AND DESCRIPTION (NLD SYSTEM ID: 5205000412)

The Cache Creek – RD 2035 – Willow Bypass Levee System to be covered by the SWIF is listed in the National Database (NLD) under System 412 (NLD System ID: 5205000412). The deficiencies identified by the USACE PI inspection program have resulted in an unacceptable rating for System 412. The System 412 includes five segments (as listed below) along the right bank of Cache Creek, the western and southern boundaries of the Cache Creek Settling Basin, the west bank of Yolo Bypass and the left bank of Willow Slough. Cache Creek separates System 412 and System 411.

- Cache Creek – Right Bank, Yolo County Public Works (segment CCKY)
- Cache Creek – Unit 2, Right Bank (segment CCK2)
- RD 2035 – Conaway – Unit 2 Yolo Bypass (segment CON2)
- RD 2035 – Conaway – Unit 3 Willow Bypass (segment CON3)
- Willow Slough Bypass – Unit 1, Left Bank (segment WBP1)

These segments are summarized below in **Table 1** and are shown on the attached USACE maps.

TABLE 1
CACHE CREEK - RD 2035 - WILLOW BYPASS LEVEE SEGMENTS (NLD System ID: 5205000412)

System	Segment Name (USACE LIS Code)	NLD Segment Number	River/ Channel	Description	Levee Length (Miles)	Location (Levee Miles)	LMA	Rating
412	Cache Creek – Right Bank, Yolo County Public Works (Segment CCKY)	5204000410	Cache Creek	Right (south) bank Cache Creek between County Road 18 and Interstate 5	0.47	0.0 to 0.47	Yolo County Public Works	Unacceptable
	Cache Creek – Unit 2, Right Bank (Segment CCK2)	5204000412	Cache Creek and CCSB	Right (south) bank Cache Creek, right (west) bank CCSB, and right (south) bank CCSB between Interstate 5 and Yolo Bypass.	11.43	0.0 to 11.43	DWR Sac Yard	Unacceptable
	RD 2035 – Conaway – Unit 2 Yolo Bypass (Segment CON2)	5204000971	Yolo Bypass	Right (west) bank Yolo Bypass between CCSB south levee and Willow Slough Bypass	7.65	0.0 to 7.65	RD 2035	Unacceptable
	RD 2035 – Conaway – Unit 3 Willow Bypass (Segment CON3)	5204000972	Willow Slough Bypass	Left (north) bank Willow Slough Bypass between Yolo Bypass and the Davis Wastewater Treatment Plant	2.56	0.0 to 2.56	RD 2035	Unacceptable
	Willow Slough Bypass – Unit 1, Left Bank (Segment WBP1)	5204001101	Willow Slough Bypass	Left (north) bank Willow Slough Bypass	5.05	0.0 to 5.05	DWR Sac Yard	Unacceptable

