

Project Memorandum #1: Historic Investments in Delta Flood Protection

PURPOSE AND SUMMARY

This memorandum is the first in a series that describes the set of facts and assumptions that will be used in the Delta Flood Risk Management Assessment District Feasibility Study (DRFMADFS). The memo describes several key characteristics of Delta levees, and outlines past and current federal, state and local funding for levee investment and maintenance. This includes an overview of State of California levee subvention and special projects funding, and a summary of local reclamation district financing sources. Two appendices provide more detailed accounting of historic levee funding and reclamation district finances.

Separate project memoranda will outline the legal considerations and constraints on financing levee improvements, and identify and assess other types of financial mechanisms. Ultimately, the DRFMADFS will examine the constraints, opportunities and challenges of applying the “beneficiary-pays” approach across the spectrum of Delta levees beneficiaries.

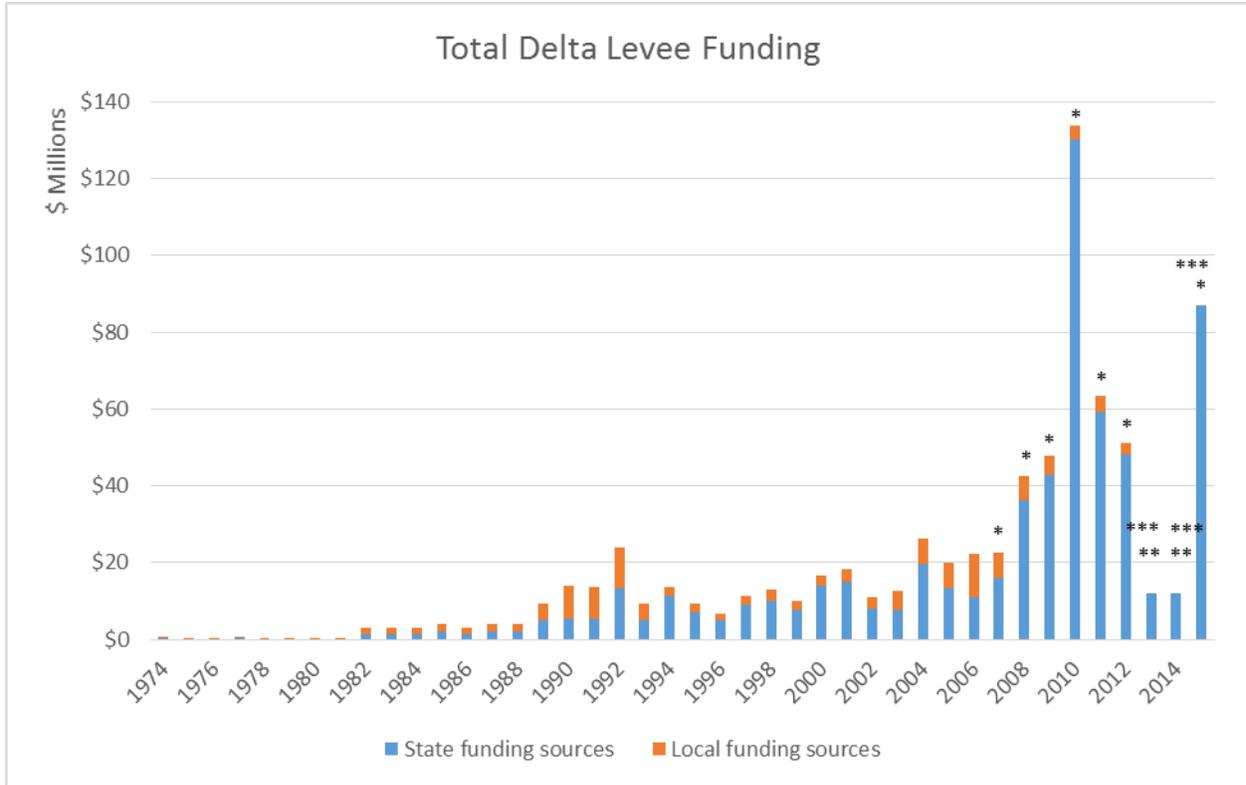
Summary of Findings

Simply put, the funding available for Delta levee maintenance and improvements depends mainly on whether the levee is a “project” or a “non-project” levee. Roughly one-third of Delta levees are project levees, which are part of the State Plan of Flood Control, and are owned by the State. The remaining two-thirds are privately owned non-project levees.

Delta levees depend on a mix of federal, state, and local funding. Some funding comes from the U.S. Army Corps of Engineers (USACE), with state cost-sharing requirements. Federal funds pay for project levee improvements that are consistent with federal program priorities and guidelines, but do not pay for maintenance. State funding comes primarily from general obligation bonds, which pay for project and non-project levee maintenance and improvements through a variety of programs administered by the California Department of Water Resources (DWR). Local agencies, such as reclamation districts, can assess local property owners for the costs of maintaining and improving levees. Generally speaking, such assessments are insufficient to cover the costs of levee improvements, and local agencies rely on state and federal funding for both project and non-project levees.

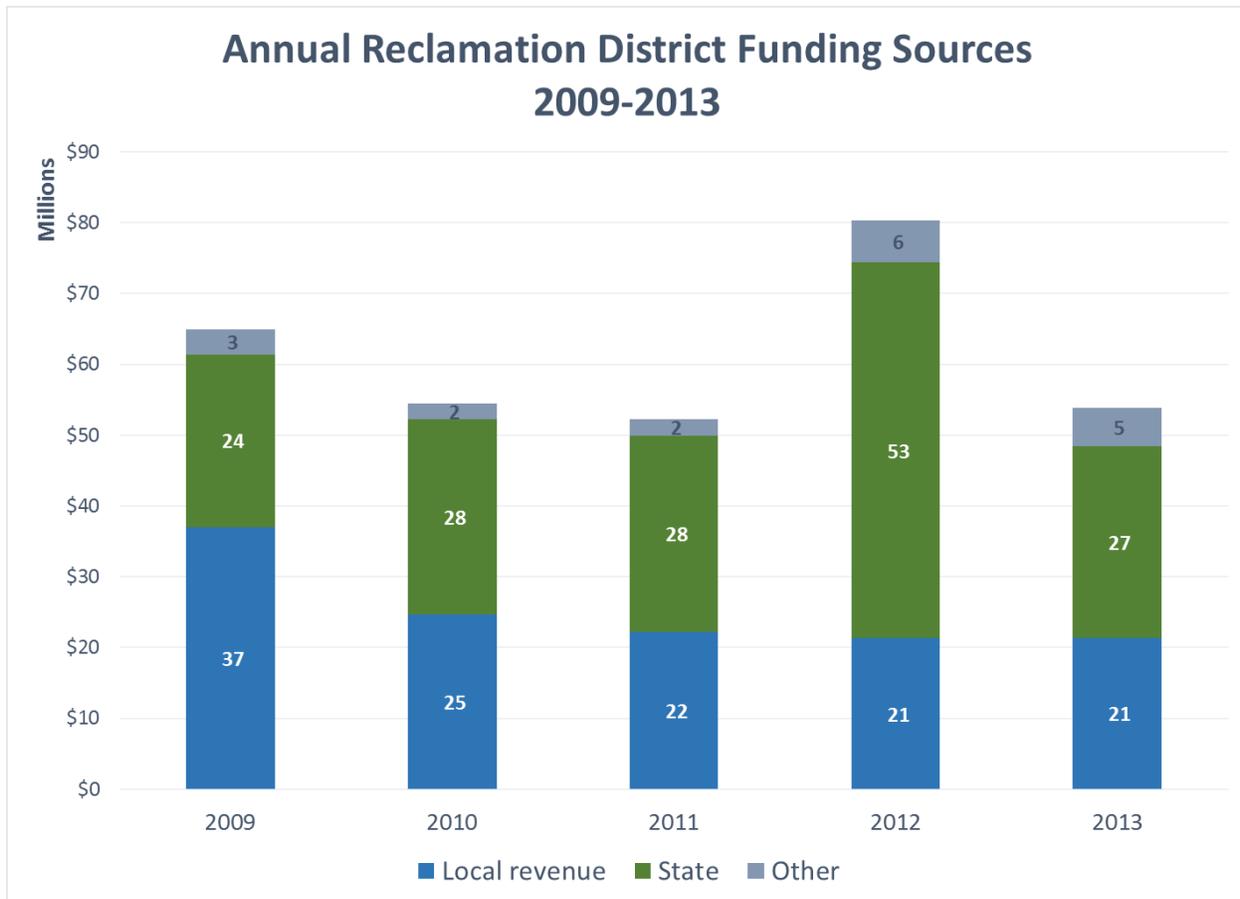
A review of historic and current spending on Delta levees shows that State funding has grown since the mid-1990s, yet has also been episodic, with significant swings over the last eight years. State funding relies primarily on general obligation bonds. Since 1996, State general obligation bonds have provided about \$1.1 billion for State-wide flood control, of which approximately \$750 million was earmarked for levees, most of which are in the Delta. Local agencies contributed approximately 16% in matching funds. The current cycle of bond funding is about to end, making future funding uncertain. Figure 1 shows how funding has varied.

Figure 1



According to the State Controller, local agencies are now spending about \$73 million annually on levee maintenance and improvements, about one-third of which comes from State bond-funded programs. Figure 2 summarizes local agencies’ funding sources over a five-year period.

Figure 2



Estimates of the total need for spending on Delta levee improvements varies; stakeholders and agencies have not arrived at an agreement on the standards to be used for flood protection and levee construction, or the amount of funding needed. This report, and the overall DFRMADFS project, does not intend to develop a cost estimate.

AN OVERVIEW OF DELTA LEVEES

The current Delta levee system consists of about 1,100 miles of levees in the Delta, along with about 12 miles of levees in the Suisun Marsh.¹ Funding for levee maintenance and improvements depends greatly on whether the levee is part of the State Plan of Flood Control. This section summarizes the regulatory context of Delta levees, focusing on the relationship between regulatory setting and the availability of and eligibility for various sources of funding. It also summarizes recent state bond spending on flood control and protection in the Delta.

