



# YOLO COUNTY FLOOD GOVERNANCE STUDY

## AUGUST 2014

Prepared for the Westside Coordinating Committee & Project Delivery Team  
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## — EXECUTIVE SUMMARY —

Flood management in Yolo County is currently carried out by 14 separate local maintaining agencies, including reclamation districts (RDs), special districts and local municipalities. Each entity has varying capacities and responsibilities related to funding, operations and maintenance (O&M), planning, and policy. The region varies greatly in geography, historical development, and the presence of other enterprise activities such as water sales. The common thread among all flood agencies in Yolo County is the recognition that the flood network is an inter-dependent system. In many cases individual district levees rely on a neighboring levee's success. If one levee fails, the adjacent levee—along with the population and land it protects—are at risk. This study addresses two overarching needs: (1) the creation of a stronger regional voice to strengthen partnerships between State, regional and local flood management efforts; and (2) supporting districts' ability to complete their flood protection charge in a cost effective manner, in a changing regional context.

### **FEDERAL, STATE & REGIONAL CONTEXT**

Recent U.S. floods, new funding opportunities, updated legislative and infrastructure requirements, and changes in flood insurance policies are some issues driving change and encouraging new thinking and collaborative flood governance in Yolo County and elsewhere. Over 40 years of mapping under the National Flood Insurance Program (NFIP) has spurred significant land-use planning approaches. As a result of Federal Emergency Management Agency (FEMA) remapping and Congressional amendments to the NFIP, the program has been undergoing extensive

changes. All of these changes can have a significant effect on local homeowners and business. Navigating the NFIP requires high-level knowledge of the program as well as an understanding of local needs and perspectives. FEMA remapping can be particularly harmful to economic development in small and rural communities, such as Clarksburg and Knights Landing. The 2007 California Flood Legislation Package, followed by the adoption of the Central Valley Flood Protection Plan (CVFPP) and the development of the Regional Flood Management Plans (RFMPs) also highlight the requirement for consistency and coordination in flood risk protection and vulnerability reduction.

### **FLOOD MANAGEMENT FUNCTIONS**

Flood management districts and agencies must perform a multitude of functions. The wide scope of responsibility held by flood management districts/ agencies is challenged by multiple overlapping jurisdictions. Governance structures often differ depending on the particular management activity and context.

Comprehensive flood management requires a wide range of tasks, from administration to levee repair and reconstruction to flood emergency response. Various policy, program, planning, and implementing actions work in conjunction to support the regional flood management system. Each district and agency within the County plays a role, and in some way has unique responsibilities, capacities, expertise and tasks to administer. No single entity could be expected to perform all functions, and agencies often have overlapping

duties. This report—drawing from existing literature on flood governance—identifies seven (7) overarching flood management tasks, including:

- ◆ Operations & Maintenance;
- ◆ Design, Engineering & Construction;
- ◆ Flood Emergency Management;
- ◆ Flood System Planning & Policy Development;
- ◆ Floodplain Insurance, Technical Assistance, & Coordination with FEMA;
- ◆ Funding, Financing & Administration; and
- ◆ Land-Use Planning Coordination.

## COMPARATIVE GOVERNANCE STRUCTURES

Flood management governance structures vary with geography, population size, infrastructure type, historical district legislation, and public policy. Many agencies across California, as well as the Nation, have created frameworks to address these variances, and to implement unique management structures. Several organizations and agencies reviewed in this study illustrate possible alternatives for Yolo County. Five (5) case studies were conducted; reflecting governance structures that are County led, Joint Power Authorities, and/or regionalized entities such as the Southeast Louisiana Flood Protection Authorities. Each framework offers specific lessons in successful flood governance. An overarching theme of the case studies is that formalized partnership increases collaboration, comprehensive management, and financial capacity.

## OVERVIEW OF YOLO COUNTY STAKEHOLDER FINDINGS

The Project Delivery Team (PDT) interviewed groups of district and agency representatives whom share political, and/or hydraulically linked boundaries. Follow-up interviews were also conducted, as necessary. Additionally, over twenty individual interviews were completed with flood management consultants, Department of Water Resources (DWR) representatives, and flood managers in other areas. Interviews consisted of an open dialogue about basic data as well as salient geographic and historical information. The PDT also solicited feedback on current challenges, opportunities, and ideas identifying what—if any—governance structure alterations could be mutually beneficial for the Yolo County region.

Four main commonalities exist among most flood agencies in Yolo County: (1) there is inadequate funding at all governance levels to accomplish the tasks necessary for a strong system; (2) increasing and ever-changing criteria, assessment methods, and inspecting/reporting requirements at the federal and State levels is challenging; (3) the benefit area far exceeds the RD boundaries that currently fund levee task work; and (4) it is commonly recognized that the flood network is an inter-dependent system.

## RECOMMENDATIONS & NEXT STEPS

Yolo County is vital to many Central Valley flood proposals. The Central Valley Flood Protection Plan outlines the need for increased capacity, and alternative governance for the Yolo Bypass. To meet current demands that also speak to the County's interests, Yolo County, surrounding counties, and relevant agencies are collaborating on the Yolo Bypass Cache Slough Integrated Water Management

Plan (IWMP), which seeks to provide system-wide flood benefits through modifications to the Yolo Bypass while simultaneously implementing significant habitat conservation, water supply, and agricultural sustainability improvements. The County is also active in planning for increased regional emergency response capacity, led by the County OES and funded by a phase 1 planning grant from DWR.

RDs are well suited to continue routine O&M and on-site emergency response, if adequately funded. These tasks should remain local. However, some flood work would benefit from more regionalization and coordination. Based on the alternatives evaluated, we believe that a phased approach that combines **Alternative 2: “Regional Communication and Collaboration Network”**, and **Alternative 3: “The Hydraulic Basin”** Approach is the most appropriate for this region.

### **Phase 1: One- to Two- (1-2) Year Implementation Horizon**

***The Yolo Bypass should be regarded as a separate, regional infrastructure project, and funded regionally.***

The State should implement a regionally funded multi-objective approach to managing and maintaining the Yolo bypass levees and related facilities within the system. This approach requires a new source of annual funding, and possibly a new governance model for the bypass. Creating a new governance and financial model for Yolo Bypass levee O&M will need additional research to determine its viability as an option.

***Local flood management in Yolo County will benefit from regional coordination.***

Alternative 2: “Regional Communication and Collaboration Network” proposes a Yolo

County forum to integrate regional flood issues. This forum could be situated either in the Water Resources Association of Yolo County, or through the Westside and Eastside committees for the Flood Protect RFMP. The Department of Water Resources has committed additional funding for RFMP groups, which could serve as an interim funding source (through 2017) until additional funds are secured.

Alternative 2 also proposes a designated, consistent point of contact for all County flood management needs. This point of contact should be a County staff member, at 25% or more time, located in the OES or the County Administration Office. To support an effective flood management system that protects both the County’s and residents’ interests, the County must be a prominent player in regional flood management planning. Taking an active role will require designating responsibility, authority and funding to a County representative. The County representative’s responsibilities could include: County/regional coordination, grants administration, capacity building, and environmental permit support.

### **Phase 2: Two- to Five- (2-5) Year Implementation Horizon**

***Hydraulically linked basins need coordinated structures.***

As Alternative 3 “The Hydraulic Basin” Approach explains, Yolo County RDs would benefit if each hydraulically connected basin operated as if it were a single entity. This is particularly true where larger, better-funded RDs depend on the levee condition and performance of smaller, under-funded and under-staffed RDs. We recommend that each of the five basins (1: North County/ Knights Landing; 2: Elkhorn; 3: Woodland/Conaway; 4.: WSAFCA, and 5: Clarksburg) develop their

own coordinated governance plans (see Map #6 on page 93). These designations are consistent with current engineering logic, and formally coordinate areas that are already working together and/or depending on one another's compliant flood infrastructure management. Based on stakeholder feedback, we have recommended coordination options recognizing each area's unique challenges.

### **Phase 3: Five to Ten (5-10) Year Implementation Horizon**

The long-standing history of decentralized flood management along the Sacramento River system has created a fragmented—and in many ways inefficient—framework. As governance continues, engaging in a system that struggles to meet updated federal and State regulations, as well as high financial costs, is burdensome. Yolo County, in partnership with other regional entities, must find progressive alternatives to meet their charge; flood risk protection and reductions in vulnerability. Restructuring of the current decision-making framework will enhance responsible parties' ability to support an infrastructurally sound flood management network.

Yolo County and its surrounding region (including Solano and Colusa counties) are in a favorable position to reorganize the existing flood management framework. Restructuring could take a regional- or Central Valley- wide approach. Building off the Louisiana model, Yolo County could move toward a regional governance structure that incorporates all local RDs and their many technical experts into the decision-making process. Phases 1 & 2, recommended above, would reduce localized Yolo Bypass responsibilities and create five distinct “basins,” thus supporting the creation of a regionalized entity. Successful implementation of Phases 1 & 2 would foster conditions for effective local representation in system-wide governance.

Capitalizing on the Flood Protect RFMP process, surrounding counties could participate in a regional entity that collectively manages system-wide improvements and competitive grants, and also speaks with one voice regarding regional flood management issues. Similar to Louisiana, districts could continue assessing locally if desired, as well as managing routine O&M and emergency response activities locally. Incorporating local knowledge and participation along with technical expertise will increase the regional entity's capacity for a cohesive flood management system that reduces flood vulnerability and public safety risk. Effectively bringing the best of local, regional, State, Tribal, and federal capabilities together will enhance the resiliency of the flood management system and serve as a nation-wide governance model.

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## Acronyms & Abbreviations

Acronym/ Abbreviation	Full Title/ Phrase
AB	Assembly Bill
ARBRCUP	American River Basin Regional Conjunctive Use Program
BAU	Business as Usual
BDCP	Bay Delta Conservation Plan
CCSB	Cache Creek Settling Basin
CCVFCA	California Central Valley Flood Control Association
CPRA	Coastal Protection and Restoration Authority
CSA	Community Services Area
CTP	Cooperating Technical Partner
CVFPB	Central Valley Flood Protection Board
CVFPP	Central Valley Flood Protection Plan
CVP	Central Valley Project
CWA	United States Clean Water Act
CWCB	Colorado Water Conservation Board
CWP 2013	California Water Plan Update 2013
DFM	Division of Flood Management
DWR	California Department of Water Resources
Eastside Committee	Sacramento Area Flood Control Coordinating Committee
FEMA	Federal Emergency Management Agency
Flood Protect RFMP	Lower Sacramento/Delta North Regional Flood Management Plan
FOC	Financial Oversight Committee
FSRP	Flood System Repair Project
HUD	United States Department of Housing and Urban Development
IRWM	Integrated Regional Water Management
IRWMP	Integrated Regional Water Management Plan
IWMP	Integrated Water Management Plan
JAC	Joint Administration Committee
JPA	Joint Powers Authority
KLRDD	Knights Landing Ridge Drainage District
LAFCO	Local Agency Formation Commission

## YOLO COUNTY FLOOD GOVERNANCE STUDY

Acronym/ Abbreviation (cont.)	Full Title/ Phrase (cont.)
LMA(s)	Local Maintaining Agency/ Agencies
MOU	Memorandum of Understanding
MSR	Municipal Service Report
NAS	National Academy of Sciences
NCFC & WCD	Napa County Flood Control and Water Conservation District
NFIP	National Flood Insurance Program
NGO(s)	Non-governmental Organization(s)
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NULE	Non-Urban Levee Evaluations
O&M	Operations and Maintenance
OES	Office of Emergency Services
PDT	Project Delivery Team
PIR	Periodic Inspection Report
PL	Public Law
Prop	Proposition (ballot initiative or legislative bond)
Prop 1E	Disaster Preparedness and Flood Prevention Bond Act
Prop 84	Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006
RCD	Resource Conservation District
RD(s)	Reclamation District(s)
RFMP(s)	Regional Flood Management Plan(s)
RIP	Rehabilitation and Inspection Program
RWA	Regional Water Authority
SAFCA	Sacramento Area Flood Control Agency
SB	Senate Bill
SB 5	Central Valley Flood Protection Act
SLFPA	Southeast Louisiana Flood Protection Authority
SLFPAE	Southeast Louisiana Flood Protection Authority, East Bank
SLFPAW	Southeast Louisiana Flood Protection Authority, West Bank
SPFC	State Plan of Flood Control
SRWSLD	Sacramento River West Side Levee District

Acronym/ Abbreviation (cont.)	Full Title/ Phrase (cont.)
SWP	State Water project
TAC	Technical Advisory Committee
Tribe	Yocha Dehe Wintun Nation
TRLIA	Three Rivers Levee Improvement Authority
ULE	Urban Levee Evaluations
USACE	United States Army Corps of Engineers
WEP	Water Efficiency Program
Westside Committee	Lower Sacramento River Flood Plain Coordination Committee
WRA	Water Resources Association
WRDA 2014	Water Resources Development Act of 2014
WSAFCA	West Sacramento Area Flood Control Agency
WSLIP	West Sacramento Levee Improvement Program
YCFC & WCD	Yolo County Flood Control and Water Conservation District

## — CHAPTER 1 — STUDY OVERVIEW

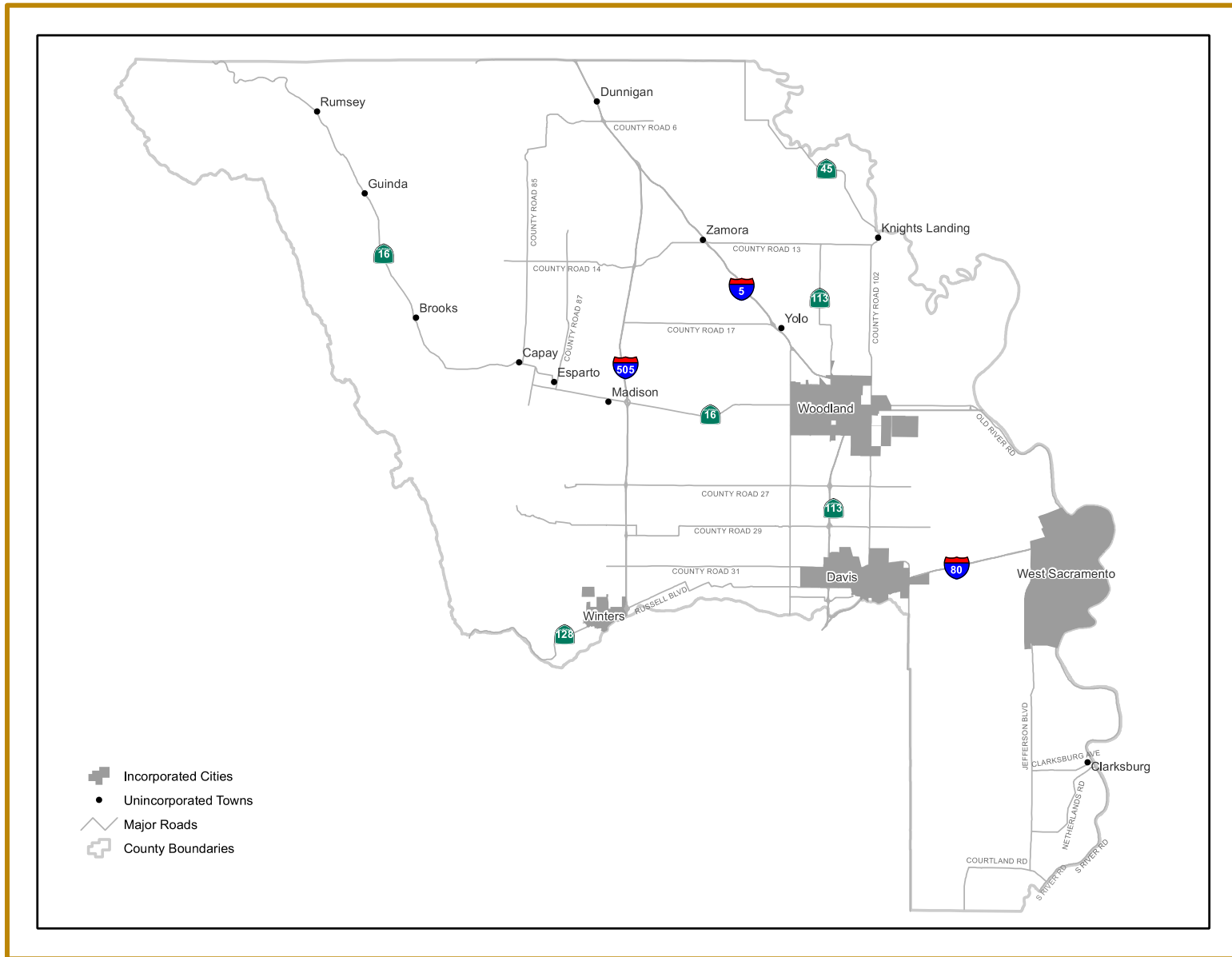
### 1.1 Study Rationale

Flood management in Yolo County is currently carried out by 14 separate local maintaining agencies (LMAs), including reclamation districts (RDs), special districts, and local municipalities. Each entity has varying capacities and responsibilities related to funding, operations and maintenance (O&M), planning, and policy. Further, there is great variety in geography, historical development, and the presence of other enterprise activities, such as water sales. The common thread between all flood agencies in Yolo County is the recognition that the flood network is an inter-dependent system. In many cases individual district levees rely on a neighboring levee's success. In many areas, if one levee fails, the adjacent levee and the population and land it protects are at risk. This study addresses two overarching needs: (1) the creation of a stronger regional voice to strengthen partnerships between federal, Tribal, State, regional, and local flood management efforts; and (2) supporting districts' ability to complete their flood protection charge in a cost effective manner, in a changing regional context.

Recent U.S. floods, new funding opportunities, updated legislative and infrastructure requirements, and changes in flood insurance policies are some issues driving change and encouraging new thinking and collaborative flood governance in Yolo County and elsewhere. The National Flood Insurance Program (NFIP) has spurred land-use planning approaches, and Federal Emergency Management Agency (FEMA) remapping. NFIP is constantly undergoing extensive changes, and requires high-level negotiation that relies on understanding local needs and perspectives. FEMA remapping affects significant areas within Yolo County, and is particularly harmful to economic development in small and rural communities, such as Clarksburg and Knights Landing. The 2007 California Flood Legislation Package, followed by the adoption of the Central Valley Flood Protection Plan (CVFPP) and the development of the Regional Flood Management Plans (RFMPs) also highlight the necessity of coordination in flood risk protection and vulnerability reduction.

Flood management agencies and districts must perform multiple functions, and governance structures often differ depending on the particular management activity and context. For example, regional funding, system planning, emergency preparation planning, and major project implementation might suggest some form of consolidated or cooperative governance. Day-to-day levee maintenance and actual "flood fighting" rely on strong local knowledge and local governance. Most districts require some levee rehabilitation, and lack adequate funding and staff to complete all improvement work. Complex assessment, permitting, design, planning, and other regulatory processes overwhelm some districts' ability to effectively manage their areas. This study represents a collaborative effort—guided by the Project Delivery Team—to engage stakeholders in identifying and weighing alternative governance options that could enhance local flood management entities and encourage a unified regional voice.

Map 1. Yolo County





## 1.2 Study Goal

This goal of this study is to examine existing flood governance throughout Yolo County (on the Sacramento River/Yolo Bypass system) and assess whether alternative models might lead to more effective operations, maintenance, and implementation of flood management. Through background research, interviews, case study evaluation, and identification of alternative governance models, the study recommends an updated and stronger flood governance structure.

## 1.3 Study Process

The University of California, Davis Collaboration Center was asked to conduct the governance study. The contract scope of work identified the following tasks:

- ☑ Document the existing Yolo County flood management governance structures;
- ☑ Engage local stakeholders to assess existing governance structures, discuss identified flood work that is needed, and interest in possible alternatives;
- ☑ Identify alternative organizational models relevant to flood governance that also relate to Yolo County's unique physical and organizational characteristics;
- ☑ Develop potential organizational alternatives and evaluation criteria for assessing their applicability and likelihood of stakeholder acceptance associated with each alternative; and
- ☑ Provide recommendations for an organizational structure and next steps.

## 1.4 Report Organization

This report summarizes the findings of the governance study, and includes matrices, maps, flow charts, and appendices. The report is divided into five chapters, described below:

### **Chapter 1: Study Overview**

This chapter is a brief description of the study purpose, goals and process.

### **Chapter 2: Existing Conditions and Background**

This chapter describes the complex framework of flood management within the Central Valley, with a focus on Yolo County. Information includes relevant legislation, plans, funding, and current organizational structures. These elements directly impact and inform Yolo County flood governance today and in the future.

### **Chapter 3: Stakeholder Perspectives**

This section highlights challenges, opportunities, and suggestions for the future, based on interviews with current Yolo County flood management agencies and other stakeholders.

## **Chapter 4: Comparative Governance Structures**

Chapter four provides a comparative analysis of relevant organizational structures from around the country, which offer lessons for Yolo County and/ or could be used as potential models. Key characteristics and lessons learned are summarized.

## **Chapter 5: Evaluation of Alternatives**

Chapter five identifies evaluation criteria to help determine the most promising organizational alternative for Yolo County. The chapter also identifies a broad range of organizational alternatives that emerged through the existing conditions inventory, stakeholder interviews, and analysis of comparable systems. Alternatives are assessed based on pre-determined evaluation criteria and potential for improved governance. Chapter five concludes with recommendations and next steps for both organizational restructuring and further study.

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## — CHAPTER 2 —

# BACKGROUND AND EXISTING CONDITIONS

### 2.1 REGIONAL CONTEXT

Yolo County flood governance and management is subject to many federal, State and local policies and regulations that shape implementation activities. Relevant legislation, regulation, plans, and funding mechanisms that apply to Yolo County flood management are listed below. Also included are descriptions of current regional collaboration efforts that inform decision-making processes, as well as the development of the Lower Sacramento/Delta North Regional Flood Management Plan (Flood Protect RFMP). For more detailed information on broader Central Valley legislation and regulations, see the Department of Water Resources' (DWR's) *2007 California Flood Legislation Summary*.

#### LEGISLATION

##### *National*

##### **The Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12)**

BW-12 requires FEMA and other relevant agencies to make significant programmatic alterations to the National Flood Insurance Program (NFIP). This federal legislation extends the program for five years, while actualizing insurance rates. In some cases, rates for policyholders will rise significantly to more accurately reflect flood risk. BW-12 was recently amended by the **Homeowner Flood Insurance Affordability Act of 2014**. The new policy lowers and repeals some insurance rate increases, imposes an annual surcharge to help cover the cost of the program, refunds some policyholders for past overpayments, and authorizes additional funding for the National Academy of Sciences (NAS) to complete an affordability study. Implementation of the NFIP and floodplain remapping significantly impacts Yolo County, particularly in the small communities of Clarksburg and Knights Landing. Knights Landing has already been remapped into the 100-year floodplain, and Clarksburg is in danger of remapping. This alteration restricts development and rebuilding, and makes flood insurance less affordable.

##### **Public Law 84-99 (PL 84-99)**

PL 84-99 authorizes the United States Army Corps of Engineers (USACE) to implement the Rehabilitation and Inspection Program (RIP). RIP provides flood fighting and financial recovery assistance to areas with levees and other flood infrastructure, once they obtain PL 84-99 eligibility. Eligibility is determined by inspections that identify if the O&M of the relevant structure follows USACE's mandated guidelines. Many Yolo County levees are not eligible due to existing non-compliant maintenance practices, lack of operating funds, and infrastructure issues. Yolo County (and much of the region) is economically vulnerable to a major flood due to levee non-compliance, and would be less eligible to receive financial rehabilitation assistance.

## **Water Resources Development Act of 2014 (WRDA 2014)**

WRDA authorizes the USACE to implement specific projects and studies where federal cost-share is desired. WRDA also guides national flood governance policy. Congress aims to pass the Act in two-year cycles, but is currently on more of a seven-year cycle. WRDA 2014 recently passed and contains important provisions including vegetation policy analysis, credit procedures, and relevant Central Valley project approvals and appropriations. WRDA legislation impacts Yolo County's ability to seek reimbursable credit and creates conditions for PL 84-99 eligibility.

## **California State**

### **Proposition 218, 1996 (Prop 218)**

Proposition 218 ensures that most charges, assessments, and taxes levied on property owners are voter approved. Prop 218 impacts flood management financing, as it requires voter approval for levying property-based assessments by an LMA for flood related infrastructure and O&M activities. WSAFCA successfully levied assessments for their West Sacramento Levee Improvement Program (WSLIP). Prop 218 impacts existing districts (as well as any districts that elect to go through a consolidation process) by requiring existing and consolidated districts to undergo a public vote to increase property assessments.

### **The California Flood Legislation Package of 2007**

The California Flood Legislation Package was enacted as a response to recognized flood risk vulnerability in California's Central Valley. The aftermath of Hurricane Katrina also spurred national legislative reforms that created more stringent insurance and infrastructure guidelines. California voters also approved two bond measures, described below, to support the rehabilitation of the State Plan of Flood Control (SPFC) and other facilities. The legislature provided guidance on the appropriations of those funds through the following four bills:

#### **Senate Bill 5, The Central Valley Flood Protection Act**

This bill required the development of the Central Valley Flood Protection Plan (CVFPP) by mid-2012. The plan, authored by DWR and approved by the Central Valley Flood Protection Board (CVFPB), establishes a system-wide approach to improving SPFC facilities, and recommends both structural and governance methods of improving flood risk reduction and vulnerability. The bill also requires 200-year flood protection for all urban and urbanizing areas within the flood zone. The CVFPP was written and adopted, and includes recommendations that directly impact Yolo County (see CVFPP description below).

#### **Assembly Bill 156, Flood Control**

AB 156 requires annual financial and infrastructure reporting requirements for LMAs operating project and non-project levees. Reports must include levee condition and performance information, summaries of annual maintenance performed, and anticipated work plan and costs for O&M for the current fiscal year. This information is consolidated by DWR and presented to the CVFPB annually. This bill affects all Yolo County RDs, by increasing reporting requirements and costs.

### Assembly Bill 162, General Plans

This bill established floodplain management integration requirements into City and County general plan updates. Draft general plan elements or amendments must be sent to the CVFPB for review and comment. The CVFPB states that DWR supports this work by offering technical assistance to any local jurisdiction that seeks to reduce flood risk and vulnerability through land-use planning amendments.

### Assembly Bill 70, Flood Liability

This bill provides incentives to local jurisdictions to reduce flood vulnerability through prescribed goals and policies in adopted general plans. If they do not, and further exacerbate the State's liability in flood prone areas, local jurisdictions may be financially accountable for property damage rather than receiving State support. The cities of Davis, Woodland, West Sacramento, and the County, all have updated General Plans that include flood reduction policies and evacuation procedures.

## **The Delta Flood Protection Act**

### Senate Bill 34 (1988)

SB 34 created the Delta Flood Protection Fund to allocate approximately \$12 million in State funds annually for Delta levee maintenance. Of this, \$6 million was for the Delta Levee Maintenance Subventions Program. The subventions program was originally limited to "non-project levees," located within the Delta Primary Zone, which are levees constructed without USACE and federal cost-share assistance. RDs 150, 307, and 999—located in the Clarksburg region of Yolo County—lie within the Delta Protection Commission's designated Delta Primary Zone. However, they are not eligible for this program because they are "project" levees.

### Assembly Bill 360 (1996)

This bill extended the sunset date of the Delta Flood Protection Fund to 2030, and expanded Delta levee maintenance and rehabilitation cost-share assistance to project levees located within the Delta Primary Zone. The bill also expanded the subventions program to include habitat and navigation improvements. These expansions made the Clarksburg RDs, save for RD 765 (which is not within the Delta Primary Zone), eligible for the program. Since 1996, RDs 150, 307, and 999 have benefitted from DFPF assistance.

### **Disaster Preparedness and Flood Prevention Bond Act (Proposition 1E)**

Passed by the voters in 2006, this bond authorizes \$4.9 billion in general obligation funds for rehabilitation of California's most vulnerable flood control structures and areas. Most of these funds have been committed, though roughly \$1 billion remains to be allocated. Prop 1E funds are collected statewide. Some funds are distributed broadly, while others are specifically delegated to Central Valley projects only. Funds are often distributed through competitive grant processes. Prop 1E finances the RFMP process, this governance study, a variety of Central Valley and Yolo County specific planning processes, and implementation projects.

### **Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Proposition 84)**

This Bond measure authorizes roughly \$5.4 billion in general obligation bonds to a variety of water related issues. \$800 million of those funds were appropriated to Flood Control in supplement to Prop 1E, and were dispersed among various programs. The State reports that just over \$707 million has been committed, with a remainder of \$93 million currently unallocated.<sup>1</sup> Prop 84 funds are collected statewide. Some funds are distributed broadly, while some are specifically delegated to Central Valley projects only. Funds are often distributed in the form of competitive grants.

## **FLOOD MANAGEMENT PLANS**

### ***State Plans***

#### **The California Water Plan Update 2013, Chapter 4: Flood Management**

The California Water Plan Update 2013 (CWP 2013) outlines flood management functions across California. Chapter 4; Flood Management, discusses in detail: governance, management approaches, shared planning benefits, climate change impacts, and other potential issues related to state-wide flood planning. The chapter also identifies current infrastructure and non-structural challenges, implementation barriers, and provides recommendations to improve flood management resiliency. The Plan recommends working across governance scales to adjust and encourage funding opportunities. The Plan also recommends that local entities pursue regional permitting processes, and realign internal governance structures to better support regional flood management planning and projects.