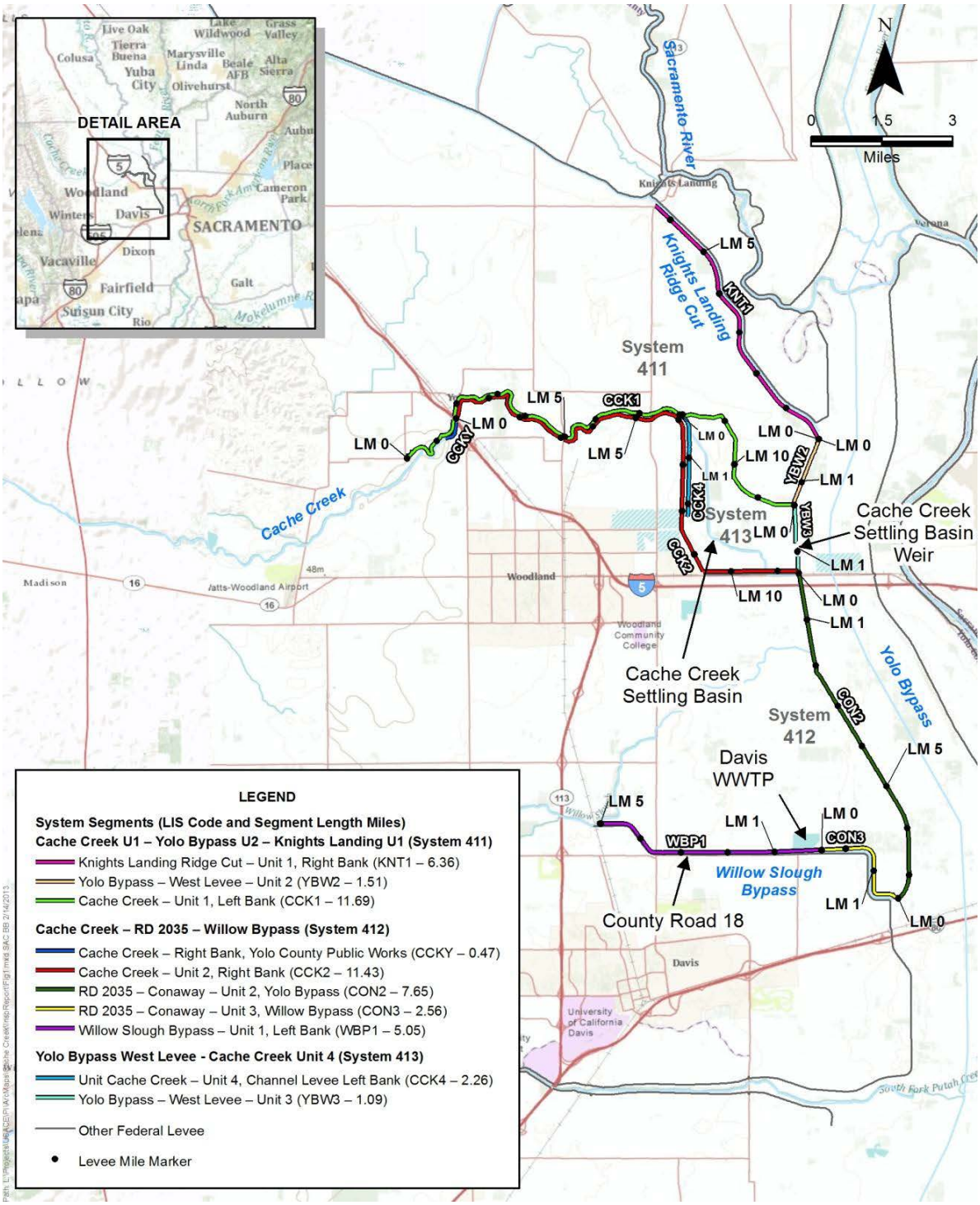

Figure 1: Cache Creek Levee Systems Location Map

Source: USACE Periodic Inspection Report

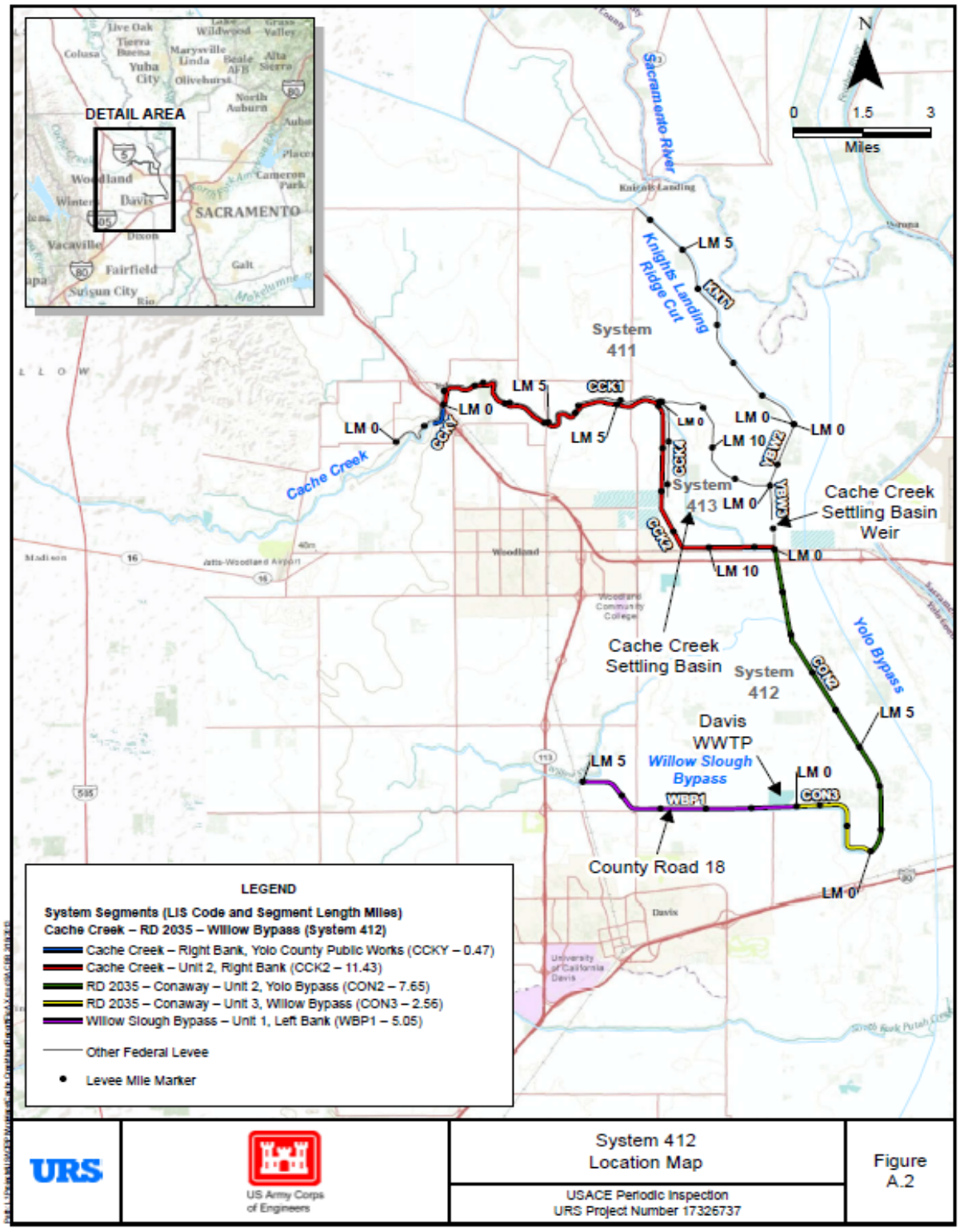

Figure 2: System 412 Location Map

Source: USACE Periodic Inspection Report

2.1 Public Sponsor

The CVFPB is the non-federal sponsor for this levee system, and the levees are maintained by Yolo County, the California Department of Water Resources (DWR) and RD 2035.

2.2 Potential Consequences

Available data from the National Levee Database and Operations and Maintenance (O&M) manuals indicate that levees in the Cache Creek levee systems protect approximately 48,700 acres, and a population of 6,979 (USACE PI Report, May 2013) which includes populations in the city of Woodland and the town of Yolo. However, a levee breach in this system could negatively impact the entire population of 55,646 (2012 Census) of Woodland. The Cache Creek levee systems protect urban, rural, and agricultural land. The urban areas protected by the system include residences, businesses, hospitals, schools, public buildings and property, and public lands. Although detailed estimates of property values are not readily available, levee failure could result in significant damage to property and could negatively impact the local economy. Please see Figures 3 and 4 (below) showing the areas being protected by Levee System 412.

This region is working to become a leader in economic sustainability, focusing on agricultural advancement, emerging green technology expertise, and eco-tourism and agri-tourism opportunities. The agricultural industry in the region is rapidly evolving with new crop types, farming practices, technologies, distribution networks, and organizational structures. Though the region still relies heavily on large-scale commodity crops such as tomatoes, alfalfa and rice, traditional large-scale food processing capacity has diminished. Nearly 40 different commodities are grown within the region.

In addition to agricultural damages, there are a number of industrial operations that may also be potentially impacted by a flood (such as the Walgreens distribution center). Below is a list of critical infrastructure that is also being protected by Levee System 412:

- Interstate 5
- Highway 113
- Railroads
- Yolo County Landfill
- City of Davis Wastewater Treatment Plant
- City of Woodland Wastewater Treatment Plant
- City of Woodland Pump Stations