¹ Some of the description of project and non-project levees is excerpted from California Department of Water Resources, *Framework for Department of Water Resources Integrated Flood Management Investments in the Delta and Suisun Marsh.* September 24, 2013. Available at http://www.water.ca.gov/floodsafe/fessro/docs_policies/

Project Levees

Since 1917, an ongoing collaboration between state, federal, and local agencies has produced the flood control system of the Sacramento and San Joaquin watersheds, which consists of levees, dams, weirs, bypasses, and other facilities, called the State Plan of Flood Control (SPFC).² About one-third of Delta levees are “project” levees, meaning that they are part of federally authorized flood control projects and are considered to be part of the SPFC. In exchange for receiving federal funding for improvements, the State is required to operate and maintain these project levees and other works.

Project levees are built according to U.S. Army Corps of Engineers (USACE) guidelines in effect at the time of construction, and are eligible for federal aid from USACE for levee repair and rehabilitation, such as for emergencies and specific projects. However, USACE does not provide funds for routine maintenance; these levees compete with non-project levees for State funding for maintenance.

Project levees are publicly-owned, and as a result of the California Supreme Court’s 2003 decision in *Paterno v. California*, the State is liable for flood damages resulting from breaches. The Court found that “when a public entity operates a flood management system built by someone else, it accepts liability as if it had planned and built the system itself.”³

Central Valley Flood Protection Plan

The Central Valley Flood Protection Board (CVFPB), as the authorized representative of the State and a key non-federal sponsor for construction of project levees, has made “assurances of cooperation” to the federal government. These assurances require, among other things, that the CVFPB must provide all lands, easements, and rights-of-way necessary to complete a project, and must pay for the non-federal portion of levee projects. The CVFPB must also maintain and operate all facilities after they are completed. The State has turned most of the project levees over to local maintaining agencies (LMAs) for operation and maintenance.⁴

The 2012 Central Valley Flood Protection Plan (CVFPP) is the latest incarnation of the SPFC as a “comprehensive framework for system-wide flood management and flood risk reduction in the Sacramento and San Joaquin River Basins,”⁵ The CVFPP provides guidance to reduce the risk of

² Section 9110(f) of the California Water Code defines the SPFC as follows: “State Plan of Flood Control” means the state and federal flood control works, lands, programs, plans, policies, conditions, and mode of maintenance and operations of the Sacramento River Flood Control Project described in Section 8350, and of flood control projects in the Sacramento River and San Joaquin River watersheds authorized pursuant to Article 2 (commencing with Section 12648) of Chapter 2 of Part 6 of Division 6 for which the board or the department has provided the assurances of nonfederal cooperation to the United States, and those facilities identified in Section 8361. (For more information, see the State Plan of Flood Control Descriptive Document, November 2010, at <http://www.water.ca.gov/cvfmp/docs/SPFCDescriptiveDocumentNov2010.pdf>)

³ For more information, see Water Education Foundation, “State Liability, Flood Protection and the Paterno Decision,” available at <http://www.watereducation.org/aquapedia/state-liability-flood-protection-and-paterno-decision>.

⁴ Local districts are allowed, under Water Code section 8618, to carry out maintenance or operation actions of these project levees under agreements with the Central Valley Flood Protection Board. This process of delegation and acceptance of duties earns reclamation districts their title of “local maintaining agencies.”

⁵ Central Valley Flood Management Program, 2012 Central Flood Protection Plan, Public Draft, http://www.water.ca.gov/cvfmp/docs/2012_CVFPP_FullDocumentHighRes_20111230.pdf, December 2011.

flooding for about one million people and \$70 billion in infrastructure, homes, and businesses, with a goal of providing 200-year protection to urban areas, and reducing flood risks to small communities and rural agricultural lands.

The State System-wide Investment Approach (SSIA) outlined in the CVFPP includes significant capital investments to strengthen levees that protect existing urban areas and small communities, prioritizing improvements to the 1,600-mile levee system included in the SPFC. The SSIA also focuses on improving system resiliency in the face of climate change by expanding flood conveyance capacities, coordinating reservoir operations, and restoring floodplains. Total projected investment statewide ranges from \$13.9 to \$16.9 billion. This represents total combined costs for federal, state, and local agencies, in 2011 dollars. Estimates include costs for capital improvements and 25 years of ongoing annual work to maintain the system, of which some funds are already dedicated from Propositions 84 and 1E. Estimated costs for the SSIA in the Delta range from \$2.35 to \$2.8 billion.

Non-Project Levees

The remaining two-thirds of Delta levees that are not part of the SPFC are known as “non-project levees.”⁶ Most of these levees were built to drain islands and tracts for agricultural use. They were originally constructed before project levees and without assistance of State and

⁶ DWR Flood Management describes a project levee as follows:

A project or State-Federal levee is a levee that is part of the facilities of the State Plan of Flood Control (SPFC). Facilities of the SPFC include levees, weirs, channels, and other features of the federal and state authorized flood control facilities located in the Sacramento River and San Joaquin River drainage basins for which the Central Valley Flood Protection Board (CVFPB) or the Department of Water Resources (DWR) has given the assurances of nonfederal cooperation to the United States required for the project, and those facilities identified in Section 8361 of the Water Code. Also, levees that protect lands lying within the Tulare Lake Basin, including the Kings River, and the Kern River Basin are not State-Federal levees, even though geographically, these lands are considered part of the Central Valley. The facilities of the State Plan of Flood Control are listed and described in the State Plan of Flood Control Descriptive Document.” (DWR, “Flood Management,” http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fas/risknotification/frequently_asked_questions.cfm.)

Further, project levees are levees or floodwalls that are a facility of the State Plan of Flood Control. (DWR FloodSAFE, Urban Levee Design Criteria, http://www.water.ca.gov/floodsafe/leveedesign/ULDC_May2012.pdf, May 2012.)

DWR’s Urban Design Criteria adds more detail:

“Federal flood control levees, as shown on page 40 of the Department of Water Resources “Sacramento-San Joaquin Delta Atlas,” dated 1993, that is a project facility under the State Water Resources law of 1945 (Chapter 1 [commencing with Section 12570] and Chapter 2 [commencing with Section 12639 of Part 6]), if not less than a majority of acreage within the jurisdiction of the Local Agency that maintains the levee is within the primary zone of the delta, as defined in Section 29728 of the Public Resources Code.” (Department of Water Resources Delta Suisun Marsh Office, Delta Levee Special Flood Control Projects, DRAFT, Interim Guidelines For Providing Funding to Local Public Agencies, FY 2008 – 2009, <http://www.water.ca.gov/floodmgmt/dsmo/docs/DeltaLeveeProgramInterimGuidelines.pdf>, November 2008.)

DWR’s Delta Suisun Marsh Office defines non-project levees as:

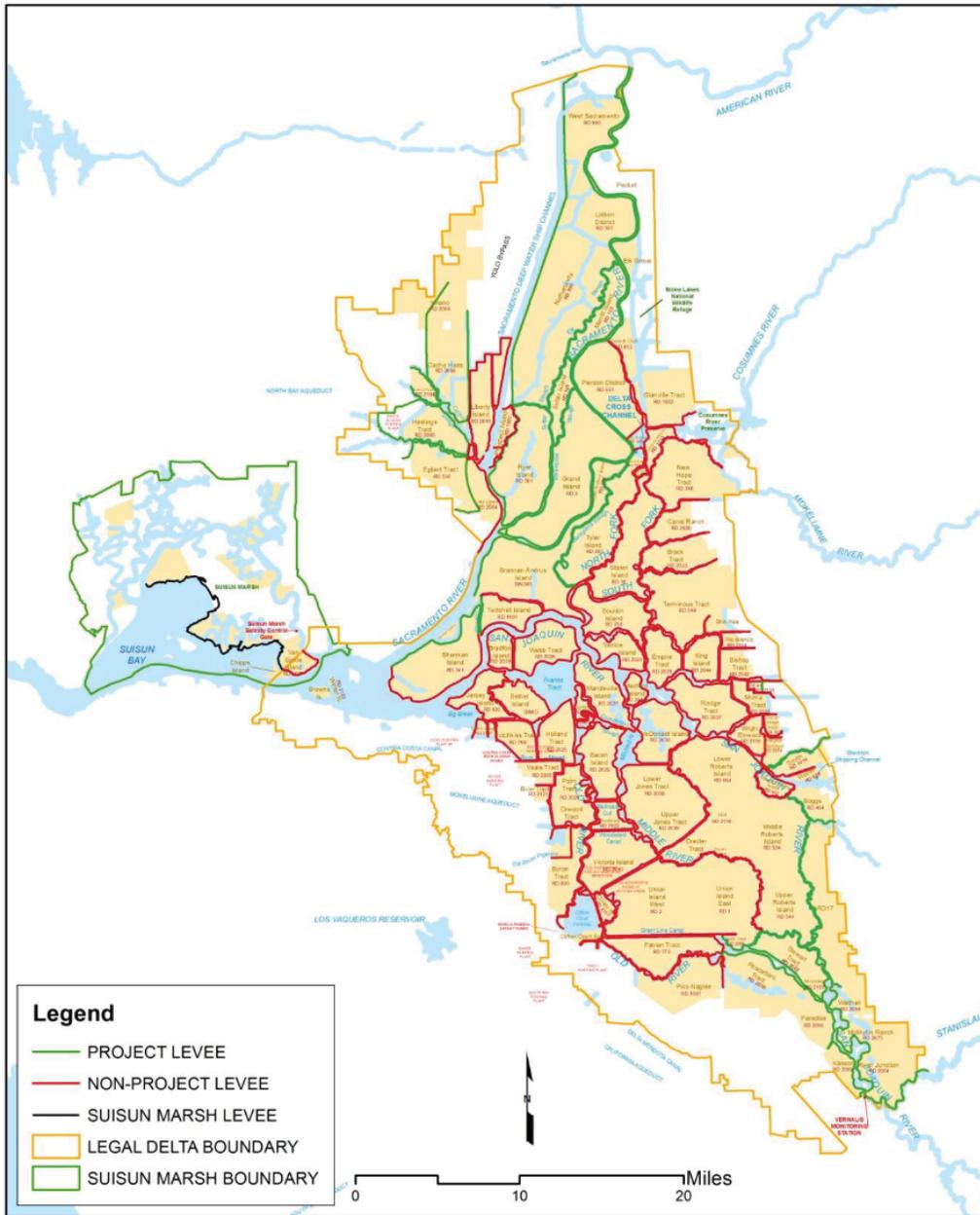
A local flood control levee in the Delta that is not a project facility under the State Water Resources Law of 1945, as shown on page 38 of the Department of Water Resources “Sacramento-San Joaquin Delta Atlas,” dated 1993. Section 12980(e) of Water Code. DWR Delta Suisun Marsh Office, Delta Levee Special Flood Control Projects, DRAFT, Interim Guidelines For Providing Funding to Local Public Agencies, FY 2008 – 2009, <http://www.water.ca.gov/floodmgmt/dsmo/docs/DeltaLeveeProgramInterimGuidelines.pdf>, November 2008.)

federal governments. Non-project levees are locally owned, and are managed by reclamation districts on behalf of landowners.

