Agenda Item 11
Attachment 1

Attachment A
Special Projects Levee Repair and Improvement PSP
Staff Recommended Aqueduct Protection Projects[1]

	Project	LMA Name	LMA #	RD Engr. or Rep.	Project Type[2]	Project Description	Score	Project Cost	Requested State Cost Share	Final State Cost Share	Final State Cost Share
STAFF RECOMMENDED PROJECTS	A	Upper Jones Tract	2039	Green Mtn.	HMP	Design & const. raise 19,500 ft to HMP.	51	$1,843,444	95%	90%	$1,659,100
	B	Lower Roberts Island	684	Green Mtn.	PL 84-99	Design & const. 16,400 slope & crown improvements, 3,100 ft. stability berm.	84	$4,015,328	95%	85%	$3,413,029
	C	Upper Jones Tract	2039	Green Mtn.	PL 84-99	Design & const. 9,600 ft. PL 84-99 slope, 5,700 ft. PL 84-99 stability berm.	79	$4,054,526	95%	85%	$3,446,347
	D	Lower Roberts Island	684	Green Mtn.	PL 84-99	Design & const. 8,200 ft HMP improvements, 7,050 slope protection.	74	$3,157,895	95%	85%	$2,684,211
	E	Orwood & Palm Tracts	2024	Green Mtn.	PL 84-99	Design & const. 30,100 ft. PL 84-99 Slope, 2,500 ft. PL 84-99 stability berm.	74	$5,513,158	95%	85%	$4,686,184
	F	Orwood & Palm Tracts	2024	Green Mtn.	PL 84-99	Design & const. 7,400 ft. PL 84-99 slope, 5,500 ft. PL 84-99 stability berm.	64	$3,093,864	95%	85%	$2,629,784
	G	Woodward Island	2072	Green Mtn.	PL 84-99	Design & const. of 10,100 ft. PL 84-99 slope, Habitat Enhancement Levee, etc.	63	$5,244,158	95%	85%	$4,457,534
	H	Woodward Island	2072	Green Mtn.	PL 84-99	Design & const. 22,500 ft. PL 84-99 crown raise, 24,500 ft. PL 84-99 slope.	60	$5,225,942	95%	85%	$4,442,051
	I	Upper Jones Tract	2039	Green Mtn.	PL 84-99	Design & const. 9,600 PL 84-99 slope, 8,900 PL 84-99 stability berm.	59	$3,573,983	95%	85%	$3,037,886
	J	Lower Jones Tract[3]	2038	Green Mtn.	PL 84-99	Design & const. 9,500 ft. PL 84-99 slope, 10,000 ft. PL 84-99 stability berm.	59	$5,540,216	95%	85%	$4,709,184
	K	Lower Jones Tract[3]	2038	Green Mtn.	PL 84-99	Design & const. 14,000 ft. PL 84-99 slope, 6,500 ft. PL 84-99 stability berm.	59	$5,538,467	95%	85%	$4,707,697
	L	Upper Jones Tract	2039	Green Mtn.	PL 84-99	Design & const. 800 ft. sheetpile scour protection	50	$1,815,926	90%	85%	$1,543,537

Total Recommended Project Cost (A thru J)= $41,262,514 **Total State Share = $35,165,309**
Total Project Cost (A thru L)= $48,616,907

(1) Staff recommended projects are not final until approved.
(2) Per the Near-Term Guidelines, approved by DWR Director February 16, 2010, it is the State's goal to raise Delta Levees to HMP standards.
(3) LMA will have the choice to complete one of the two projects.

Attachment B

Levee Repair and Rehabilitation Projects Solicitation Package

DELTA LEVEES SPECIAL FLOOD CONTROL PROJECTS

PROJECTS SOLICITATION PACKAGE FOR LEVEE REPAIR AND IMPROVEMENT PROJECTS

February 16, 2010

Special Projects
SOLICITATION PACKAGE

The California Department of Water Resources invites you to submit a Delta Levees Special Flood Control Projects proposal under the Near-Term Special Projects Guidelines (Near-Term Guidelines or Guidelines).

This solicitation specifically seeks levee repair and improvement Projects that improve the stability of the levee system ("Levee Stability" Projects). The process used to select among qualified proposals shall prioritize Projects that improve conditions for delta smelt and other native fish. This solicitation also seeks proposals for levee improvement Projects that protect municipal or industrial water supply aqueducts that cross the Delta ("Delta Aqueduct Levee Projects") and any levee repair or improvements meeting the requirements of Senate Bill X7 8. This solicitation has been prepared in accordance with the California Water Code Section 8302(b)(5) and California Water Code Section 8302(a)(1). One hundred million dollars ($100 million) from Propositions 1E and 84 will be made available for these projects.