#### **Central Valley Flood Protection Plan (CVFPP) (2012)**

The CVFPP is a guide to managing flood risk in the Central Valley, and will be updated every 5 years. The plan describes strategies for structural updates, and offers recommendations for agency coordination and alignment. The CVFPP creates a framework where State, regional and local

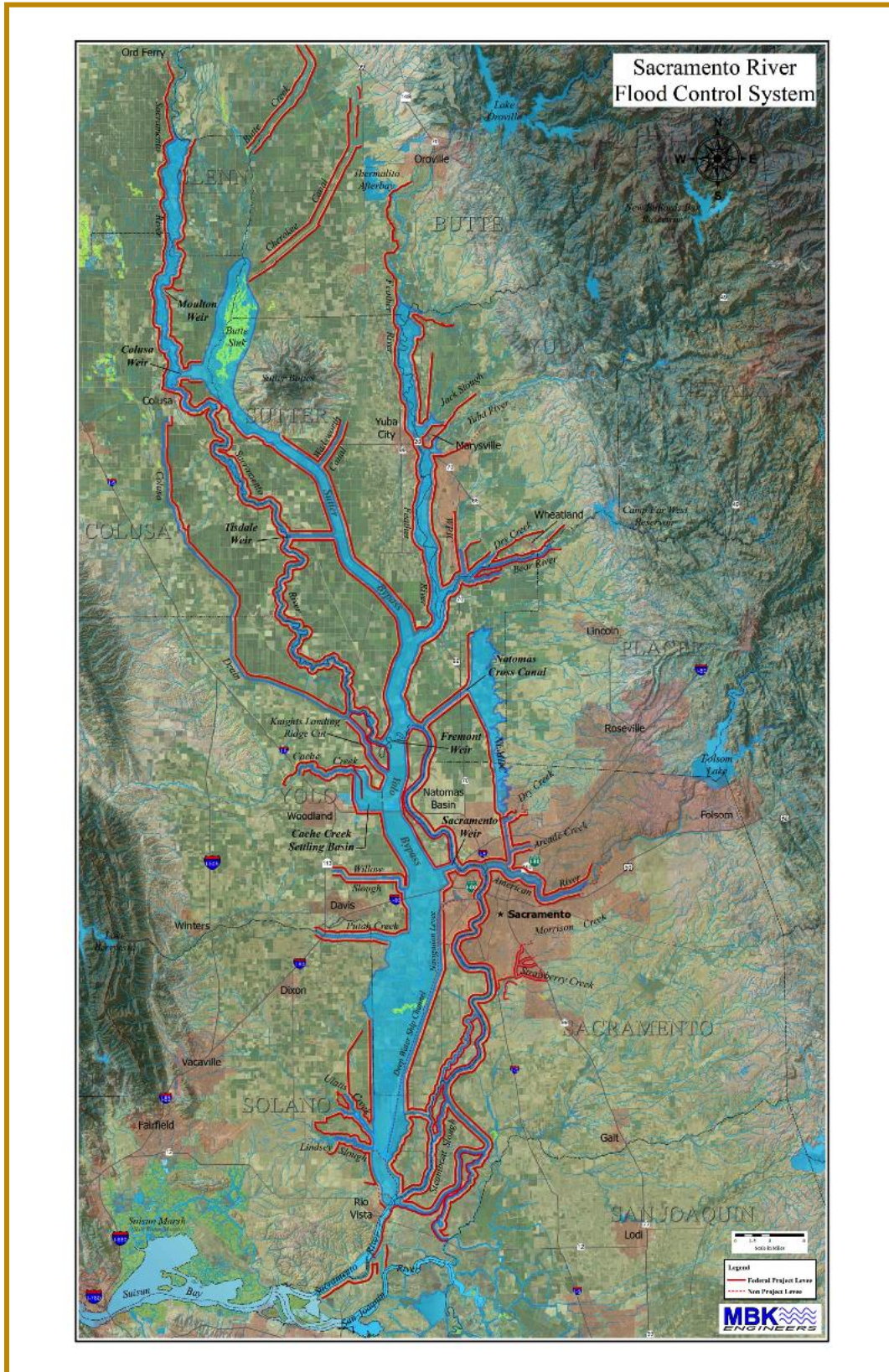
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<sup>1</sup> <http://bondaccountability.resources.ca.gov/p84.aspx>

players are all active partners. Flood infrastructure is planned and managed centrally, but O&M, flood response, and infrastructure implementation can be implemented either regionally or locally. DWR indicates they plan to outline performance standards for LMAs to assist in compliant O&M, and in some cases infrastructure building. Through DWR's various flood division programs, the CVFPP promotes regional governance via local consolidation and collaboration among partnering agencies. The CVFPP recommends expanding the Yolo Bypass, continued DWR participation in Cache Creek Settling Basin (CCSB) feasibility studies, and possibly seeking legislative action that would allow DWR to assume full responsibility for O&M of the Sacramento River Bypass System, which includes the Yolo Bypass.

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Map 2. Sacramento River Flood Control System



Source: Sacramento River Flood Control System, MBK Engineers



## ***Regional Plans***

### **Lower Sacramento/ Delta North Regional Flood Management Plan (Flood Protect RFMP)**

The RFMP for the Lower Sacramento/ Delta North Region is referred to as the Flood Protect Plan.<sup>2</sup> This plan focuses on flood reduction strategies for the Region, identifies flood protection priorities, opportunities for vulnerability reduction, and conducts cost/benefit analyses, while also identifying funding strategies. The Flood Protect Plan will inform the 2017 CVFPP update for the Lower Sacramento Delta North Region and identify priority projects within the Region. Priority projects have been identified in Yolo County, including the Yolo Bypass-Cache Slough Integrated Water Management Plan (IWMP), which “seeks to provide system-wide flood benefits through modifications to the Yolo Bypass while simultaneously implementing significant habitat conservation, water supply, and agricultural sustainability improvements.”<sup>3</sup>

### **Yolo County Integrated Regional Water Management Plan (IRWMP)**

The Water Resources Association of Yolo County (WRA) completed and adopted the IRWMP in July 2007. The plan was developed in coordination with the Yolo County General Plan. Most recently updated in 2011, the plan is a “living document,” and will continue to be updated every 5-10 years. Section 4.4 below discusses findings and issues specific to flood management in Yolo County. Section 5.2 contains a table that outlines all recommended Floodplain Management actions, which can also be found in – APPENDIX A – Organization Diagrams & Tables.

### **The Delta Commission Land-Use and Resource Management Plan**

The Commission has regulatory authority over all plans within the Delta Primary Zone. This plan creates mandated consistency parameters for projects conducted within the Delta Primary Zone that may impact land-use, agriculture, natural resources, alter levees, and utilities and infrastructure. RDs 150, 307, and 999 in the Clarksburg region are within the Delta Primary Zone, and are subject to this plan.

## ***Local Plans***

### **Cities of Davis, Woodland, and West Sacramento General Plans**

As required by the 2007 Flood Management legislation package referenced above, the City of Davis has updated the Hazards Element within the General Plan. The City of Woodland’s 2002 General Plan contains flood management goals and policies within their Health and Safety Element. Woodland is currently undergoing another update, and city staff recommend working on increased flood solution policies.

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<sup>2</sup> [www.floodprotectplan.com](http://www.floodprotectplan.com)

<sup>3</sup> Flood Protect. (2014). Lower Sacramento/ Delta North Regional Flood Management Plan. Sacramento: California.

### **Yolo County General Plan 2009 Update**

As required by the 2007 Flood Management legislation package referenced above, the Yolo County General Plan amended the Health and Safety Element in 2011 to incorporate updated Flood Hazard goals and policies.

### **Yolo County Office of Emergency Services (OES) Flood Response Plan**

The Yolo County OES has been awarded grant funds from DWR to create a countywide flood response plan. This plan will coordinate with RD 108 and the City of West Sacramento's DWR-funded emergency response planning efforts. The objective is to identify efficient communication protocols and evacuation procedures, as well as stockpile material locations and needs. In addition to planning, emergency response training will also occur. Once the plan is complete, the county will apply for two more phases of DWR funds to support extensive emergency response training, necessary material acquisition, and other plan implementation projects.

## **REGIONAL FLOOD GOVERNANCE EFFORTS**

As the RFMP process is underway, stakeholders have come together to create a strong regional voice that advocates for and plans beneficial regional partnerships and projects. The goal of this collaboration is to enhance local flood management practices. The groups listed below inform feasibility studies and priority projects, and help to address regional issues. These groups do not hold regulatory authority, but foster the collaboration necessary for effective local and regional flood governance.

### ***Project Delivery Team (PDT)***

The Project Delivery Team is led by agency members and supported by consultants. The team's purpose is to develop the RFMP with guidance and direction from DWR and the coordinating committees listed below. The team consists of members from the West Sacramento Area Flood Control Agency (WSAFCA), Yolo County, the Sacramento Area Flood Control Agency (SAFCA), MBK Engineers, Downey-Brand (the program management consultants), HDR Engineering (the plan formulation consultant), Douglas Environmental (the environmental consultant), and Kearns and West (the outreach consultant).

### ***Lower Sacramento River Flood Plain Coordination Committee (Westside Committee) and Sacramento Area Flood Control Coordinating Committee (Eastside Committee)***

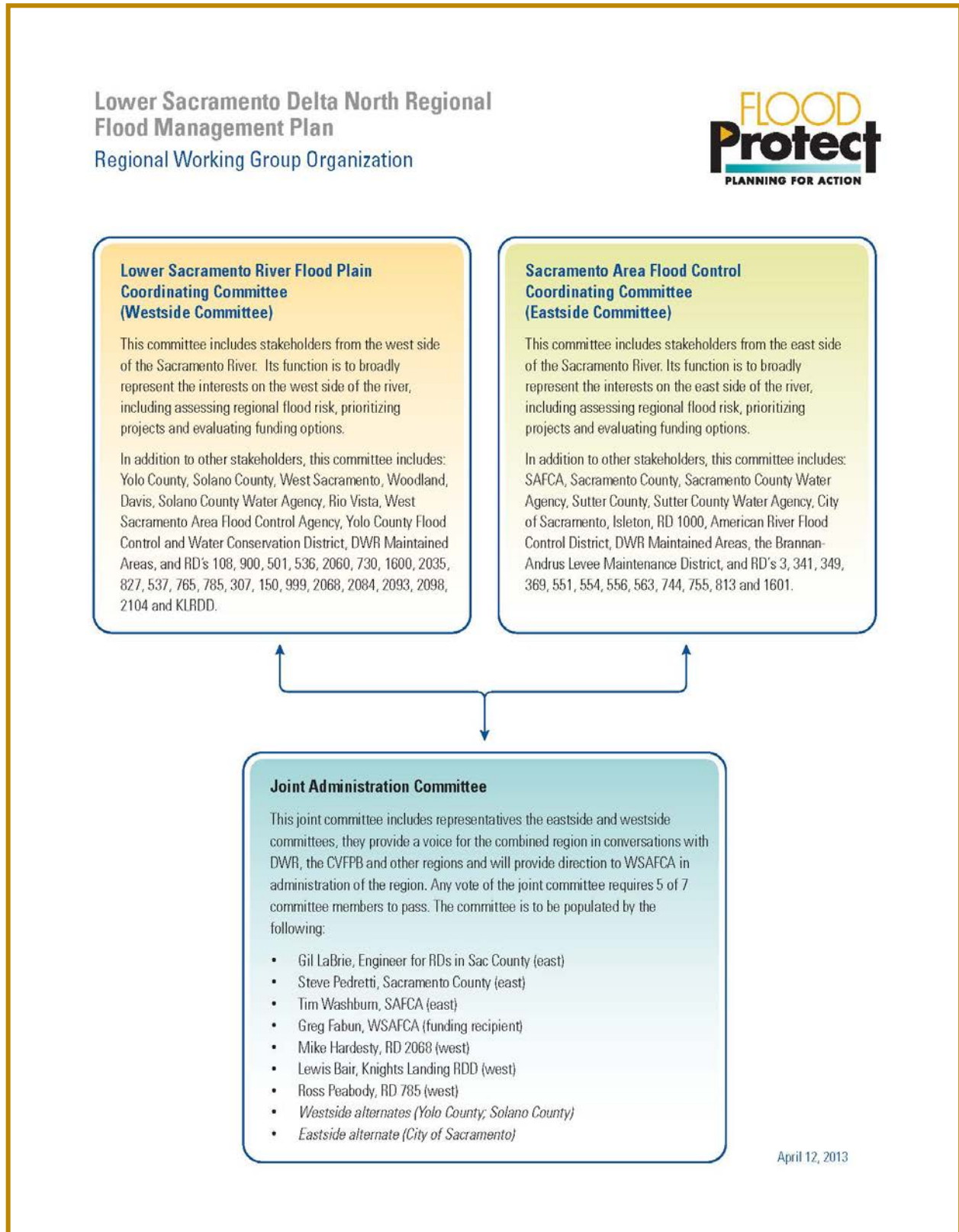
These committees are comprised of stakeholder representatives from relevant agencies on the West or East side of the Sacramento River, respectively. This structure was created to develop the RFMP. The groups meet to comment on the RFMP and guide implementation recommendations (which grants authorization to the Joint Administration Committee, discussed below). Each committee grants authority to the JAC RFMP finalization, but projects are prioritized at the committee level. Committee participants can be found in **Diagram 1. Flood Protect RFMP Organizational Chart**, on page 27.

*Joint Administration Committee (JAC):*

The JAC brings together representatives from the East- and West-side committees. This group has authority to create the RFMP product, but has delegated implementation of the RFMP to the PDT. The JAC reserves the right to review all drafts of RFMP materials before finalization, and requires a formal vote (five (5) of seven (7) committee members) to pass any measure. Committee participants can be found in **Diagram 1. Flood Protect RFMP Organizational Chart** on the following page.

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**Diagram 1. Flood Protect RFMP Organizational Chart**

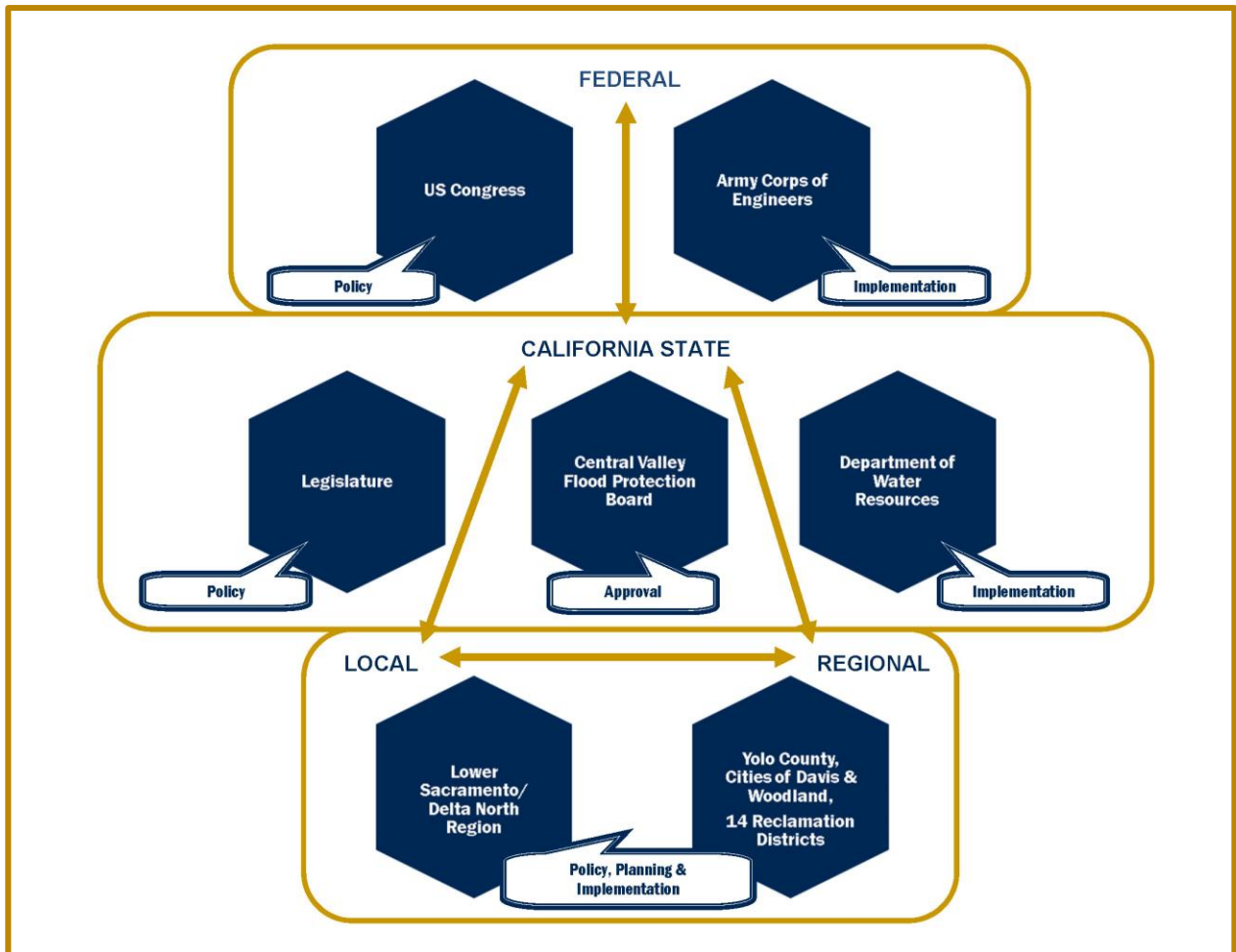


Source: Regional Working Group Organization. Flood Protect. 2013

## 2.2 Yolo County Flood Management Entities

Yolo County flood management is multi-scale, in both governance structure and work on the ground. This includes Native American Tribes, federal and State agencies, local jurisdictions, and LMAs. Each description aims to illustrate the broad governance structure, budget, and flood management tasks relevant to Yolo County. The diagram below is a simplified visual representation of this multi-scale governance framework.

**Diagram 2. Multi-Scale Flood Governance Structure**



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## FEDERAL

### ***United States Army Corps of Engineers (USACE)***

USACE has regulatory oversight over all levee and flood infrastructure within the State Flood Control System. Levees damaged by a flood event are eligible for federal rehabilitation funds (authorized PL 84-99) through implementation of the RIP, so long as the levee is still in good standing within the RIP. In order to receive assistance, all levees are required to follow PL 84-99 O&M guidelines, which include design, structural integrity, and qualified vegetation practices. Levees must be periodically inspected in order to be certified under the National Levee Safety Program. An inspection checklist evaluates currently conducted levee O&M procedures and provides a rating. This rating determines if a levee system is “compliant” under the USACE Levee Safety Program. Many of the levees within Yolo County are not PL 84-99 compliant. The USACE also regulates structural alterations to federal levees through United States Code, Section 408, and is responsible for administering Section 404 of the Clean Water Act (CWA). The CWA may impact O&M activities concerning levees and flood control channels.

## TRIBAL

### ***Yocha Dehe Wintun Nation***

The Yocha Dehe Wintun Nation (Tribe) works closely with the Yolo County Flood Control and Water Conservation District on managing flood risk protection and vulnerability reduction on both fee and trust lands. The Tribe currently participates on the Westside Coordinating Committee, which informs the Flood Protect RFMP process. The Tribe’s main concern is that the RFMP consider the protection and preservation of cultural resources in the plans for current and future flood management within the area.

## STATE

### ***Central Valley Flood Protection Board (CVFPB)***

The CVFPB is the regulatory authority over the State Plan of Flood Control (SPFC) levee system. Some specific responsibilities include approving flood infrastructure project funding, reviewing flood relevant elements of city and county general plans, adopting the initial CVFPP and future updates, and annually reviewing LMA O&M reports. The board, made up of seven (7) voting and two (2) non-voting members, is governor-appointed, and is currently in its 101st year of operation. Water Code Section 8560 sets the voting requirements for Board action. The CVFPB influences flood management in Yolo County by approving general plans that seek to reduce flood risk vulnerability, and by working with DWR to provide adequate funding for flood management needs.

### ***California Department of Water Resources (DWR)***

Through FloodSAFE California, a long-term strategic initiative established in 2006 to reduce the risk and consequences of flooding in California, DWR conducts Statewide and Central Valley flood management planning, and provides statewide support in floodplain risk management. Some high-level responsibilities include cooperating with USACE in project planning, design, and funding for SPFC projects, and statewide coordination of emergency operations. DWR coordinates with the National Oceanic and Atmospheric Administration (NOAA) on flood and water supply forecasting, and also operates the Flood Operations Center. DWR and the Central Valley Flood Protection Board (CVFPB) are separate entities under the California Natural Resources Agency; DWR has statewide water resources responsibilities, and the CVFPB has specific jurisdiction over the SPFC. As required by State legislation, DWR's Division of Flood Management (DFM) wrote the Central Valley Flood Protection Plan (CVFPP), and the CVFPB adopted the plan in June 2012. DWR also offers financial and technical assistance for LMAs and local jurisdictions through a variety of cost-share grant programs, including the Flood System Repair Project (FSRP), and Urban and Small Community Grant programs.

DFM's Flood Project Integrity and Inspection Branch conduct two comprehensive levee inspections and one channel and structural inspection each year. Through the Non-Urban Levee Evaluations (NULE) and Urban Levee Evaluations (ULE), DWR documents levee infrastructural issues and recommends measures to ensure flood risk protection. There are several federal project levees and channels in Yolo County that are maintained by DWR's Sacramento Maintenance Yard. These include Cache Creek, East Levee Yolo Bypass, Putah Creek, Sacramento Bypass, West Levee Yolo Bypass, Willow Slough Bypass, and Maintenance Area 4 (West Sacramento). These areas are facing many of the same flood management problems as other LMAs in Yolo County. As indicated in DWR's Flood System Repair Project scope, there are critical erosion sites along Cache Creek that require specific flood management improvements.

## **CITIES & COUNTY**

### ***City of Davis***

The City of Davis was incorporated in 1868, and is governed by a five (5) member elected City Council. The City has no direct levee management or maintenance responsibilities along the Sacramento River system. The City's General Plan seeks to protect and reduce development in the floodplain. Chapter 19 of the Plan, Hazards, discusses where flooding may occur from surface water runoff and Monticello Dam failure. The City's total defined budget related to storm water management is approximately \$1.6 million. This amount is focused primarily on O&M activity. Staff in the City Manager's office and in the Engineering and Building divisions conduct land-use related flood protection activities. These divisions participate in regional policy discussions, and collaborate with FEMA when necessary. The total acreage of detention ponds in the City of Davis is roughly 63 acres. The City maintains 15 miles of open channels, 120 miles of storm drain pipes, 3,000 DIs and 18 pump stations. The City also owns property east of town that is inundated during certain storm events and detained until it can drain into the Yolo Bypass, though not a formal designed detention pond. The City's wastewater treatment plant and wetland disposal areas are located near the Bypass, and its proposed water intake, treatment and

conveyance facilities (proposed jointly with the City of Woodland) will be located along the Sacramento River.

### ***City of West Sacramento***

The City of West Sacramento acts as the lead administrator for flood risk reduction within City boundaries. The City participates in the WSAFCA Joint Powers Authority, as well as the WRA, Regional Water Authority (RWA), and California Central Valley Flood Control Association (CCVFCA). The City provides administrative services related to the construction, maintenance, rights acquisition, and regulation of West Sacramento's levee system. Services include the capital expansion and improvement of levee facilities, and regulatory services to fulfill legal requirements associated with federal and State programs that provide for the public's health and safety in regard to flood prevention, control, and emergency response. The City serves as the West Sacramento Levee Improvement Program (WSLIP) administrative manager. Multiple levee projects have been identified and are underway to secure 200-year floodplain protection. The estimated annual flood program budget for the city is \$1.1 million.

### ***City of Woodland***

The City of Woodland was incorporated in 1871, and governs through a five member elected City Council. The City's General Plan seeks to protect and reduce development in the floodplain. Chapter 8 of the Plan, Health and Safety, addresses protection of the City's wastewater treatment plant (located adjacent to the Bypass) and policies that support maintenance of Indian Valley Reservoir on the west side of the County. Also included are evacuation strategies, which are largely dependent on the use of Interstate 5 (I-5). Major issues facing the Woodland area include deficient levees along the Yolo Bypass, Cache Creek, the Cache Creek Settling Basin (CCSB), and Willow Slough Bypass. CCSB is of particular importance because it protects I-5 from flooding. Currently, CCSB levees are designed to withstand a 10-year event. The City is currently working on design plans in coordination with Yolo County and DWR. The City does not maintain any levees, and is thus largely dependent on Yolo County, DWR, and other flood entities in the Region for its protection.

### ***Yolo County***

Yolo County hosts numerous entities that perform flood management functions. These include the Yolo County Flood Control & Water Conservation District (YCFC & WCD), the Planning and Public Works Department, Community Service Area (CSA) #6, and the Office of Emergency Services (OES).

The YCFC & WCD does not conduct flood related task work, except for maintaining a ditch system on the west side of the County and operating Indian Valley reservoir. Their primary duty is as an agricultural water purveyor. County CSA #6 is responsible for conducting O&M of levees that protect the town of Knights Landing and six miles south along the Sacramento River. This work is contracted to the County's Public Works department. The County OES coordinates emergency response during flood events. The OES recently received a significant grant from DWR to coordinate flood related emergency preparedness and response activities countywide. The grant objective is to identify efficient communication protocols and evacuation procedures, and



stockpile material locations and needs. Some emergency response training will also occur. Once the plan is complete, the county will apply for two more phases of DWR funds that will support extensive emergency response training, necessary material acquisition, and other plan implementation projects.

The Yolo County Board of Supervisors is responsible for: approving and adopting ordinances, budgeting, levying taxes, and approving formal contracts and agreements. The Board consists of five (5) members that are elected by the district. Each member is non-partisan, and serves a four-year term. The Huff's Corner Levee (along the south side of Cache Creek) is the only levee directly under the purview of Yolo County. This stretch of levee is only 0.29 miles long, but is nonetheless a key piece of the overall system. The County does not have substantial resources for O&M of this levee, and has no separate flood management budget.

### **ASSOCIATIONS**

#### ***California Central Valley Flood Control Association (CCVFCA)***

The CCVFCA is a non-profit association created in 1926. There is a 22-member board of directors elected by the association membership. This group is a partnership of all member agencies that advocates and promotes common flood interests in the Central Valley. The organization comments on relevant legislation and plans, as well as produces reports to address Central Valley specific flood issues. The annual budget is from membership dues. Many Yolo County LMAs are members of the CCVFCA, which assists in coordinating Yolo County interests with those of the greater Central Valley.

#### ***Water Resources Association of Yolo County (WRA of Yolo County)***

The WRA is a voluntary association of local agencies, districts and other organizations designed to provide a regional forum to coordinate solutions to water issues in Yolo County. The WRA is governed by a Board of Directors, which includes representation by each member agency (e.g. Yolo County, the various cities, some RD's, the University of California, Davis, etc.). Ten (10) voting board members govern the Water Resources Association. They have administrative staff, and rely on the staff expertise of their member agencies to do much of the technical and policy work. The 2012-2013 annual budget was \$321,607 of which most comes from membership contributions. The WRA is responsible for the creation and on-going management of the Yolo County Integrated Regional Water Management Plan (IRWMP), which identifies and sets priorities for a variety of water resource projects throughout the County. This includes flood management issues and actions, although the WRA has focused most of their effort on water supply, ground water, surface water and water quality projects.

The WRA offers a well-respected regional forum for working on and coordinating water issues countywide and has a demonstrated track record of securing outside funding. The WRA also relies on a unique structure with a Technical Committee made up of various members and staff experts, and the ability to create "projects" with any of the member agencies. One example is the Woodland Davis Water Supply Project, a JPA of two cities to design and build a new water intake

from the Sacramento River. The Woodland Davis Water Supply Project is one of the IRWMP priorities. Similarly, WSAFCA (see below) is a WRA member.