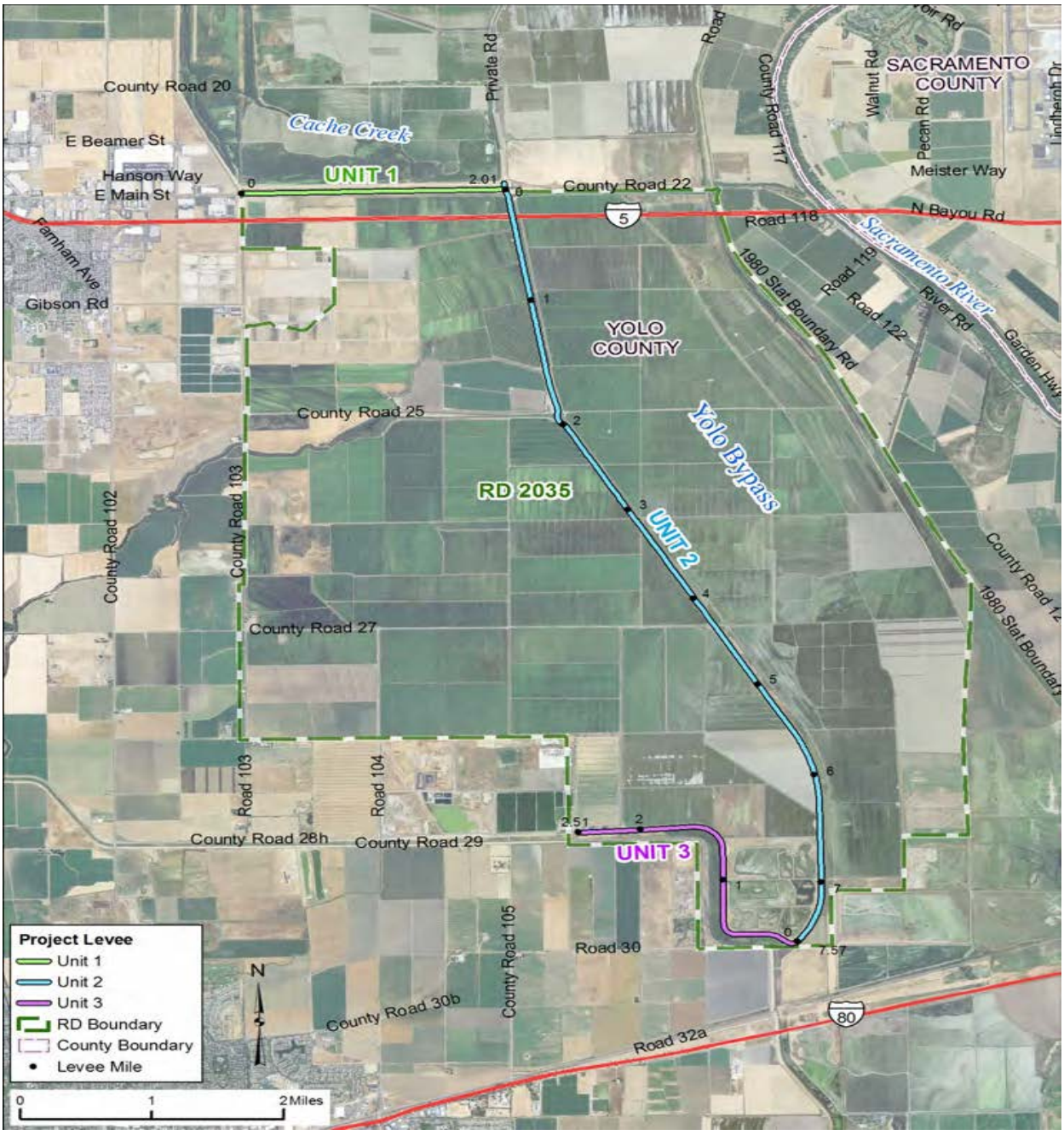

Figure 3: General Map Showing the RD 2035 Levees and Protected Area

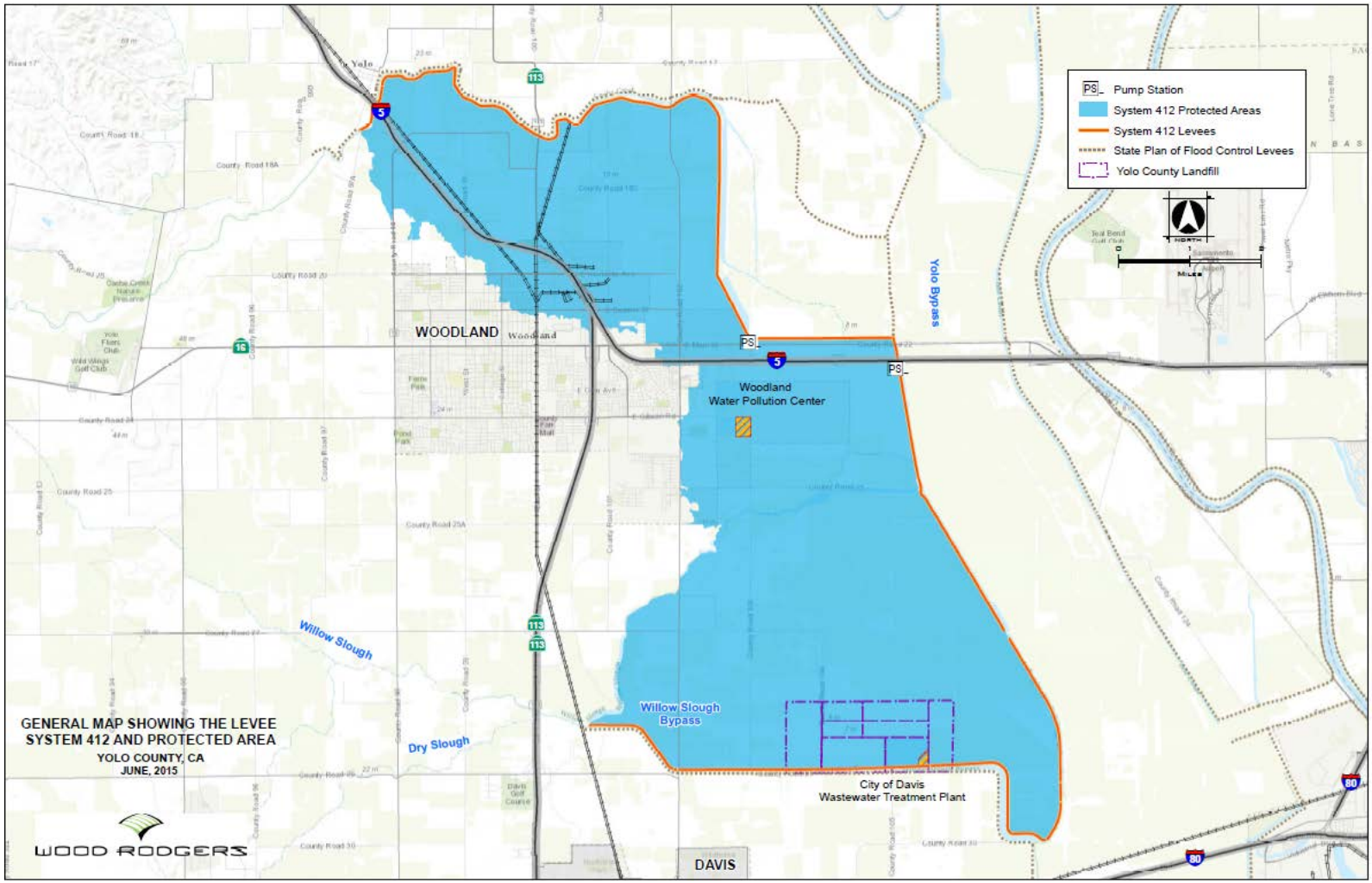

Figure 4: General Map Showing the System 412 Protected Area

2.3 History of the Levee System

Construction of flood protection in the Sacramento Valley began in the 1800s when landowners built low levees to protect their individual properties. Landowners eventually formed Reclamation Districts (RDs) and constructed more substantial levees in the late 1800s. After the Sacramento River Flood Control Project (SRFCP) was authorized in 1917, the USACE began improving the levees and flood protection system along the Sacramento River. According to the SRFCP O&M manuals, levees in the Cache Creek levee system were brought to USACE project levee standards by the late 1950s. Repairs and improvements to the Cache Creek levee system have been ongoing since the 1950s. The construction history for each of the levee segments have been provided in detail in the USACE Periodic Inspection Report No. 1 (May 2013), and is summarized below in **Tables 2, 3** and **4**.