Non-project levees do not receive financial assistance from the USACE. The State is not liable for non-project levees (nor does it want such liability). However, because of their benefits to state interests, the State contributes financially to the maintenance and improvement of non-project levees through the Special Projects and Subventions programs, with a local cost-sharing requirement.

Figure 3 shows the project and non-project levees in Delta within the Legal Delta, drawn from Geographic Information System (GIS) data collected for this project.

Figure 3. Project and Non-Project Levees in the Delta



Source: NHC (2015)

State Spending on Flood Control in the Delta

Over the past half-century, California has spent hundreds of millions of dollars on maintenance, repairs, and improvements to Delta flood control facilities. Most of these investments have been funded through issuance of general obligation bonds. Since 1997, the State authorized five general obligation bond acts totaling about \$22 billion for natural resources and water supply including flood protection, a portion of which has been or will be spent in the Delta. To date, \$1.1 billion has been awarded to specific flood protection projects from those bonds. As shown in the table below, almost \$725 million of this amount was to be spent on levees, most of which are located in the Delta.⁷

Table 1: California Bond Spending on Flood Protection

Proposition	40	50	84	1E	1	TOTAL
Year enacted	2002	2002	2006	2006	2014	
total bond amount * (\$million)	2,600	3,440	5,388	4,090	7,120	22,638
% of total bond not yet appropriated*	0%	0%	3%	0.20%	22%	8%
Awarded amounts under the flood protection function (\$ million)						
Channels and other infra-structure	-	-	2	25	-	27
General watershed improvements	-	-	0	-	-	0
Levees	-	7	133	584	-	724
Multi-purpose	0.4	-	3	23	-	26
Planning	-	-	36	13	-	49
Storage	-	-	-	290	-	290
TOTAL	0.4	7	174	934	-	1,115
% of proposition	0.02%	0.2%	3.2%	22.8%	NA	4.9%

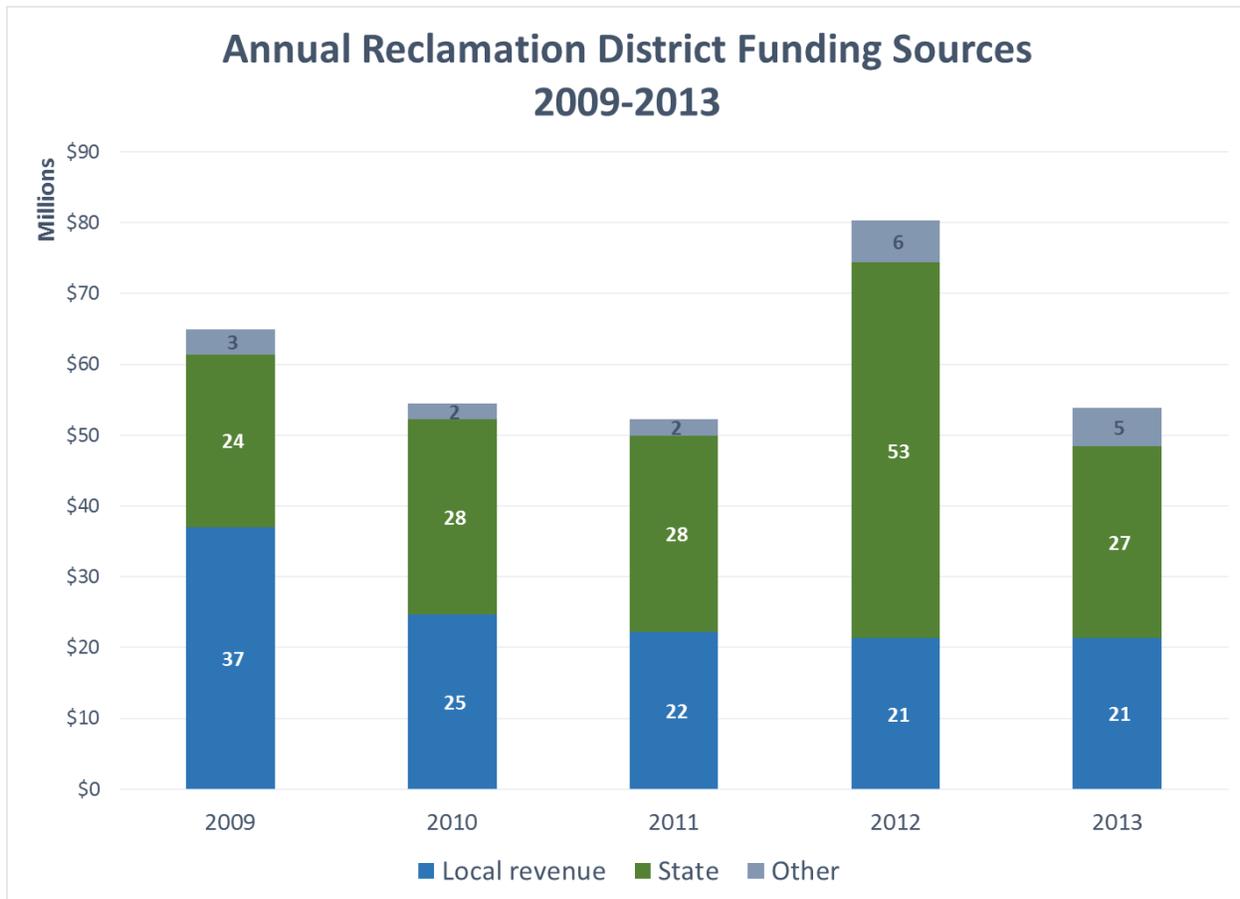
Source: PPIC, Data Set: State General Obligation Bond Spending on Water, retrieved October 2015, <http://www.ppic.org/main/dataset.asp?p=1458>; * Bond Accountability Office

DWR's Delta Levees Program distributes the bond funds for levee maintenance and rehabilitation to Reclamation Districts (RDs) through two programs: the Delta Levees Maintenance Subventions Program (Subventions) and the Delta Special Flood Control Projects Program (Special Projects). The Subventions Program makes funding available for all Delta levees; Special Projects focuses on levees that improve State Water Project export reliability. To date, the State has disbursed \$205 million through Subventions, with RDs providing \$125 million, or about 38% of project costs, as local matching funds. For Special Projects, the State has disbursed \$422 million, with \$7 million from the RDs in matching funds.

In the 2013-14 fiscal year, RDs received \$56 million in revenues of which about half came from State sources. The RDs have spent about \$73 million annually in the last two fiscal years. Revenues have varied significantly year to year. Figure 4 illustrates the shifting shares of local and state revenues accruing to RDs over that period. Appendix B contains details on the revenues and expenditures for the RDs for the last five years.

⁷ The geographic distribution of the historic fund allocations is not readily available from DWR at this time.

Figure 4



FUNDING FOR PROJECT LEVEES

The federal and State governments spend money to improve project levees in the Delta and to repair them after high-water events. Delta-specific federal expenditures are difficult to isolate because USACE expenditures are organized by projects (e.g. the Sacramento River Bank Protection Project) that include levees both inside and outside of the Delta. As a result, without significant additional research it is not possible to determine how much is actually spent in the Delta itself. However, from 2011 to 2015 USACE Civil Works Department budgeted a total of \$40 million to projects located at least partially in the Delta, though only a portion of those funds are likely to have been spent on projects in the Delta. This section briefly describes federal and State levee programs.

Federal Programs

USACE is the lead agency for the Sacramento River Bank Protection Project, the South Sacramento County Streams Project, and the PL84-99 Program. The geographic scope of these programs partially overlaps the Delta. The USACE also provides funds for feasibility and other flood control studies within the SPFC.