### ***SPECIAL DISTRICTS***

#### ***West Sacramento Area Flood Control Agency (WSAFCA)***

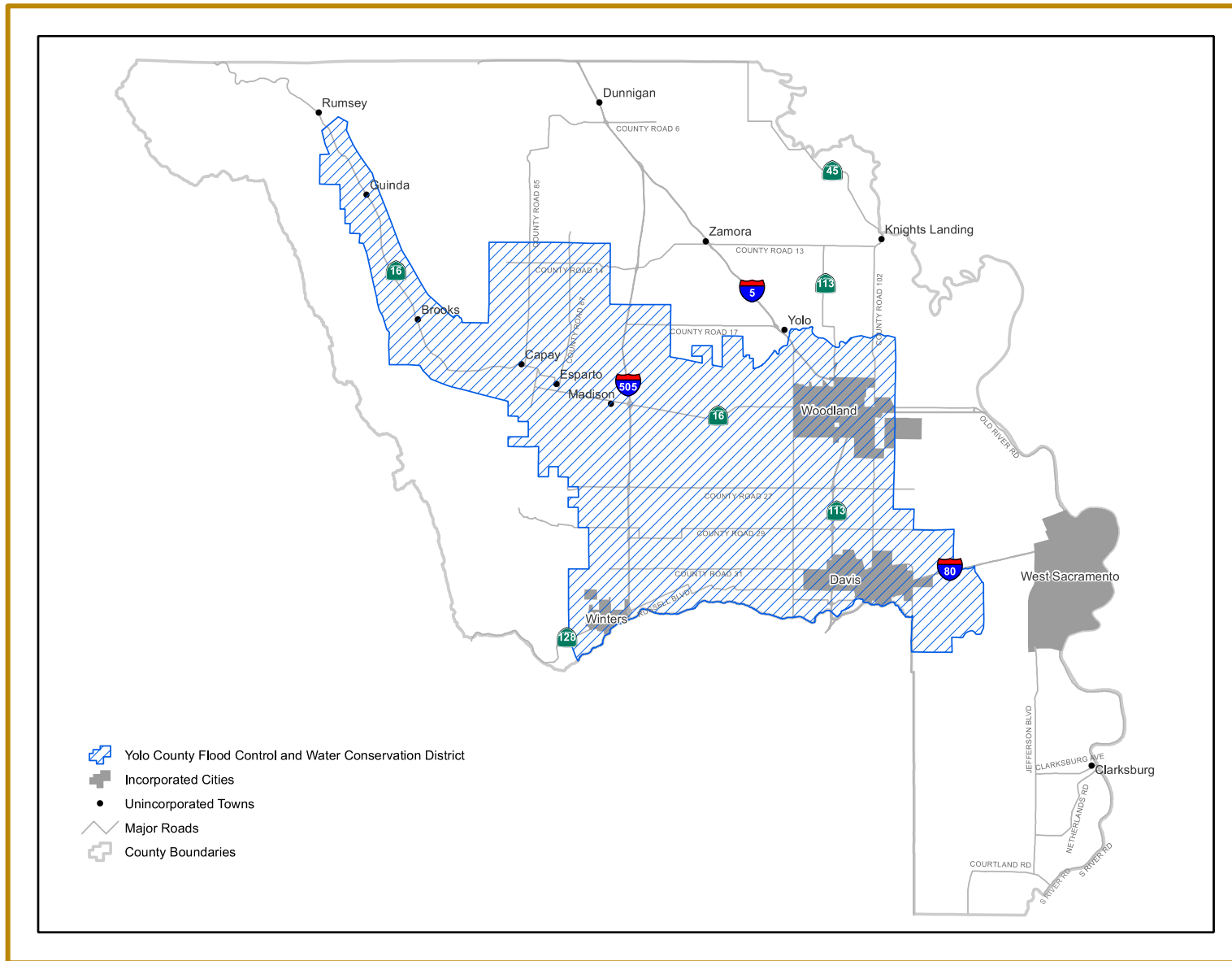
WSAFCA operates as a Joint Powers Authority (JPA), including the City of West Sacramento, RD 900, and the southern portion of RD 537. The RD 900 Executive Director currently serves as WSAFCA's General Manager. WSAFCA is administered by the City of West Sacramento's Public Works Department. The JPA is also a member of the WRA of Yolo County. The JPA region follows City boundaries. The board is comprised of a voting member from each agency. Funding for flood infrastructure projects are derived from assessments, fees on new development in the 200-year floodplain, and a ¼ of a half-cent sales tax (Measure U & V). Approximately \$700,000 of the flood assessment was contributed by the three entities for fiscal year (FY) 2012/13, and designated for O&M. This budget covers administrative costs such as project management and contracting. Yolo County collects the assessment on secured property through the property tax roll, and distributes the assessment to WSAFCA. WSAFCA does not perform any O&M on levees; this responsibility falls to RDs 537 and 900, and the DWR maintenance division. The JPA is an administrative and fiduciary agent that manages capital improvements and leverages local, State, and federal cost-share. They have been very successful in securing funds, developing and designing projects, and coordinating flood management activities for the City.

#### ***Yolo County Flood Control & Water Conservation District (YCFC & WCD)***

YCFC & WCD (the District) is a dependent special district created in 1951, initially to assist in the development and management of water supply for Yolo County farmers. The District primarily serves the western half of Yolo County; its boundaries do not currently include the Sacramento River system and east county lands. The District manages a variety of infrastructure, including a hydroelectric plant, two reservoirs, roughly 150 miles of canals and laterals, and three dams. The operation of the Indian Valley Reservoir is optimized for flood risk management when necessary. Previously, the District managed the FloodSAFE Yolo pilot program, which managed the implementation of the flood elements of the Yolo County IRWMP. Over the 2-year pilot period, design work was conducted for flood solutions. This program was established using a Memorandum of Understanding (MOU) between YCFC & WCD, the City of Woodland, and Yolo County. Originally funded through the YCFC & WCD's general fund, after 2 years the project and financial responsibility were transferred to the City of Woodland. The District also has developed a highly sophisticated network of ground water monitoring and modeling capabilities. The District staff contributes significantly to the WRA and the IRWMP.

Five board members, selected by the Yolo County Board of Supervisors, govern the District. Board members often have substantial expertise in water resources and land management/agriculture. Funding sources include State and federal grants, property taxes, and fees from water sales and hydroelectric power. YCFC & WCD collaborates with federal, State, local and private entities involved in flood management. The annual budget for the entire organization is approximately \$1 million.

Map 3. Yolo County Flood Control & Water Conservation District Map



### ***Yolo County Resource Conservation District (Yolo County RCD)***

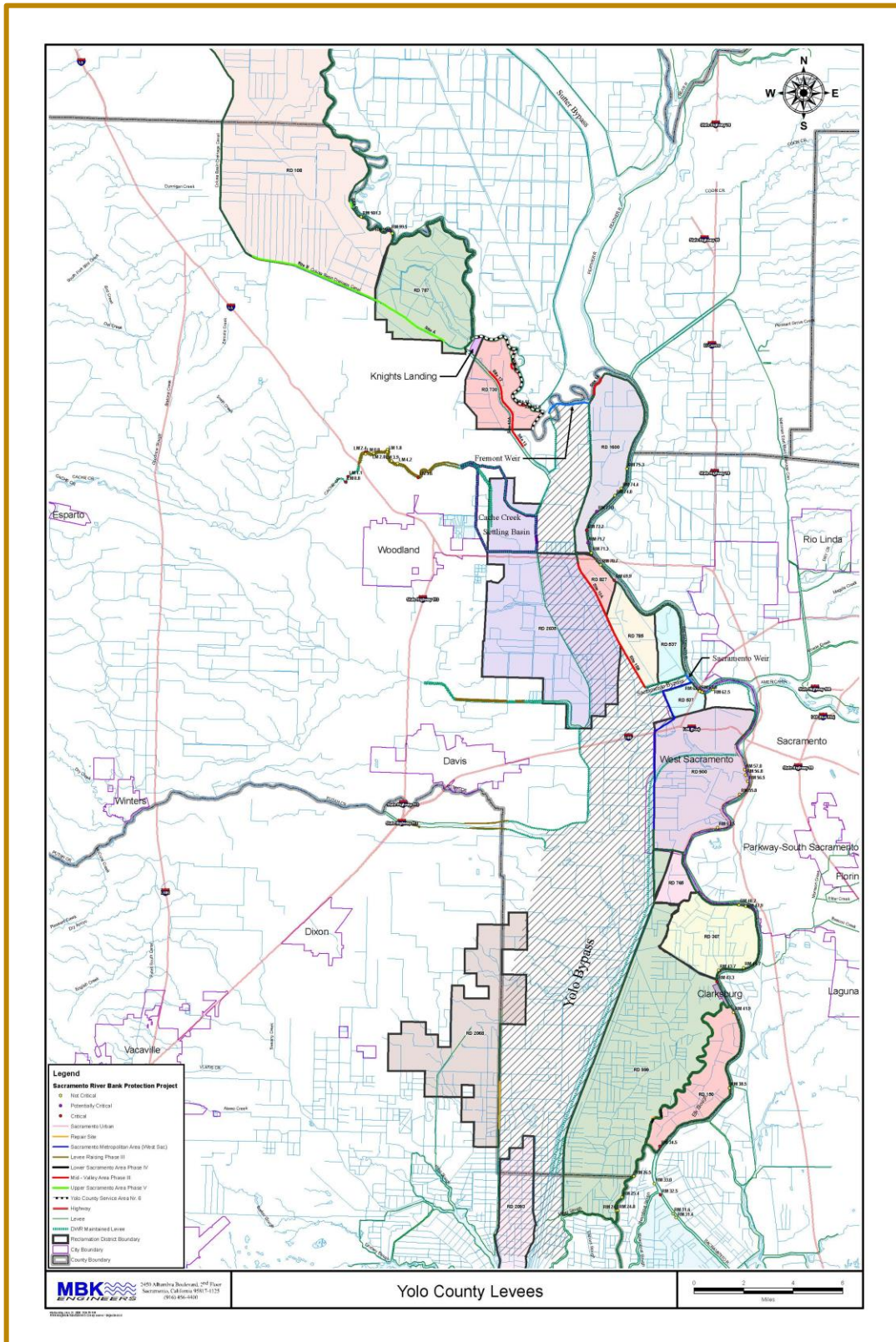
The Yolo County RCD consolidated three (3) separate soil conservation districts in 1977, and expanded their mission beyond soil to address water and related resource issues as well. The RCD is governed by a board of five (5) members, and offers educational and technical assistance to residents over approximately 392,900 acres of land within Yolo County. Their budget is roughly \$1 million annually. The District does not conduct flood management activities directly. However, the RCD conducts activities on private landowner property and with the local irrigation district that may indirectly affect flood management, such as widening natural waterways and planting riparian vegetation.

### ***RECLAMATION DISTRICTS (RDs)/ LOCAL MAINTAINING AGENCIES (LMAs)***

Reclamation Districts (RDs), also known as Local Maintaining Agencies (LMAs), are typically responsible for protecting development in floodplain lands through levee operations, maintenance, design, and construction. Along the Sacramento River system in Yolo County, RDs make up the bulk of levee management. RDs also perform other duties, and in some cases enterprise activities including irrigation, drainage, and recharge needs. Most RDs are independent special districts with three- (3), five- (5), or seven- (7) member boards of trustees, elected by landowners or appointed by the County Board of Supervisors. There are fourteen (14) active RDs in Yolo County. Along the Yolo Bypass and Sacramento River system, four broad basin areas are hydraulically linked and inter-dependent: Clarksburg, Elkhorn, Knights Landing, and West Sacramento.

DWR designates communities as either urban/urbanizing, or small/rural. These designations reflect current and expected population growth, and determine the level of flood protection and levee design criteria required. Urban/urbanizing areas in the region include communities with current populations of 10,000 or more residents, or are expected to grow to or exceed 10,000 residents. Urban areas are required to meet 200-year flood protection. Small communities are defined as developed areas with fewer than 10,000 residents, and generally have a high proportion of farmland. Small communities are required to meet the 100-year flood protection level. Rural areas make up the vast majority of the study region, and include major flood management features such as the Yolo Bypass.

Map 4. Yolo County Reclamation Districts



Source: Yolo County Reclamation Districts, MBK Engineers

### ***Urban/Urbanizing Reclamation Districts***

#### **RD 900 – West Sacramento:**

Formed in 1911, RD 900 is part of the WSAFCA JPA, and provides administrative support for RDs 537, 827 and WSAFCA. RD 900 is a member of the CCFVCA and the Westside Committee for the RFMP. The RD serves 11,000 acres, and provides O&M for 13.6 miles of levee. RD 900 comprises ninety percent (90%) of the City of West Sacramento. Currently, the levee system does not meet state standards for 200-year protection. However, capital improvements are being implemented through WSAFCA's West Sacramento Levee Improvement Program (WSLIP). Levee maintenance has been evaluated at the acceptable level. Funding for the RD 900 assessment is collected as a line item on property tax bills. This assessment finances levee and internal drainage maintenance, and is in addition to the assessment funding levied through the WSAFCA JPA, which is used for JPA-related expenses and maintenance of JPA improvements. The estimated annual budget for 2013 was \$1 million. RD 900 participates in flood work that includes levee construction, flood system planning and policy, funding administration, and O&M.

#### **RD 2035 – Woodland/ Conaway Tract:**

Formed in 1909, the RD 2035 provides 12.1 miles of levee maintenance and drainage services for 20,500 acres of privately owned land. Conaway Ranch owns the vast majority of this land—eighty-six percent (86%)—,and the Cities of Davis and Woodland own 430 acres in the Yolo Bypass. Property assessments are collected based on zones of benefit rather than a flat rate. The RD conducts levee construction and O&M, and water delivery as an enterprise activity. All funds are held by the Yolo County Treasury. Most levee issues relate to maintenance activities, although some serious stability improvements have been identified. Improvements will occur during construction of a stability project along Willow Slough Bypass, the south of which is maintained by DWR, and the north by RD 2035. No funding source has been identified. DWR evaluates levee O&M at the minimally acceptable level. RD 2035 is a major participant in the WRA, IRWMP and the Westside Committee for the RFMP.

### ***Small Communities & Related Reclamation Districts***

#### **Knights Landing Area**

The lands along the river north of Knights Landing are primarily farmland, with several RDs and related agencies taking care of the levee system, with the exception of the rural community of Knights Landing. The town of Knights Landing has restrictions on development and rebuilding, as it has been remapped into the FEMA 100-year floodplain. The protection of Knights Landing is of key importance to Yolo County. The RFMP has recommended the acceleration of a feasibility study to recommend a solution to provide FEMA 100-year flood protection. The LMAs in this area have long-standing shared use agreements in place between RD 108, Knights Landing Ridge Drainage District (KLRDD), and the Sacramento River West Side Levee District (SRWSLD). These three districts are sometimes referred to as the “Sister Districts.” RD 108 is a strong district

with the knowledge and capability to advise, administrate, and maintain the majority of the Knights Landing area levee system. Most of the levees contracted for O&M with RD 108 are designated by DWR at the acceptable level. CSA #6's levees, which protect the small community of Knights Lading, are evaluated at the unacceptable level.

### **RD 108:**

Created in 1870, RD 108 is a multi-county district bisected by Yolo and Colusa counties. RD 108 manages 21 miles of levee along the left bank of the Colusa Basin Drain, and protects approximately 40,000 acres of farmland from flooding. DWR has determined that RD 108's levees are at the acceptable level. The 2013 flood-related activities budget for RD 108 was approximately \$150,000, generated through land-based income. However, many lands are assessed for benefits provided by the KLRDD and the SRWSLD. RD 108 provides administrative and management support for both sister districts, conducts flood fight and emergency preparedness, provides O&M, and participates in high-level flood planning and policy discussions. RD 108 is a participant in multiple collaborative networks, including the Westside Committee for the RFMP, the WRA, and CCVFCA.

### **Sacramento River Westside Levee District (SRWSLD):**

Formed in 1915, the SRWSLD was formed to provide levee O&M on fifty-two (52) miles along the west bank of the Sacramento River, from Colusa to Knights Landing. The majority of lands protected are agricultural. SRWSLD currently contracts with RD 108 for administrative and management support. RD 108 manages all flood related needs for the District. The Board of Trustees meets every other month.

### **Knights Landing Ridge Drainage District (KLRDD):**

KLRDD was formed in 1913, primarily to construct the ridge cut which was completed in 1916. The ridge cut, also known as the Colusa Basin Drainage Canal, was implemented to provide a gravity drainage outlet for the Colusa Basin. KLRDD levies assessments on 71,000 acres, and includes most of the land within RD 108. The assessment district extends beyond RD 108 however, roughly 8 miles south and east along the river. Now, the KLRDD's primary responsibility is for O&M of the thirteen (13) miles of levee constructed as part of the ridge cut. KLRDD currently contracts with RD 108 for all staffing and equipment needs. RD 108 General Manager and support-staff manage, design, construct, and provide all O&M needs for the District. KLRDD's overall O&M is evaluated with a minimally acceptable rating, as of 2013. KLRDD is not part of the RIP due to erosion along the ridge cut. Solutions for levee improvement have been identified, but funding has not yet been secured. The estimated annual budget for 2013 O&M is \$100,000. The Board of Trustees meets approximately four times a year.

### **RD 787:**

RD 787 was created in 1908 and manages 4.4 levee miles along the ridge cut. Levees have been designated at the acceptable level. RD 787 participates in CCFVCA, and would be interested in an insurance pool if one were available. The estimated annual budget for 2013 was \$23,000. RD 787 conducts O&M and flood fight services. RD 787 has three (3) board members, two (2) of which are local landowners.

### **County Service Area No. 6 (CSA #6):**

Created in 1975, CSA #6 is the maintaining agency responsible for a portion of the levees that protect the town of Knights Landing, including the levees along the west side of the Sacramento River downstream to Fremont Weir. CSA #6 manages 5.97 miles of levee, protecting 4,498 acres. CSA #6 functions similar to an assessment district; the county collects a 0.5% property tax from levee-protected landowners. CSA #6 contracts with the Yolo County Planning and Public Works department for levee O&M. Currently, CSA #6 has no funding for construction of levee improvements to bring their system up from 20-year protection to the USACE designed 60-year protection as part of the USACE Mid-Valley Phase 3 Levee Repair Project. If completed, these adjustments still would not bring the levee into compliance with FEMA's 100-year levee standard. The State has set a goal of 100-year protection in the 2012 State Plan of Flood Protection for small communities such as Knights Landing. The estimated annual budget for 2013 was \$39,400.

### **RD 730:**

RD 730 was created in 1902, and currently conducts no levee O&M. RD 730 provides drainage service for the basin by pumping both annual rainfall and irrigation drainage into the Knights Landing ridge cut. RD 730 has a three- (3) member board.

### **Clarksburg Area**

Clarksburg is a unique region of the Delta, comprised primarily of farmland and the community of Clarksburg. Roughly one third (1/3) of the population lives in the town, while the remaining population lives in the surrounding rural areas. The area supports a burgeoning wine industry; it contains ten (10) wineries and 9,000 vineyard acres.

From a flood management viewpoint, DWR considers Clarksburg a small community. The Clarksburg area encompasses RDs 765, 307, 999, and 150. RD 150, however, is not hydraulically linked to the other RDs and is considered its own basin. Currently, there is a restriction on rebuilding and development in Clarksburg due to FEMA floodplain mapping and related insurance rates. The RFMP suggests the town of Clarksburg be designated for NFIP purposes as Zone D, rather than the current designation of Zone AE. Zone AE designation identifies the Clarksburg area as high flood risk, and applies strict building codes, severely limits development, and requires high insurance rates. Zone D designation has the potential to lessen regulatory restrictions, but at unknown insurance pricing. It is currently unknown if FEMA would allow a designation in this instance. Zone D designation would allow for development in the floodplain without elevation requirements, or wet proofing. Zone D designation coinciding with appropriately-priced insurance rates and local land-use controls on development would benefit the



Clarksburg area and the greater Sacramento Valley by supporting rural economic sustainability without transferring risk to the federal government or the nation's taxpayers. The area would remain sparsely populated, but allow for continued agricultural growth. Levees that adhere to the Zone D designation would still provide protection for the Clarksburg area and the SPFC.

Each of the Clarksburg area RDs use legal, engineering, and environmental consultants to assist in levee maintenance planning, permitting and implementation in lieu of their own staff. Clarksburg is also located within the Delta Region. RDs 307, 999, and 150 are part of the Delta Protection Commission's "Primary Zone" designation. As of 1996, when project levees were included as part of the program, RDs within the Primary Zone can participate in the Delta Levees Maintenance Subvention Program. The subvention program offers cost-share assistance to LMAs for eligible levee maintenance and rehabilitation for both project and non-project levees. The importance of this program cannot be understated; it provides roughly \$13 million annually. RD 765 is within the "Secondary Zone," and is thus ineligible for the Delta Levees Maintenance Subvention Program. Due to topography, the district protected by RD 999 depends heavily on the protection offered by RDs 765 and 307 levees.

### **RD 765:**

Formed in 1905, RD 765 provides 1.7 miles of levee maintenance, and manages drainage for 1,322 acres of land south of West Sacramento. There are only three landowners in the District. The level of owner contribution is based on expenses for the year. No major improvements to existing levees have been identified in the RFMP, however a focus on altering and effectively managing current O&M is recommended and necessary, as the levees currently evaluate at the unacceptable level based on DWR's Fall 2013 inspection designation. RD 765 participates in O&M, emergency preparedness, and levee construction. The annual operating budget is roughly \$18,000. The district also participates in the Westside Committee for the RFMP, and is a member of the CCVFCA. This district is in the Delta Secondary Zone, and is thus ineligible for the Delta Levee Maintenance Subvention Program. Most of RD 765's land has been conserved through conservation easements.

### **RD 307:**

Formed in 1877, RD 307 provides 6.7 miles of levee maintenance, protecting 6,000 acres. This levee system has recognized seepage and erosion issues, and has been designated at the unacceptable level based on DWR's Fall 2013 inspection designation. However, project solutions and funding needs have been identified within their 5-year plan. RD 307 currently holds a cooperative flood fight agreement with RD 785 during high-water events. The annual budget for 2013 was \$44,000, generated through property assessments. The district participates in O&M, levee construction, and financing activities, without any paid staff. The district participates in the Westside Committee for the RFMP.

### **RD 999:**

RD 999 was formed in 1913, serves just over 26,000 acres, and shares some of this land with Solano County. RD 999 holds Riparian water rights, as well as Pre- & Post-1914

appropriative water rights. RD 999 maintains 32.4 miles of levee, on which it conducts levee O&M and is a purveyor of agricultural water. The district is hydraulically linked to RDs 307 & 765, and dependent on the success of their levee system. RD 999 participates in O&M and levee construction activities along the original levee that abuts the Deep Water Ship Channel, RD 150, and a small section along the Sacramento River (which protects the Town of Clarksburg). RD 999's annual budget for 2013 was estimated at \$418,000. Property assessments are assessed at \$25.25 per acre.

The levee O&M has been evaluated at the unacceptable level since 2007, although it currently still holds PL 84-99 certification. Projects to address critical issues have been identified, but are currently unfunded. The RD's inability to access necessary funding exacerbates issues related to flood insurance rates, FEMA remapping, and PL 84-99 eligibility. The USACE has also required the district to create a plan for a relief cut in their system for high-water events. It is expected that all the Clarksburg RDs would participate in funding the implementation of the breach plan. Soon, the USACE will conduct their Periodic Inspection Report (PIR), which consolidates PL 84-99 eligibility by hydrologic basins. Any levee found to be unacceptable could force the entire basin out of the program.

**RD 150:**

Formed in 1868, RD 150 serves an area of 5,000 acres and maintains 18.1 miles of levee. Merritt Island's maintenance rating is minimally acceptable, and does not currently hold PL 84-99 certification. RD 150's levees have critical and serious seepage issues, of which the RD has identified solutions for some, but not all, sections. Funding has not yet been secured. Annual estimated budget for 2013 was \$152,000, which is generated from property assessments at roughly \$25 per acre. The district conducts O&M and levee construction, as well as provides drainage and purveys irrigation water. RD 150 has no staff, and is landowner operated.

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## ***Rural Area Reclamation Districts***

### **Elkhorn**

The Elkhorn area encompasses four RDs, including 827, 537, 1600, and 785. All of the land is currently farmland, and most of the basin incorporates both the Yolo Bypass and the Sacramento River west side levees. Elkhorn levees and RDs face many issues related to O&M, funding, and emergency preparedness. All levees in this community were built in the early 1900s and do not currently meet USACE levee design standards. Elkhorn stakeholders are actively involved in Yolo Bypass related planning efforts currently underway. Elkhorn RDs have strong historic relationships and appear to be supportive and interested in expanded collaboration.

#### **RD 827:**

Formed in 1918, RD 827 provides maintenance to 4.2 miles of levee, protecting 1,225 acres. RD 827 contracts with appropriate providers for much of their task work. RD 900 is contracted to provide administrative support. RD 827 manages O&M by contracting with entities to perform tasks such as: civil engineering, spraying services, vegetation management (including sheep & goat grazing), pump repair/maintenance, road maintenance, and prescribed burn services. The RD 827 Board of Trustees voluntarily provides 24-hour availability during flood season, including levee patrol and flood fight scouting during high river flows. These actions meet California's flood management protocol mandates. Members of the board also voluntarily participate in Flood System Planning and Policy Development in coordination with both Yolo County and the State of California. Currently, RD 827 levee O&M is evaluated as unacceptable, and serious levee stability issues have been identified. The annual budget for 2013 was \$57,000, of which ninety-eight percent (98%) is generated from assessment, and two percent (2%) from in-kind services. Current assessment rates average roughly \$48 per acre. RD 827 participates in the Westside Committee for the RFMP and CCVFCA.

#### **RD 785:**

Formed in 1930, RD 785 serves an area of 3,200 acres and maintains 5.6 miles of levee. RD 785 is bounded by RD 827 and the Sacramento River to the north, the Yolo Bypass (RD 2035) to the west, and the Sacramento Bypass to the south. The Flood Protect RFMP indicates that approximately two (2) miles of levee of the Yolo Bypass need repair to allow for emergency access. Levees have serious erosion issues; currently, RD 785's levee maintenance is evaluated as unacceptable. The annual budget for 2013 was \$55,550, all assessed from district fees. RD 785 participates in the Westside Committee for the RFMP.

**RD 537:**

Formed in 1891, RD 537 provides levee maintenance for six (6) miles of levee, protecting 5,200 acres. Bisected by the Sacramento Bypass, RD 537 contains two disparate sections: the northern portion of RD 537 is rural, while the southern portion is developed industrialized land. The southern portion is part of the WSAFCA JPA, and is assessed accordingly. RD 537 provides pumping services for RD 811. Current levee O&M is evaluated at the unacceptable level by DWR. RD 537 participates as members of CCVFCA and the Westside Committee for the RFMP. The annual budget for 2013 was \$277,745, which includes JPA assessment funding as well as their own assessment, which is collected on invoices sent directly to their landowners.

**RD 1600:**

Formed in 1914, RD 1600 serves an area of 6,924 acres, with 14.2 levee miles. RD 1600 lies between the Sacramento River to the east and the northern reach of the Yolo Bypass to the west. RD 1600 provides drainage and levee maintenance services. Assessments are based on the valuation of the land at the time formation, and there are currently eight landowners in the district. Assessment levels are established based on the expected operating expenses of the District. There are multiple levee improvements that are necessary, and the district has been collaborating with and/or contracting DWR to conduct some of the needed repairs. Currently, RD 1600 levee O&M is evaluated at the unacceptable level. The annual budget for 2013 was \$133,000 with an average assessment of \$24 per acre. RD 1600 participates in the Westside Committee for the RFMP and CCVFCA.