TABLE 2
HISTORY OF PROJECT IMPROVEMENTS FOR CACHE CREEK UPSTREAM OF SETTLING BASIN (SEGMENTS CCKY AND CCK2)

Segment	Contract	Contractor	Description	End Date
CCKY	W-1105-eng-2036	Haas, Doughty, Jones, Marshall & Stacy	Levee repairs along Yolo Bypass and Cache Creek.	September 20, 1938
CCKY	Job Order 883	Hired labor	Setback of the south levee of Cache Creek opposite Yolo from the S.P.R.R. downstream 0.66 miles.	September 15, 1943
CCKY	DA-04- 167-CIVENG- 60-98	A. Teichert & Son, Inc.	Construction of the levees of Cache Creek from Yolo Bypass to high ground.	February 21, 1961
CCK2	W-1105-eng-2036	Haas, Doughty, Jones, Marshall & Stacy	Levee repairs along Yolo Bypass and Cache Creek.	September 20, 1938
CCK2	Job Order 618	Hired labor	Setback of the south levee of Cache Creek approximately one mile west of the Woodland-Knights Landing Bridge.	August 15, 1940
CCK2	Job Order 647	Hired labor	Setback of the south levee of Cache Creek at ½ mile above Dunhams Ranch.	August 31, 1940
CCK2	Job Order 906	Hired labor	Setback of the south levee of Cache Creek from the Power Line Road upstream 4.8 miles.	November 15, 1942
CCK2	W-1105-eng-4507	A. Teichert & Son, Inc.	Enlargement of the south levee of Cache Creek from the Power Line Road upstream 4.8 miles.	April 7, 1943
CCK2	Job Order 906	Hired labor	Repairs to the north and south levees of Cache Creek in the vicinity of the SPRR Knights Landing Branch.	September 15, 1943

TABLE 2
HISTORY OF PROJECT IMPROVEMENTS FOR CACHE CREEK UPSTREAM OF SETTLING BASIN (SEGMENTS CCKY AND CCK2)

Segment	Contract	Contractor	Description	End Date
CCK2	W-04-167-eng-328	H. Earl Parker	Construction of a sill at the opening of the Cache Creek Settling Basin.	January 7, 1944
CCK2	DA-04-167-CIVENG- 60-98	A. Teichert & Son, Inc.	Construction of the levees of Cache Creek from Yolo Bypass to high ground.	February 21, 1961
CCK2	DACW05-83-C-0140	Dave Mendez, Inc.	Emergency repairs to project levees on Cache Creek, Yolo County.	N/A
CCK2	W-1105-eng-2036	Haas, Doughty, Jones, Marshall & Stacy	Levee repairs along Yolo Bypass and Cache Creek.	September 20, 1938
CCK2	W-1105-eng-2925	Frederickson & Westbrook	Repair of levees on the Cache Creek Settling Basin.	December 18, 1940
CCK2	W-04-167-eng-1728	H. Earl Parker, Inc.	Construction of the Settling Basin entrance channel and training levee of Cache Creek.	June 28, 1950
CCK2	DA-04-167-eng- 585	A. Teichert & Son, Inc.	Surfacing of the West Training Levee of Cache Creek and Settling Basin entrance channel.	August 14, 1951
CCK2	W-1105-eng-2881	S. A. Marshall	Raising and strengthening the existing south levee of the Cache Creek Settling Basin.	December 9, 1940
CCK2	DA-04- 167-CIVENG- 60-98	Fresno Paving Company	Emergency repairs of the south levee of the Cache Creek Settling Basin.	November 9, 1956
CCK2	91-C- 0101	Dutra Construction	Cache Creek Settling Basin Enlargement	1993

(DWR constructed setback levees in 2006 along the left bank of Cache Creek from levee miles (LMs) 0.73 to 0.91, LM 1.09 to 1.23 and LM 2.42 to 2.57 as part of erosion repairs.)

TABLE 3
HISTORY OF PROJECT IMPROVEMENTS FOR YOLO BYPASS
(SEGMENT CON2)

Segment	Contract	Contractor	Description	End Date
CON2	W-04-167-eng-602	H. Earl Parker	Enlargement of the west levee of the Yolo Bypass from the Sacramento Northern Railroad south 1.6 miles and from the Old Willow Slough southerly 2.0 miles.	December 13, 1945
CON2	W-04-167-eng-1309	Peter Ferry & Son and John M. Ferry	Enlargement of the west levee of the Yolo Bypass	August 31, 1948
CON2	DA-04-167-CIVENG- 59-4	James H. Clack	Levee construction on the right bank of the Yolo Bypass in the vicinity of Old Willow Slough.	November 14, 1958
CON2	DACW05- 83-C-0148	Holman Pettibone	Emergency repairs to project levees on the Yolo Bypass right bank levee in RD 2035	N/A
CON2	DACW05- 87-C-0020	N/A	Emergency repairs to project levees along the right bank of the Yolo Bypass and portions of the left bank of Willow Slough in RD 2035	November 21, 1985
CON2	N/A	N/A	Emergency repairs to project levees along the right bank of the Yolo Bypass.	1997

TABLE 4
HISTORY OF PROJECT IMPROVEMENTS FOR WILLOW SLOUGH BYPASS
(SEGMENTS CON3 AND WBP1)

Segment	Contract	Contractor	Description	End Date
CON3	N/A	N/A	Levees were constructed on both banks of the relocated Willow Slough Channel from the Southern Pacific Railroad near Merritt Station to the Yolo Bypass.	N/A
CON3	N/A	N/A	The then existing west levee of the Yolo Bypass from the mouth of the relocated Willow Slough to the Yolo Causeway was enlarged on the landside to the required grade and section. Crushed rock surfacing was applied to the crown of the levees. Required turnouts and road approaches were also provided.	N/A
CON3	DACW05- 87-C-0020	N/A	Emergency repairs to project levees along the right bank of the Yolo Bypass and portions of the left bank of Willow Slough in RD 2035.	21 November 1985
WBP1	W-04-167-eng-1309	Peter Ferry & Son and John M. Ferry	Relocation of the Willow Slough Channel.	31 August 1948
WBP1	DA-04-167-eng-146	H. Earl Parker, Inc.	Channel clearing between U.S. Highway 99W and the Southern Pacific Railroad, and the low water crossings at County Roads No. 103 and 104.	6 May 1950

2.4 Status of Vegetation Variance

An approved vegetation variance is currently not in place for the Cache Creek – RD 2035 – Willow Bypass Levee System. Once the SWIF process is underway, it will be determined if a variance is necessary. If needed, a vegetation variance will be applied for accordingly.