Each of these programs has different goals and eligibility requirements:

Delta Flood Risk Management Assessment District Feasibility Study

- Small Erosion Repair Program (SERP)—A DWR pilot program to streamline regulatory review to repair small erosion sites on levees within the Sacramento River Flood Control Project area. In its previous incarnation as the Sacramento-San Joaquin Erosion Protection Program, the State spent about \$277 million from 2006 to 2010 for repairs to 102 sites throughout the Sacramento and San Joaquin River Basins Planning Area for the SPFC, only a small portion of which lies within the Delta.
- Sacramento River Bank Protection Project—A continuing construction project carried out by USACE in conjunction with CVFPB focused on protecting levees along the Sacramento River. A small portion of these levees are located in the Delta’s northern portion. USACE has budgeted \$28 million to the project from 2011 to 2015.⁸
- South Sacramento County Streams—An effort to provide flood damage reduction, levee improvements, ecosystem restoration, and recreation along streams in south Sacramento County. A small portion of this project area overlaps the northeastern part of the Delta. The total budget for this project is \$27.4 million, though only a small portion will have been spent in the Delta.
- PL84-99 Rehabilitation Program—USACE provides assistance to levee maintaining agencies to repair projects after damage by high water events to bring them up to PL84-99 standards.
- USACE Studies—USACE currently provides funding for several flood control studies on the State-Federal flood control project, a portion of which lies in the Delta. These studies include a General Re-evaluation Report (GRR) for the American River Common Feature carried out by the Sacramento Area Flood Control Agency, the Lower San Joaquin River Feasibility Study carried out by the San Joaquin Area Flood Control Agency, the West Sacramento GRR by the West Sacramento Area Flood Control Agency, the Sacramento River GRR, and the Central Valley Integrated Flood Management Study. To date, the USACE has expended over \$11.3 million on these flood control studies, out of a total budget of \$18.3 million.⁹

From 2011 to 2015 USACE Civil Works Department budget allocated a total of \$40 million to projects closely related to the Delta, including the Sacramento River Bank Protection Project, outlined above, work on the Sacramento Deepwater Ship Channel, and Port of Stockton shipping channel. However, only a portion of these funds are expended on flood control facilities located within the Delta. These projects are focused on USACE’s strategic goals of facilitating commercial navigation and protecting population centers. USACE also receives budget allocations to investigate future projects and for the operations and maintenance of Delta shipping channels.

⁸ USACE Civil Works Budgets Fiscal Year 2011-2015. <http://www.usace.army.mil/Missions/CivilWorks/Budget.aspx>

⁹ Information provided by Erin Mullins at DWR. Individual study expenditures: SAFCA-American River Common Feature GRR \$3.725 million; WSAFCA-West Sacramento GRR \$2.585 million; SJAFCALower San Joaquin River Feasibility Study \$3.749 million; CVIFMS \$.875 million; Sacramento River GRR \$.338 million.

State Programs

DWR provides additional funding to project levees through the Early Implementation Program and the Urban Flood Risk Reduction Program. Since 2007 DWR has allocated \$390 million to projects with a geographic scope located at least partially within the Delta.

- The Early Implementation Program--The Early Implementation Program (EIP) was created by the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E) to provide funding for repair, rehabilitation, reconstruction or replacement of levees, weirs, bypasses and facilities of the SPFC before the adoption of the CVFPP. Repairs of project levees in the Delta primary zone¹⁰ may be funded through the EIP. In the secondary zone, repairs of project levees and urban non-project levees as well as levees likely to be added to the SPFC are all eligible for EIP funding. Other non-project levees are not eligible for funding through the EIP.¹¹

To date, DWR has expended over \$49.5 million of a total budgeted amount of \$124 million from the EIP to three projects that overlap the Delta. These include the RD-17 100-year Seepage Remediation project, a San Joaquin Area Flood Control Area's Smith Canal Design project, and the West Sacramento Area Flood Control Area's Design and North Area Construction project.

- Urban Flood Risk Reduction Program--The Urban Flood Risk Reduction Program (UFRRP) is funded through the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E) to support DWR's priority of investing in flood protection of urban areas. Funding is available to help urban local agencies in planning, designing, and constructing flood risk reduction projects on SPFC facilities in the Sacramento-San Joaquin Valley to achieve an urban level of flood control (defined as protection from a 200-year flood) or better.

To date the UFRRP has provided funding to four projects located at least partially in the Delta. These include the Sacramento Area Flood Control Agency's Levee Accreditation Project, the West Sacramento Area Flood Control Agency's Southport Construction Project, the San Joaquin Area Flood Control Agency's Smith Canal Construction Project,

¹⁰ The Delta Protection Commission (www.delta.ca.gov) describes the primary and secondary zones as follows:

*The **Primary Zone** is the Delta land and water area of primary State concern and statewide significance situated within the boundaries of the Delta, as described in Section 12220 of the Water Code, but is not within either the urban limit line or sphere of influence line of any local government's general plan or studies existing as of January 1, 1992. The precise boundary lines of the Primary Zone includes the land and water areas as shown on the map titled "Delta Protection Zones" on file with the California State Lands Commission. The Primary Zone consists of approximately 500,000 acres.*

*The **Secondary Zone** is all the Delta land and water area within the boundaries of the legal Delta not included within the Primary Zone, subject to the land use authority of local government, and that includes the land and water areas as shown on the map referenced herein. The Secondary Zone consists of approximately 238,000 acres.*

¹¹ Department of Water Resources Delta Suisun Marsh Office, *Delta Levee Special Flood Control Projects*, DRAFT, Interim Guidelines For Providing Funding to Local Public Agencies, FY 2008 – 2009, <http://www.water.ca.gov/floodmgmt/dsmo/docs/DeltaLeveeProgramInterimGuidelines.pdf>, November 2008.

and the City of Lathrop's RD17 Phase 4 Urban Levee Design Criteria Improvements Project. DWR has expended \$54.5 million out of a total budgeted \$265.5 million.

- Small Community Flood Risk Reduction Program—The Small Community Flood Risk Reduction Program (SCFRRP) was created by the 2012 CVFPP and funded by the Disaster Preparedness and Flood Protection Bond Act of 2006 (Prop 1E) to help local communities achieve 100-year flood protection. The program provides grant funding to communities with 10,000 or fewer residents that are protected by project levees. However, initially funding will be limited to project feasibility studies, up to a maximum of \$500,000 per applicant; expenditures beyond \$500,000 will be shared between the applicant and DWR. Eleven communities in the Delta are expected to apply for SCFRRP funding, for a total of \$5.5 million over the next two years.

State and Federal Cost-Sharing Formulas

Table 2 below summarizes the federal, state, and local cost shares for project levees.¹² In general, the federal share is 50% to 75% with higher shares for levees that protect urban populations. The State generally covers 70% of the remaining costs. Other factors such as community characteristics and preserving ecosystem benefits can increase federal and state cost shares.

¹² These tables are a summary of the discussion in Delta Stewardship Council, Delta Levees Investment Strategy, *Technical Memorandum 3.2: Cost Allocation Methodology*, Peer Review (Draft Revision 0), April 15, 2015.

Delta Flood Risk Management Assessment District Feasibility Study
Table 2. Project Levees: Federal-State-Local Cost Shares

	Cost Share	Notes	Reference
Total Costs			
Federal	50%-75%	Urban = 65%	California Water Code, sections 12310-12318
State	35%-52.5%	70% non-Federal share	
Local	15%-22.5%	30% non-Federal Share	
Improvements			
Federal	<50%	50% maximum	
State	>25%	50% Base	
Disadvantaged + multiple benefits	>45%	Up to 90%: 1) the project serves a disadvantaged area community; 2) the project improves the system; 3) the project includes ecosystem enhancement and improvement; and 4) the project includes other multi-benefit features.	
Setback Levees	>40% if setback		
Local	>25%	Net of state share	
Disadvantaged + multiple benefits	>10%		
Setback Levees	>20%		

STATE FUNDING FOR NON-PROJECT LEVELS

From 1973 through 2015, the state provided more than \$628 million to Delta Reclamation Districts (RDs) to improve levee stability and reduce flood risk through the Subventions and Special Projects programs. This section describes the state’s programs and spending on non-project levees.

A Brief History of Recent Financing

California established the Subventions program in 1973 in SB 541, also known as the Way Bill (Water Code Sections 12980 to 12993). The program was originally to be paid for by the General Fund, with annual expenditures ranging from \$175,000 to \$200,000 between 1974 and 1981. Originally, the program was aimed at non-project levees only; it was expanded in 1996 to include both project and non-project levees in the Delta and Suisun Marsh.

During the 1980s, annual expenditures increased to \$1.5 to \$2 million annually, funded principally with Tideland Oil Revenues, funds collected each year from oil and gas leases on state-owned tidelands and ocean waters in Southern California.

The Delta Flood Protection Act of 1988 created the Special Projects program as well as the Delta Flood Protection Fund, and declared the Legislature’s intention to dedicate \$120 million

over 10 years to the two programs (Water Code Sections 12310 to 12316 and Sections 12980 to 12993).¹³

In 1996, the Legislature established the reimbursement rates for Delta levee maintenance for up to 75% for the next ten years. In 2006, the Legislature extended the reimbursement rate to 2010, and extended it again in 2010 and in 2012. These extensions were based, in part, on the need for DWR and the Delta Stewardship Council to complete their respective studies and plans for Delta levees.¹⁴

From 1988 to 1996, General Fund contributions to local flood control were unreliable due to the State's fiscal condition. The series of general obligation bonds passed in the late-1990s and early-2000s created more stable state funding for the programs:

- Proposition 204, The Safe, Clean Reliable Water Supply Act of 1996, dedicated \$193 million to the Delta Improvement Account, including \$25 million for Delta Levee Rehabilitation.
- Proposition 13, The Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Act of 2000, provided \$30 million for Delta levee rehabilitation;
- Proposition 50, The Water Quality, Supply and Safe Drinking Water Projects, Coastal Wetlands Purchase and Protection Act of 2002, dedicated \$70 million to Delta Levees.
- Proposition 84, The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006, authorized \$265 million to the two Delta Levees Programs.
- Proposition 1E, the Disaster Preparedness and Flood Protection Bond Act of 2006. While providing a total of more than \$3 billion, the bond did not specify a set amount for Delta levees. Through FY 2012-13 the legislature appropriated more than \$320 million of Proposition 1E for Delta Levees.¹⁵
- Proposition 1, the Water Quality, Supply, and Infrastructure Act of 2014, authorized \$7.5 billion for various water projects, including \$395 million for statewide flood management projects.

However, the funds available from these bonds are now nearing exhaustion. According to the California Bond Accountability website, Propositions 84 and 1E only have 3% and 0.2%,

¹³ The \$120 million was allocated or authorized, not appropriated. It can be assumed the amount actually appropriated was closer to the funds disbursed by the two programs in those years.