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**Table 1. YOLO COUNTY FLOOD MANAGEMENT ORGANIZATIONS**

Community Classification	Organization	Inception	Type	Governance Structure	Flood Management Partnerships	Estimated Annual Flood Management Budget	Funding Sources
N/A	<b>USACE</b>	1802	Federal	N/A	Works with all Flood Management Entities	N/A	Federally Appropriated
	<b>CVFPB</b>	1907	State	7 Members: Governor Appointed	Works with all Flood Management Entities	N/A	General and bond funds
	<b>DWR</b>	1955	State	N/A	Works with all Flood Management Entities	N/A	General and bond funds
	<b>Yocha Dehe Wintun Nation</b>	N/A	Sovereign Nation (& Federally Recognized Tribe)	5 Member Tribal Council	Westside Committee, YCFC & WCD, Yolo County	N/A	N/A
N/A	<b>Yolo County</b>	1850	County	5 Supervisors: District Elected	WRA, Westside Committee, DWR, RDs	No direct appropriation to Flood Management	N/A
	<b>City of West Sacramento</b>	1987	City	5 Members: District Elected	WSAFCA, WRA, RWA, CCVFCA	\$1,100,000	Property Assessment, in-lieu fee on new development, and 1/4 cent sales tax
	<b>City of Woodland</b>	1871	City	5 Members: District Elected	WRA, Westside Committee, Yolo County, DWR, RD 2035	\$600,000	Sewer enterprise fund, general fund
	<b>City of Davis</b>	1868	City	5 Members: District Elected	WRA, Westside Committee	\$1,600	N/A
West Sacramento: Urban	<b>WSAFCA</b>	1994	Joint Powers Authority	3 Members: District Board Appointed	WRA, Westside Committee	\$700,000	Property Tax, in-lieu fee on new development, and 1/4 cent sales tax
	<b>RD 900</b>	1911	Special District	5 Directors: Landowner District Elected	WSAFCA, Westside Committee, provides Admin support for RD 537 & 827, CCVFCA	\$1,002,967 (2013)	93% Assessments 4% Interest 3% Misc. Income

YOLO COUNTY FLOOD GOVERNANCE STUDY

<b>Woodland: Urban</b>	<b>RD 2035</b>	1909	Special District	3 Directors: Landowner District Elected	WRA, Westside Committee	\$800,000	Maintains cash with Yolo County Treasury, operates water delivery as an enterprise fund - 44% Assessments 52% State Grant 4% Interest
<b>Knights Landing: Small Community</b>	<b>Knights Landing Ridge Drainage District (KLRDD)</b>	1914	Special District	5 Members: Election through assessed valuation all members are appointed by the Yolo County BOS.	CSA #6, Yolo County, DWR, RD 108, CCVFCA	\$100,000	Property Assessments
	<b>CSA #6</b>	1975	County Service District	Governed by Yolo County Board of Supervisors and controlled by the Department of Public Works	Yolo County, DWR, KLRDD	\$39,400	0.5% Property Assessment
	<b>Sacramento River West Side Levee District (SRWSLD)</b>	1915	Special District	5 members: Election by assessed valuation and appointed by Colusa County BOS.	RD 108, KLRDD, CCVFCA	\$400,000	Property Assessment: \$2.10 - \$5.25, depending on zone of benefit.
	<b>RD 108</b>	1870	Multi-County District	5 Members: Election only is competition for seats. 1 vote per acre.	WRA, Westside Committee, MOU with KLRDD & SRWSLD	\$150,000 (2013)	Land-Based Income
	<b>RD 730</b>	1902	Special District	3 Directors: Landowner District Elected	Westside Committee, CSA #6	No Flood Responsibilities	Trust Fund held by County Treasurer: 95% Assessments, 5% interest
	<b>RD 787</b>	1908	Special District	3 Directors: Landowner District Elected	CCVFCA	\$23,000 (2013)	100% Assessments, Costs appropriated by acreage protected per land owner
<b>Clarksburg: Small Community</b>	<b>RD 150</b>	1868	Special District	5 Directors: Landowner District Elected	CCVFCA	\$152,000 (2013)	\$25 per acre Property Assessment
	<b>RD 307</b>	1877	Special District	5 Members: Appointed by Yolo County Board of Supervisors	Westside Committee, Cooperative agreement with RD 785 for maintenance during high water	\$44,000 (2013)	Property Assessment

YOLO COUNTY FLOOD GOVERNANCE STUDY

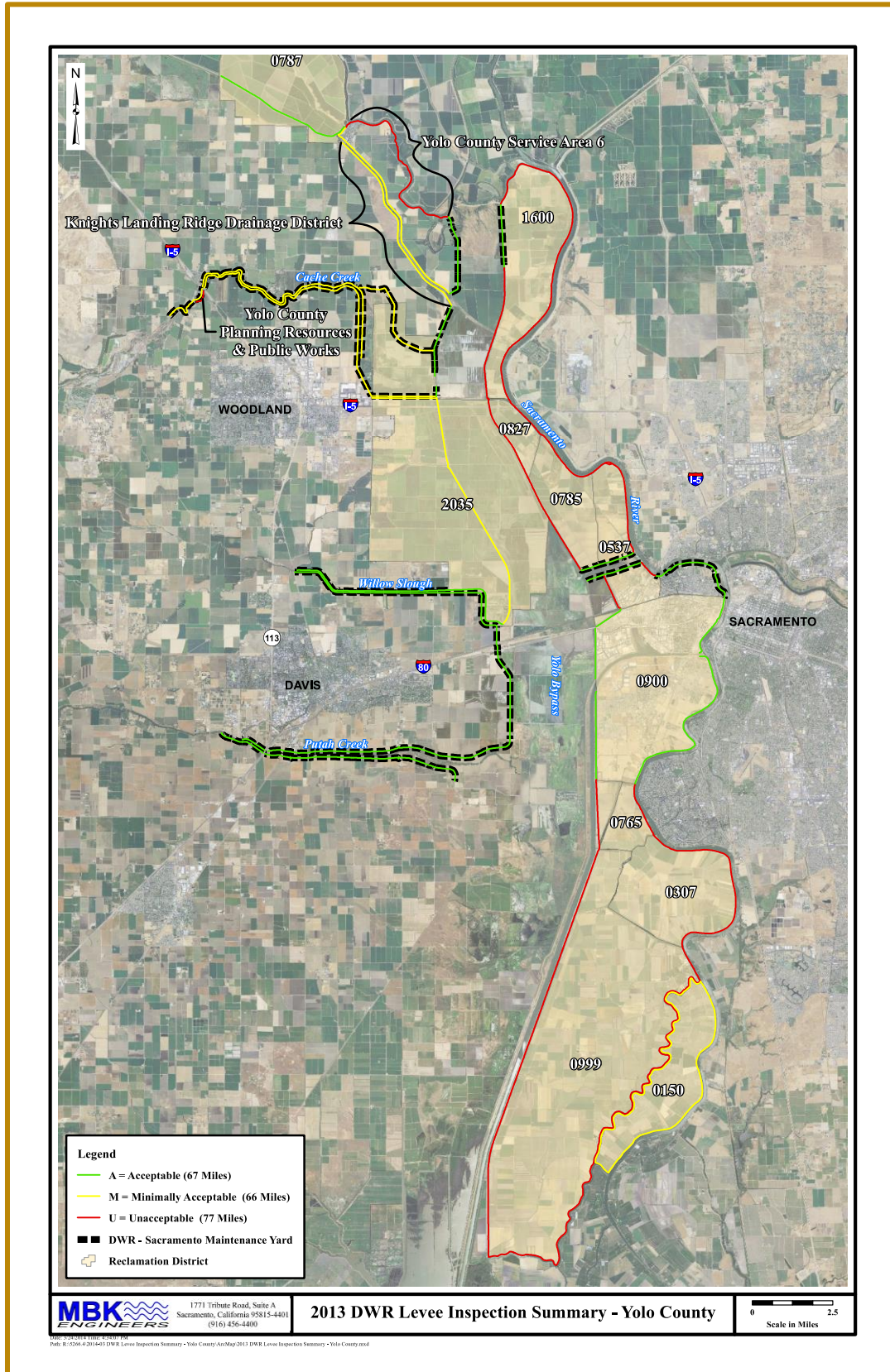
	<b>RD 765</b>	1905	Special District	3 Directors: Landowner District Elected	Westside Committee, CCVFCA	\$18,000 (2013)	100% Assessments: 3 owners, contributions based on annual expenses.
	<b>RD 999</b>	1913	Special District	5 Directors: Landowner District Elected	CCVFCA	\$418,000 (2013)	\$25.25 per acre property assessment
<i>Elkhorn: Rural</i>	<b>RD 537</b>	1891	Special District	3 Directors: Landowner District Elected	WSAFCA, Westside Committee, Yolo County, DWR, Admin support from RD 900, CCVFCA	\$277,745 (2013)	100% Interest payment from RD 811 to RD 537 for annual pumping charge
	<b>RD 785</b>	1930	Special District	3 Directors: Appointed by the Yolo County BOS.	Westside Committee	\$55,550	All funds generated from annual district fee assessments.
	<b>RD 827</b>	1918	Special District	3 Directors: Landowner District Elected	Westside Committee, Admin support from RD 900, CCVFCA	\$67,000	98% is from assessment funds, 2% is in-kind. Roughly \$48 per acre.
	<b>RD 1600</b>	1914	Special District	3 Directors: Appointed by the Yolo County BOS.	Westside Committee, Contracts with DWR for repair, CCVFCA	\$133,000 (2013)	100% from Fee Assessments, average \$24 per acre
<i>Yolo County Wide</i>	<b>Yolo County Flood Control &amp; Water Conservation District</b>	1951	Special District	5 Directors: Appointed by Yolo County Board of Supervisors	WRA, Westside Committee, Yocha Dehe Winton Nation	\$1,000,000	Fed/State grants, water sales, Hydro power, interest and property tax
	<b>Yolo County Resource Conservation District</b>	1977	Special District	5 Board of Directors	Partners with Federal, State, Local, and private entities	\$1,000,000 Annual Overall Budget	Fed/State grants, private / local sources
<i>Inactive</i>	<b>RD 2076</b>	1928	Special District; Seasonal Flooding	No Board - This Reclamation District does not provide services and has been inactive since its formation - It has been recommended to have this RD dissolved by the Yolo County LAFCO	Inactive	Inactive	Inactive

YOLO COUNTY FLOOD GOVERNANCE STUDY

	<b>RD 2120</b>	1983	USACE maintained for habitat migration	No Board - In 1999 was sold to the Army Corps of Engineers for habitat mitigation purposes and no longer exists as a reclamation district/ considered inactive	Inactive	Inactive	Inactive
<b>N/A</b>	<b>California Central Valley Flood Control Association (CCVFCA)</b>	1926	Non-profit Association	22 Directors: Elected by Association Membership	Partnership among all member agencies, advocacy, promotes Central Valley common interests	N/A	Association dues
	<b>Water Resources Association of Yolo County</b>	2007	Non-profit Association	10 Directors: Appointed by individual member agency	Partnership among all member agencies, Regional Voice	\$321,600	Member fees



Map 5. DWR Levee O&M Summary



Source: DWR Levee O & M Summary, MBK Engineers, 2014

## 2.3 Flood Management Functions

Comprehensive flood management requires a variety of tasks ranging from administration to levee repair to reconstruction to flood emergency response. Various policy, program, planning, and implementing actions work in combination to support regional flood management systems. Each district and agency within the County plays a role, and in some way has unique responsibilities, capacities, expertise and tasks it administers. No single entity could be expected to perform all functions listed in the following section, and agencies sometimes have overlapping duties. The following section describes all the tasks and categories needed for comprehensive and effective regional flood management.

### Operations and Maintenance (O&M)

Operations and Maintenance (O&M) must be performed and administered consistently. Maintenance and repair can require large amounts of funding, planning and coordination. Though most O&M is done locally, agencies must still coordinate and meet federal and State standards. Often, work is conducted in partnership through financial mechanisms such as cost-share agreements, and grant programs. Many RDs contract with outside engineers and contractors for O&M, requiring proper inspections, contract administration, and oversight.

#### Typical activities include:

- ◆ Administration of required agency permits;
- ◆ Management of equipment;
- ◆ Upkeep and inspection of flood infrastructure to maintain PL 84-99 eligibility, including:
  - Infrastructure quality inspection and reporting
  - Routine infrastructure rehabilitation
  - Debris and sediment removal
  - Bank stabilization and erosion control
  - Weed and rodent control
  - Maintenance of pump stations and related infrastructure
  - Road and fence maintenance
  - Vegetation management

### Design, Engineering and Construction for Major Projects

Design, engineering and construction requires coordination on multiple scales. Standards depend on location and type of infrastructure. In Yolo County, most work is collaborative between LMAs and DWR. LMAs contract out task-work to appropriate vendors that assist in planning through implementation.

#### Managing these activities typically includes:

- ◆ Planning and design engineering for major capital investments in flood projects;
- ◆ Flood mapping, hydrology and hydraulic modeling;
- ◆ Environmental studies and project permitting;

- ◆ Construction (contracting) and construction management for major levee repair;
- ◆ Right of way analysis and acquisition; and
- ◆ Contract oversight.

### **Flood Emergency Management**

Flood fight, preparedness, and emergency services include many activities outlined by both the California Water Plan (CWP) and CVFPP. At the county level, the Office of Emergency Services (OES) coordinates emergency response. During emergencies, the county OES collaborates with FEMA, the California OES, and the LMAs. Local knowledge is of great importance during floods, and is coordinated by the county OES. The below activities are based on DWR's description of emergency management, as included in the CVFPP. Other emergency management tasks are described in *Flood Management in California*, illustrated in Table 7 in – APPENDIX A –

#### **Flood Preparedness:**

- ◆ Creating response plans;
- ◆ Training local response personnel;
- ◆ Designating evacuation procedures;
- ◆ Conducting exercises to assess readiness;
- ◆ Stockpiling Materials;
- ◆ Developing emergency response agreements that address liability and responsibility; and
- ◆ Planning prudently for land-use (acquisitions and easements).

#### **Emergency Response:**

- ◆ Monitoring water levels;
- ◆ Fighting floods;
- ◆ Coordinating with OES;
- ◆ Evacuating in emergencies; and
- ◆ Sheltering evacuees.

#### **Post Flood Recovery:**

- ◆ Restoring utility services and public facilities;
- ◆ Repairing flood facilities;
- ◆ Draining flooded areas;
- ◆ Removing debris;
- ◆ Assisting individuals, businesses, and communities to return to normal; and
- ◆ Developing long-term floodplain reconstruction strategies.

## **Flood System Management, Planning and Policy Development**

Flood system planning includes area-wide planning, agency plan coordination and collaboration, and administrative duties.

### **These activities typically include:**

- ◆ Coordination with regional plans, regional partners and related organizations;
- ◆ System-wide infrastructure and operation planning;
- ◆ Data collection: floodplain mapping and risk assessment;
- ◆ Management of floodplain easements;
- ◆ Environmental mitigation;
- ◆ Flood risk awareness: public outreach & education;
- ◆ Stakeholder/ Agency coordination;
- ◆ Coordination with related water resource activities and policies (such as Integrated Regional Water Management Plans (IRWMP), National Pollutant Discharge Elimination System (NPDES), and administration of NFIP (FEMA)); and
- ◆ Legislative advocacy.

## **Floodplain Insurance, Technical Assistance, and Coordination with FEMA**

Coordination with FEMA is necessary for policy negotiation, implementation, and reporting. This work is performed by “communities,” as defined in the NFIP: this definition is limited to cities and counties at the local level, not special districts created for flood protection purposes.

### **Duties typically include:**

- ◆ Administering the FEMA Community Rating System and related floodplain regulations;
- ◆ Administering the NFIP regulations;
- ◆ Managing public information requests and communications; and
- ◆ Coordinating federal floodplain and levee development standards.

## **Funding, Financing and Administration**

Flood management requires large amounts of funding for planning, construction, operations and maintenance. Funding is procured from multiple governing agencies, as well as through local taxes, fees, assessments and mitigation arrangements.

### **Necessary activities typically include:**

- ◆ Financial capacity to administer the organization;
- ◆ Budgeting;
- ◆ Program administration and financial planning (i.e., special assessments, capital project financing, payroll, etc.);

- ◆ Grant and loan identification, development, and delivery;
- ◆ Cost/ Benefit analysis to inform planning and design;
- ◆ Capacity and expertise (through partnering with other entities) to secure grants/ loans and allocate funds; and
- ◆ Administration of Proposition 218 protocols.

### **Land-Use Planning Coordination**

Land-use planning is specific to cities and counties that determine general plan designations and uses, zoning, and code regulations for development within or near floodplains. Other than rare exceptions, flood agencies do not have direct land use planning authority. However, flood management agencies must interface with cities and counties.

#### **These activities include:**

- ◆ Developing/commenting on policies, ordinances, codes, and regulations pertaining to any development in floodplains;
- ◆ Processing (or commenting on) land development permits, including general plans and specific plans;
- ◆ Administering permit procedures for drainage plans, grading permits, and watercourse changes; and
- ◆ Inspecting building construction that affects drainage facilities.

**Table 2. Yolo County Flood Management Functions**

		ORGANIZATION	Design, Engineering, Construction	Flood Emergency Management	Flood System Planning & Policy Development	Floodplain Insurance, Technical Assistance, & Coordination with FEMA	Funding, Financing, Administration	Land-Use Planning	Operations & Maintenance
<b>Federal, State, &amp; Tribal Government Agencies</b>		USACE	D	D	D	I	I	-	I
		CVFPB	-	-	D	-	D	I	I
		DWR	D	D	D	D	D	I	D
		Yocha Dehe Wintun Nation	-	-	I	-	-	-	-
<b>Cities &amp; Counties</b>		Yolo County	-	D	I	D	-	D	-
		City of West Sacramento	I	D	I	D	D	D	I
		City of Woodland	I	D	I	D	D	D	I
		City of Davis	I	D	I	D	I	D	I
<b>Associations</b>		California Central Valley Flood Control Association	-	-	I	-	-	-	-
		Water Resources Association of Yolo County	-	-	I	-	-	-	-
<b>Special Districts</b>	<b>West Sacramento: Urban</b>	WSAFCA	D	D	D	D	D	-	I
		RD 900	D	D	D	-	D	-	D
	<b>Woodland: Urban</b>	RD 2035	D	D	-	-	-	-	D
	<b>Knights Landing: Small Community</b>	Knights Landing Ridge Drainage District	I	D	-	-	I	-	I
		CSA #6	I	I	-	-	D	-	I

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	Sacramento River West Side Levee District		I	I	-	-	D	-	I
		RD 108	D	D	I	-	D	-	D
		RD 730	-	D	-	-	-	-	-
		RD 787	D	D	-	-	D	-	D
	Clarksburg: Small Community	RD 150	D	D	-	-	D	-	D
		RD 307	D	D	-	-	D	-	D
		RD 765	D	D	-	-	D	-	D
		RD 999	D	D	-	-	D	-	D
	Elkhorn: Rural	RD 537	D	D	D	-	D	-	D
		RD 785	-	D	-	-	-	-	D
		RD 827	I	D	I	-	-	-	I
		RD 1600	-	D	I	-	D	-	-
	County-wide (Yolo County)	Yolo County Flood Control & Water Conservation District	-	-	-	-	-	-	-
		Yolo County Resource Conservation District	-	-	-	-	-	-	I
Inactive		RD 2076	INACTIVE						
		RD 2120	INACTIVE						

Note:

**Indirect Involvement** indicates activities that may be conducted for purposes other than flood management that impact flood management, or signifies ad hoc advisory or guidance related to the task and do not have any regulatory authority.

**Direct Involvement** indicates activities that are conducted primarily for flood management, or signifies regulatory, or active involvement related to the task.

KEY	
I	= Indirect Involvement
D	= Direct Involvement
-	= No Involvement

## — CHAPTER 3 —

# STAKEHOLDER PERSPECTIVES

A series of group interviews were conducted with district and agency representatives who share political, and/or hydraulically linked boundaries. Follow-up interviews were also conducted. In addition, over twenty interviews were completed with flood management consultants, DWR representatives, and flood managers in other areas. Interviews consisted of an open dialogue where basic data, salient geographic and historical information was reviewed. We also solicited feedback on current challenges, opportunities, and ideas, and identifying what—if any—governance structure alterations might be mutually beneficial.

### 3.1 OVERVIEW OF FINDINGS

The main commonalities among most flood agencies in Yolo County are: (1) there is inadequate funding at all levels to accomplish all the tasks needed for a strong system; (2) increasing and ever changing criteria, assessment methods, and inspecting/reporting at the federal and State levels is challenging; (3) the current benefit area far exceeds the RD boundaries that currently fund levee task work; and (4) the recognition that the flood network is a inter-dependent system. This means that in most cases individual district levees are reliant on a neighboring levee's success. In many areas, if one levee fails, the adjacent levee, and consequently the population and land it protects, are at risk.

#### CONCERNS

Many districts share similar overarching flood management concerns. Common themes include inability to access funding, overwhelming administrative duties and costs, meeting changing USACE design and O&M standards, and FEMA remapping (which raises insurance rates and restricts development). District administration can be challenging, particularly because many smaller districts lack full-time managers or staff. Applying for grants, loans and matching funds from the State or federal governments can be a complicated, lengthy, and ultimately unsuccessful process. The USACE has complex policies that continually become more stringent, further pushing levees out of certification and RIP eligibility. Legislation for FEMA and the NFIP is uncertain, leaving many RDs unsure what kind of protection they will need in order to comply. In addition, environmental regulations continue to increase, and permits become more challenging to obtain.

#### OPPORTUNITIES

Most stakeholders agree that a stronger regional voice and more effective political clout at both the federal and state level is essential; collaboration is recognized as a potentially powerful tool. However, most also agree that adding a new layer of government or further complicating established institutions is unlikely to be useful. All entities identified the RFMP process as a promising starting point to creating a more unified regional voice that can still recognize local



needs and expertise. Operationally, many districts recommended consolidation or institutional collaboration of some kind, such as shared-use agreements. JPAs or consolidation could decrease financial and administrative burdens, specifically in administration, contracting, and possibly through strengthening grant application abilities. However, as further illustrated below, long-standing independence, differences in levee quality, and concerns for liability remain significant. Methods of collaboration proposed included staff sharing (such as contracting with a joint General Manager), preparing joint grant applications and joint annual audits, combined permitting, sharing of equipment, and shared engineering contracts.

## **GOVERNANCE OPTIONS**

When discussing alternative governance options in the hopes of alleviating concerns discussed in this study, a variety of opportunities arose. In some locations there is interest in potential boundary consolidation, Joint Power Authority (JPA) formation, and/ or creating additional shared-use agreements. Some districts indicated no desire to institutionally collaborate. In general, many felt the motivations and incentives to “join forces” were marginal, and there were several direct concerns: taking on another district’s liabilities, different assessment values between districts (although this can be addressed with benefit assessment districts), different levels of levee integrity, ratings and problem spots, and long histories of working independently with familiar land owners. Additionally, the fact that some districts perform varied activities, such as purveying water or owning land, were viewed as a concern (although, separate functions could continue under any new scenario). A few districts even noted that they might prefer to abdicate responsibility of their associated levee and have the state (i.e., DWR) take control of all levees within the SPFC facilities. DWR has historically resisted this approach, and locals have similarly resisted, due to the inefficacies of state-run local agencies.

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## 3.2 AREA-SPECIFIC FINDINGS

### NORTH COUNTY AND KNIGHTS LANDING

RDs 108, 787, 730, KLRDD, SRWSLD, and CSA #6

The Knights Landing area is a good example of districts that coordinate through shared-use agreements. RD 108 is a large, multi-county district contracted to manage all flood duties for KLRDD & SRWSLD. These “Sister Districts” maintain their own decision-making processes and zones of benefit. However, RD 108 coordinates much of the work. The main issue is the town of Knights Landing and the neighboring 6 miles of levee that are out of compliance. Landowners are not assessed at an appropriate rate to cover O&M expenses. Though RD 108 has the capacity to manage and conduct task-work to update the levees, the RD 108 board is reluctant. Consolidation is not an option due to fear of increased liability. RD 108 would possibly be open to contracting with the lower RDs, but this would require the areas to undergo Prop 218 to increase their flood protection assessment rates.

### ELKHORN

RDs 537, 785, 827, and 1600

The Elkhorn RDs are actively participating in governance discussions on expanding the Yolo Bypass. This pressing issue is being negotiated at local, regional, and State levels. The Elkhorn RDs are small, and share many of the same board members. Each RD has concern regarding liability for protecting urban populations. District representatives recognized the benefits of some sort of collaboration governance structure, such as a JPA, shared-use, or consolidation. RD 827 has indicated willingness to lead such an effort. Benefits of coordination include sharing legal, contracting, and administrative costs. Examples include sharing a General Manger and cooperatively planning for future flood improvement projects. RD 537 is unique because it is already a part of WSAFCA and is split between urban and rural land uses. RD 1600 is probably the most directly affected by potential Yolo Bypass modifications.

### CLARKSBURG

RDs 150, 307, 765, and 999

The Clarksburg area consists of lands protected by ring levees. The districts operate individually, although hydraulically, RDs 999, 307, and 765 are linked. RD 150 is considered its own basin. Levee failure in any of these districts could harm neighboring districts. Each district has varied levels of management, budget capacity, and property assessments. RD 999, for example, has a general manager and staff, and is an irrigation water purveyor. RD 307 has no staff, only landowner board members.

Though the financial capabilities of the RDs vary, common concerns are evident. Potential FEMA remapping has restricted development and rebuilding in the area. Remapping has also increased floodplain protection standards to a degree financially unavailable to the small districts through local assessment. All RDs support the County’s involvement in negotiating a potential Zone D designation for the Clarksburg area assuming the desired benefits can be achieved. The USACE has mandated the creation of a breach levee plan, to be created by RD 999. All the local RDs support RD 999 in this process, and have agreed to share in the cost of plan development and

implementation, if necessary. There is general concern regarding some RDs' inactivity in levee O&M, and unwillingness to assess adequately. When considering collaboration—such as additional shared-use agreements or consolidation (RD 999, 307, and 765)—the RDs were not initially supportive, and cited issues of liability and a long history of working independently. However, having a stronger regional presence and voice was generally favored.

### **WSAFCA**

City of West Sacramento, RDs 900 and 537

WSAFCA is well established, created specifically to provide comprehensive flood project implementation as a fiduciary agency for flood infrastructure capital improvements. The agency's major concern is completing their WSLIP project, which is currently underway, and seeks to offer the urban population of West Sacramento 200-year flood protection. WSAFCA does not expect to continue as a construction entity beyond the WSLIP project. The JPA is well regarded by outside agencies as a model for districts working together. As a result of this and aggressive grant writing and political presence, the JPA has received substantial funds. In addition, having an urban population has been instrumental in achieving adequate matching funds through assessment.

### **WOODLAND**

City of Woodland and RD 2035

The City of Woodland is actively involved in planning for increased flood protection and meeting the 200-year flood event urban level of protection requirement. Successful operation of the CCSB is the major concern for the area, as it protects Interstate 5 (I-5), the main evacuation route in the event of a flood. RD 2035 is currently working with the County regarding future governance structures, funding opportunities, and O&M responsibilities for their Yolo Bypass levees.

### **YOLO COUNTY**

The County is engaged in flood planning and policy at local, regional, and state levels. Several concerns are currently being addressed, including county-operated levees, FEMA remapping (with corresponding restrictions on development and rising insurance rates), assessment structures, and possible alterations in the Yolo Bypass system. Some flood-related work is supported by the county general fund, and supplemented by state grant funds.

Yolo County is interested in reducing their involvement in flood related activities, specifically O&M. The County manages O&M for two areas of levee; Huff's Corner and a portion of the town of Knights Landing (through CSA #6). The Huff's Corner levee is underfunded and O&M is not done on a regular basis, leaving the levee out of PL 84-99 compliance. An assessment district could aid in funding this task-work, but would put a burden on the City of Woodland who also plans on assessing its residents for other flood-related projects. The levees that protect the town of Knights Landing are operated by CSA #6. CSA #6 is a county entity, and contracts all the work to Yolo County's Planning & Public Works Department. CSA #6 is also underfunded, and does not assess adequately to fund the work needed to meet FEMA mandated standards. Not meeting flood protection directly affects Knights Landing and the County. Currently, Knights Landing has high insurance rates and restrictions on development/ rebuilding, which threatens economic stability for the town as well as reduces County revenue.

Regarding Knights Landing, the County is interested in collaborating with RD 108. RD 108 could absorb CSA #6's levee responsibilities through consolidation or shared-use agreements. For Huff's Corner, which is flanked by DWR-maintained levees, the County would like to be absolved of responsibilities, and turn the levees over to DWR. This would require a California Water Code amendment, or the creation of an assessment district as discussed above. These options are currently being discussed with DWR.

The County is interested in supporting their existing Reclamation Districts' ability to meet their charge and obligations. The Board of Supervisors believes this can be aided through more organized collaboration methods, such as shared-used agreements, or consolidation. The Board would also like to reduce the burden on landowners and residents associated with levees that are part of and support the success of the SPFC. Specific to the levees abutting the Yolo Bypass, a global O&M and assessment structure is suggested. This structure would reflect the zones of benefit that the bypass affords. The County is currently investigating these options in coordination with partnering agencies through the development of the Yolo Bypass Cache Slough IWMP.

### **YCFC & WCD**

The YCFC & WCD is legally authorized to conduct comprehensive flood management, but it is not currently funded to do so. This District did not indicate any major regional concerns. The District is open to discussions about a greater role in flood management, but this would require strong board support, a supplemental source of funds, considerable dialogue with the existing flood districts, and new State legislation.

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### 3.3 STATE PERSPECTIVE

#### CALIFORNIA DEPARTMENT OF WATER RESOURCES (DWR)

The State DWR believes SPFC management is a responsibility shared between local, State, and federal interests. Routine operation and maintenance obligations rest with LMAs, as well as State DWR activities when conducted under Water Code 8361 and 12878 authorities. LMAs are also first responders in emergency flood fight situations. Encroachment management responsibilities reside at the State level, with the CVFPB designated as the lead agency. Local, State, and federal interests share responsibilities to address legacy design and construction issues as well as the replacement of system components beyond their design life.

In an effort to improve SPFC management, the State DWR funded a locally led RFMP process in six Central Valley regions. The intent of the effort includes establishing a common vision among regional partners, articulating local and regional flood management needs and priorities, describing regional financing strategies, and establishing improved regional governance for implementation. Through interaction with the various regional groups, State DWR has advanced the idea of LMA consolidation. This concept, which arose in the aftermath of the Hurricane Katrina disaster, is founded on the belief that it would be more efficient for existing LMAs to voluntarily collaborate, enabling them to “speak with one voice” (e.g. on matters affecting multiple LMAs whose levees protect the same hydraulic basin), perform consistent O&M, and increase emergency response capabilities.

The 2012 CVFPP presents another potential consolidation concept, State-led operation and maintenance of all bypass levees. Provided both political and financial support could be garnered for such a change, this would increase State Yolo Bypass responsibilities contained in Water Code Section 8361. Current obligations include maintaining the design channel capacity of the Yolo Bypass, as well as the West Levee of the Yolo Bypass from the west end of the Fremont Weir southerly to the Cache Creek Settling Basin and from Willow Slough Channel to Putah Creek, and the east levee from Fremont Weir south for two miles.

The State can use Water Code Section 12878 to form State operational maintenance areas. Formation can occur at the request of the current maintenance entity or can be imposed by either DWR or CVFPB if local O&M is inconsistent with requirements of project operation and maintenance manuals. While maintenance area formation provides a theoretical path to address deferred maintenance based on the ability to bill those benefiting from flood protection, the State has been reluctant to aggressively form maintenance areas as this action rarely addresses underlying issues preventing successful management at the local level.

An example of difficulties with maintenance area formation in Yolo County is Huff's Corner on Cache Creek. The county, which serves as the local maintainer, contends it cannot afford and does not possess the expertise to meet its obligations. However, if the State forms a maintenance area, both formation expenses as well as annual management cost will be billed to a handful of property owners protected by this facility. As the Huff's Corner dilemma is but a component of a larger flood control issue, DWR advocates the need for more holistic solutions for the Woodland area.