3.0 DESCRIPTION OF DEFICIENCIES AND JUSTIFICATION OF SWIF APPROACH

Deficiencies for the Cache Creek – RD 2035 – Willow Bypass Levee System have been identified in the USACE's PI Report based on the inspections held from December 11, 2012 to January 7, 2013. On March 21, 2014, USACE issued the Interim Policy for Determining Eligibility Status of Flood Control Risk Management Projects for the Rehabilitation Program Pursuant to PL 84-99. This LOI and the subsequent SWIF will focus on addressing encroachments, slope stability, erosion and bank caving, and burrowing animal control on levees. These actions are necessary to address the deficiencies in order to meet the interim eligibility criteria outlined in Paragraph 6 of USACE's interim policy memorandum. **Table 5** (below) summarizes for each maintenance area the unresolved "Paragraph 6-rated item" deficiencies which will be the main focus of the SWIF plan development. However, all other deficiencies identified as unacceptable will also be addressed in the SWIF plan. The deficiencies will be evaluated and ranked according to their relative risk with the objective of correcting the worst deficiencies first so that the flood risk reduction is optimized. **Table 6** (below) shows the ratings assigned to each of the segments "Paragraph 6 rated item" based on the inspections conducted by the USACE from December 11, 2012 to January 7, 2013.

TABLE 5
NUMBER OF UNACCEPTABLE ITEMS LISTED FOR EACH MAINTENANCE AREA

Number of Unacceptable Items Listed for Each Maintenance Area					
Rated Items	**CCKY**	**CCK2**	**CON2**	**CON3**	**WBP1**
Encroachments	6	60	38	9	48
Slope Stability		3	12		3
Erosion/Bank Caving			19		1
Animal Control	7	18			20

Source: USACE PI Report

Table 6
SYSTEM 412 SEGMENT RATINGS

Rated Items	Rating					Risk Ranking	Comments
	CCKY	CCK2	CON2	CON 3	WBP 1		
Item 1: Encroachments	U	U	U	U	U	4	Encroachments likely to inhibit O&M and emergency operations. As part of the SWIF process worst encroachments will be addressed first
Item 2: Closure Structures	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Item 3: Slope Stability	M	M	U	A	U	2	Cracking and sloughing on water side slope in segment CON2 and longitudinal cracks and vertical offset in WBP1 will be high priorities for RD 2035 and DWR, respectively
Item 4: Erosion/Bank Caving	A	M	U	M	A	1	Erosion in to the levee section in CON 2 will be a top priority for RD 2035 to address
Item 5: Animal Control	U	M	M	U	U	3	Local levee maintaining agencies in System 412 are already focused on rodent control and vegetation management and plan to augment resources to eradicate rodents
Item 6: Culverts/Discharge Pipes	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Item 7: Under Seepage Relief Wells/Toe Drainage	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A = Acceptable; M = Minimally Acceptable; N/A = Not Applicable; U = Unacceptable

The majority of the issues listed in Table 5 and Table 6 are faced by levee-maintaining agencies (LMAs) throughout the Central Valley.

The scope and the extent of identified issues such as unauthorized encroachments, erosion and bank caving, and slope stability are a complex and involved undertaking due to compliance with the Endangered Species Act, required mitigation, and other environmental rules and regulations. However, the good news is that state and local LMAs are making progress to address these deficiencies. For example, the state of California has recently enacted legislation to improve the enforcement of regulations protecting levees, floodways, and flood control features. Water Code Section 8701(b) allows the DWR or a local LMA to initiate the enforcement process if the CVFPB delegates that authority to a DWR maintenance area or an LMA. This legislation also gave additional authority to the CVFPB to address non-compliant or unauthorized encroachments. We plan to work closely with the CVFPB and DWR to address encroachments, slope stability, erosion and other deficiencies highlighted in the PI report to meet the criteria outlined in paragraph 6 of the interim policy.

The Cache Creek – RD 2035 – Willow Bypass Levee System is maintained by three separate LMAs (i.e.: RD 2035, Yolo County, and DWR). As the cost for addressing the maintenance deficiencies will be in millions of dollars, preparing a SWIF will be a way to efficiently coordinate a consistent approach to addressing the identified deficiencies over time. A preliminary cost estimate for addressing rated maintenance deficiencies is shown in Table 7. This estimate will be refined as part of the SWIF process.

TABLE 7
Rough Cost Estimate to Address the Maintenance Deficiencies of Rated Items

Rated Items	Cost Per Unit	CCKY	CCK2	CON2	CON3	WBP1	Total
Encroachments	$15,000	$90,000	$900,000	$570,000	$135,000	$720,000	$2,415,000
Slope Stability	$15,000		$45,000	$180,000		$45,000	$270,000
Erosion/Bank Caving	$20,000			$380,000		$20,000	$400,000
Animal Control	$5,000	$35,000	$90,000			$100,000	$225,000
							$3,310,000

Addressing these maintenance deficiencies within the Cache Creek – RD 2035 – Willow Bypass Levee System will reduce the flood hazard in a risk-prioritized manner over time, on a system-wide basis, with the objective of correcting the worst deficiencies first. A SWIF will coordinate this effort into a coherent plan.

Levee maintaining agencies' activities, so far, are focused on rodent control, vegetation management by burning and spraying, and making sure that the levees are accessible and visible for flood fighting. More complex deficiencies, such as encroachments, arresting erosion, and slope stability, will be addressed through the development and implementation of SWIF. For the rated items listed in Table 5, RD 2035, Yolo County and DWR intend to develop the SWIF and to start addressing deficiencies in accordance with USACE O&M standards. Additionally, local maintaining agencies have committed to beef up their emergency operations and will develop contingencies plans to reduce the risk of levee failure posed by worst deficiencies until they are addressed as part of the SWIF process.

4.0 DEMONSTRATION OF FUNDING COMMITMENTS

The three LMAs responsible for O&M for the Cache Creek – RD 2035 – Willow Bypass Levee System have separate sources of funding for providing O&M for the levees within their jurisdiction. RD 2035 was formed under California law and generates its revenues by assessing property owners within the district. Yolo County and DWR are funded through local and state tax revenues, respectively. The combination of these revenues has supported, and will continue to support, annual O&M activities. RD 2035, DWR and Yolo County will increase their maintenance budgets to develop and implement the SWIF. RD 2035 will increase its assessment and secure funding through state grant programs funded by California Proposition 1E, along with the new programs that will be funded by the recently approved Water Bond. The Water Bond has an additional $395 million dedicated to flood management activities. These funds will be available to DWR and the CVFPB to work with local LMAs to reduce risk from flooding by repairing the worst deficiencies first.

DWR has recently launched new programs funded by California Proposition 1E. RD 2035 plans to apply for grant funding under the Flood System Repair Program and the Rural Levee Repair Program in order to be able to address some of the deficiencies highlighted by the USACE PI report.