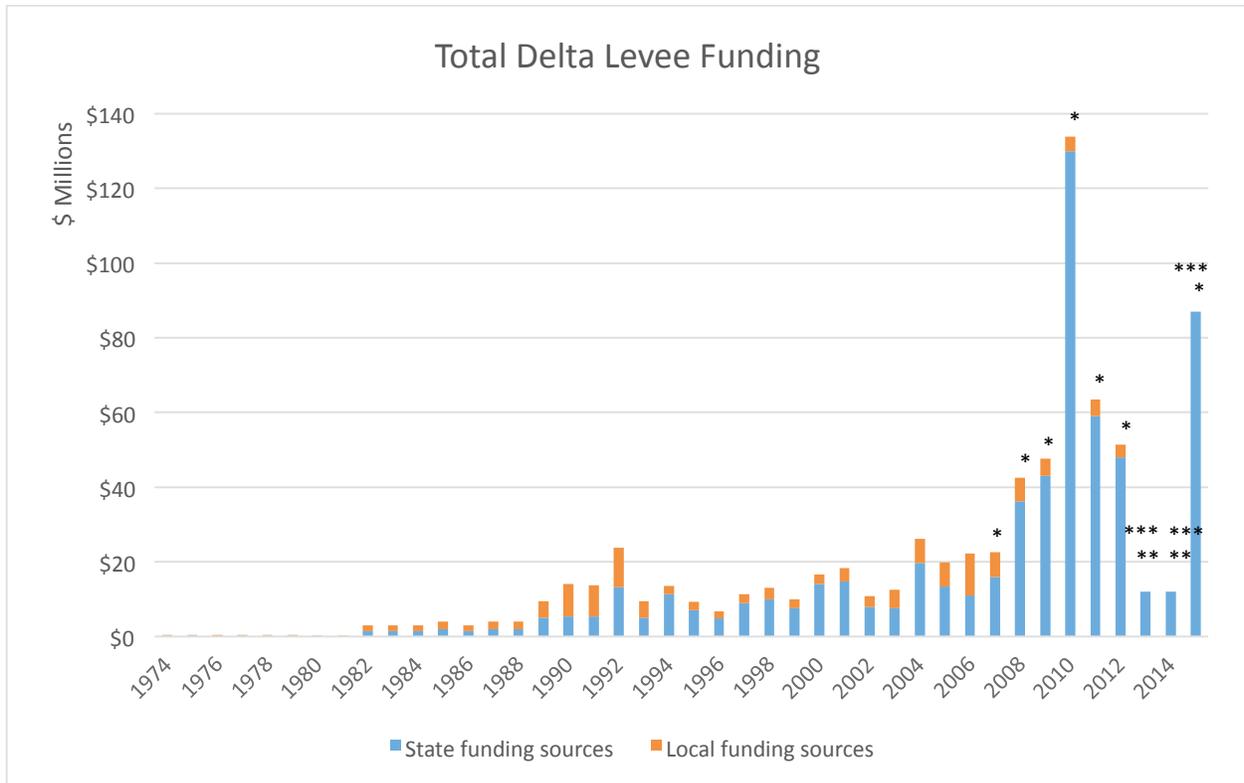
¹⁴ In 2006, DWR had yet to complete the Delta Risk Management Study (DRMS); in 2010 the Delta Stewardship Council had yet to complete the Delta Plan with its priorities for state investments in levees. In 2012, the Legislature acknowledged the dire financial conditions of Delta levee agencies and the importance of levees for California's water infrastructure as the rationale for extending the reimbursement rate. (Source: Senate Committee on Natural Resources and Water, Analysis of SB 554, January 4, 2016).

¹⁵ DWR, FloodSAFE California, Grant Programs, <http://www.water.ca.gov/floodsafe/grants/>.

respectively, of their total authorized amount remaining to be appropriated. Proposition 1 has 27% of its funds remaining to be appropriated.

Figure 5 shows annual State and local expenditures for Delta levees from 1973 to 2014. Note that the local contributions were not readily available for 2013-2015, but these are a relatively small proportion of total spending. From 1973 to 2012, RDs contributed \$125 million to levee maintenance and improvement under the Subventions program, and more than \$7 million under the Special Projects program. While levee expenditures were fairly stable from 1990 to 2008, State contributions spiked significantly in 2010 and 2015.

Figure 5



*Data on local RD contributions to Special Projects funding are not available for 2007-2012 and 2015.

**No project solicitation packages (PSPs) for Special Projects were issued in 2013 and 2014.

***Data on local RD contributions to Subventions funding are not available for 2013-2015

Source: data provided by DWR’s Delta Levees Program

Cost-Share Formulas

Currently, the federal government does not contribute to non-project levee costs.¹⁶ In the Primary Zone, State shares for construction can range from 75% to 100%, but the exact rationales for the differences are not contained in State code. In the Secondary Zone, the shares range from 50% to 95%. For maintenance, the State share is 75% after costs reach a threshold of \$1,000 per levee mile.

¹⁶ These cost share formulas do not account for federal entities that benefit from flood protection provided by these levees.

Table 3 describes the cost-share formulas for non-project levees, which vary by location (primary vs. secondary zone) and by the type of project (construction vs. maintenance).¹⁷

Table 3. Non Project Levees: State and Local Cost-Shares

Type of Funding	Primary Zone	Secondary Zone	Notes	Reference
Construction				
State	<100%; <\$10M		<20% preconstruction costs	2014 Guidelines for Providing Funding to Local Agencies
Primary Zone	75%	50%-75%	Base up to ATP or LABA study max*	
Habitat	<100%	<90%	up to 40% over base funding	
Enhanced Shares				
Specific public purposes	<95%	<70%	up to 20%	
Net habitat improvement	<85%	<60%	up to 10% full mitigation	
Subsidence control	<85%	<60%	up to 10% control or reversal	
Ecosystem enhancement	<95%	<70%	10% additive to water supply reliability	
Water supply reliability	<95%	<70%	10% additive to ecosystem enhancement	
Third party match	<95%	<95%	50% state match	
Local	25%-0%	50%-5%		
Maintenance				
State	75% for >\$1,000/mi		Subject to ATP to 7/1/2018*	California Water Code section 12986
Local	\$1,000/mi + 25%			

*ATP – Ability to Pay; LABA, Local Agency Benefits Assessment

Delta Levees Subventions Program

The Subvention Program annually receives applications for grant funds for the operation, maintenance, repair or improvement of eligible levees and evaluates them according to goals for the Delta established in the *California Water Action Plan* and *The Delta Plan*¹⁸. According to the California Water Code, to be eligible for subvention funds RDs must have CVFPB-approved plans for the maintenance and improvement of their levees. DWR reviews applications and recommends reimbursement amounts for each RD to the CVFPB. Reimbursements are based on the maintenance cost shares described above in Table 3. Currently the State reimburses RDs for up to 75% of eligible costs associated with levee maintenance and improvements, after the District spends \$1,000 per mile.¹⁹ With CVFPB approval, DWR defines agreements with each RD,

¹⁷ California Department of Water Resources, Division of Flood Management, *Cost Share Guidelines for State-Local Cost Shared Flood Programs and Projects*, <http://www.water.ca.gov/floodmgmt/docs/Cost-Share-Guidelines-Final-12-11-14.pdf>, December 11, 2014.

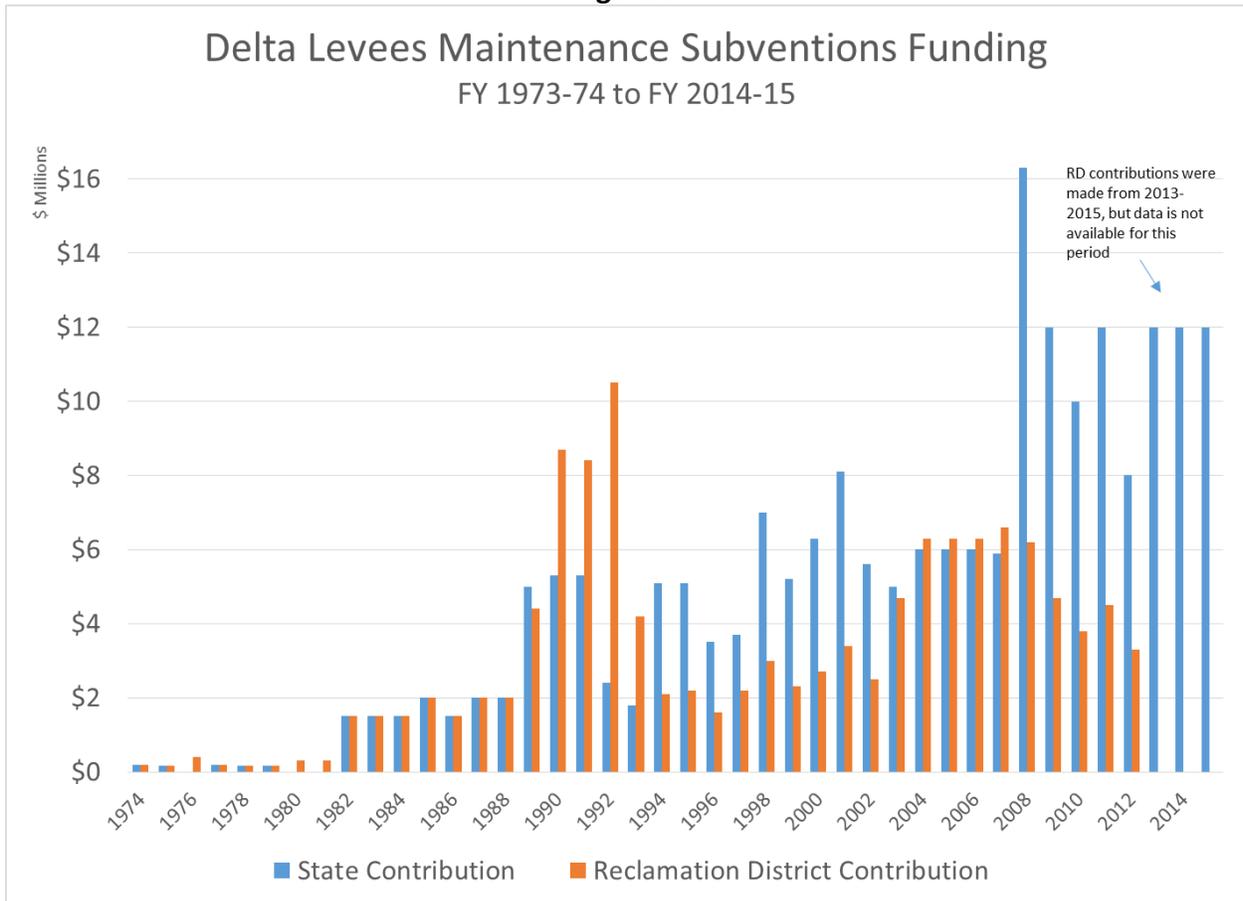
¹⁸ See FloodSAFE Delta Levees program websites: <http://www.water.ca.gov/floodsafe/fessro/deltalevees/subventions/> and http://www.water.ca.gov/floodsafe/fessro/deltalevees/special_projects/