Table 3. Yolo County Flood Agency Levee Information

	Governing Authority (Organization)	Location (Community)	DWR Community Designation	Levee Length (miles)	Total Area (acres)	DWR O&M Evaluation (as of 2013)	
Federal, State, & Tribal Federal Government Agencies	USACE	Not Applicable other than Deep Water Ship Channel					
	CVFPB	Not Applicable			1.7 million	Not Applicable	
	DWR	All DWR Maintained Properties Below					
	DWR Sac Maintenance Yard - Cache Creek	Yolo County	Not Applicable	25.5	Not Applicable	Minimally Acceptable	
	DWR Sac Maintenance Yard - East Levee Yolo Bypass	Yolo County		2		Acceptable	
	DWR Sac Maintenance Yard - Maintenance Area 0004	Yolo County		3.4		Acceptable	
	DWR Sac Maintenance Yard - Putah Creek	Yolo County		16.3		Acceptable	
	DWR Sac Maintenance Yard - Sacramento Bypass	Yolo County		3.5		Acceptable	
	DWR Sac Maintenance Yard - West Levee Yolo Bypass	Yolo County		9.3		Acceptable	
	DWR Sac Maintenance Yard - Willow Slough Bypass	Yolo County		12.5		Acceptable	
	Yocha Dehe Wintun Nation	Not Applicable					
Cities & Counties	Yolo County	Huff's Corner Levee		Rural		0.29	653,549
	City of West Sacramento	City Boundaries	Urban	22.85	See WSAFCA		
	City of Woodland	City Boundaries	Urban	Not Applicable			

YOLO COUNTY FLOOD GOVERNANCE STUDY

	City of Davis	City Boundaries	Urban	Not Applicable			
<b>Associations</b>	California Central Valley Flood Control Association	Not Applicable					
	Water Resources Association of Yolo County	Not Applicable					
<b>Special Districts</b>	<b>West Sacramento: Urban</b>	WSAFCA	City Boundaries	Urban	50	14,080	N/A
		RD 900	West Sac	Urban	13.6	11,000	Acceptable
	<b>Woodland: Urban</b>	RD 2035	Woodland	Urban	12.1	20,500	Minimally Acceptable
		<b>Knights Landing: Small Community</b>	Knights Landing Ridge Drainage District	Knights Landing	Small	13	71,000
	CSA #6		Knights Landing	Small	5.97	4,498	Unacceptable
	Sacramento River West Side Levee District		Yolo & Colusa	Rural	50	104,000	N/A
	RD 108		Yolo & Colusa	Rural	21	58,000	Acceptable
	RD 730		Knights Landing	Rural	O&M by CSA #6		
	RD 787		Knights Landing	Small	4.4	9,493	Acceptable
	<b>Clarksburg: Small Community</b>	RD 150	Clarksburg	Small	18.1	5,000	Minimally Acceptable
		RD 307	Clarksburg	Small	6.7	6,000	Unacceptable
		RD 765	Clarksburg	Small	1.7	1,322	Unacceptable
		RD 999	Clarksburg	Small	32.4	26,136	Unacceptable
	<b>Elkhorn: Rural</b>	RD 537	Elkhorn	Rural	6	5,200	Unacceptable
		RD 785	Elkhorn	Rural	5.6	3,200	Unacceptable
		RD 827	Elkhorn	Rural	4.2	1,225	Unacceptable
		RD 1600	Elkhorn	Rural	14.2	6,924	Unacceptable
	<b>County-wide (Yolo County)</b>	Yolo County Flood Control & Water Conservation District	Yolo County	Not Applicable		195,780	Not Applicable
		Yolo County Resource Conservation District	Yolo County	Not Applicable		392,869	Not Applicable

## YOLO COUNTY FLOOD GOVERNANCE STUDY

<b>Inactive</b>	RD 2076	RD 2076 provides no levee maintenance
	RD 2120	RD 2120 provides no levee maintenance

**Note:** The DWR's Flood Project Integrity and Inspection Branch conducts two comprehensive levee inspections and one channel and structure inspection each year. DWR documents the location, size, type, and rating of maintenance deficiencies while working with the LMAs to assist in planning maintenance activities prior to the flood season. Each inspection was rated accordingly:

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

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

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

*(Flood Protect. (2014). Lower Sacramento / Delta North Regional Flood Management Plan. Sacramento: California.)*



## — CHAPTER 4 —

# COMPARATIVE GOVERNANCE STRUCTURES

### 4.1 INTRODUCTION

Flood management and governing structures vary with geography, population size, infrastructure type, and historical district legislation and policies. Many agencies across California and the country have created frameworks that address these differences and attempt to implement unique management structures. Several organizations and agencies researched illustrate frameworks that could significantly inform possible alternatives for Yolo County, though only five are elaborated in depth below. Other organizations that we reviewed, but concluded their “lessons” were not as instructive include the Sacramento Groundwater Authority, the Water Resources Association of Yolo County, and the Santa Ana Watershed Project Authority. Additionally, the comparable organizations researched for the *San Joaquin Urban Flood Protection Governance Study* conducted by MIG in 2010 were considered in this study. Organizations discussed in the MIG report that does not appear below include King County Flood Control District, Sacramento Area Flood Control Agency, and the Truckee River Flood Management Project.

The five agencies / organizations described below have successful innovative frameworks that efficiently set priorities, fund, and facilitate multi-scale flood management. Lessons learned and governance structures that illustrate the primary responsibilities among relevant actors are listed below and aid in creating the alternatives presented in Chapter 5. Each comparative case study was chosen for their relevance to Yolo County’s context.

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## 4.2 COLORADO STATE PERSPECTIVE & THE CITY OF FORT COLLINS

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<http://www.fcgov.com/utilities/what-we-do/stormwater>

### OVERVIEW

Like California, Colorado flood management is shared by State and local governments (counties and cities with a few special districts). Some communities in Colorado with high flood risks are the major cities of Boulder, Denver and Colorado Springs. Primarily, local governments take care of flood management, and conduct work with FEMA and the NFIP administration, infrastructure O&M, residential assessment and fees, and emergency response. Diverging from California's historical development, Colorado does not have RDs, and maintains far fewer levees that need continuous O&M. As an example, the City of Fort Collins has only three levees, all managed and owned by the City. Several special districts participate in flood management, such as the Denver Metro Area's Urban Drainage and Flood Control District, the Fountain Creek Watershed Flood Control and Greenway District near Colorado Springs, and the Grand Valley Drainage District, near the City of Grand Junction. These districts do not have much authority, and mostly serve as fiduciary agents for fee collection, as coordinating partners for local jurisdictions, and in some cases conduct necessary infrastructure maintenance. Districts typically write watershed master plans that coordinate with local jurisdiction general plans, assist in FEMA floodplain map creation and act as the cooperating technical partner (CTP) with FEMA, and can perform capital projects such as bank stabilization, and channelization.

Flood management is mostly handled at municipal and County levels. However, the Colorado Water Conservation Board (CWCB), located within the Colorado Department of Natural Resources, also provides flood management assistance, mostly through policy, funding, and technical assistance when requested. The Board's main focus is water supply, leaving only 10% of staffing resources for flood management. This staff administers grant and loan programs with federal and State funds and assists local jurisdiction's ability to access these funds. Funds are typically used for flood mitigation, planning and engineering, rarely implementation or construction. Local jurisdictions are required to provide their own funding through assessments, as well as enter permitting agreements with USACE - which may ultimately make federal cost-

share and credits available to their projects. The CWCB helps FEMA administer the NFIP, and ensures that local jurisdictions properly administer floodplain ordinances. The Board conducts policy advocacy, and negotiation on behalf of local jurisdictions when requested and necessary. Similar to California's AB 162 & 70, the CWCB has set a Statewide Floodplain Ordinance that outlines appropriate floodplain development procedures. Local jurisdictions are not required to comply; but they are subject to the regulations. Thus, if a local jurisdiction chooses not to comply with the ordinance, and experiences a catastrophic flood, they will most likely not receive State recovery assistance and could be held liable for damages. The CWCB has very limited enforcement authority, so relies on the Court system for enforcement.

### **THE CITY OF FORT COLLINS, COLORADO**

The City of Fort Collins was noted by the CWCB as one of the most effective flood management entities in the State, and ranks highest in Colorado on FEMA's community rating system. Flood management is conducted by the City's Stormwater utility. The utility administers a fee for its service. There is no option to opt out of this fee if you are a City resident. These funds assist the utility in master planning, infrastructure O&M, FEMA / NFIP floodplain administration, regulation, development and permit review, and enforcement. O&M mainly consists of maintaining inlets, underground pipe networks, and debris management in floodways. Enforcement capabilities are strong, and include large daily fines if a violator is found to be conducting work within a floodplain that does not adhere to community standards, as regulated by the City.

Before the 1997 flood, fees were based on zones of benefit within watersheds. After the flood, fees were normalized across the entire City. Each resident pays a fee based on property size, not location. Brian Varrella, Floodplain Administrator for the Stormwater Utility, explains this type of assessment framework speaks to the City's belief that "floods are a community problem, not a watershed problem." During a flood, the Stormwater Utility is the first responder, followed by the City's OEM department if necessary. If the flood becomes a regional issue, then County, State and federal agencies enter emergency response. The City only has three levees within their system, all owned and maintained by the City.

Through strong community support, the City is less reliant on the State. The "uniform" rate fee that all city residents pay helps demonstrate that flooding can be a community problem as well as a community solution. The entire City contributes to community resilience by supporting the ability to improve flood risk reduction, and increases repair and rehabilitation capacities. Though some residents are paying for services that protect properties other than their own, they benefit by a City that can quickly rehabilitate areas blighted by floods, rather than an isolated funding approach that could leave some neighborhoods without the resources necessary to rebuild.

### **GOVERNANCE STRUCTURE**

#### ***State, Colorado Water Conservation Board***

The State assists in policy, funding, and technical assistance when requested. The Board works with FEMA and acts as a boundary organization between the local jurisdictions and the federal government for the implementation of the NFIP. In general, the State believes that local flood

management, if done successfully, is the most efficient and preferable way to manage flood risk and vulnerability.

### ***Local Jurisdictions***

Municipalities and counties are the primary flood managers in the State. They are required to conduct master planning, OES services, NFIP administration, infrastructure O&M, funding management and assessment, and implement capital projects. The locals act as the contacts for USACE partnering agreements.

### ***Local, Special Districts***

Special districts are relatively rare, and have limited authority. Where they exist, they mainly act as fiduciary agents, project and planning partners, and conduct some maintenance when necessary.

## **LESSONS LEARNED**

Flood management governed locally has benefits and challenges. The success and failure of the flood governance system depends on the ability of the local jurisdiction. Thus, if the local government is proactive, innovative, and compliant – the infrastructure system functions well and public safety is sound. Problems arise when local governments are incapable of adequately conducting necessary flood management. The State of Colorado does not typically step in to assist, unless the local government requests assistance. Typically local governments, when in need, make contact with the State. This can benefit the State as whole, as limited funds and staff resources are focused on areas most needing assistance.

In some areas, issues such as river meander resulting in property loss required grassroots level organization. “Stream Teams” are groups of local property owners affected by flood events. The teams discuss mutually beneficial actions regarding flood recovery. Many of these groups have become non-profits, and can access funds that support capital projects. This is an outcome of State efforts that encouraged local residents to take action and find solutions to localized flood impacts. The State of Colorado is a good example of a successful needs based relationship between State and local entities. The City of Fort Collins illustrates fruitful implementation of locally led flood management through encouraging community-wide involvement and support.

## 4.3 Napa County Flood Protection & Watershed Improvement Authority

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### WEBSITE

<http://www.countyofnapa.org/MeasureAFinancialOversightCommittee/>

### OVERVIEW

The Napa County Flood Protection and Watershed Improvement Authority was created with the passage of Measure A, the Napa County Flood Protection Sales Tax Ordinance, in March of 1998. Measure A implements a county-wide half cent transaction and use tax, and establishes a Napa County Flood Protection and Watershed Improvement Expenditure Plan that outlines specific projects eligible to receive collected funds. The Authority, made up of the County Board of Supervisors, approves and allocates appropriate funds to applicable projects submitted by the Cities within the county. The Authority contracts with the Napa County Flood Control & Water Conservation District for staffing. A Financial Oversight Committee (FOC) ensures Measure A is implemented according to law and funds are distributed appropriately. A Technical Advisory Committee (TAC) also assists in project approval, particularly projects that may not already appear in the Napa County Flood Protection and Watershed Improvement Expenditure Plan. Cities in Napa County apply for project approval and funding. Each City then implements, and maintains all projects.

Although one RD exists in Napa County, this district does not conduct flood management work, other than emergency response when necessary. Levees in the RD are privately owned and maintained. Landowners within the RD have not agreed to assess themselves for levee maintenance, and in the absence of such maintenance, the levees are unaccredited. The County OES coordinates emergency response, which is a combination of mutual aid between the County, private property owners, and the RD if appropriate.

The Authority is an example of a County-lead effort for comprehensive flood system planning, policy, and fiduciary responsibilities. Large scale planning, policy, and budgeting is centralized led by the County, while project implementation, O&M, and emergency response is decentralized and led by local jurisdictions. Cities must apply for funds for specific projects, and if granted, manage project implementation and routine maintenance. A complete organizational chart can be seen in Appendix A: Organization Diagrams & Tables.

## **GOVERNANCE STRUCTURE**

### ***Local, County***

Napa County coordinates all emergency response, in coordination with the NCFC & WCD. Cities also work with the County during emergency events.

The Napa County BOS serves as the Authority and contracts with the NCFC & WCD for staffing resources. The Authority aids the implementation of the Napa County Flood Protection and Watershed Improvement Expenditure Plan by overseeing projects and funding. The Expenditure Plan specifically outlines priority and pre-approved projects. In some cases, projects undergo technical analysis to determine if they fall within pre-approved projects. The Authority represents the Region in system-wide, and state policy negotiation.

### ***Local, Cities***

Once a project is approved and allocated funds, each City is responsible for project implementation, routine and long term O&M.

## **LESSONS LEARNED**

The Napa County Flood Protection and Watershed Improvement Authority is a good example of a county-led effort that combines available resources within the County for multi-purpose, large-scale flood related projects. Measure A allowed pooling of county-wide resources to procure local cost-share for the City of Napa's flood capital improvement project, while providing incentives to other cities in the County by dispersing funds for smaller localized projects. This exemplifies the strength of a County-led system that increases funding abilities, coordinates regional policy advocacy, and specifies comprehensive regional system improvements.

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## 4.4 Sacramento Regional Water Authority (RWA)

### CONTACT

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RWA

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### WEBSITE

<http://www.rwah2o.org/rwa/>

### OVERVIEW

The RWA is a JPA formed in 2001 through the consolidation of various regional associations. The Authority serves 25 water providers and affiliated agencies in the greater Sacramento, Placer, and El Dorado County region. RWA members include cities, water districts, mutual water companies, investor owned water utilities, and community services districts, each with two representatives that serve as board members. Most RWA members are also Sacramento Water Forum Agreement (WFA) members. The mission of the Authority is to provide a strong unified voice regarding Northern California water issues, assist water purveyors carry out WFA objectives, and to promote the long-term protection and enhancement of reliable, available, affordable and high quality water resources.

Through State and federal funding, the RWA creates programs that bring stakeholders together to define priorities, increase funding capacity, and execute collaborative plans. The Authority currently obtains and manages more than \$68 million of State and federal grant funds for regional planning and implements water supply, water quality, and environmental restoration projects. Projects are implemented through programmatic work such as the American River Basin Regional Conjunctive Use Program (ARBCUP) and the Water Efficiency Program (WEP). Beyond this programmatic work, the Authority creates a forum for stakeholder education, discussion, compromise, and information sharing through extensive data collection. The Authority also engages with State and federal legislators to advocate for policies that represent the collective RWA vision.

## **GOVERNANCE STRUCTURE**

### ***Public & Private, JPA***

Board members, with the assistance of staff, determine programmatic priorities and organizational strategic plans.

### ***Staff***

Staff members assist in grant administration, program management, advocacy, and stakeholder education.

## **LESSONS LEARNED**

While not directly involved in flood management, the RWA is a good example of a regional consortium of entities that speak with a strong regional voice and expand capacity for local stakeholders. Authority members work together to implement mutually beneficial projects that are focused on member relevant issues. As a non-governmental organization, the Authority can promote members values, and seek funding mechanisms that forward their collective agenda. Often the regional JPA structure affirms the ability to apply for specific funding opportunities, because some funding is tied to required regional collaboration. Staff resources enable the acquisition of large funding streams, program implementation, and legislative advocacy. A general weakness of this type of organization is the ability of a large, diverse and busy Board to accomplish a collective vision and methods of accomplishing those goals. Overall, the RWA is a good example of program implementation through broad collaboration on a stakeholder level.

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## 4.5 Southeast Louisiana Flood Protection Authority, East & West Bank (SLFPAE & SLFPAW)

### CONTACT

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### WEBSITES

<http://www.slpaw.org/index.html>

<http://slfpae.com/>

### OVERVIEW

Louisiana's Senate Bill 8 created SLFPAE & SLFPAW in 2006, post Hurricane Katrina. This was a voter approved constitutional amendment that reformed levee management for the levees protecting the metro New Orleans area, including levees in Orleans Parish, St. Bernard Parish and Jefferson Parish. The legislation dissolved local levee commissions and created two regional entities, known as SLFPA -East, and SLFPA - West Bank. Reformation sought to reduce parochial politics of local entities, reduce administrative and equipment costs, increase federal fiduciary abilities, and increase flood protection. The Bill also created the Coastal Protection and Restoration Authority (CPRA), which serves as the single state entity to act as the local sponsor for all flood infrastructure task work. CPRA is in many ways similar to the CVFPB, but it does not have permitting authorities. Permitting for levee encroachments is handled by the Levee Districts through permits with USACE and the CPRA. CPRA acts as the primary contact for USACE partnering agreements, but can also approve the regional entities ability to enter into partnering agreements.

The SLFPA's main purpose is to construct, maintain and manage regional flood infrastructure. Existing levee districts are not dissolved, but are politically, and financially managed by the regional entities. Original levee districts continue to conduct O&M and basic administration, funded through local assessments. The regional entity administrates all local assessments within the designated region, however individual district tax collection is not altered, or co-mingled with any of the other districts within the regional entity. The SLFPA's are also able to assess, by voter approval, in the name of an individual district or for the entirety of the Region. Originally, the regional entities were funded by the State of Louisiana, with roughly \$250,000 annually. Currently, assessing the local levee districts a prorated amount for the services they provide funds the SLFPAs. The regional entities also seek federal grant funds from bonds, FEMA, and HUD.

The board member make up for each region varies slightly, but must contain representatives from each levee district in the Region, at-large members, and members from appropriate professions related to flood system management such as engineering, hydrology, and environmental science. Members are nominated by a distinct group of societies, academic institutions, and relevant NGO's and then appointed by the Governor and confirmed by the Senate.

### **GOVERNANCE STRUCTURE**

#### ***State, Costal Protection and Restoration Authority***

CPRA acts as the local sponsor for federal partnering agreements. The USACE turns projects over to the CPRA, which then turns the project over to the appropriate regional entity. The SLFPA then looks to the local levee districts for the implementation of physical work and awarding of construction contracts, like erosion repair. Though SLFPA has broad approval authority, major action projects must be approved by CPRA.

#### ***Region, Southeast Louisiana Flood Protection Authority***

Each SLFPA is made up of an extensive Board and some staff members. The regional entities guide system-wide project planning through conducting regional infrastructure studies, and identifying priority projects. The entities also engage in legislative and legal issues when necessary. SLFPA is able to enter into partnering agreements with USACE, and approve projects within the Region. The entity also has assessment and allocation authorities.

#### ***Local, Levee Districts***

Local levee districts continue to collect assessments, though funds are managed by the regional entities. The districts continue local O&M, and repair and reconstruction, when necessary. Other basic administration, such a small-scale permitting, and construction contracting is conducted.

### **LESSONS LEARNED**

The regional entities have been successful at conducting region-wide system studies that will lead to greater flood risk protection. The varied board member make up has led to less local politics, though not completely eradicated. Specifically, cultural, economic and need differences create challenges when attempting to regionally assess. Regionalization has strengthened the districts' abilities to speak with one voice, and coordinate with the State and federal government. Administrative, equipment, and contracting costs have been reduced, while federal grant funding capacity has increased. The New Orleans framework exemplifies the strengths of regionalizing flood governance, while continuing to encourage local implementation.

## 4.6 Three Rivers Levee Improvement Authority (TRLIA)

### CONTACT

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<http://www.trlia.org/>

### OVERVIEW

The Three Rivers Levee Improvement Authority (TRLIA) is a joint powers authority created by an agreement between Yuba County and Reclamation District 784 pursuant to Government Code section 6500 *et seq.* in 2004. The JPA addresses major capital improvement needs in south Yuba County. The TRLIA board consists of two members of the Yuba County Board of Supervisors, two Reclamation District 784 trustees, and one at-large member. TRLIA has 2 dedicated staff members, and contracts with consultants including legal counsel, engineers, and environmental specialists. A complete organizational chart can be seen in APPENDIX A: ORGANIZATION DIAGRAMS & TABLES. The JPA has been incredibly successful in financing projects to attain 200-year flood protection and is nearly finished with its projects. The JPA assesses property owners based on zones of benefit for sustainable O&M practices. Funds for capital improvement projects are paid through State and federal cost share, funds contributed by Yuba County and the Yuba County Water Agency, and through developer agreements. Levee O&M is conducted by RD 784, paid for through an existing assessment and the JPA's assessment.

### GOVERNANCE STRUCTURE

#### ***County & Reclamation District, Joint Powers Authority***

TRLIA is run through their Board, 2 person staff, and large consultant team. This team collaborates on system-wide project planning, permit approvals, and budget needs.

#### ***Local, Reclamation District***

RD 784 continues to implement O&M and emergency response, though this is funded through the existing and TRLIA assessment.

### LESSONS LEARNED

TRLIA is a good example of a County and RD(s) joining forces to create a separate entity that focuses only on flood system management. Although the County itself is indirectly involved, the JPA is responsible for every task. The primary strength of this JPA is its ability to access State and federal cost-share funds, increased strength in regional advocacy, and appropriate use of local knowledge and labor.

## — CHAPTER 5 —

# EVALUATION OF ALTERNATIVES

This chapter evaluates different alternatives for governing flood management in Yolo County, ranging from making no changes to entirely new institutional arrangements. At the end of the chapter, we recommend some courses of action.

### 5.1 EVALUATION CRITERIA

To evaluate governance options for Yolo County, we developed a set of criteria based on understanding flood management functions, input from the stakeholders, and background research on comparable areas. The criteria are used to assess the advantages and disadvantages of various governance models. Each criterion is associated with a variety of specific questions. Generally, the criteria are designed to ask: can a modified organizational structure or governance approach improve how tasks are conducted today given the changing context of flood management (e.g. reduce costs, increase revenues, expand flood management expertise, provide a unified regional response, etc.).

The broad criteria are:

1. Political Acceptance & Feasibility
2. Financial Advantages
3. Integrated Regional Planning Capability
4. Flood Management Effectiveness

### SPECIFIC QUESTIONS

#### ***1. Political Acceptance and Feasibility:***

- a. Are most local entities supportive of the proposed organizational structure(s), or at least willing to consider changes?
- b. Are the organizational/governance changes politically feasible, locally, regionally, and, if necessary, from a State DWR or legislative perspective?
- c. What procedural steps are required to effectuate the changes, and are they reasonable in terms of political feasibility, timing, and resources?
- d. Is there likely support from landowners, citizens and others, especially if votes may be needed to modify assessments, or adjust boundaries?

#### ***2. Financial Advantages:***

- a. Does the organizational structure increase access to additional project development funding from “outside” sources like USACE, State legislature, DWR, grants and loans, or mitigation banking funds?

- b. Does the organizational structure increase or expand opportunities for augmented assessments for routine O&M?
- c. Does the organizational structure potentially decrease management costs including contracting, environmental permitting, levee monitoring and reporting, and administrative overhead?
- d. Does the organizational structure retain all existing funding sources (e.g. property assessments)?
- e. Does the organizational structure increase eligibility into the Rehabilitation and Inspection Program?

**3. *Integrated Regional Planning Capacity:***

- a. Does the organizational structure enhance regional coordination and collaborative decision-making or dialogue (e.g. increasing collaboration in planning or constructing infrastructure, or mitigation/habitat planning)?
- b. Does the organizational structure allow the region to “speak with one voice” or at least fewer different voices when addressing regional or system-wide problems and opportunities with DWR, USACE, FEMA, or State legislature?
- c. Does the organizational structure promote equitable representation of stakeholder and landowner interests?

**4. *Flood Management Effectiveness:***

- a. Does the organizational structure expand access to necessary equipment, personnel, engineering expertise or other resources needed to conduct O&M work?
- b. Does the organizational structure increase capabilities during a “flood flight,” such as increasing available resources, coordinated response, or faster/more effective response?
- c. Does the organizational structure take advantage of local knowledge of levee conditions and operations?
- d. Does the organizational structure improve opportunities for levee construction, repair and reconstruction, and the studies, analysis and design work that must be done in advance of construction?
- e. Does the organizational structure have potential to address chronic problems such as lack of investment in levee improvement, or lack of staff and resources to manage levees? And, does the structure reduce flood risks in particular hydraulically linked basins?

## **5.2 ALTERNATIVE GOVERNANCE STRUCTURES FOR YOLO COUNTY'S FLOOD AGENCIES/ DISTRICTS**

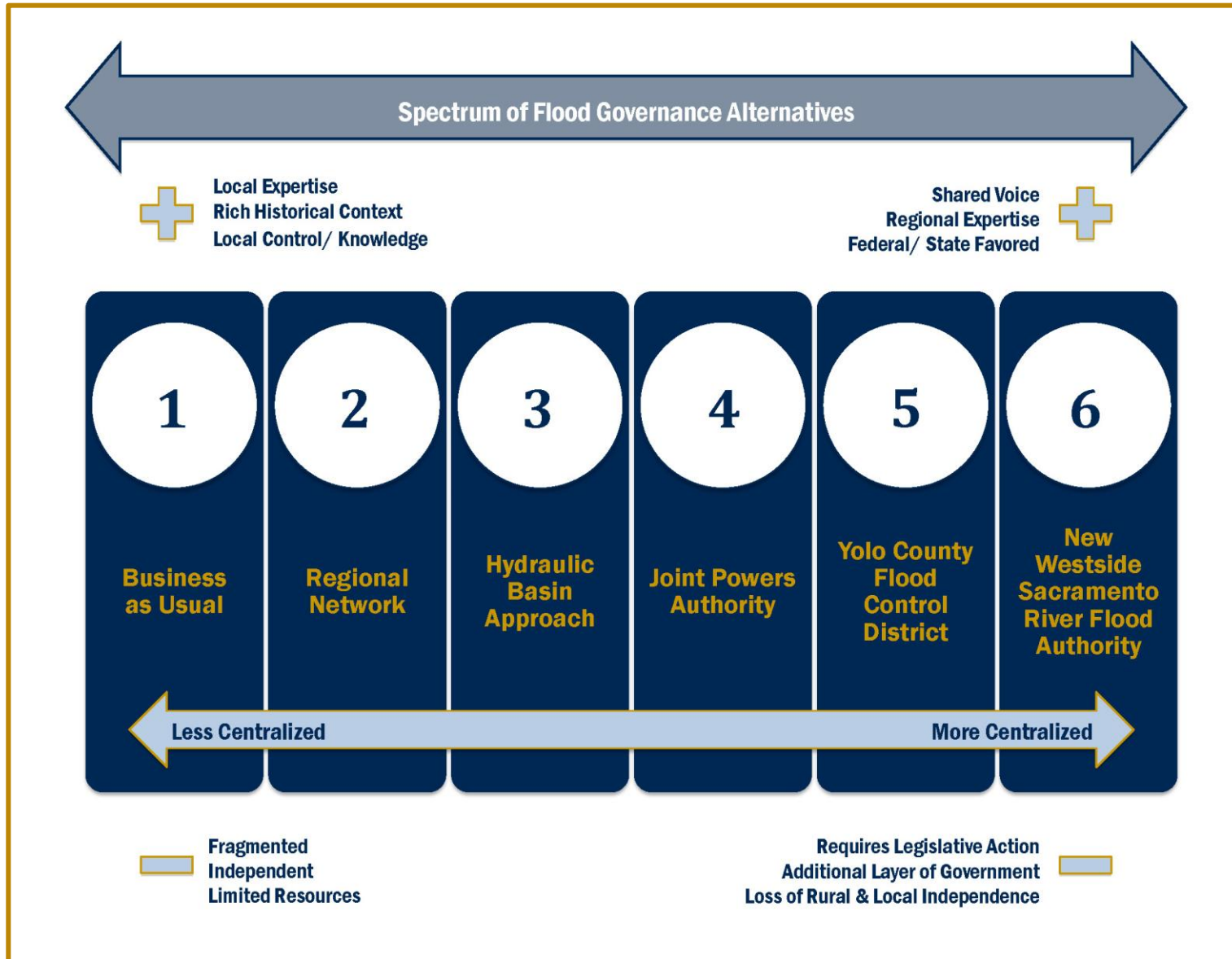
The following are a broad range of alternative governance/ organizational structures for flood management in Yolo County. The alternatives offer different benefits and challenges. One theme that emerges is that different flood functions suggest different opportunities and constraints for governance. For example, flood emergency preparedness and “flood fight” requires a central coordinating point, while actual on the ground implementation is often better decentralized. The emerging point of contact for Yolo County is the County’s Office of Emergency Services, which recently received a \$1 million+ grant to better equip all the agencies and districts in the County for flood emergencies in a coordinated way. This County-based governance “structure” seems to be working well, and should be expanded and continued.