DWR has also expended significant resources in the Urban Levee Evaluation (ULE) and Non-Urban Levee Evaluation (NULE) programs, as well as the development of the first Central Valley Flood Protection Plan. These efforts have generated a substantial volume of hydrologic, hydraulic, geotechnical, and mapping information which will be used in the development of the SWIF.

Any shortfall of funding to implement the SWIF work would probably be addressed through a combination of property assessment increases and state grant funding. The recently passed Water Bond also has substantial funding for addressing flood deficiencies. Once those programs

are available, RD 2035 would seek funding to develop and implement the SWIF. RD 2035 has already hired consulting firm to form a new benefit assessment district or adjust its current assessment to provide additional funding for operations and maintenance of flood control facilities necessary to address deficiencies noted by the USACE in their Periodic Inspection Report.

5.0 INTERIM RISK REDUCTION MEASURES

Residents have been informed of the current levee conditions through media releases, newspaper articles, and public outreach programs. An Interim Risk Reduction Measures Plan (IRRMP) will be developed as a part of the SWIF. To address the increased risk to life caused by deficiencies within the levee system, the IRRMP will include a combination of emergency response plans and communication and coordination with the property owners and evacuation planners.

The IRRMP will address the following issues: 1) implementing stockpiles of flood fight materials; 2) coordinating communications between LMAs and Yolo County emergency managers; 3) improving emergency operation and evacuation plans, and coordinating those plans between the agencies; 4) developing multiagency contracts with equipment and material suppliers to increase reliability during an emergency; and, 5) providing regional manpower assistance to areas in need in times of emergency. The LMAs will continue close coordination with Yolo County emergency managers to improve communication and evacuation planning and update emergency operations to address areas of increased interim risk. The final IRRMP will follow the guidance outlined in the USACE Engineering and Construction Bulletin (ECB) 2014-2 dated March 5, 2014. The IRRMP will include the actions that would reduce the potential inundation risks posed by the rated deficiencies as well as other deficiencies that have been identified as unacceptable by the USACE.

While seeking a SWIF, the LMAs and Yolo County are already implementing actions to reduce risk through routine maintenance activities. The LMAs will continue to reduce risk by repairing items that are listed as unacceptable in the PI report and by enhancing flood emergency response.

For example, a contract has recently been awarded by Yolo County to develop a flood emergency response project. The proposed project includes the System 412 levees and the infrastructure protected by them. This project includes the development of flood safety plans and maps for local levee maintaining agencies, a baseline flood hazard profile, a Yolo County Flood Emergency Response Plan (FERP), and revisions to the County Emergency Response and Hazard Mitigation Plans. The FERP will also evaluate levee breach scenarios and develop associated floodplains. When completed, this project will greatly reduce the risk to the people who are currently in harm's way and will meet the intent of the USACE ECB 2014-2. As part of

this project, new flood contingency maps, public safety and citizen maps, and flood emergency response and training exercises will also be developed. Additionally, levee maintaining agencies are also closely monitoring the unacceptable deficiencies and stand ready to flood fight at short notice, if needed. Large quantities of flood fighting material (plastic rolls and buttons, etc.) are stored at the Department of Water Resources Sacramento maintenance yard which is located nearby. Protocols have been well established among the System 412 levee maintaining agencies, DWR Flood Operations Center and the USACE Sacramento District staff for flood fighting. Contingency plans will be developed soon for flood fighting for segments that are listed unacceptable due to slope stability and erosion/bank caving. As part of the contingency plans, these segments will be monitored more frequently and flood fighting material will be stored close by to stabilize the situation, if needed.

An IRRMP will be developed as a part of the SWIF in accordance with the directive and guidance provided in the USACE ECB 2014-2.

6.0 INTERAGENCY COLLABORATIVE EFFORTS

RD 2035 recently hired Wood Rodgers, Inc. (Wood Rodgers) to provide engineering support and coordination among neighboring LMAs for developing and implementing the LOI and SWIF. Wood Rodgers' staff is meeting with DWR and the Yolo County staff on a regular basis. As reflected in their support letters, DWR and Yolo County are willing to work with RD 2035 to address the deficiencies in order to regain eligibility in the USACE PL 84-99 Levee Rehabilitation Program.

Collaboration is also planned with USACE and a number of other agencies for the development, implementation, and oversight of the SWIF. These agencies include:

- Federal Emergency Management Agency (FEMA): levee evaluation and future National Flood Insurance Program (NFIP) accreditation
- U.S. Fish and Wildlife Service (USFWS): protected species consultation
- National Marine Fisheries Services (NMFS): protected species consultation
- California Department of Fish and Wildlife (CDFW): protected species consultation and Wildlife Areas
- California Department of Water Resources (DWR): funding resources, flood risk management, levee evaluations, state-maintained areas
- Central Valley Flood Protection Board (CVFPB): encroachment permit coordination

7.0 ANTICIPATED PERMIT AND CONSULTATION REQUIREMENTS

The development and implementation of the SWIF may require consultation with a number of resource management, regulatory, and permitting agencies because many endangered and threatened species are found in the region.

Species in or adjacent to the footprint of the Sacramento River levees include:

- Valley Elderberry Longhorn Beetle (USFWS)
- Giant Garter Snake (USFWS)
- Sacramento River winter-run Chinook Salmon (NMFS)
- Central Valley spring-run Chinook Salmon (NMFS)
- Central Valley Steelhead (NMFS)
- North American Green Sturgeon (NMFS)

The required permits and approvals to implement the SWIF may include:

- Compliance with the California Environmental Quality Act (CEQA).
- California Department of Fish and Wildlife Streambed Alteration Agreement
- Central Valley Flood Protection Board Encroachment Permits
- Compliance with the National Environmental Policy Act (NEPA)
- U.S. Fish and Wildlife Service (Protected Species Consultation)
- National Marine Fisheries Services (Protected Species Consultation)
- Clean Water Act Section 404 Permits
- Clean Water Act Section 401 Water Quality Certification
- USACE approvals under 33 USC 408

Removal or modification of encroachments may impact one or more of the above-listed species, as well as other non-listed species. Consultation with USFWS, NMFS, and CDFW would be required in any instance where the action could impact these listed species. Encroachment removal or modification may also involve actions such as alterations in the streambed or disturbance to the waters of the United States and, as such, could require consultation with and permits from CDFW, USACE and the Central Valley Regional Water Quality Control Board.

In addition to consultation under fish and wildlife protection authorities and other environmental regulations, encroachment permitting, removal or modification will require significant

consultation between RD 2035, DWR, Yolo County and CVFPB, as well as individual encroachment owners and landowners. CVFPB is responsible for enforcing encroachment permit terms and conditions and has a process in place for such enforcement. It includes research of permit and as-built records, informal coordination with easement owners and land owners, providing notifications, and attending potential public hearings. This process can take a significant amount of time and can become litigious. Further, in some cases, encroachments pre-date the establishment of O&M regulations and/or are found in project as-built drawings. The above will be considered in the SWIF schedule for reconciling unacceptable items.