¹⁹ DWR, Delta Levees Maintenance Subventions Program, Guidelines: Procedures and Criteria, Draft, http://www.water.ca.gov/floodsafe/fessro/deltalevees/subventions/docs/subventions_guidelines_2015draft.pdf, December 2015.

indicating what work is eligible for reimbursement and stipulating the potential maximum reimbursement. RDs conduct levee maintenance and improvements according to their own schedule, paying invoices as they proceed. At the end of the fiscal year, each RD submits a claim to DWR for reimbursement.

From fiscal years 2008-09 to 2014-15, the Delta Subventions program received approximately \$12 million annually in appropriations, with Proposition 1E bond funding expected to continue through 2018. State and local contributions to Delta flood protection through the Subventions program are shown in Figure 6. Over the life of the Subventions program, from 1973 to present, the state has invested more than \$205 million in local levee maintenance in the Delta. Data for the local shares after 2012 are not readily available.

Figure 6



Source: data provided by DWR’s Delta Levees Program

As reflected in Figure 6, the proportion of state subvention reimbursement, currently defined by statute as up to 75% of total project costs, has changed over time. During some periods (e.g. from 1982 to 1998 and 2004 to 2007) the program only reimbursed 50% of total costs. The total funding level authorized by the Legislature caps total state expenditures. In fiscal years 2014-15 and 2015-16, local RDs have applied for funding in the amount of \$50.3 and \$52.6 million, respectively. In 2014-15, \$12 million was awarded; the 2015-16 amount is still being determined.

Requests for funding often exceed available funds; DWR must identify those projects that are most critical and beneficial to achieve flood control and other goals in the Delta. In the Subventions Program Guidelines, the most current version of which was adopted by the CVFPB in 2011²⁰, DWR defines program priorities in terms of different types of levee work and standards, along with maximum reimbursable amounts for each type of work. The first priority is levee maintenance up to the geometric Bulletin 192-82 standards,²¹ for the associated land use. The next priority level includes CVFPB-mandated top-priority funding items, projects that make special habitat provisions, and projects based on meeting the Short-Term Hazard Mitigation Plan (HMP) standards, or Bulletin 192-82 or PL 84-99 standards.²² Lower priorities include levee work which costs more than an average of \$100,000 per levee mile and work in excess of Bulletin 192-82 standards.

Funding provided to RDs through the Delta Levees Maintenance Subventions program is distributed broadly throughout the Delta's primary zone.²³ The following map in Figure 7 shows how Subventions funds have been dispersed among RDs cumulatively from 1987 to 2013.²⁴ Note that spending has been highest in the central Delta region which corresponds with the greatest flooding hazard.²⁵

²⁰ DWR FESSRO, Delta Levees Maintenance Subventions Program Guidelines: Procedures and Criteria, Adopted by the Central Valley Flood Protection Board, http://www.water.ca.gov/floodsafe/fessro/docs/subventions_guidelines.pdf, September 23, 2011

²¹ A set of agricultural and urban levee standards specific to the Delta developed by DWR in 1982. These standards are higher than the Hazard Mitigation Plan (HMP) Standard, which was a minimum, short-term, interim standard created by the Federal Emergency Management Agency (FEMA), DWR, and RDs following 1983 and 1986 flooding events, as a precondition for receiving FEMA disaster assistance.

²² PL 84-99 standards are a minimum standard for all federal flood control project levees, created by the Army Corps of Engineers in response to Public Law (PL) 84-99.

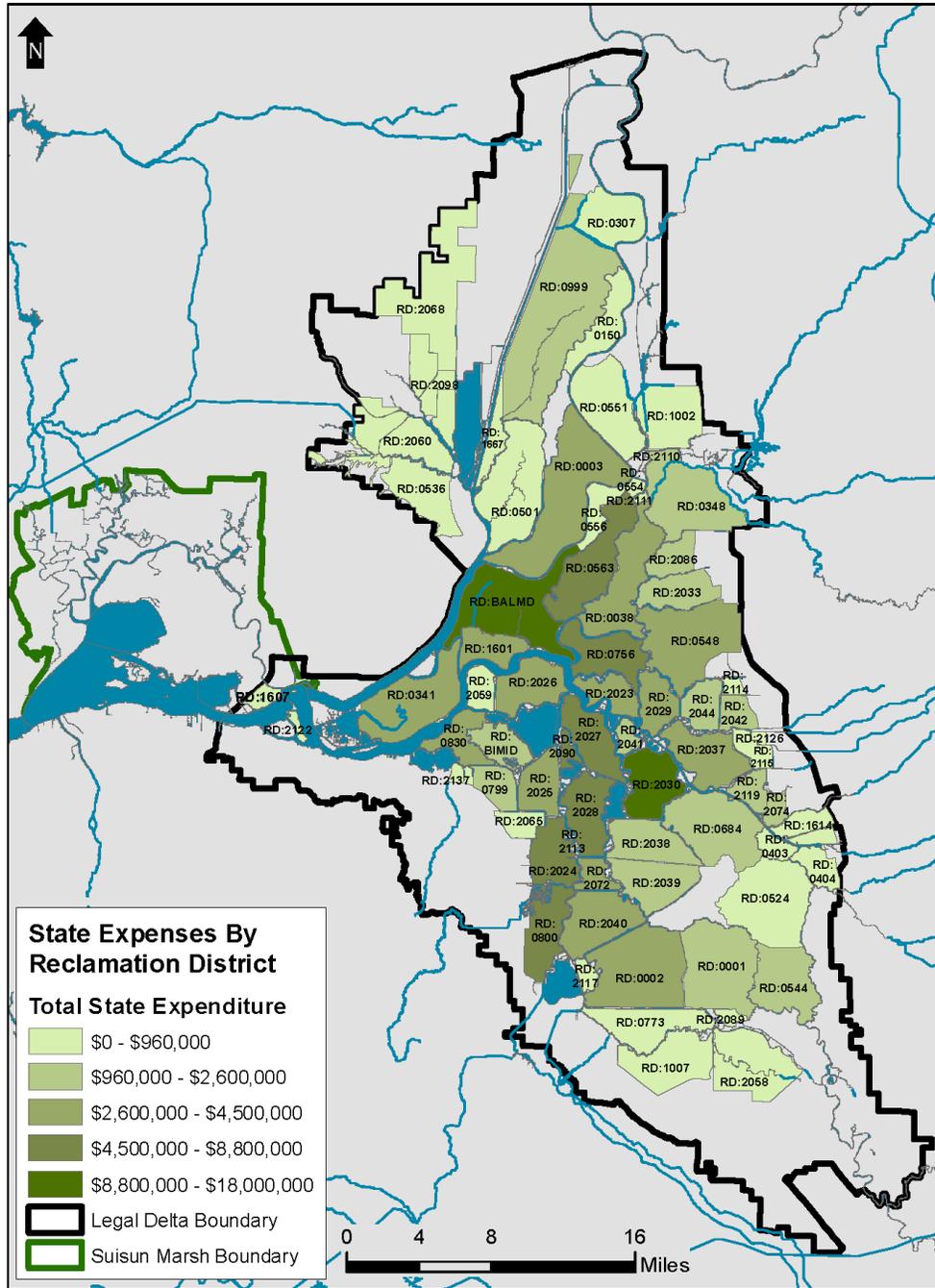
²³ Primary zones were created under the 1992 Delta Protection Act. No new development is allowed in a primary zone; the secondary zone includes urban areas around the perimeter of the legally-defined Delta. The boundary between the two zones was determined by political compromise rather than a specific geographical standard. Subventions are not limited to the primary zone, but in practice do go mainly to the primary zone.

²⁴ DSC, "Delta Council Meeting - 02/26/2015," Meeting Agenda Materials, <http://deltacouncil.ca.gov/event-detail/11646>.

²⁵ "Hazard" is the measure of the probability of an adverse event without estimating the consequences of that event. For example, the hazard of flooding an island devoid of any economic activity might be high since no one is interested in flood protection because the consequences are small.