The Yolo Bypass also poses a unique set of challenges. The Bypass is being discussed for significant change to address not only Statewide and regional flooding issues, but wildlife habitat and water management needs. Because of the breadth of this project, its complex construction and maintenance challenges, and the scope of its potential beneficiaries, DWR has been suggested as the logical entity for managing the improvements, and on-going governance and maintenance, though routine O&M could continue at the local level. However, it is also critical that “governance” of the Bypass include a strong collaborative structure, representing the many local interests inside and outside the Bypass (particularly agricultural and County interests). A collaborative structure could easily include many local and regional flood managers, as well as the County and various natural resource managers. This collaborative network should be structured so that their input and advice is timely, meaningful and direct.

### **YOLO COUNTY LOCAL FLOOD GOVERNANCE OPTIONS**

The alternatives that follow are designed to improve governance for the many flood management functions that now operate at a local level and in a somewhat fragmented way. The options are designed to improve access to regional and State funds, simplify and strengthen communications, improve levee performance efficiency in upgrading and maintaining levees, and provide economies of scale for activities like environmental permitting, levee monitoring and reporting and grant writing. The alternatives are not in any order of preference. Diagram 3 shows the alternatives and their general characteristics.

Diagram 3. Alternative Governance Structures



### **1. Business as Usual**

This alternative preserves the status quo, with few, if any, collaborative ventures or consolidations, and no over-arching communication or networking structures. All agencies, districts and entities would remain as they are today, but could expand the use of shared service agreements for staffing, consultants, equipment, contracts, emergency response and related economies of scale. Several such shared agreements already exist and work well, such as RD 108 near Knights Landing. The most logical shared services are for districts and entities that share responsibility for protecting a hydraulically linked basin.

### **2. Regional Communication and Collaboration Network**

This alternative would preserve the formal governance structures for existing flood management entities. However, it would add a regional network as an “umbrella” organization to address regional and system-wide issues, help with “speaking with one voice,” and provide a regional focal point for grant writing, communicating with the State and federal governments, and developing regional flood solutions and projects. This is similar to the role of the Project Delivery Team today.

This alternative could be combined with RD consolidations, Joint Powers Authorities or shared services agreements. There are several ways to accomplish this option. One would be to use a focused team of professionals with expertise in areas such as engineering, legal and policy aspects of floods, much like the PDT. The team could consist of consultants or a portion of local staff members’ time. Another approach might be to have a part of a staff member’s time focused on flood coordination, perhaps housed in an existing agency or organization like the County, OES or the WRA.

Wherever the regional flood coordinator is formally “housed” their primary duties might be to: get to know the flood managers in the County and in neighboring counties and their capacities; become familiar with all State, federal and other grant, loan and funding cycles and processes; be the primary point of contact for regional flood plans, mitigation programs and grant development; assist each flood manager as necessary with inspection and reporting, permitting, and coordinating with neighboring districts; assist in emergency activities; and serve as a regional advocate with State and federal flood regulations and plans.

#### **2a. Water Resources Association (WRA)**

This version would expand the role and reach of the WRA to have a staff person either work directly for the WRA or work as a County staff (perhaps 25%) and use the WRA as the networking venue to support a regional platform for flood control. While it is already part of the WRA’s formal “mission” (and addressed in the IRWMP), flood management tends to be a minor part of WRA’s current work.

One advantage of the WRA is that it has a long track record of regional cooperation, maintains administrative staff and leadership, is well known and respected in the area, and coordinates the IRWMP. As many flood managers point out, they already attend the WRA meetings and know how it works. Another advantage is the open structure of the WRA, where specific “project related” activities (like the Woodland-Davis Water Supply JPA and



Project) are encouraged within the WRA umbrella. Additional funding would have to be developed for this option, either from DWR or from modest contributions from WRA members.

### **2b. Westside Coordinating Committee**

This version would retain some form of the Westside Coordinating Committee and/or the PDT and make it more sustainable and “permanent.” The advantages of this approach is that it is already formed with growing visibility and respect; is focused on flood management; has the ability to identify and respond to grant and funding opportunities; and can provide an efficient forum for collaboration, communication, information sharing, and addressing the USACE and DWR. Like the WRA, a disadvantage is lack of a separate funding source. In addition, it might be more difficult to achieve the level of local acceptance and familiarity as a single County staff member.

### **3. The Hydraulic Basin Approach**

This alternative recognizes that there are five distinct basins protected by essentially “ring” levees along the Sacramento River/Yolo Bypass system, and that each basin is, in essence, one hydraulically connected flood zone. Yet, the ring levee system around each basin is managed and maintained by several agencies and districts. The concept is to have the equivalent of one entity manage each hydraulically linked basin. Since each basin area is distinct; politically, in terms of assessments, levee qualities, and historical development, it may not be possible or desirable to manage each basin the same.

As a practical and political matter, it is unlikely that each basin area (North County and Knights Landing, Woodland/Conaway, Elkhorn, West Sacramento, and Clarksburg) will be motivated to join together either through JPA’s or consolidation. Therefore, it seems appropriate that the “one voice” governance structure for each basin might vary depending on local preference. For example, one basin may choose to consolidate all of its RDs into one. Another basin may choose a JPA approach (like West Sacramento already has). Another basin may choose to use common shared services agreements and a series of MOU’s as the way to become linked. The concept is that each basin would have a single point of contact, “speak with one voice,” reduce administrative, contract and service costs, and increase the likelihood of consistent levee performance.

The hydraulic basins are loosely defined by their geography, community connections and interdependence of levees and structural flood control needs.<sup>4</sup> The basin areas are: (1) North County and Knights Landing; (2) Elkhorn; (3) Woodland/Conaway; (4) West Sacramento; and (5) Clarksburg. Given local preference and readiness, Elkhorn seems most likely to move toward a consolidation approach, West Sacramento already has developed its JPA, and Clarksburg, Knights Landing and Woodland/Conaway seem best suited to an MOU approach with shared service

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<sup>4</sup> With the complex system of canals, levees, pumping stations and related infrastructure, there are exceptions to the hydraulically-linked concept.

agreements. The Clarksburg and Knights Landing areas also might be motivated toward some modest consolidation depending on state-wide actions and negotiations.

The key is that each hydraulically linked basin uses a consistent standard for levee performance, relies on a similar management approach and engineering contracts, takes advantage of the economies of scale for levee inspection and reporting, grant seeking, permitting, regional planning, advocating for insurance rates and levee certifications, and works together on flood preparedness and flood fight. The recent RFMP process has begun to bring small districts together and the OES emergency services grant is likely to continue this movement.

This approach can be readily combined with a Regional Communication Network as described in #2 above.

#### **4. Expanded Joint Powers Authority**

This alternative relies on the Joint Powers concept to combine functions and increase efficiencies without changing any of the existing districts and agencies, much as WSAFCA has done. The advantage of a JPA is that it can be created with any sub-set of the common authorities/powers of each of its member agencies. Base assessments remain the same and Boards of Directors do not change. It is also an entity that can be created and then sunset after projects are completed (as WSAFCA is proposing). Disadvantages include lack of a separate funding source, and the burden of creating another layer of government. A large JPA could create a new assessment to augment existing sources, but this requires a Proposition 218 vote of all landowners. The recent success of SAFCA and WSAFCA speak to the potential power of JPAs, as do several of the comparable case studies, such as TRLIA and the RWA.

##### **4a. Yolo County Flood Management JPA**

This version would create one large JPA as a new entity encompassing many of the non-municipal flood management agencies (or potentially all of them). This is likely to meet with local resistance because many stakeholders believe such a centralized entity would not be responsive to local stakeholder needs and interests, and would create a major new government “layer.”

##### **4b. Expanded WSAFCA**

A related approach would be to expand WSAFCA to include all the agencies and districts along the Sacramento River system. This has the same political concerns as 4a, but may be even less favored because it might interrupt or distract the progress already made by WSAFCA. Also, some believe that there would be an inherent bias toward West Sacramento’s urban-based interests. The urban areas could be placed in the position of subsidizing the non-urban areas in each of these cases. While this might have system-wide flood control benefits, it might be difficult to convince voters.

#### **5. Yolo County Flood Control and Water Conservation District/ Agency**

This alternative would expand the boundaries and responsibilities of the Yolo County Flood Control and Water Conservation District to encompass the entire County and to engage fully in

flood management activities. The advantages of this concept are that the County already has an established agency with all water-related authorities and a water supply enterprise fund, a high level of staff expertise and water management credibility, contractual and insurance capabilities, ease of administration and accounting, a long history of regional communication, political advocacy and collaboration, and strong link to the County Board. The disadvantages would be loss of local control, potential loss of local knowledge and awareness of Sacramento River system levees, and potential erosion of current duties and focus of the YCFC & WCD. Without a track record in flood management, it might be difficult for this expanded District concept to gain credibility. This alternative would require State legislation to revise the District's enabling statute.

Local entities, such as the RDs, are not likely to want to grant all of their authority and responsibilities over to the Flood Control District; but it is possible that the Flood Control District could manage only certain aspects or parts of the levee system, such as contracting and related administrative duties. To take on additional territory and whole new set of duties will require a supplemental funding source, which will require a vote of the Board, and then a vote of landowners.

#### ***6. New Sacramento River System West Side Flood Management Agency***

This alternative is similar to #5 above requiring new State legislation to create a fully functioning flood management agency with all authorities, a funding mechanism, and management capacity to address the entire river system. This has advantages in terms of focus, expertise, potentially funding autonomy, and the idea of "speaking with one strong political voice." However, it would not likely to be favored by most local stakeholders and flood management entities, and would have limited political feasibility. An alternative of this scope would require strong political backing from the County, local cities and communities, DWR and legislators. It would also require a well-represented governing structure where each RD (and cities and County) had a meaningful seat at the table and a strong hand in developing the Agency.

The example of post Katrina New Orleans may come closest to demonstrating this type of governance change. As discussed in Chapter 4, Section 4.5, the Southeast Louisiana Flood Protection Authority, East & West Bank (SLFP AE & SLFP AW) was created to address perceived problems associated with small levee districts' inability to manage regional, integrated flood infrastructure. With pressure from the federal government, the State of Louisiana conducted sweeping reform that changed decision-making, and financial management authorities from small districts to a regional agency. Districts are not dissolved, but act as partnering agencies for necessary O&M and associated construction contracts, local assessment, and emergency response. Levee districts participate on the regional boards with designated representatives to secure local knowledge and involvement on system-wide flood management.

### 5.3 EVALUATING THE ALTERNATIVES

The matrix below summarizes how each alternative governance structure performs against the four criteria described earlier.

**Table 4. Evaluation Of Alternatives**

		KEY	Flood Governance Success INDICATORS			
		<p>■ = <b>Fully Meets Criteria</b></p> <p>☒ = <b>Partially Meets Criteria</b></p> <p>□ = <b>Does Not Meet Criteria</b></p>	Political Acceptance & Feasibility	Financial Advantages	Integrated Regional Planning	Flood Management Effectiveness
Flood Governance ALTERNATIVES	1	Business as Usual	■	□	□	□
	2	Regional Communication and Collaboration Network	☒	□	☒	□
	3	"The Hydraulic Basin" Approach	☒	☒	☒	☒
	4	Expanded "Joint Powers Authority"	□	☒	■	☒
	5	"Yolo County Flood Control and Water Conservation District/Agency"	□	☒	■	☒
	6	New "Sacramento River System West Side Flood Management Agency"	□	☒	■	☒

### **ALTERNATIVE 1: *Business as Usual***

Alternative one, “business as usual,” would be locally acceptable politically, and would maintain all established boundaries, relationships and financial arrangements and funding capabilities. This alternative does not offer new financial advantages, but protects and preserves the financing in place today. This alternative does not expand current regional flood planning or advocacy capability, but given the emerging RFMP and OES grant, regional presence and collaboration may increase anyway. This alternative does not likely improve the “single voice” concept, and does not ensure that each hydraulically linked basin will increase its flood security. This alternative is not likely to meet the test of increased flood management effectiveness, especially if one assumes a rapidly changing Statewide and regional flood context. New funding is also not likely except possibly in WSAFCA, which has already developed a quasi-regional collaborative working arrangement.

### **ALTERNATIVE 2: *Regional Network***

Alternative two, a “regional network,” would likely be politically acceptable locally, provided the costs were not burdensome, the benefits clearly demonstrated, and no additional layer of governance was created. One of the simplest ways to achieve this would be to designate part of an existing County staff position as a regional flood coordinator, and use the existing WRA as the venue and forum for discussion and collaboration. This would require some negotiating with the WRA Board to take on a new direction. This would provide the “regional voice/presence,” but without an added layer of government and modest additional costs.

The real issue with this alternative is whether it would materially improve Yolo County’s regional flood presence, or achieve cost or time savings for the RD managers and decision-makers. On paper, it has potential, and the PDT’s recent successes suggest how it might play out, but tangible benefits might be elusive. A two to three year trial period might be a wise first step, to see what tasks can be legitimately passed to a regional coordinator, what economies of scale are possible, and what level of regional cooperation and presence with DWR, the USACE, and FEMA can be established.

### **ALTERNATIVE 3: *Hydraulic Basin Approach***

Alternative three, the “hydraulic basin approach,” may, at first glance, seem politically unpalatable, as many of the RD’s have a strong preference for local control, and limited incentive to collaborate, consolidate, or join forces. However, the changing context and new opportunities may bring districts closer.

For example, in exchange for cooperation over the Yolo Bypass, particularly in the RD 1600 area where over half the District may be proposed for Yolo Bypass widening, the Elkhorn basins may be encouraged to join into a single District (RD 827, RD 785, RD 1600) with DWR potentially taking charge of Yolo Bypass responsibilities. Similarly, as a condition of establishing Clarksburg with a Zone D flood insurance designation, RD 999, 765 and Rd 307 might be willing to join to ensure mutual flood security and offer improved administrative and engineering support. WSAFCA is already well established as a JPA. In the North County - Knights Landing area, RD 108 has a well-established system of cooperative service agreements with Knights Landing Ridge

Cut Drainage District and the Sacramento River Westside Levee District. These could be expanded to involve CSA #6.

This approach might offer a few financial advantages over the current situation. First, in each basin, one manager, combined engineering and construction contracts, and a single point of contact could lower costs for routine maintenance and major projects. DWR may look more favorably when funding up-coming Federal System Repair Project levee repair programs. While basic assessments may remain the same, additional funds might be leveraged from outside sources.

In terms of regional flood planning capacity, the hydraulic basin approach, particularly when linked with the regional network approach, has merit. While not a “single voice,” the region would be represented by several flood management professionals who know their local areas and the regional scene. This could be valuable for regional funding opportunities, mitigation programs, and having a unified voice for the Bypass and other critical projects.

Flood management effectiveness might be enhanced if additional funds are available. For very small districts with limited or no staff or resources, this approach clearly has benefits (which in turn benefits their immediate neighbors). For the larger districts, it might not improve performance.

#### **ALTERNATIVE 4: *Expanded Joint Powers Authority***

Alternative four, the “expanded joint powers authority,” would share many of the potential advantages of the hydraulic basin approach described above: regional presence, single voice and point of contact, reduced costs and time in contracting and permitting, and additional funds assuming a 218 election would be favorable.

The disadvantage would be the difficulty of establishing the authority politically. Expanding WSAFCA would not be favored by WSAFCA itself or many surrounding districts. Creating a new JPA might be more acceptable, but those larger districts, particularly those with a separate water enterprise and funding source (RD 108, RD 999, Conaway) would have limited incentive to join, and without these districts, the JPA would lack continuity and strength. This alternative, while potentially effective, is politically unlikely.

#### **ALTERNATIVE 5: *Expansion of the Yolo Flood Control and Water Conservation District***

Alternative five, “expansion of the Yolo Flood Control and Water Conservation District,” would have many of the advantages of options 3 and 4, and add the credibility, institutional strength, and stability of the existing District. However, it would not be favored politically for the same reasons as Alternative 4. The YCFC & WCD has had limited presence in flood issues, and almost no formal presence in eastern Yolo County. While the District’s management and staff have had many years of interaction with water managers from eastern Yolo County in the WRA and other venues (especially those who are fellow water purveyors), it has not been directly related to flood issues. This alternative, like #4 above, would require State legislation and considerable widespread support.

**ALTERNATIVE 6: *New Yolo County Flood Management Authority or Agency***

Alternative six, a “new Yolo County flood management authority or agency,” provides almost the same advantages and disadvantages as options 4 and 5. While potentially effective in many ways, local political acceptance would be low. Not only does it mean less local control, but results in a wholly new layer and type of government in Yolo County, something quite resisted by many local districts and community leaders.

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## 5.4 RECOMMENDATIONS & NEXT STEPS

Flood management is changing nation-wide. Due to a variety of catastrophic events, climate change concerns and new legislation, awareness of flood risks and the need for more effective flood management is increasing. National and State attention on the Central Valley's flood risk has prompted greater funding opportunities, firmer regulations, and comprehensive planning. Concurrently, NFIP policy is being adjusted, rates are being made more actuarially sound, and FEMA is actively reviewing floodplain-mapping designations. USACE levee design and O&M standards are being updated and are increasingly difficult to achieve. Soon, USACE will conduct their Periodic Inspection Report (PIR), which may continue to remove Yolo County RDs from PL 84-99.

Yolo County is vital to many Central Valley flood proposals. The CVFPP outlines the need for increased capacity, and alternative governance for the Yolo Bypass. To meet current demands that also speak to the County's interests, Yolo County, surrounding counties and relevant agencies are working on the Yolo Bypass Cache Slough IWMP. This plan will outline the many different infrastructure and governance needs for an expanded Yolo Bypass. The County also is active in planning for increased regional emergency response capacity, led by the County OES, and funded by a phase 1 planning grant from DWR.

Yolo County contains 14 RDs. Each district has different capacities to meet its charge of flood risk reduction. Some areas self-assess appropriately, and conduct routine O&M, and attempt to comply with USACE's increasing standards. RDs manage critical infrastructure for the Region, which are part of the SPFC and protect not just Yolo County, but offer flood risk reduction to much of the Central Valley. Though each RD is unique in their constraints and opportunities, they share overarching challenges and concerns.

As noted elsewhere in this study, significant concerns exist within the Reclamation District community about potential liability associated with district consolidation. Such concerns can be divided into two categories: potential liability of Board Members and potential liability of the acquiring district. To ensure that generic concerns about liability do not result in uninformed decision making on consolidation, Appendix D: *Issues of Potential Liability Associated with Special District Consolidation*, was prepared by County Counsel to provide an overview of potential liability issues. As noted in the Appendix, personal liability of Board Members is very rare and State law has been drafted to ensure that liability does not occur except in the most egregious of circumstances. Also as noted in the Appendix, there are circumstances in which a consolidated district can inherit liability for actions of one of the previous districts. The Appendix explains those circumstances to allow local districts to make informed decisions.

RDs are well outfitted to continue routine O&M, and on-site emergency response, if properly funded. These tasks should remain local. However, some flood work would benefit from more regionalization and coordination. Based on the alternatives evaluated, we believe that a phased approach that combines **Alternative 2: "Regional Communication and Collaboration Network"**, and **Alternative 3: "The Hydraulic Basin" Approach** would be desirable and useful. The



recommendations below explain how these alternatives could be phased and/ or combined, and identifies the unique circumstances related to each basin.

**Phase I — One to Two (1-2) Year Implementation Horizon:**

***THE YOLO BYPASS SHOULD BE REGARDED AS A SEPARATE, REGIONAL INFRASTRUCTURE PROJECT, AND SHOULD BE FUNDED REGIONALLY***

The Yolo Bypass was designed to serve as the keystone element of the regional Sacramento River Flood Control Project. In this capacity, floodwaters are diverted from the Sacramento River and key urban centers and directed through rural areas. Many residents in the Central Valley benefit from the bypass levees; however, in some cases, a local levee maintaining agency is charged with the O&M of the bypass levees relying solely on a local property based assessment.

Many proposed plans and projects for the Yolo Bypass include significant habitat enhancement features enabled to a large extent by the modification of flood control facilities. The sponsors of these features (CVFPP, CVP/SWP Biological Opinion, and BDCP) should be responsible for funding their operation and maintenance and for contributing to the O&M of the modified flood control facilities by imposing fees or assessments on the beneficiaries of the features. The State could relieve some of these concerns by implementing a regionally funded multi-objective approach to managing and maintaining the bypass levees and related facilities comprising these systems. This would require a new source of annual funding and may require the consideration of a new governance model for the bypass. The concept of creating a new governance and financial model for O&M of the Yolo Bypass levees requires additional effort to determine its viability and acceptability.

***LOCAL FLOOD MANAGEMENT IN YOLO COUNTY WILL BENEFIT FROM REGIONAL COORDINATION***

There is no local desire to create another layer of government. However, a regional focus and approach to flood risk management is becoming more critical, and resonates with FEMA, HUD, USACE, DWR and the CVFPB (each of whom have funds, requirements and/or regulations that affect Yolo County levees). The Flood Protect RFMP process continues to succeed in this role by working across boundaries, and resulting in a strong regional voice. **Alternative 2: “Regional Communication and Collaboration Network”** proposes a forum focused on how Yolo County can best integrate into regional flood issues. This forum could be housed in the WRA, or continue through the West and Eastside committees for the Flood Protect RFMP. DWR has committed additional funding for RFMP groups, which could serve as a sustainable funding source at least through 2017 until additional funding is identified.

Alternative 2 also proposes a designated, consistent point of contact for all County flood management needs. This point of contact should be a County staff member, at 25% or more time, located in the OES or the County Administration Office. To support a successful flood management system that concurrently protects the County’s and resident’s interests, the County needs to be a prominent player in regional flood management planning. Taking an

active role will require designating responsibility, authority and funding to a County representative. If applicable grant programs are available, funding should be subsidized through State grant funds. If programs are not available, the County will need to designate general funding to ensure that Yolo County's voice on flood management is not lost over time. Alternatively, the point of contact could be a team, such as the existing PDT for the Flood Protect RFMP. Yolo County would continue to need a representative on this team. A team scenario would not offer the consistency and capacity building that a single point of contact would afford, and could potentially be more costly.

The County representative could have a variety of responsibilities, such as:

- ◆ **County / Regional Coordination:**
  - Emergency response
  - System-wide planning liaison
  - Local, State, & federal collaboration and policy negotiation
- ◆ **Grants Administration:**
  - Seeking funds for projects, management, and maintenance
  - Comprehensive knowledge of flood infrastructure needs
  - Project Coordination
- ◆ **Capacity Building**
  - Between County & individual RDs
  - Between neighboring RDs
- ◆ **Environmental Permit Support**

**Phase II — Two to Five (2-5) Year Implementation Horizon:****HYDRAULICALLY-LINKED BASINS NEED COORDINATED STRUCTURES**

As Alternative 3, “**The Hydraulic Basin**” Approach explains, Yolo County RDs would benefit if each hydraulically connected basin operated as if it were one entity. This is particularly true where larger, better-funded RDs depend on the levee condition and performance of smaller, under-funded and under-staffed RDs. We recommend that each of the five “basins” develop their own version of coordinated governance: 1) North County-Knights Landing; 2) Elkhorn; 3) Woodland/Conaway; 4) WSAFCA, and 5) Clarksburg (see map #6). These designations are consistent with current engineering logic, and formally coordinate areas that are either already working together, and/or depend on each other’s compliant flood infrastructure management. Based on stakeholder feedback, we have identified recommended coordination options that recognize each area’s unique challenges.

***North County/ Knights Landing***

RDs 108, 787, 730, KLRDD, SRWSLD, & CSA #6

The Knights Landing area is functioning well in many ways. RD 108 is a large RD that purveys water, and owns land that helps address flood management costs. RD 108 already holds several inter-agency contracts and maintains much of the levee system in the North County area. These contracted agreements should be formalized into several MOU’s to strengthen and institutionalize already existing coordination processes. If a more formal structure is desired, the districts could enter into a JPA, although that may be an unnecessary layer of governance.

The remaining challenge in the area is CSA #6, which has non-eligible levees. CSA #6 is underfunded, and does not believe a Proposition 218 election to increase the assessment would succeed. The district is focusing on creating more efficient O&M procedures, seeking additional grant funding, and priority project planning to mitigate for inadequate funding. It is logical, and favored by many stakeholders that RD 108 enter into a shared-use agreement with CSA #6. However, without adequate funding, contracting is not possible.

Some incentives that may increase resolve to either appropriately assess, or motivate RD 108 to contract with CSA #6 are:

- a. A clear understanding of liabilities associated with current management of RDs, and under alternative governance structures.
- b. DWR could implement Water Code section 12878 - dissolve non-complying RDs and create a maintenance area. This could incur great costs to a handful of landowners, providing an incentive for local cooperative action.
- c. As the Flood Protect RFMP suggests, existing levee improvements as well as a new levee could be constructed south of Knights Landing. The proposed new levee would span 1.04 miles. This levee would complete a ring levee around the town, and would offer 100-year level protection. In conjunction with these physical improvements, an assessment district could be created that could contract work to RD 108. Upgraded

infrastructure that ensures 100-year level protection would motivate RD 108 to maintain the levee due to reduced liability concerns and infrastructure costs.

### **Elkhorn**

RDs 537, 785, 827, & 1600

The Elkhorn basin is undergoing significant change given their position in the Yolo Bypass. Much of the land within the districts, specifically RD 1600, will likely be proposed for Bypass expansion. This action will significantly decrease assessment capacity, making it nearly impossible to conduct currently required O&M. RDs 785 and 827 are already small districts, and have begun to share resources informally, and express interest in consolidation. RD 537 is a complicated RD as its urban population is part of the WSAFCA JPA and is physically divided by the Sacramento Weir.

Elkhorn is already actively working together through the Yolo Bypass negotiation process with the County and DWR. The RDs are interested in consolidation, although concerns regarding liability, assessment and management persist. Furthermore, RD 537 remains a complicated issue. To encourage consolidation, a few actions would be beneficial:

- a. A clear understanding of liabilities associated with current management of RDs, and under alternative governance structures.
- b. Having a regional or State-wide entity like DWR take over funding Yolo Bypass levee O&M.
- c. Create regionalized zones of benefit where possible to expand funding capacity and recognize regional beneficiaries.
- d. Grant funding acquisition assistance and emergency response assistance through a regional flood coordinator.

### **WSAFCA**

City of West Sacramento, RDs 900 & 537

WSAFCA is an already well-functioning JPA. No major recommendations are needed for the area, other than their political support for better and/or consolidated management in the Clarksburg and Elkhorn basins and continued cooperation on the Bypass. WSAFCA could also benefit from a regional flood coordinator.

Due to their hydraulic connection to Clarksburg, the USACE PIR could take WSAFCA out of PL 84-99 eligibility even though their own levees are currently being improved towards 200-year protection. WSAFCA therefore indirectly relies on neighboring districts (such as in RD 307 and 765) to complete their flood risk protection charge through consistent O&M, and meeting updated infrastructure standards.

### **Woodland**

#### City of Woodland & RD 2035

RD 2035 is and will continue to be central to the discussions around Bypass expansion and improvement. While we have no specific recommendations for RD 2035, it is critical that they remain linked with the regional dialogue.

The community of Woodland provides a unique challenge, since their flood issues are largely from the CCSB system, and they are removed from much of the day-to-day flood management work. We recommend they remain active in the regional network and become an integral part of the Bypass negotiations.