8.0 CONCLUSION

RD 2035, DWR and Yolo County will continue their efforts to address the deficiencies highlighted by the USACE and develop the SWIF to meet the interim eligibility criteria outlined in paragraph 6 of the interim policy. They will modify and/or remove the unacceptable encroachments over time, address slope stability, arrest erosion, and control burrowing animals on levees so that the Cache Creek – RD 2035 – Willow Bypass Levee System is in full compliance with the interim policy. RD 2035 has already hired consulting firm to form a new benefit assessment district or adjust its current assessment to provide additional funding for operations and maintenance of flood control facilities necessary to address deficiencies noted by the USACE in their Periodic Inspection Report.

County of Yolo

DEPARTMENT OF PLANNING, PUBLIC WORKS & ENVIRONMENTAL SERVICES

Taro Echiburú, AICP
DIRECTOR

Planning & Public Works
292 West Beamer Street
Woodland, CA 95695-2598
(530) 666-8775
FAX (530) 666-8156
www.yolocounty.org

Environmental Health
137 N. Cottonwood St, Ste 2400
Woodland, CA 95695
(530) 666-8646
FAX (530) 669-1448
www.yolocounty.org

Integrated Waste Management
44090 CR 28H
Woodland, CA 95776
(530) 666-8852
FAX (530) 666-8853
www.yolocounty.org

October 15, 2015

Mr. William H. Edgar, Board President
Central Valley Flood Protection Board
3310 El Camino Avenue, Room 151
Sacramento, California 95821

Subject: Cache Creek–RD 2035–Willow Bypass (Levee System 412) Letter of Intent to Develop and Implement a System-Wide Improvement Framework

Dear Mr. Edgar,

Reclamation District 2035 (RD 2035) is taking the lead in coordinating and developing the supporting materials for a Letter of Intent (LOI) to develop a System-Wide Improvement Framework (SWIF) for the Cache Creek–RD 2035–Willow Bypass Levee System to regain eligibility in the U.S. Army Corps of Engineers (USACE) PL 84-99 Levee Rehabilitation Program. The referenced LOI and SWIF will be based on the USACE Interim Policy for Determining Eligibility Status of Flood Risk Management Projects for Rehabilitation Program Pursuant to PL 84-99 issued on March 21, 2014 and will focus on actions to meet the interim policy criteria.

Yolo County is one of the neighboring local maintain agency (LMA) working closely with RD 3035 and the California Department of Water Resources (DWR) in this effort, and supports the LOI being prepared for submittal to the Central Valley Flood Protection Board (CVFPB) by RD 2035. Yolo County joins with RD 2035 and DWR in requesting that the CVFPB forward the referenced LOI to the USACE on Behalf of the LMAs.

If you need more information regarding this subject, please contact me at (530) 666-8045 or taro.echiburu@yolocounty.org.

Sincerely,

Taro Echiburu
Director

CC: Keith Swanson, DWR
Jon Ericson, DWR
Mark List, DWR
Cindy Tuttle, Yolo County
Regina Espinoza, Yolo County
Michael Wright, CVFPB
Mike Hall, RD 2035
Jonathan Kors, Wood Rodgers Inc.

STATE OF CALIFORNIA -- CALIFORNIA NATURAL RESOURCES AGENCY
EDMUND G. BROWN JR., *Governor*

DEPARTMENT OF WATER RESOURCES
DIVISION OF FLOOD MANAGEMENT
P.O. BOX 219000
SACRAMENTO, CA 95821-9000

October 28, 2015

Mr. William Edgar, President
Central Valley Flood Protection Board
3310 El Camino Avenue, Suite151
Sacramento, California 95821

Dear Mr. Edgar,

Reclamation District 2035 (RD 2035) is preparing a Letter of Intent (LOI) to develop a System-Wide Improvement Framework (SWIF) for the Cache Creek-RD 2035-Willow Bypass Levee System. RD 2035 will be leading the LOI effort for the basin. The Department of Water Resources (DWR) and Yolo County also maintain portions of the levee system. DWR operates and maintains a large portion of the Cache Creek levee and a portion of the Willow Slough Bypass. RD 2035 operates and maintains the Yolo bypass levee and a portion of Willow Slough Bypass. Yolo County operates and maintains an upstream section of the Cache Creek levee. As a partner maintaining agency with the basin, DWR intends to cooperate with RD 2035 and Yolo County, as needed, through the SWIF development effort within the parameters of our maintenance responsibilities and practices, in a manner consistent with the principles and strategies embodied in the Central Valley Flood Protection Plan (CVFPP).

It is important to note that some of the unacceptable issues highlighted by United States Army Corps of Engineers (USACE) periodic inspections are beyond the reasonable scope of responsibility of the local maintaining agency. In order to make steady progress in reducing flood risk for the people and property receiving protection from federal project levees, public entities at the local, State, and federal levels can best serve the public by collaborating on remediation of levee defects that transcend the technical and financial resource capabilities associated with annual maintenance programs. DWR is developing a number of programs to cost share with Local Maintaining Agencies (LMA's) on certain types of repairs which exceed their resource capabilities, as well as a new program to address larger-scale levee repairs and improvements. Regarding the difficult situation with encroachments, we applaud Central Valley Flood Protection Board (CVFPB) for its commitment to reinforce its role in resolving encroachment related issues such as abandoned pipelines and structures within the easements, including efforts to supplement the CVFPB's authority to carry out encroachment enforcement actions.

The overall goal of resolving levee deficiencies on a systemic level in order to steadily reduce flood hazard and consequence in a risk-prioritized manner over time is a common theme articulated in three key documents: (1) RD 2035's LOI; (2) the Central Valley Flood

Protection Plan (CVFPP) adopted by CVFPB on June 29, 2012; and, (3) USACE's "Policy for Development and Implementation of SWIF's" dated November 29, 2011.

Accordingly, in order for DWR to participate as a levee maintainer and support LOI's (and associated SWIF's) for levee systems that include State-maintained levees, all proposed actions regarding such levees must be consistent with the CVFPP and its implementation under the State Systemwide Investment Approach. For the levees it maintains, DWR will:

- develop a plan for remediation of deficiencies reasonably ascribed to annual maintenance;
- collaborate with local and federal partners in pursuing remediation of deficiencies beyond the reasonable scope of annual maintenance;
- remove and modify unauthorized encroachments consistent with CVFPB enforcement actions and DWR's responsibilities;
- continue to implement animal control measures consistent with the USACE Operations and Maintenance Manual for Units No. 120, No. 522, No. 126 and DWR's Rodent Abatement/Damage Reduction and Rehabilitation Program; and
- manage levee vegetation according to the Levee Vegetation Management Strategy embodied in the CVFPP and associated Conservation Framework, which includes removal of vegetation found to present an unacceptable threat.