Figure 7

Delta Levees Maintenance Subventions Program Expense (1987 - 2013)



Delta Reclamation Districts

SOURCE: DSC - Delta Plan Atlas, Department of Water Resources - FESSRO, and Esri ArcMap 10.2

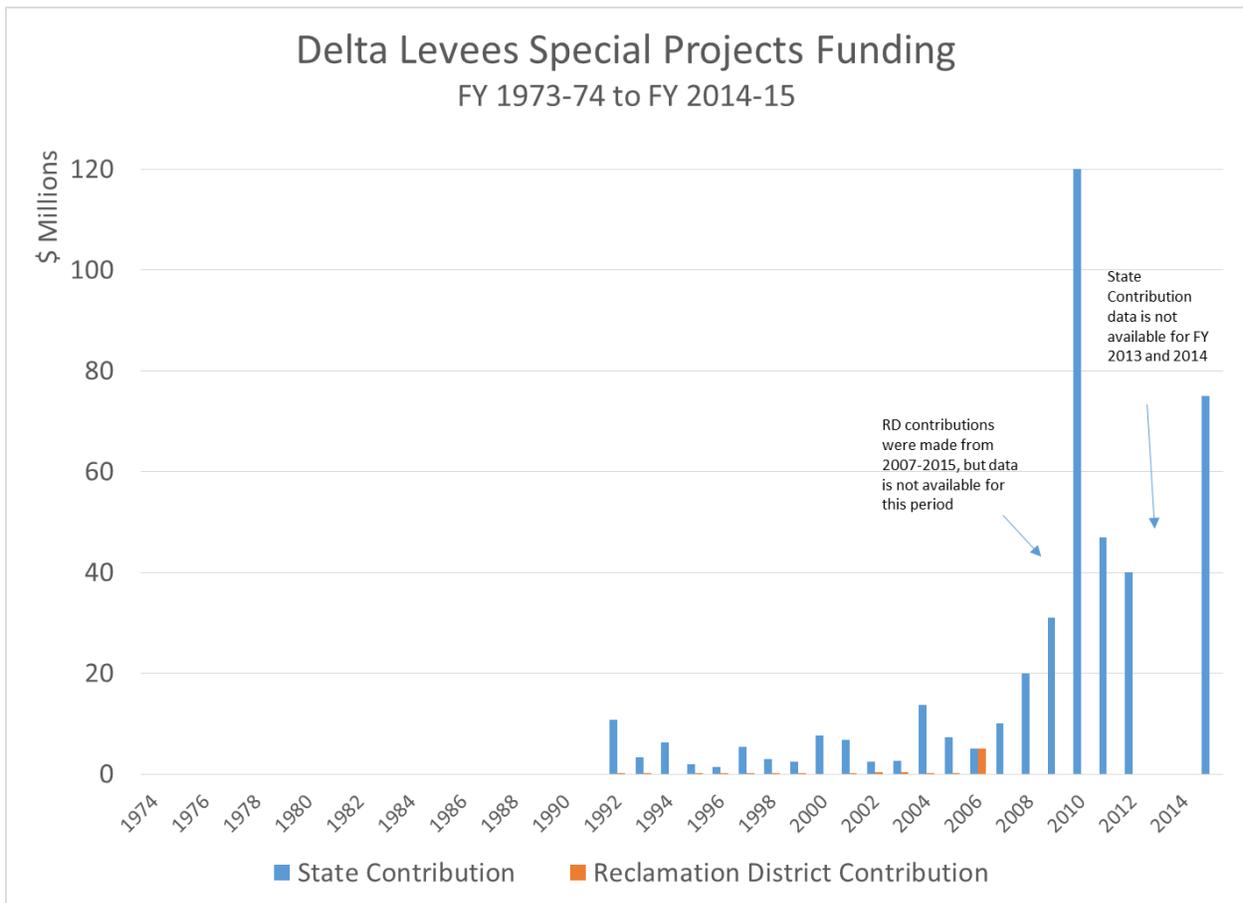
February 18, 2015

Delta Special Flood Control Projects Program (Special Projects)

The Legislature established the Delta Special Flood Control Projects Program under the Delta Flood Protection Act of 1988, though it was not funded until 1992. The California Legislature authorized the Special Projects Program to fund levee improvements in the eight western Delta islands and communities of Walnut Grove and Thornton, with the specific goal of improving local levees to facilitate export water supply reliability²⁶. Today, improvements to project and non-project levees in the Delta’s primary zone, and non-project levees in the Delta’s secondary zone, are eligible for funding.

Special Projects funding levels have varied over the course of the program, with expenditures ranging from an average of \$4 million annually in the 1990s to an average of \$40 million since 2007 after Proposition 84 and Proposition 1E funding became available, with a high of \$120 million in 2010. Figure 8 shows state and local contributions by reclamation districts to the Special Projects program from 1992 to present.

Figure 8



Source: data provided by DWR’s Delta Levees Program

²⁶ Under Senate Bill 34; 1988.

Under the program, DWR awards grants to RDs for levee stability improvements, flood risk reduction initiatives, emergency preparedness and response, habitat improvements, subsidence control, and studies to guide program implementation. DWR periodically issues Projects Solicitation Packages (PSPs) designed to achieve specific goals. The PSPs include eligibility criteria and types of work to be performed, and may identify specific Delta corridors of importance to the State and federal water projects to be given priority in that funding round. DWR selects projects for funding based on Program priorities and the project's ability to improve export reliability and create long term ecosystem enhancements. The cost-share is based on the Construction category shown in Table 3, above. Before an agreement is reached, DWR and the RD estimate project expenses and negotiate cost shares based on the project category (e.g., levees; habitat) and the RD's ability to pay, as determined by an Ability to Pay Study.²⁷ Work agreements are signed by the RD, Department of Fish and Game, and DWR. Like the Subventions program, Special Projects financing allows the RD to contract its own work and retain liability for construction and ongoing maintenance.

DWR maintains a list of special projects by island/tract, project cost, description and state/local share.²⁸ Of note is that Special Project reimbursements to reclamation districts are higher than the revenues from the State to those districts reported by the State Controller's Office in some years as shown in Appendix B. This may be because many Special Projects from past funding years are still in progress and therefore not yet reimbursed by the state.

The Special Projects program concentrates on projects in the western and central Delta. The following map in Figure 9 shows how cumulative funding from 1997 to 2014 has been distributed among Delta RDs, confirming this geographic concentration of funding.²⁹ According to 2014 Special Projects guidelines, future funding under the Program will focus on multi-benefit projects that help simultaneously improve the environment, flood management, and water supply reliability, in keeping with the *Governor's Water Action Plan*.

²⁷ In 1996 California Water Code Section 12986 was amended to require applicants to provide information on the District's ability to pay in their application for funds under the Delta Levees Programs.

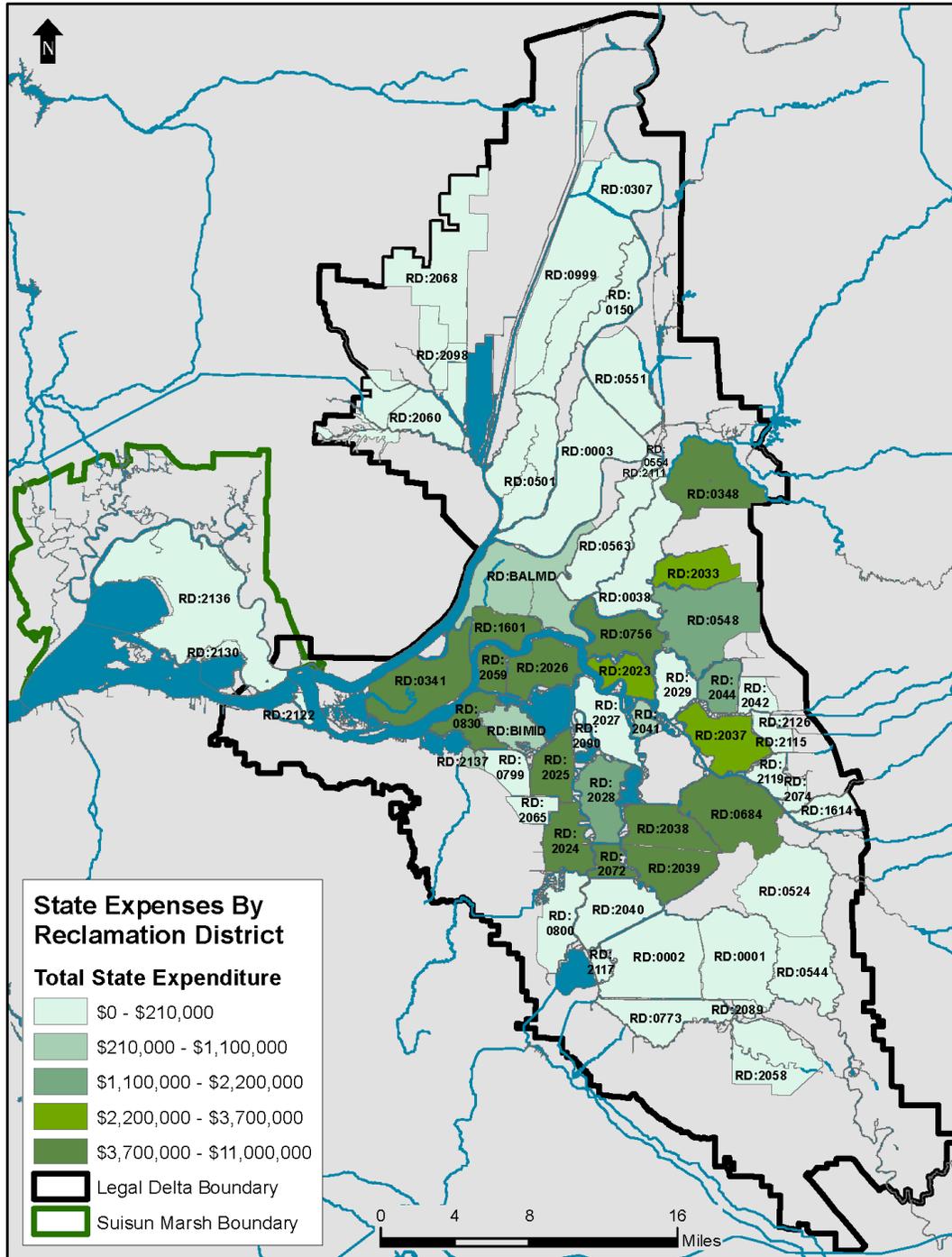
²⁸ DWR, Delta Levees Special Flood Control Projects, Active Projects List (Updated 08-14-2015), http://www.water.ca.gov/floodsafe/fessro/deltalevees/special_projects/docs/special_active_projects.pdf

²⁹ Delta Stewardship Council, "Delta Council Meeting - 02/26/2015," Meeting Agenda Materials, <http://deltacouncil.ca.gov/event-detail/11646>.