### **Clarksburg**

#### RDs 150, 307, 765, and 999

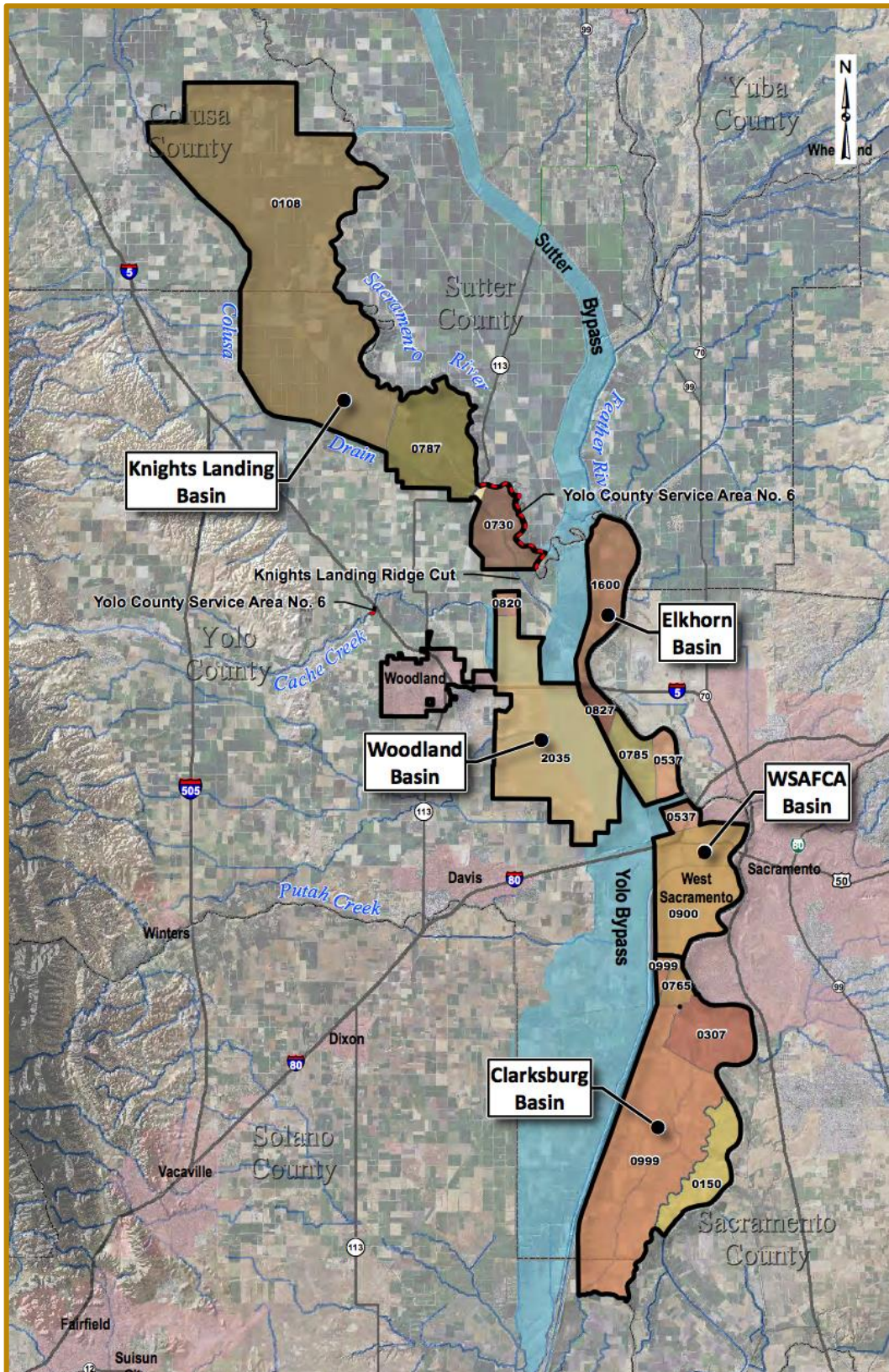
RD 999 is a water purveyor, assesses for routine levee O&M, and employs staff to manage the district. RDs 307 and 765 do not have staff, have lower assessments, and have difficulty maintaining their levees. RD 150 is technically disconnected from the hydraulic basin, as it maintains a complete ring levee.

It would be logical for RD 999 to also manage RDs 307 and 765 either through shared-use agreements, MOU, or merger/consolidation. However, because RDs 307 and 765 do not assess appropriately, their ability to contract with RD 999 to conduct O&M could be problematic. Over the long term, merger/consolidation offers the most cost effective solution, but liabilities and assessment changes would have to be addressed.

Some incentives that may increase motivation to either appropriately assess or consolidate are:

- a. A clear understanding of liabilities associated with current management of RDs, and under alternative governance structures.
- b. DWR could implement Water Code section 12878 - dissolve non-complying RDs and create a maintenance area. This could incur great costs to a handful of landowners, providing an incentive for local cooperative action.
- c. The Yolo County LAFCO in their upcoming Municipal Service Report (MSR) could recommend consolidation and begin consolidation proceedings. A Proposition 218 vote would then include landowners from RD 999, 307, and 765.
- d. As part of "Zone D" flood zone negotiations, some type of district reform or reorganization might be possible.

Map 6. Recommended Hydrologic Basin Approach



“Recommended Hydraulic Basin Approach,” © J.Loux, M.Beryl & MBK Engineers, 2014

### **Phase III — Five to Ten (5-10) Year Implementation Horizon:**

The long-standing history of decentralized flood management along the Sacramento River system has created a fragmented and in many ways inefficient framework. As governance continues to progress, continuing to engage in a system that struggles to meet updated federal and State regulations as well as high financial costs is burdensome. Yolo County, in partnership with other regional entities, must find progressive ways to meet their charge of flood risk protection and reductions in vulnerability. Reformation of the current decision-making framework will enhance responsible parties' ability to support an infrastructurally sound flood management network.

The State of Louisiana's reformed flood management governance structure acts as an aspirational model that can inform a long-term solution for Yolo County and perhaps a Central Valley. As Section 4.5 the Southeast Louisiana Flood Protection Authority, East & West Bank describes (page 72), regional entities were legislatively created to support system-wide flood management planning. The creation of a regional system was encouraged by the federal government in response to Hurricane Katrina, which brought keen awareness to the existing deficiencies in Louisiana's current inability to protect its coastline in the event of major weather events. Hurricane Katrina cured Louisiana and the Nation of its "flood memory half-life"<sup>5</sup> increasing political will to reform the existing system. The regional entities are authorized with broad scale decision-making powers, while local districts support the process with representatives on the regional board, through continuing localized assessments, and routine O&M. The importance of collaboration between local and regional entities cannot be understated, as local knowledge is imperative to the ongoing functioning of flood infrastructure.

The conditions that supported governance reformation in Louisiana are currently present in the Central Valley. The catastrophes of Hurricane Katrina, the Northeast's Hurricane Sandy, and the relatively recent and incredibly expensive (\$1 billion in State funds) major flood events in the Central Valley (1986, 1997) have all brought increased awareness to the Central Valley's vulnerability. The State, through the CVFPP and associated policies encourages and incentivizes the creation of innovative governance structures that are comprehensive, collaborative, and holistic. Also relevant is the current production of the Yolo Bypass Cache Slough IWMP, as discussed above. Reforming decentralized historical frameworks towards a more centralized, regional governance system can be a complicated process. Reformation requires strong political, and public will. These obstacles can be alleviated through incremental change that ensures adequate funding and continues to include local representation in decision-making processes.

Yolo County, and the surrounding areas including Solano and Colusa counties are in a favorable position to reorganize the existing flood management framework. Reformation could take a regional or Central Valley wide approach. Building off the Louisiana model, Yolo County could

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<sup>5</sup> Hanak, E., Lund, J., Dinar, A., Gray, B., Howitt, R., Mount, J., Moyle, P., & Thompson, B. (2011). *Managing California's Water: From Conflict to Reconciliation*. San Francisco, CA: Public Policy Institute of California.

move toward a regional governance structure that envelops all local RDs and incorporates the many technical experts with strong working knowledge of the Sacramento River system into decision-making processes. Phases 1 & 2 recommended above, which reduce localized Yolo Bypass responsibilities and create five distinct “basins”, will support the creation of a regionalized entity. Successful implementation of phases 1 & 2 will create the conditions necessary for reasonable local representation and participation in system-wide governance.

Capitalizing on the Flood Protect RFMP process, surrounding counties could be invited to participate on a regional entity that collectively manage system-wide improvements, competitive grants, and speak with one voice. Similar to Louisiana, local districts could continue to assess locally if desired, and continue routine O&M and emergency response activities. Incorporating local knowledge and participation along with technical expertise will embolden the regional entity’s ability in accomplishing a cohesive flood management system that reduces flood vulnerability and public safety risk. Bringing the best of local, regional, State and federal capabilities together in effective ways will make for a resilient flood management system that can be used as a governance model nationwide.

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**— APPENDIX A —**  
**ORGANIZATION DIAGRAMS & TABLES**

**Table 5: Yolo County IRWMP Flood Management & Storm Drainage Actions**

**Table 7: Major Flood Management Portfolio Options**

**Diagram 4: Napa County Flood Protection & Watershed Improvement Authority**

**Diagram 5: Three Rivers Levee Improvement Authority**

**Table 5. Yolo County IRWMP Flood Management & Storm Drainage Actions**

<b>Table 5-4. Flood Management and Storm Drainage Actions</b>				
<b>ID</b>	<b>Title</b>	<b>Related Categories*</b>	<b>Description</b>	<b>Geographic Area</b>
FM1	Putah Creek Bank Stabilization Project	AR, WQ	Unstable banks of Putah Creek generate large volumes of sediment in Putah Creek. Thompson Canyon, Proctor Draw and Dry Creek are three of the main tributary channels draining from the Yolo side and all have deposited large quantities of sediment into Putah Creek over the past 50 years. Lake Solano shows encroachment of sediment across 80 percent of its width, mostly contributed by Proctor Draw and rapid encroachment of vegetation on what was previously lake surface over a recent three year interval. Farmers along Proctor Draw have lost rows of trees to this tributary. Grade control with rock weirs and removal of eucalyptus from the floor of this channel are urgent needs. Some of this sediment originates from Pleasants Creek (Solano County), but the Delta is centered on Proctor Draw. Bank stabilization can be achieved with rock vane flow deflectors, and grade control structures (rock weirs).	Putah Creek
FM2	Dry Creek Bank Stabilization Project	AR, WQ	Bank erosion along Dry Creek produces large volumes of sediment that are deposited in Putah Creek. With the large flows on Putah Creek regulated the sediment contributed from Dry Creek is prone to deposition and not being transported through the system. Alternative means of bank stabilization along various reaches of Dry Creek need to be evaluated to minimize the deposition of sediment in Putah Creek and loss of urban and agricultural land.	Putah Creek
FM3	City of Winters Storm Drainage Diversion to Putah Creek Project	AR, WQ	Management of storm runoff for the City of Winters includes the diversion of up to 1,000 cfs to Putah Creek during a 100-year storm event. The diversion of this amount of water was evaluated by the USACE several years ago and should be reevaluated. This diversion is an integral part of the City of Winters storm drainage master plan to facilitate build-out of its General Plan.	Putah Creek
FM4	Buckeye Creek Erosion/Flood Management Project	AR, WQ	Erosion of the banks along Buckeye Creek west of Interstate 5 is causing sediment deposition and flooding on property North of the Town of Dunnigan. An assessment of the causes of erosion and determination of measures to effectively mitigate or minimize the erosion is needed to arrest the problem and preserve the watershed.	Colusa Basin Drain
FM5	Knights Landing Levee Improvement Project		Levee improvements to address through seepage and underseepage problems are needed, as well as repair of a critical erosion site. Through seepage can be addressed through construction of the Mid-Valley Project, a multiple-phase USACE project. Yolo County, RD 827, RD 108, and RD 785 benefit from the Mid-Valley Project. Underseepage can	Sacramento River

**Table 5-4. Flood Management and Storm Drainage Actions**

ID	Title	Related Categories*	Description	Geographic Area
			only be addressed once levee integrity studies are completed that will identify needed improvements. In addition, a critical erosion site at River Mile 85.6 needs to be repaired. Failure of this levee will affect Knights Landing.	
FM6	Clarksburg Levee Improvement Project		RD 307 estimates that they need to repair erosion sites on 6,500 linear feet within 6.6 miles of levees that help protect Clarksburg and the Sacramento Regional Sanitation District's Northwest Interceptor project.	Sacramento River
FM7	Sacramento River West Bank Levee Integrity Program		Underseepage studies of 75-80 miles of Sacramento River levees, as well as needed improvements identified by studies. The potential for underseepage at Yolo County's Sacramento River levees has never been studied, despite identified seepage problems. Levee failure may negatively impact West Sacramento, Knights Landing, Clarksburg, agricultural land and rural property owners, as well as the Sacramento Bypass, an integral part of the Sacramento River Flood Control Project.	Sacramento River
FM8	Knights Landing Storm Drainage/Flood Management Project		New pumping infrastructure to pump storm water and flood waters from the Knights Landing Ridge Cut Canal, benefiting existing and proposed residential areas in Knights Landing.	Colusa Basin Drain
FM9	Madison Storm Drainage/Flood Management Project		The Town of Madison has a chronic problem of flooding from storm runoff entering the town from Cottonwood Slough, the South Fork Willow Slough, and general overland flow from west and north of the town. During these events homes are flooded and the sewer system is overtaxed as well. The updated County General Plan may indicate the potential for some growth of the community. The flood hazard needs to be mitigated not only for the existing community but before additional growth is allowed to occur. An opportunity to mitigate this flood hazard may in part be provided by the Caltrans Highway 16 Safety Project, however the residual flooding that may persist needs to be addressed.	Willow Slough
FM10	Esparto Storm Drainage/Flood Management Project		Land within Esparto and adjacent lands that are planned for growth are subject to flooding under significant storm events. This is due to some extent to the capacity limitations of Lamb Valley Slough and the South Fork Willow Slough. A storm drainage/flood control master plan is needed to mitigate existing flood hazards and to provide the basis for planned growth without adversely impacting existing or new development.	Willow Slough

**Table 5-4. Flood Management and Storm Drainage Actions**

<b>ID</b>	<b>Title</b>	<b>Related Categories*</b>	<b>Description</b>	<b>Geographic Area</b>
FM11	Caltrans Highways Hydraulic Impact Assessment Program		The hydraulic capacity of water conveyance structures constructed for the Federal and State Highways in Yolo County (Interstate 5 and 505 and State Highway 16) have created adverse impacts to storm runoff in several areas of the County. Incremental increases in the impacts occur over time by virtue of constructing pavement overlays. A comprehensive assessment of the hydraulic capacity of the structures at principal waterways is needed to address storm water management throughout the County.	Countywide
FM12	County Roads Hydraulic Capacity Assessment Program		The hydraulic capacity of water conveyance structures constructed for County Roads may not be adequate for particular waterways. A comprehensive assessment of the capacity of hydraulic structures associated with County Roads is needed to provide the framework for future structure maintenance and replacement.	Countywide
FM13	Huff's Corner Levee Repair Project		Erosion control at a critical site within a 2,500-foot levee section on the south bank of Cache Creek. The section stretches from Interstate 5 upstream to high ground at a location known as Huff's Corner. Failure of this levee could result in 1-4 feet of flooding in Woodland and the surrounding unincorporated area, affecting 15,000 residents. Control of erosion at this site is a short-term solution. Yolo County continues to work with the City of Woodland and other entities on a long-term solution to improve flood protection in this area.	Cache Creek
FM14	Reconciliation of Cache Creek Settling Basin Future Modifications and "Original" South Levee Project		The Cache Creek Settling Basin is a feature of the Sacramento River Flood Control Project. The Settling Basin was modified substantially in 1992 to increase its efficiency and capacity for trapping sediment transported by Cache Creek to preserve the flood carrying capacity of the Yolo Bypass. The Settling Basin has created adverse drainage conditions for the City of Woodland as well as drainage and seepage issues to adjacent land. A new south levee was constructed approximately 200 feet north of the south levee that functions as part of the facility prior to the 1992 modification. As a consequence the "old" south levee has effectively been abandoned by the USACE and the State Reclamation Board as part of the Sacramento River Flood Control Project. Resolution is needed regarding the responsibility for ownership and maintenance of the "old" south levee which remains part of the Yolo Bypass, the impacts of the Settling Basin modifications on the City of Woodlands storm drainage, and the handling of sediment from Cache Creek when the trap efficiency of the Settling Basin is no longer acceptable.	Cache Creek

**Table 5-4. Flood Management and Storm Drainage Actions**

<b>ID</b>	<b>Title</b>	<b>Related Categories*</b>	<b>Description</b>	<b>Geographic Area</b>
FM15	Cities-County Storm Drainage Criteria Update Program		Consistency in the hydrologic and hydraulic design criteria and the interfacing between the urbanized and non-urbanized areas or rural areas would result in more effective and compatible management of storm runoff as new facilities are constructed or existing structures are replaced. This interfacing occurs informally to some extent however the community of Yolo County would be better served in the future with a formally established process and consistent criteria. Criteria for urban areas, whether in a city or unincorporated area, should include provisions for Low Impact Development.	Countywide
FM16	Tributaries Detention Basins Project		Storm water detention basins on Cache Creek tributaries have been identified as a potential method of reducing peak flows in the creek during storm events. An investigation into the economic, engineering, environmental and legal feasibility of dry dams at various locations throughout the watershed should be conducted.	Cache Creek
FM18	Cache Creek Off-Channel Detention Basin Projects	WS	Appropriate sites should be identified for temporary, peak -runoff diversion and detention. One of the critical criteria for site selection would include having the proper topography that would allow for gravity diversion and return flows to Cache Creek immediately after a storm event. Assuming these detention basins would be on private property, flood easements would need to be negotiated.	Cache Creek
FM19	Woodland Area Flood Management Project		Public outreach/technical analysis necessary to identify a long-term solution to Cache Creek flooding and provide a minimum of 200-year flood protection to the City of Woodland and surrounding areas. Implementation of publicly-supported solution.	Woodland
FM20	Watershed Management Program		Grazing and other land management practices have a substantial impact on storm runoff rates. An educational program should be initiated to assist private landowners in understanding the impacts of their land management practices. This could be coupled with an incentive program to provide financial assistance to help landowners adopt certain BMPs.	Countywide
FM21	Dunnigan Area Storm Drainage/Flood Management Project		The updated Yolo County General Plan may indicate potential growth and development in the vicinity of the Town of Dunnigan. The growth would impact and be impacted by storm runoff from the Dunnigan Hills including Oat Creek, Bird Creek, and several smaller drainage courses that cross the Tehama Colusa Canal west of the potential growth area. A master storm drainage/flood control plan would need to be formulated as	Colusa Basin Drain

**Table 5-4. Flood Management and Storm Drainage Actions**

ID	Title	Related Categories*	Description	Geographic Area
			part of a Dunnigan Community Plan. Planning for management of storm drainage should include the application of Low Impact Development design considerations.	
FM22	Flood Emergency Preparedness and Hazard Classification Program		The 2005 New Year's Eve storm event highlighted the need to improve the method of notifying at-risk residents of the need to take emergency action (evacuation). The appropriate emergency response authorities should refine the process by which the at-risk public is notified.	Countywide
FM24	Clear Lake Operations Evaluation Program	WS	During the winter months Cache Creek Dam releases are dictated by the Gopcevic decree. YCFCWCD and LCFCWCD have discussed the possibility of modifying these operational rules under certain conditions to benefit both Yolo and Lake County interests. These changes could be coupled with some physical modifications at the Grigsby Riffle. These actions could potentially reduce peak flood flows in Cache Creek by about 4,000 cfs on the levees near Woodland, while also providing flood relief to Clear Lake residents. Additionally, reoperations of the Cache Creek Dam could provide a significant amount of water supply in certain hydrologic year types.	Cache Creek
FM25	Sacramento River Levee Rehabilitation Project (West Sacramento)		Funding for implementation of improvements identified during 2006 analyses of seepage problems. Funding for emergency repairs at two critical erosion sites at River Mile 56.0 and 56.7. Funding for non-emergency repairs at River Mile 57, RM 55.8, and RM 53.5. These levees protect 40,000 residents in West Sacramento. (RD 900)	Sacramento River
FM26	Willow Slough Levee Improvement Project	AR	Willow Slough levee improvements necessary to protect the town of Madison and Highway 16 from flooding, including associated habitat restoration.	Willow Slough
FM27	Funding for the Flood Management Division of DWR		Increased funding for the maintenance work of DWR's Flood Management Division. The Division maintains 56 miles of Yolo County levees.	Countywide
FM28	Sacramento River Levee Rehabilitation Project (RM 69.9 RD827)		RD 827 needs funds to fix a critical erosion site at RM 69.9. No levee break analysis has been completed to determine what would flood if this levee fails.	Sacramento River
FM30	Sacramento River Levee Rehabilitation Project (Merritt Island)		Erosion control and levee improvements on the Sacramento River levee as identified by RD 150.	Sacramento River

**Table 5-4. Flood Management and Storm Drainage Actions**

ID	Title	Related Categories*	Description	Geographic Area
FM11	Caltrans Highways Hydraulic Impact Assessment Program		The hydraulic capacity of water conveyance structures constructed for the Federal and State Highways in Yolo County (Interstate 5 and 505 and State Highway 16) have created adverse impacts to storm runoff in several areas of the County. Incremental increases in the impacts occur over time by virtue of constructing pavement overlays. A comprehensive assessment of the hydraulic capacity of the structures at principal waterways is needed to address storm water management throughout the County.	Countywide
FM12	County Roads Hydraulic Capacity Assessment Program		The hydraulic capacity of water conveyance structures constructed for County Roads may not be adequate for particular waterways. A comprehensive assessment of the capacity of hydraulic structures associated with County Roads is needed to provide the framework for future structure maintenance and replacement.	Countywide
FM13	Huff's Corner Levee Repair Project		Erosion control at a critical site within a 2,500-foot levee section on the south bank of Cache Creek. The section stretches from Interstate 5 upstream to high ground at a location known as Huff's Corner. Failure of this levee could result in 1-4 feet of flooding in Woodland and the surrounding unincorporated area, affecting 15,000 residents. Control of erosion at this site is a short-term solution. Yolo County continues to work with the City of Woodland and other entities on a long-term solution to improve flood protection in this area.	Cache Creek
FM14	Reconciliation of Cache Creek Settling Basin Future Modifications and "Original" South Levee Project		The Cache Creek Settling Basin is a feature of the Sacramento River Flood Control Project. The Settling Basin was modified substantially in 1992 to increase its efficiency and capacity for trapping sediment transported by Cache Creek to preserve the flood carrying capacity of the Yolo Bypass. The Settling Basin has created adverse drainage conditions for the City of Woodland as well as drainage and seepage issues to adjacent land. A new south levee was constructed approximately 200 feet north of the south levee that functions as part of the facility prior to the 1992 modification. As a consequence the "old" south levee has effectively been abandoned by the USACE and the State Reclamation Board as part of the Sacramento River Flood Control Project. Resolution is needed regarding the responsibility for ownership and maintenance of the "old" south levee which remains part of the Yolo Bypass, the impacts of the Settling Basin modifications on the City of Woodlands storm drainage, and the handling of sediment from Cache Creek when the trap efficiency of the Settling Basin is no longer acceptable.	Cache Creek



**Table 5-4. Flood Management and Storm Drainage Actions**

<b>ID</b>	<b>Title</b>	<b>Related Categories*</b>	<b>Description</b>	<b>Geographic Area</b>
FM38	Small Sloughs and Creeks Invasive Vegetation Removal Program		Conveyance capacity of small creeks and sloughs is reduced and could become more reduced by invasive plants including giant reed (arundo) and tamarisk. A removal program should be initiated to maintain flood conveyance capacity.	Countywide
FM39	Yolo Bypass 2-D Hydraulic Modeling Project		The USACE, with funding from CBDA, is in the process of finalizing a two-dimensional hydraulic model (RMA2) of the Bypass for the purpose of assessing the impacts of proposed land use changes, such as ecosystem restoration within the Yolo Wildlife Area. The final model is scheduled to be completed in October 2006 and will be available for use by anyone proposing a land use change throughout the entire Bypass. It is the model by which the State Reclamation Board will judge impacts to flood carry capacity when an application is made for a permit. Funding is required to support the following activities: (1) determine which agency will be responsible for maintaining and updating the model as projects are completed; (2) conduct long-term management of the model, which is a key tool needed to implement projects in the Yolo Bypass; and (3) enable project proponents to pay for input of project data to run the model for specific projects. Lack of upkeep on this model will make it obsolete and will preclude making informed decisions in the future about Bypass flow, Bypass land, and feature design, associated impacts and adjustments, and associated enforcement if warranted.	Yolo Bypass
FM40	Sacramento River Levee Repair		Correct deficiencies, protect against underseepage, and maintain the Sacramento River levees to current standards for FEMA 100-year and 200-year levels of flood protection. Physical improvements may include, but not be limited to, restoration and armoring of waterside levee slopes, increased levee height through crown raising or crown top walls, slurry cutoff walls in the levee prism, seepage blankets on the levee landside, levee setbacks, etc.	Sacramento River

**Table 5-4. Flood Management and Storm Drainage Actions**

<b>ID</b>	<b>Title</b>	<b>Related Categories*</b>	<b>Description</b>	<b>Geographic Area</b>
FM41	Deep Water Ship Channel Navigation Levee Repair		Correct deficiencies, protect against underseepage, and maintain the Deep Water Ship Channel levees to current standards for FEMA 100-year and urban levee 200-year levels of flood protection. Physical improvements may include, but not be limited to, restoration and armoring of waterside levee slopes, increased levee height through crown raising or crown top walls, slurry cutoff walls in the levee prism, seepage blankets on the levee landside, levee setbacks, etc.	Deep Water Ship Channel and Levees
FM42	Sacramento Bypass-Yolo Bypass Levee Repair		Correct deficiencies, protect against underseepage, and maintain the Sacramento Bypass and Yolo Bypass levees to current standards for FEMA 100-year and urban levee 200-year levels of flood protection. Physical improvements may include, but not be limited to, restoration and armoring of waterside levee slopes, increased levee height through crown raising or crown top walls, slurry cutoff walls in the levee prism, seepage blankets on the levee landside, levee setbacks, etc.	Sacramento Bypass and Yolo Bypass
FM43	West Sacramento South Cross Levee Repair		Correct deficiencies, protect against underseepage, and maintain the West Sacramento South Cross Canal levees to current standards for FEMA 100-year and urban levee 200-year levels of flood protection. Physical improvements may include, but not be limited to, restoration and armoring of waterside levee slopes, increased levee height through crown raising or crown top walls, slurry cutoff walls in the levee prism, seepage blankets on the levee landside, levee setbacks, etc.	Deep Water Ship Channel and Levees, Cross Levees
FM44	Ongoing Levee Maintenance and Critical Repair Program		Annual program of levee maintenance and repair at critical erosion sites, implementing Public Law 8499.	Sacramento River, Yolo Bypass, Deep Water Ship Channel and Levees
FM45	RD 900 and West Sacramento MOU on Storm Water Detention and Raw Water Supply		The City of West Sacramento and RD 900 are developing an agreement for cooperative management, use, and maintenance of storm water detention facilities, irrigation and drainage canals, pumps, and other facilities associated with purveying and use of untreated water.	Sacramento River

**Table 5-4. Flood Management and Storm Drainage Actions**

ID	Title	Related Categories*	Description	Geographic Area
FM11	Caltrans Highways Hydraulic Impact Assessment Program		The hydraulic capacity of water conveyance structures constructed for the Federal and State Highways in Yolo County (Interstate 5 and 505 and State Highway 16) have created adverse impacts to storm runoff in several areas of the County. Incremental increases in the impacts occur over time by virtue of constructing pavement overlays. A comprehensive assessment of the hydraulic capacity of the structures at principal waterways is needed to address storm water management throughout the County.	Countywide
FM12	County Roads Hydraulic Capacity Assessment Program		The hydraulic capacity of water conveyance structures constructed for County Roads may not be adequate for particular waterways. A comprehensive assessment of the capacity of hydraulic structures associated with County Roads is needed to provide the framework for future structure maintenance and replacement.	Countywide
FM13	Huff's Corner Levee Repair Project		Erosion control at a critical site within a 2,500-foot levee section on the south bank of Cache Creek. The section stretches from Interstate 5 upstream to high ground at a location known as Huff's Corner. Failure of this levee could result in 1-4 feet of flooding in Woodland and the surrounding unincorporated area, affecting 15,000 residents. Control of erosion at this site is a short-term solution. Yolo County continues to work with the City of Woodland and other entities on a long-term solution to improve flood protection in this area.	Cache Creek
FM14	Reconciliation of Cache Creek Settling Basin Future Modifications and "Original" South Levee Project		The Cache Creek Settling Basin is a feature of the Sacramento River Flood Control Project. The Settling Basin was modified substantially in 1992 to increase its efficiency and capacity for trapping sediment transported by Cache Creek to preserve the flood carrying capacity of the Yolo Bypass. The Settling Basin has created adverse drainage conditions for the City of Woodland as well as drainage and seepage issues to adjacent land. A new south levee was constructed approximately 200 feet north of the south levee that functions as part of the facility prior to the 1992 modification. As a consequence the "old" south levee has effectively been abandoned by the USACE and the State Reclamation Board as part of the Sacramento River Flood Control Project. Resolution is needed regarding the responsibility for ownership and maintenance of the "old" south levee which remains part of the Yolo Bypass, the impacts of the Settling Basin modifications on the City of Woodlands storm drainage, and the handling of sediment from Cache Creek when the trap efficiency of the Settling Basin is no longer acceptable.	Cache Creek