In performing these activities, it must be recognized that State levee maintenance (whether performed within State maintenance areas funded by local beneficiaries pursuant to California Water Code (CWC) Section 12878, or performed pursuant to CWC Section 8361 and funded through the State's highly constrained and volatile General Fund), is subject to funding challenges similar to those faced by LMA's.

We look forward to working with the CVFPB, RD 2035, Yolo County, and USACE in this important effort to improve the long-term functioning of the Central Valley flood protection system.

Sincerely,

Mark List, Acting Chief
Flood Maintenance Office

cc: Jonathan Kors, Representative

c. Transitioning "Acceptable" or "Minimally Acceptable" Levees. Levees sponsors with levees that are "Active" in the rehabilitation assistance program under an existing vegetation variance or deviation from the standard that want to use the SWIF process to transition to a new vegetation inspection standard through the vegetation variance request process, or that would like to systematically improve the condition of participating levees, may maintain their P.L. 84-99 rehabilitation assistance eligibility as long as they continue to meet the milestones set forth in their applicable SWIF.

d. Reinstating Eligibility While Developing and Implementing a SWIF. Levee sponsors that receive an overall levee system inspection rating of "Unacceptable" or have been "Inactive" in the rehabilitation program may regain eligibility for P.L. 84-99 rehabilitation assistance through the SWIF process. Upon approval by USACE of the letter of intent, requirements described below, the levee sponsor will receive an initial of up to two-year reinstatement of eligibility for P.L. 84-99 rehabilitation assistance. Continued eligibility will be determined annually based on milestones described in the subsequent SWIF. Levee sponsors who have never been eligible for rehabilitation assistance under P.L. 84-99 cannot gain P.L. 84-99 rehabilitation assistance eligibility through the SWIF process.

7. Requirements for Development and Submittal of a SWIF. The development of a SWIF is a two-step process consisting of (1) a Letter of Intent from the sponsor briefly describing levee system deficiencies and justification for how a system-wide approach will optimize flood risk reduction, and (2) development of a SWIF for addressing deficiencies and reducing flood risk. Once a Letter of Intent has been approved by USACE, a levee sponsor has up to two years to develop a SWIF plan. Eligibility after this two-year period will be dependent on the levee sponsor's progress in achieving the milestones defined in the SWIF. The SWIF plan is intended to be a specific document that guides sponsor activities, including anticipated milestones, but may also be adaptable and should be revised if conditions or needs change during implementation. The requirements for the Letter of Intent and SWIF are described as follows:

a. Requirements for Submitting a Letter of Intent for a SWIF. A Letter of Intent must be signed by all associated levee sponsors for each levee system involved in developing the SWIF and must include the following:

(1) Identification of levee system or systems to be covered by the SWIF, including system name and system identification number as listed in the National Levee Database;

(2) Brief description of deficiencies or issues that will be included in the SWIF and discussion of how a system-wide approach will improve and optimize overall flood risk reduction. This includes identifying any conditions not within the control of the levee sponsor(s) that prevents them from correcting "Unacceptable" inspection items in a timely manner;

(3) Demonstration that significant non-federal resources have been, or will be, committed for developing and/or implementing the SWIF (e.g., state legislative action, bond financing);

(4) Anticipated interim risk reduction measures that will be implemented throughout the SWIF process, including overall risk communication approach that addresses the risk to life increased by system-wide deficiencies;

(5) Brief description of existing or planned interagency collaborative efforts that will contribute positively to SWIF development, implementation and oversight; and

(6) List of anticipated state and federal permits and consultation requirements, needed to implement the SWIF.

b. Requirements for Submittal of a SWIF. SWIFs are developed and implemented by levee sponsor(s), reviewed and accepted by USACE, and monitored by a USACE district to address system-wide issues in a prioritized way to optimize system-wide risk reduction. As a minimum for acceptance by USACE, the levee sponsor's SWIF must include the following:

(1) Identification of levee system or systems covered by the system-wide improvement framework, including system name and identification number as listed in the National Levee Database;

(2) Description of proposed levee improvement and justification on how the SWIF optimizes flood risk reduction;

(3) A plan and schedule for interagency collaboration, including environmental and/or Tribal consultation if applicable, in the implementation of the SWIF;

(4) Documentation of specific agreements, such as project specific agreements, between levee sponsors and USACE or other agencies/organizations related to implementation of levee modifications, under Section 408 or other overlapping USACE policies and studies, applicable to the levee systems identified in the system-wide improvement framework;

(5) Documentation of any regional considerations, approaches, and tools to be used during implementation of the system-wide improvement framework;

(6) Description of interim maintenance standards that will be implemented during the SWIF to mitigate conditions of uncorrected "Unacceptable" inspection items;

(7) IRRM plan, including a risk communication plan that addresses the risk to life increased by system-wide deficiencies;

(8) Schedules and milestones that will be used to monitor progress and to determine continued eligibility for P.L. 84-99 rehabilitation assistance while the SWIF is being implemented; and

(9) For those levee systems shown as accredited on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map that are part of the SWIF, demonstration that FEMA has been informed that these levee systems with "Unacceptable" inspection items are being addressed in a system-wide improvement framework. Please note that an extension of eligibility for rehabilitation assistance through the SWIF process by USACE does not constitute an extension of accreditation for FEMA purposes. FEMA determines how a SWIF may or may not impact accreditation.

8. Approval Process. The approval authority for reinstating eligibility for rehabilitation assistance under P.L. 84-99 via a Letter of Intent, and for acceptance of a SWIF is the Director of Contingency Operations and Homeland Security (DCO/HS) under USACE. District Commanders shall evaluate the levee sponsors' request for an extension, based on the criteria outlined in this memorandum. If the District recommends approval of an eligibility reinstatement, the District Commander shall forward this recommendation to the Division Commander for concurrence. The Division Commander will review the request and, if in concurrence, will endorse the recommendation and submit the request to the DCO/HS through the Regional Integration Team. The District and MSC Commanders shall coordinate these requests with their Levee Safety Officers for technical input. Eligibility reinstatement will not be implemented until the request is approved by DCO/HS. District Commanders are also responsible for monitoring levee sponsor milestones in implementing SWIFs, conducting reviews for eligibility extensions following initial reinstatement, submitting an accepted SWIF to the local FEMA regional office, and providing approval recommendations through the approval process described herein.

9. Progress Reporting and Continued P.L. 84-99 Eligibility. Once a Letter of Intent has been approved through the process in paragraph 8, a levee sponsor(s) has up to two years of reinstated rehabilitation assistance eligibility under P.L. 84-99 to develop a system-wide improvement framework. The District Commander shall review the levee sponsor's progress for development of the SWIF after the first year and, if deemed not satisfactory, the District Commander may recommend to the DCO/HS that the levee sponsor no longer be eligible for P.L. 84-99 rehabilitation assistance. Eligibility after the two-year period for SWIF development will then be dependent on the levee sponsor's progress in achieving the milestones defined in the SWIF. Continued P.L. 84-99 rehabilitation assistance eligibility during the implementation of the SWIF