Figure 9

Delta Levees Special Flood Control Projects Program Expenses (1997 - 2014)

Agenda Item 8
Attachment 2



Delta Reclamation Districts

SOURCE: Delta Plan Atlas, Department of Water Resources - FESSRO, and Esri ArcMap 10.2

LOCAL RECLAMATION DISTRICT FINANCING

Individual reclamation districts raise the funding necessary to support local drainage systems and meet local cost-share requirements associated with the Delta Subventions and Special Projects programs. Under California law, RDs have authority to use assessments and charge fees for services, such as provision of water or drainage, and may have access to other local tax revenue at their disposal. RDs may also issue bonds to finance improvement projects. (The DFRMADFS Project Memorandum titled “Current Legal and Institutional Context for Financing Flood Protection” describes the legal parameters for financing by RDs.)

Nearly all RDs in the Delta use assessments, which comprise the largest component of local funding. From 2009 to 2013, according to State Controller’s Office data, local assessments made up 90% of local RD revenues (i.e. non-state, non-federal revenues).³⁰ Under this financing approach, all property in the district that receives special benefit from levee and drainage system improvements is assessed on an annual basis. “Special benefit” is defined according to Proposition 218 as a “particular and distinct benefit over and above general benefits conferred on real property located in the district or to the public at large.”³¹ Assessments, in turn, may be used for design, construction, operation and maintenance of reclamation works.

To set or increase assessments, an engineering report must determine the cost of necessary project improvements and develop an allocation of assessments based on the proportionate benefits of the improvements to each landowner. The district must also determine the general benefit to the greater community, as it is only allowed to recover costs from landowners to the degree that they receive a special benefit from the improvement. This process is followed by public meetings, comment periods and a local vote by property owners on the assessment.³²

The assessment for each landowner appears on the landowner’s property tax bill for that year. Assessments are considered a lien against the property receiving the special benefit; the property can be sold to pay for overdue assessments.

According to State Controller’s Office data, over the five-year period from 2009 to 2013, Delta RDs collected approximately \$124 million in property assessments.³³ Table 4 summarizes local property assessment revenues among RDs during this period across different Delta regions. This reflects 90% of total local revenues, which amounted to \$137 million. Additional local revenue sources can include a portion of local property taxes, other voter approved ad-valorem property taxes, and other local assessments. Total reported revenue for the period was \$328 million, including \$168 million in reimbursement from state sources. The remainder came from

³⁰ During this period only five RDs charged fees for services.

³¹ Cal. Const., Art. XIII D, § 2, subd. (i).

³² California Central Valley Flood Control Association, *An Overview of California Reclamation and Levee Districts*. <http://www.cvflood.org/Documents/Overview%20of%20RD.pdf>, (undated).

³³ State Controller’s Office data from Delta Stewardship Council July 23-24, 2015 Meeting Agenda Item 15 Reclamation District Funding and Financing report. <http://deltacouncil.ca.gov/docs/delta-stewardship-council-july-23-24-2015-meeting-agenda-item-15-reclamation-district-funding>.

other government sources, charges for service, interest, and rents.³⁴ Annual assessments range from zero for more than 15 districts in some or all years, to more than \$18 million in a single district. For the period from 2009 to 2013 the average revenue from local assessments was \$307,000 for each of the 89 districts. According to SCO data, the RDs spent \$260 million over that period on flood control and drainage work and supplies (the “services and supplies” data category in SCO data being the closest approximation), with the remainder spent on salaries, benefits, insurance, and debt service.

Table 4. Local Property Assessment Revenues to Delta Reclamation Districts

RD location	2009	2010	2011	2012	2013
North Delta Water Agency jurisdiction	\$6,284,662	\$6,053,513	\$6,927,101	\$5,802,731	\$6,019,858
Central Delta Water Agency jurisdiction	\$9,383,876	\$9,825,906	\$9,606,389	\$9,754,252	\$9,635,826
South Delta Water Agency jurisdiction	\$20,646,173	\$8,322,922	\$5,187,984	\$5,000,167	\$5,323,761
Total Revenues	\$36,314,711	\$24,202,341	\$21,721,473	\$20,557,149	\$20,979,445

Source: Central Valley Flood Protection Board

³⁴ The total revenue figure includes \$168 million in reimbursements from state programs and \$36 million from other local sources, income on property and other government sources.

APPENDIX A - SUBVENTIONS AND SPECIAL PROJECTS ANNUAL DISBURSEMENTS AND RECLAMATION DISTRICT CONTRIBUTIONS

(\$1000s)		Delta Levees Subventions		Delta Levees Special Projects	
Fiscal Year	Year	State Contribution	RD Contribution	State Contribution	RD Contribution
1973-74	1974	\$200	\$200		
1974-75	1975	\$175	\$175		
1975-76	1976		\$400		
1976-77	1977	\$190	\$190		
1977-78	1978	\$175	\$175		
1978-79	1979	\$175	\$175		
1979-80	1980		\$300		
1980-81	1981		\$300		
1981-82	1982	\$1,500	\$1,500		
1982-83	1983	\$1,500	\$1,500		
1983-84	1984	\$1,500	\$1,500		
1984-85	1985	\$2,000	\$2,000		
1985-86	1986	\$1,500	\$1,500		
1986-87	1987	\$2,000	\$2,000		
1987-88	1988	\$2,000	\$2,000		
88-89	1989	\$5,000	\$4,400		
89-90	1990	\$5,300	\$8,700		
90-91	1991	\$5,300	\$8,400		
91-92	1992	\$2,400	\$10,500	\$10,800	\$100
92-93	1993	\$1,800	\$4,200	\$3,300	\$100
93-94	1994	\$5,100	\$2,100	\$6,300	
94-95	1995	\$5,100	\$2,200	\$1,900	\$100
95-96	1996	\$3,500	\$1,600	\$1,400	\$200
96-97	1997	\$3,700	\$2,200	\$5,300	\$100
97-98	1998	\$7,000	\$3,000	\$3,000	\$100
98-99	1999	\$5,200	\$2,300	\$2,400	\$100
99-00	2000	\$6,300	\$2,700	\$7,700	
00-01	2001	\$8,100	\$3,400	\$6,700	\$100
01-02	2002	\$5,600	\$2,500	\$2,400	\$400
02-03	2003	\$5,000	\$4,700	\$2,600	\$300
03-04	2004	\$6,000	\$6,300	\$13,700	\$100
04-05	2005	\$6,000	\$6,300	\$7,300	\$200
05-06	2006	\$6,000	\$6,300	\$5,000	\$5,000
06-07	2007	\$5,900	\$6,600	\$10,000	
07-08	2008	\$16,300	\$6,200	\$20,000	
08-09	2009	\$12,000	\$4,680	\$31,000	
09-10	2010	\$10,000	\$3,800	\$120,000	

Delta Flood Risk Management Assessment District Feasibility Study

(\$1000s)		Delta Levees Subventions		Delta Levees Special Projects	
Fiscal Year	Year	State Contribution	RD Contribution	State Contribution	RD Contribution
10-11	2011	\$12,000	\$4,500	\$47,000	
11-12	2012	\$8,000	\$3,300	\$40,000	
12-13	2013	\$12,000	NA		
13-14	2014	\$12,000	NA		
14-15	2015	\$12,000	NA	\$75,000	
Total:		205,515	124,795	422,800	6,900

Notes: local RD contributions are not available beyond 2012 for the subventions program and 2006 for the Special Projects program.

APPENDIX B - STATE CONTROLLER'S OFFICE FINANCIAL DATA ON DELTA RECLAMATION DISTRICTS

Total revenues and expenditures by reclamation districts, grouped by membership in each of the three Delta Water Agencies (DWAs).

Total Revenues					
	2009	2010	2011	2012	2013
North DWA	23,704,626	23,407,195	18,711,247	23,385,648	18,245,993
Central DWA	21,612,293	26,763,818	29,683,054	49,846,267	28,912,151
South DWA	23,834,291	11,997,185	8,163,687	10,381,422	9,193,248
Total Revenues	69,151,211	62,168,198	56,557,988	83,613,337	56,351,392
State Revenues					
North DWA	16,546,334	16,618,983	10,573,175	16,419,915	11,683,619
Central DWA	7,108,880	13,282,420	17,000,315	33,460,872	12,724,298
South DWA	1,275,900	2,522,993	1,502,155	4,390,287	2,727,548
Total Revenues	24,931,114	32,424,396	29,075,645	54,271,074	27,135,465
Local Assessments					
North DWA	6,284,662	6,053,513	6,927,101	5,802,731	6,019,858
Central DWA	9,383,876	9,825,906	9,606,389	9,754,252	9,635,826
South DWA	20,646,173	8,322,922	5,187,984	5,000,167	5,323,761
Total Revenues	36,314,711	24,202,341	21,721,473	20,557,149	20,979,445
Other Revenues					
North DWA	873,630	734,699	1,210,971	1,163,002	542,516
Central DWA	5,119,537	3,655,491	3,076,349	6,631,143	6,552,027
South DWA	1,912,218	1,151,270	1,473,548	990,969	1,141,939
Total Revenues	7,905,386	5,541,461	5,760,869	8,785,114	8,236,482
Total Expenditures					
North DWA	27,731,732	18,214,401	19,460,873	18,878,162	21,849,746
Central DWA	29,438,876	26,472,688	25,070,088	47,369,579	43,961,008
South DWA	10,574,786	15,873,495	11,745,078	6,828,439	7,661,586
Total	67,745,393	60,560,584	56,276,039	73,076,180	73,472,340

State Funds as a portion of Total Revenues					
	2009	2010	2011	2012	2013
North DWA	70%	71%	57%	70%	64%
Central DWA	33%	50%	57%	67%	44%
South DWA	5%	21%	18%	42%	30%