Source: *Flood Management and Storm Drainage Actions*, 2007, pg. 5-57

**Table 6: Major Flood Management Portfolio Options**

**Table 1.** Major flood management portfolio options.

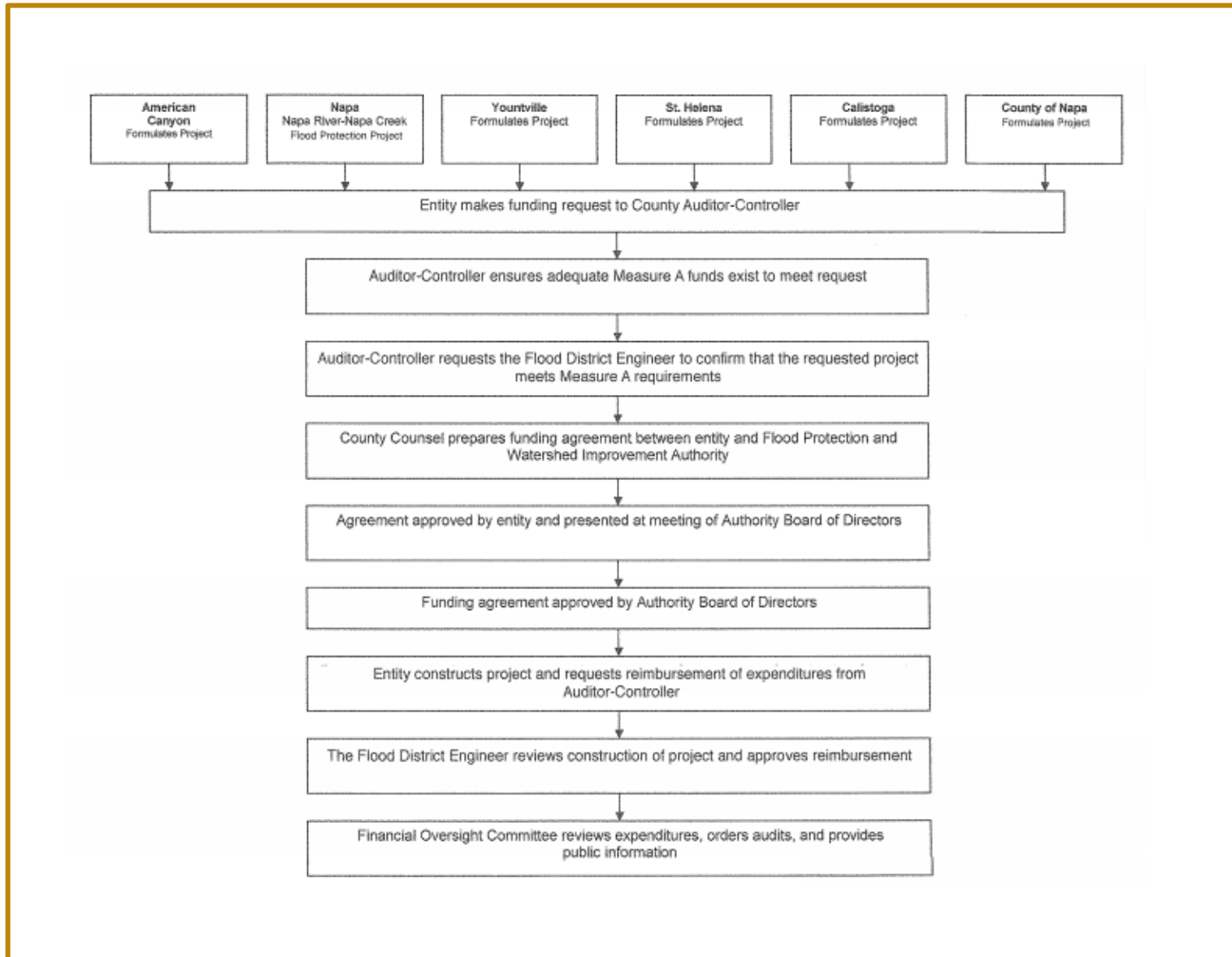
<b>Preparatory actions</b>	
<b>Protection</b>	<b>Vulnerability reduction (reduced damage and casualty potential)</b>
Levees	Relocation of vulnerable human activities
Flood walls and doors	Floodplain zoning and building codes
Closed conduits	Floodproofing—raising structures, sacrificial first floor, watertight doors, and flood vents
Channel improvements and flood corridors	Flood warning and evacuation systems
Reservoirs	Flood insurance and reinsurance
Bypasses	Flood risk disclosure
Sacrificial flooding	Public and policymaker education
Flood easements (bypasses and designated\ flood areas)	Flood preparation and training exercises
Local detention basins, drainage, and pumps	Floodplain mapping, gaging, data collection and availability
Regular inspections, assessments, and maintenance	Community engagement and multi-hazard planning
<b>Response actions</b>	
<b>Protection</b>	<b>Vulnerability reduction</b>
Levee and flood wall monitoring (structures and seepage)	Warnings, evacuation calls, and emergency mobilization
Flood fighting—sandbagging, sheet pile installation, wave wash protection, splash cap installation, ring levee construction, relief cut, pumping, and breach closure and capping	High water staking
Flood door closure and gate operation	
Reservoir operation—including coordinated operations, rule curve operations and encroachment, flash board installation, and spillway surcharging	

**Table 1. Cont.**

<b>Recovery actions</b>	
<b>Protection</b>	<b>Vulnerability reduction</b>
Reconstruction and repair of flood infrastructure	Flood damage assessment—flood infrastructure surveys, system performance, damage, response costs Flood insurance and reinsurance Reconstruction and repair Relocation or reconstruction to reduce future flood vulnerability

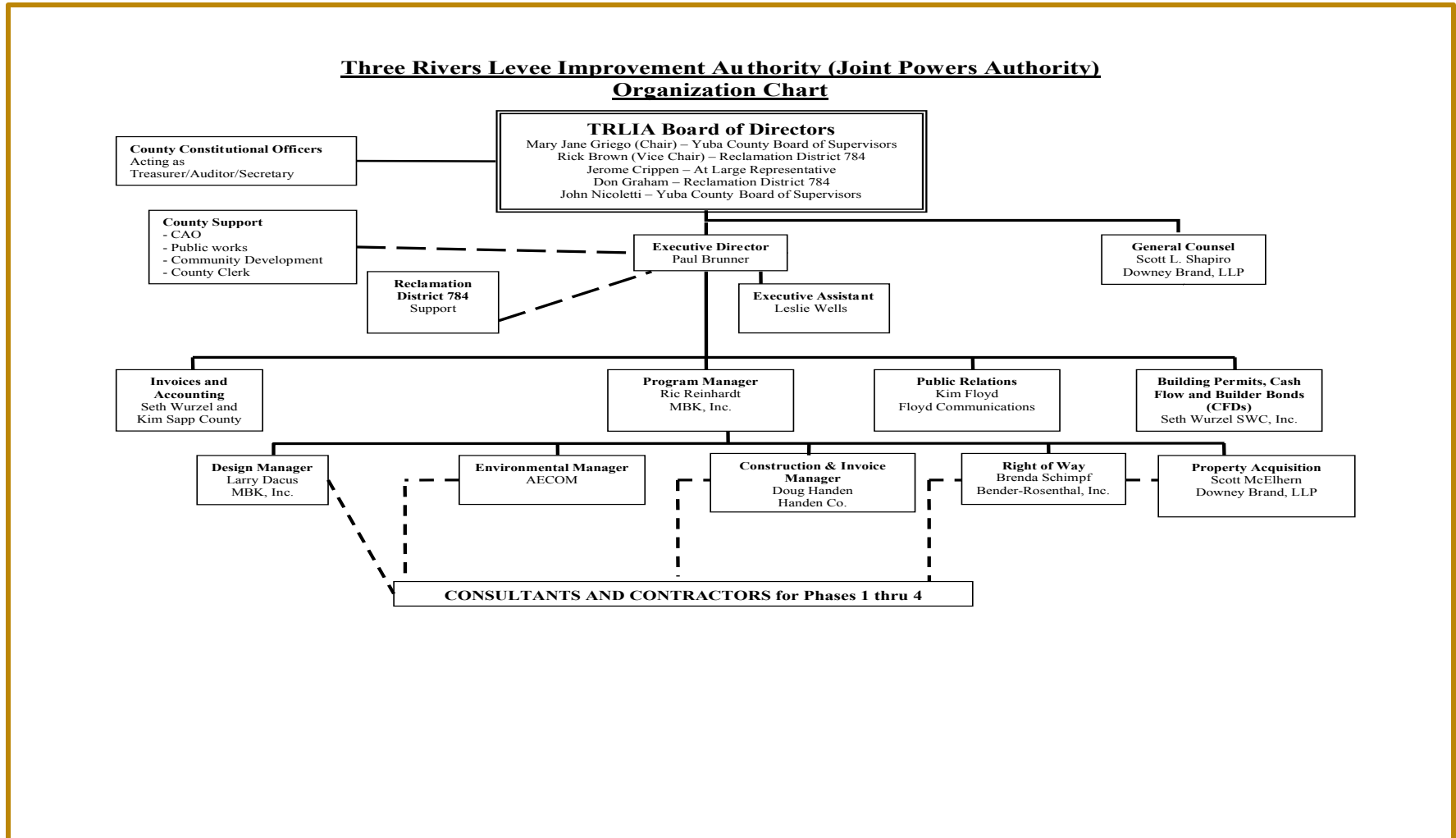
Source: Major Flood Management Portfolio Options, Lund, 2012, p.2

**Diagram 4. Napa County Flood Protection and Watershed Improvement Authority**



Source: Flood Protection Funding Flow Chart, Napa County, 2014, pg. 2

Diagram 5. Three Rivers Levee Improvement Authority



Source: Three Rivers Levee Improvement Authority (Joint Powers Authority) Organization Chart, 2013.

**— APPENDIX B —  
GOVERNANCE STUDY INTERVIEWS  
& MEETINGS**

**Table 7. Governance Study Interviews & Meetings**

	<b>Group/ Organization/ Community</b>	<b>Topic</b>	<b>Attendees</b>	<b>Date</b>
<b>Stakeholder Interviews</b>	Yolo County LAFCO	LAFCO 2005 Report, Coordination, & Existing Conditions Interview	Christine Crawford	12/17/13
	WSAFCA	Existing Conditions & Stakeholder Perspective Interview	Greg Fabun, Mark Zollo, Paul Dirksen	2/4/14
	Elkhorn	Extension of Yolo Bypass, Existing Conditions & Stakeholder Perspective Interview	Kent Lang , Kyle Lang, Tom Ramos, Dan Ramos, Cindy Tuttle, Tim Washburn, Alice Tomkins, Lance Stanley, Greg Fabon, Ric Reinhardt, Javed T- Siddigui	3/7/14
	Clarksburg	Existing Conditions & Stakeholder Perspective Interview	Bob Webber, Gilbert Cosio, Cindy Tuttle, Mark Pruner, Warren Bogle	3/21/14
	Woodland & Knights Landing	Existing Conditions & Stakeholder Perspective Interview	Mark Cocke, Regina Espinoza, Scott Shapiro, Robert Thomas, Regina Cherovsky, Wendy Ross, Cindy Tuttle	3/24/14
	RD 900 & WSAFCA	Existing Conditions & Stakeholder Perspective Interview	Ken Ruzich	3/25/14
	YCFC & WCD	Existing Conditions & Stakeholder Perspective Interview	Tim O'Halloran	3/31/14

YOLO COUNTY FLOOD GOVERNANCE STUDY

Clarksburg MBK District Engineer	Existing Conditions & Stakeholder Perspective Interview	Gilberto Cosio	4/24/14
RD 108, SRWSLD, KLRDD	Existing Conditions & Stakeholder Perspective Interview	Lewis Bair	5/9/14
Yolo County	Existing Conditions & Stakeholder Perspective Interview	Cindy Tuttle	5/12/14
County OES	OES Regional Flood Planning & Recommendations	Cindy Tuttle, Dana Carey, Sharman Wood	5/22/14
DWR	Existing Conditions & Stakeholder Perspective Interview	Keith Swanson & George Qually	6/2/14
Woodland & Knights Landing	Findings & Recommendations	Lewis Bair, Mark Cocke, Regina Espinoza	6/11/14
Clarksburg	Findings & Recommendations	Cindy Tuttle, Bob Webber, Gilbert Cosio, Mike Hardesty	6/25/14
Elkhorn	Findings & Recommendations	Cindy Tuttle, Dan Ramos, Ross Peabody, Jeff Taylor, Kent Lang, Kyle Lang, Tom Ramos, Michelle Clark	6/25/14



YOLO COUNTY FLOOD GOVERNANCE STUDY

PDT Meetings & Members	Group	Topic	Attendees	Date
	PDT	Scope of Work, and Project Overview	Cindy Tuttle, Tom Chapman, Scott Shapiro	10/9/13
	PDT	Scope of Work, and Project Overview	All Members	10/22/13
	PDT	Scope of Work, and Project Overview	Tom Chapman & Jafar Faghieh	10/29/13
	PDT	Interview Organization & Report Review	Cindy Tuttle & Scott Shapiro	1/31/14
	PDT	Interview Discussion & Report Review	Cindy Tuttle	3/4/14
	PDT	Report Review, Legislative Information	Scott Shapiro	3/5/14
	PDT	Extension of Yolo Bypass	Tim Washburn	3/19/14
	PDT	Existing Conditions - Infrastructure	Ric Reinhart	4/2/14
	PDT	Liability Discussion	Scott Shapiro	4/23/14
PDT	Report Review	Cindy Tuttle	5/23/14	

YOLO COUNTY FLOOD GOVERNANCE STUDY

Flood Protect & Other Relevant Meetings	Group	Topic	Attendees	Date
	Flood Protect Plenary	Conservation	Participant Observation	12/9/13
	Flood Protect Plenary	Regional Improvement Report	Participant Observation	1/27/14
	Yolo County BOS	Yolo Bypass expansion options	Participant Observation	2/25/14
	WSAFCA	Monthly Meeting	Participant Observation	3/13/14
	CCVFCA	Flood Forum Panel Discussion	Participant Observation	3/19/14
	Elkhorn Stakeholders	Yolo Bypass expansion re: Biological Opinion	Participant Observation	3/18/14
	Flood Protect Plenary	Review Draft of RFMP	Participant Observation	5/28/14
CVFPB Coordinating Committee	Group	Topic	Attendees	Date
	Central Valley Stakeholders	Various	Participant Observation	1/22/14
	Central Valley Stakeholders	Various	Participant Observation	2/26/14
	Central Valley Stakeholders	Various	Participant Observation	3/26/14
	Central Valley Stakeholders	Various	Participant Observation	5/28/14

## — APPENDIX C —

# LEGAL DEFINITIONS

### **Memorandum of Understanding (MOU):**

An MOU is an agreement between two or more government entities that outlines basic principals, guidelines, and responsibilities under which associated parties will work together to accomplish cooperative goals or policies. An MOU is typically less formal than a legal contract, but it links the decision-making bodies of the governments. An MOU is relatively easy to implement and agree upon, and is very flexible. An MOU can be modified or halted by a vote of the district board, city council, etc.

### **Shared-Use Agreements:**

This type of agreement is related to how two or more government entities will jointly use the same facility or property. A shared-use agreement is appropriate in two circumstances: 1) where two or more entities each have legal rights related to the use of a facility, and 2) where only one entity has a legal right but chooses to allow another to utilize the property or equipment in some way. A shared-use agreement is straightforward contract that can be very flexible. A related tool for working together is a joint contract with a single consultant, management entity or design or construction engineer.

### **Joint Powers Authority (JPA)**

A JPA is a new government organization formed pursuant to Govt. Code section 6500 et seq. A JPA is created when two or more government entities wish to enter into a formal partnership to focus on a solution to a common problem. JPAs can only take on powers, authorities and duties sheared in common with both (or all) agencies (like the power to own land or to enter into contracts). In flood management, JPA's are common and typically act as fiduciary agents for large-scale projects that require high State or federal cost share. Some existing JPAs in the Region include TRLIA, SAFCA, WSAFCA and the RWA. Due to a JPA's issue focused nature, they are often quite successful at raising funds, increasing collaboration, and implementing mutually beneficial projects. JPAs can reduce cost and time needed to implement a project for associated entities. A JPA does create another "layer" of governance, although existing staff can be used to reduce costs and perception of added government. A significant benefit of a JPA is that all the districts or smaller agencies in the JPA remain intact with all of their original funding and decision-making authorities.

### **Consolidations and Mergers**

Consolidation and mergers essentially result in the same organizational structure, but do so in slightly different ways. A merger is where one district or agency is dissolved and the other (neighboring) district annexes the land and all the infrastructure of the former district. A consolidation is where both district (or many) dissolve and form a completely new agency or district. Both merger and consolidation require approval by the respective boards, the State and approval from the County's Local Agency Formation Commission (LAFCO). New assessment

elections would also be required. Historically, consolidation has been rare, however is appropriate when two RDs (or other entities) could more efficiently and effectively carry out the same goal. Consolidation can be proposed by the district itself, landowners within the district, or the County LAFCO. Depending on the initiation process and local support, consolidation procedures can be lengthy. Consolidation increases small districts' ability to carry out mutually beneficial projects, and could increase funding capacity. Consolidation for small districts can reduce multiple board member responsibility, and increase system-wide project planning.

— APPENDIX D —

**ISSUES OF POTENTIAL LIABILITY ASSOCIATED  
WITH SPECIAL DISTRICT CONSOLIDATION**



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**PHILIP J. POGLEDICH  
COUNTY COUNSEL**

TO: FloodProtect Working Group

FROM: Philip J. Pogledich, County Counsel  
Scott Shapiro, Partner, Downey Brand LLP  
Amanda Pearson, Associate, Downey Brand LLP

DATE: October 6, 2014

SUBJECT: Overview of Public Entity and Officer/Employee Liability

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**INTRODUCTION**

This memorandum is intended to inform regional flood planning efforts in Yolo County by providing an overview of the liability of local public entities in California, as well as the liability of the officers and employees of such entities. It also summarizes the rules of liability that apply when public entities enter into cooperative agreements with each other, or when public entities are consolidated or dissolved. In addressing these issues generally, this memorandum does not attempt to provide specific legal advice or strategies in connection with agency structuring, consolidation, or other related matters. Rather, as such proposals emerge in the future, the authors recommend that interested parties seek further legal advice.

**SUMMARY**

Public agencies in California enjoy significant protect from suit as a result of the Government Claims Act (Cal. Gov. Code §§ 810 *et seq.*). Absent specific statutory or Constitutional provisions, no suit can proceed against public agencies. In the context of flood protection, the biggest potential risks following a flood event are likely inverse condemnation (constitutional) or

dangerous condition of public property (statutory). Under these causes of action, a public agency can be found liable in some instances.

As compared to agency liability, it is more difficult for a member of an agency governing body to be found liable following a flood event. The statute protects “officers” and employees, and governing body members are considered officers. The statute protects officers from doing, or failing to do, something unless they acted in a negligent way, and negligence is measured by a “reasonable person” standard. In addition, an officer cannot be liable for inverse condemnation (constitutional) as this requires public agency (not individual) action. Finally, where an officer is liable, a contractual indemnity provision may protect the officer from personal financial responsibility.

Where an agency is dissolved through consolidation or merger with another agency, the successor agency will be required to accept any obligations or liabilities of the dissolved agency. However, individual officer liability is still measured under the standards articulated above.

## DISCUSSION

### A. Liability of Local Agencies

California’s Government Claims Act (Government Code §§ 810 et seq.),<sup>6</sup> limits the liability of public entities: public entities are not liable for injuries to persons or property except as provided by statute. Gov. Code § 815(a). For the purposes of the Government Claims Act, “public entity” includes local districts and public agencies like reclamation or irrigation districts. Gov. Code § 811.2. The Government Claims Act also provides that the liability of a public entity is subject to any statutory government immunities, as well as any defenses that would be available if the entity were a private person. (Gov. Code § 815(b).) In short, the Government Claims Act restricts public entity liability by requiring such liability to be grounded in a statute and making such liability subject to numerous immunities and defenses.

The Government Claims Act does have some limits. First, it does not affect liability based on contract, or the right of a person to obtain relief other than money or damages. Gov. Code § 814. Thus, for example, the Act would not bar a suit claiming that a public entity breached a contract, or a petition for a writ of mandate (i.e., to compel action required by law). *Freeny v. City of San Buenaventura* (2013) 216 Cal.App.4th 1333, 1347 (citation omitted); *Escamilla v. Dept. of Corrections* (2006) 141 Cal.App.4th 498, 510; *E.H. Morrill Co. v. State* (1967) 65 Cal.2d 787, 793-794.

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<sup>6</sup> While “Government Claims Act” is the proper term, the Act is sometimes referred to as the “Tort Claims Act.” *City of Stockton v. Superior Court* (2007) 42 Cal.4th 730, 741-742.

Second, because the Government Claims Act is statutory, it cannot provide a basis for defeating claims that are based on either the California or United States Constitutions. *E.g., Baldwin v. State* (1972) 6 Cal.3d 424, 438 (statutory grants of immunity are not valid as against constitutional claims). Accordingly, a public entity can be liable for constitutional claims – such as “takings” claims or claims of civil rights violations – despite the Government Claims Act. *Id.*; *see also Paterno v. State* (2003) 113 Cal.App.4th 998, 1015-1028 (discussing inverse condemnation liability related to flood damage); *Gatto v. County of Sonoma* (2002) 98 Cal.App.4th 744, 764 (federal civil rights claims are exempt from the Government Claims Act “because the supremacy clause of the United States Constitution does not permit a state law to alter or restrict federally created rights.”).

Third, California statutes do establish several claims for which a public entity can be held liable. For example, if the facts warrant, a public entity can be held liable for tortious acts or omissions of independent contractors (Gov. Code § 815.4), failing to discharge a mandatory duty (Gov. Code § 815.6), a dangerous condition of government property (Gov. Code, § 835), or maintaining a nuisance (Civ. Code, § 3479).

Thus, the Government Claims Act does not bar all claims against public entities. But it also provides several specific governmental immunities. Under the Act a public entity is not, for example, liable for injuries caused by the entity’s failure to enforce a law (Gov. Code § 818.2), for injuries caused by the entity’s failure to inspect property that does not belong to the entity (Gov. Code § 818.6), or for injuries caused by a misrepresentation by an employee of the entity (Gov. Code § 818.8).

#### **B. Liability of Local Agency Officers and Employees**

The Government Claims Act governs – and limits – the liability of individual public officers and employees as well as the liability of public entities. *E.g.* Gov. Code § 820-823.

While the Act generally makes public employees<sup>7</sup> liable for their acts or omissions to the same extent as a private person, it includes several “carve-outs” from liability that create fairly broad protections for public employees. First, a public employee is generally immune from liability for injuries resulting from the employee’s act or omission if the act or omission was the result of the employee’s exercise of the discretion vested in him, even if that discretion is abused. Gov. Code § 820.2. This particular immunity does not apply, however, if a public employee carries out a discretionary decision in a negligent manner. *Olvera v. County of Sacramento* (2013) 932 F.Supp.2d 1123, 1176 (citing *McCorkle v. City of Los Angeles* (1969) 70 Cal.2d 252, 261); *see also Connelly v. State* (1970) 3 Cal.App.3d 744, 750, (section 820.2 immunity applies to the decision to issue flood forecasts, which is discretionary, but not to gathering, evaluating and disseminating flood forecast information, which is administrative or ministerial). But as long as an employee’s

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<sup>7</sup> For the purposes of the Government Claims Act, “employee” includes an officer, whether or not the officer is compensated. Gov. Code § 810.2.

performance of a discretionary act is not negligent, the employee will not be liable for exercising his discretion to perform (or not perform) the act.

Second, the Act lists several actions for which public employees are expressly not liable. For example, public employees are not vicariously liable for the acts or omissions of their agencies – thus a public employee will not be found liable just because his or her employer was found liable. Gov. Code § 820.9. Other actions for which public employees are not liable include, but are not limited to, injuries resulting from an employee’s failure to adopt or enforce an enactment (Gov. Code § 821), injuries resulting from failing to inspect property other than that owned by the employing public entity (Gov. Code § 821.4), injuries arising from an entry to property where the entry is lawful (Gov. Code 821.8), and injuries resulting from a misrepresentation by a public employee, absent actual fraud, corruption, or actual malice (Gov. Code § 822.2).

Third, even when the Government Claims Act does not bar a claim against a public employee, a plaintiff may need to prove specific, particular facts in order to show that the employee can be held liable for the claim. For example, a public employee can be liable for an injury caused by a dangerous condition of public property, but only if the dangerous condition was caused by the negligent or wrongful act of the employee or the employee was aware of the dangerous condition and was responsible for protecting against it. Gov. Code § 840.2. Even then, the employee can escape liability if the act or omission that created the dangerous condition, or the failure to protect against the dangerous condition, was reasonable. Gov. Code § 840.6.

In addition, as noted above, several types of claims are not subject to the Government Claims Act, and thus are not barred by the Act, including actions on petitions for writs of mandate, contract actions, constitutional takings claims, and federal civil rights claims. However, these types of claims generally do not pose significant risks of liability for public officials. Petitions for writs of mandate typically seek to simply compel a public official to perform an act or duty that is required by law (e.g., Code Civ. Proc. § 1085), and so generally would not be expected to expose the public official to personal liability for monetary damages. Similarly, a public entity’s officers or employees would typically not be individually liable in a contract action against a public entity, because officers and employees are usually not parties to the contracts of their employer. The general rule in takings cases is that the public agency authorizing the work that results in a taking is liable, and the employee or contractor that actually performs the work is not liable as long as that party performed the work in accordance with the agency’s instructions. *E.g. Sheffet v. County of Los Angeles* (1970) 3 Cal.App.3d 720, 735 (when work planned, specified, and authorized by a public agency results in injury to property, the liability therefor is on the public agency); *Marin Municipal Water District v. Peninsula Paving Co.* (1939) 34 Cal.App.2d 647, 655. Finally, while individuals can be liable for civil rights claims brought under 42 U.S.C. § 1983, the rule of qualified immunity may protect government employees in such cases. Under qualified immunity, government officials performing discretionary functions generally are shielded from liability as long as their conduct does not violate clearly-established statutory or constitutional rights of which a reasonable person would have known. *Harlow v. Fitzgerald* (1982) 457 U.S. 800, 818. In



other words, government officials will generally not be liable for civil rights claims unless their conduct does violate clearly-established rights.<sup>8</sup>

In sum, the Government Claims Act limits the liability of public employees and officers, though it does not provide complete immunity. However, in cases where the public employee is not immune, the Act provides for indemnification of the employee by the employing public entity: in such a case, if the employee requests defense by the entity, the entity typically must pay any judgment that arises from the case. Gov. Code § 825. Exceptions apply, however, and a public employee may be personally liable for a judgment when the employee's acts or omissions occurred outside the scope of employment or an employee's actual fraud, corruption, or actual malice caused the plaintiff's injuries. Gov. Code § 825, 825.6.

**C. Liability of a Government Agency Formed by Agreements Between or Reorganization of Other Agencies**

Under the Government Claims Act, when public entities enter into an agreement – including, but not limited to, a joint powers agreement – for the performance of any function, service, or act, the public entities become jointly and severally liable “upon any liability which is imposed by any law other than this chapter upon any one of the entities or upon any entity created by the agreement [i.e., a joint powers authority] for injury caused by a negligent or wrongful act or omission” that occurs in the performance of the agreement. Gov. Code §§ 895, 895.2. Such an agreement may also expressly provide for contribution or indemnification by or between the parties. The public entities that entered into such an agreement would still be able to rely on the protections of the Government Claims Act, as would any joint powers authority created by the agreement, as such entities are themselves public agencies. Gov. Code § 6500. Also, state law allows the parties to a joint powers agreement to “contract away” all non-tort liabilities, debts, and obligations to the new agency created by the agreement. Gov. Code § 6508.1; *Tucker Land Co. v. California*, 94 Cal. App. 4<sup>th</sup> 1191, 1200-01 (2001).

Local agencies can also be consolidated or dissolved pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000, Gov. Code §§ 56000 et seq. Such reorganizations involve a process before the relevant LAFCO. E.g. Gov Code §§ 56821-56821.3. When a district is dissolved, a successor district is determined according to Government Code section 57451, for the purposes of winding up the affairs of the dissolved district.<sup>9</sup> In winding up the dissolved district's affairs, the successor district and its officers have the same powers and

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<sup>8</sup> In addition, individual public officers or employees can also be liable for criminal violations like bribery or failing to comply with conflict of interest laws. E.g., Gov. Code § 1097 (criminal penalty for violation of Government Code section 1090); Penal Code § 86 (criminal penalty for asking for, receiving, or agreeing to receive bribes).

<sup>9</sup> The determination depends on the location of the dissolved district and whether the terms and conditions of the dissolution specify a successor. For example, if the territory of a dissolved district is wholly within the unincorporated territory of a county, then the county is the successor district, unless the terms and conditions of the dissolution provide that all the assets of the dissolved district will be distributed to another district, in which case that district is the successor. Gov. Code § 57451(b), (d).

duties of the dissolved district, in addition to the power to “compromise and settle claims of every kind and nature” and to “sue or be sued in the same manner and to the same extent as the dissolved district” and its officers. Gov. Code § 57453. In light of the “same manner and to the same extent” language, any immunities that would have applied in a suit against the dissolved district will similarly apply in any suit against the successor district.

When multiple districts are consolidated under the Reorganization Act, the resulting district succeeds to “all of the powers, rights, duties, obligations, functions, and properties” of all the predecessor districts that have been consolidated into the new district. Gov. Code § 57500. The Act does not specify the powers and duties the consolidated district inherits, but the language is broadly inclusive - “all” such powers and duties pass to the consolidated district. The provisions regarding dissolution of districts indicate that such powers and duties include the power to settle claims and to sue or be sued in the same manner and to the same extent as the dissolved district. But as with dissolution, this means that any immunities that might have applied to a suit against the predecessor districts will also apply to a suit against the consolidated district. Further, because the consolidated district would itself be a public entity, it would have its own right to rely on the protections of the Government Claims Act on its own behalf - its right to do so would not be derived solely from the predecessor districts.

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