PROPOSAL DUE DATE

March 26, 2010
Hand-delivered by close of business or postmarked

PROPOSAL SUBMITTAL

Please submit three hard copies of the proposal to:

Mike Mirmazaheri, Program Manager
Department of Water Resources
Delta Levees Program
1416 Ninth Street, Room 1641
Sacramento, California 95814

Proposals submitted by mail must be postmarked by March 26, 2010.

Submittal should be limited to 50 pages (not including attachments).

QUESTIONS? NEED ASSISTANCE? CONTACT:

Jon Wright	OR	Andrea Lobato
Department of Water Resources		Department of Water Resources
(916) 651-7010		(916) 651-9295
jwright@water.ca.gov		alobato@water.ca.gov

For an electronic copy of the Projects Solicitation Package, please go to http://www.water.ca.gov/floodmgmt/dsmo/bdlb/spp

Delta Levees Special Flood Control Projects

Levee Repair and Improvement Projects

Projects Solicitation Package (PSP)

1. BACKGROUND

On November 7, 2006 California voters approved Proposition 1E and Proposition 84 which provided funds to Local Agencies in the Delta through the Delta Special Projects program.

In September, 2008, the Legislature approved Senate Bill X2 1. Senate Bill X2 1 provided, among other things, $100 million for flood control Projects that improve the stability of the levee system, reduce subsidence, and assist in restoring the ecosystem of the Delta. The process used to select among proposals shall prioritize Projects that improve conditions for delta smelt and other native fish. *See* California Water Code Section 8302(b)(5). Senate Bill X2 1 also provided $35 million for flood control Projects that increase the protection provided to municipal and industrial water supply aqueducts that cross the Delta. *See* California Water Code Section 8302(a)(1). Additionally, Senate Bill X7 8, which was signed into law by Governor Schwarzenegger on November 6, 2009, allocates $202 million for levee improvement projects.

On February 16, 2010, the Department of Water Resources published the Final Near-Term Guidelines to solicit proposals for the Special Projects (cited here as the Guidelines). These Guidelines offer details on the purpose, process and requirements of the Special Projects project selection. The draft Guidelines were made available for public comment for 30 days, and ultimately extended an additional 7 days to close on December 7, 2009. The Department collected, analyzed and/or integrated all comments and on February 16, 2010 issued the final version of the Guidelines. The Guidelines are incorporated as part of this PSP. All definitions of terms and all requirements for Projects under the Guidelines apply equally to this PSP. A copy of the Final Special Projects Near-Term Guidelines is available at [http://www.water.ca.gov/floodmgmt/dsmo/bdlb/spp.

This PSP provides a synopsis of the application process and Guidelines requirements, an application timeline, and the eligibility, ranking and cost-share criteria for the flood control Projects that qualify for this PSP. If this PSP does not cover requirements discussed in the Guidelines, the Applicant is not excused from performance as the Guidelines remain in control.

2. ELIGIBLE APPLICANTS

An Applicant must be a Local Agency responsible for maintaining a Project or Non-Project levee in the Primary Zone of the Delta or a Non-Project levee in the Secondary Zone of the Delta.

3. ELIGIBLE PROJECTS

Proposed projects must improve the stability of the Delta levee system, reduce subsidence and/or assist in restoring the ecosystem of the Delta. Projects that qualify for this funding will be ranked against similarly qualified Projects using the ranking criteria described below.

4. AVAILABLE FUNDS

This PSP solicits proposals for $100 million. The fund sources for this PSP are Propositions 1E and 84. As stated, these funds are for Projects that provide levee repair and improvement in the Delta

5. APPLICATION AND SELECTION PROCESS

Applications must be submitted (either in person, by courier or postmarked) by 4:00 p.m. on March 26, 2010. Project proposals that do not meet this deadline will not be reviewed. The Department will review all timely submittals for completeness. Proposals that are not substantially complete will not be further reviewed. The Department may contact proponents of proposals that are substantially complete but missing some items. If a Local Agency is contacted by the Department with a request for more materials, it will have one week to provide all requested information.

Complete applications will be reviewed to determine whether they meet the general requirements, general project eligibility criteria, and specific project eligibility criteria.

Once an application is deemed complete and eligible, it will be ranked using the selection criteria provided below. After the highest ranked Projects are selected and the available funds are committed, the Department will issue tentative award letters to successful Applicants. Successful Applicants must enter into a Funding Agreement with the Department before any funds will be disbursed.

Award letters will tentatively be issued in May 2010. The Local Agency will develop and submit to the Department a detailed Scope of Work. In addition, the Department and Local Agency will negotiate a Funding Agreement. The Funding Agreement must be executed on or before June 30, 2010, unless, at its sole discretion, the Department extends this deadline.

Consistent with the Guidelines, the Department may, at its discretion, issue additional PSPs or exercise its discretion to use direct expenditures if proposals funded under this PSP do not use all available funding.

A. Eligibility Requirements

All complete applications must meet the general eligibility criteria described in the Near-Term Guidelines. In addition, all projects proposed under this PSP must meet the specific criteria shown in the checklist in Appendix L1. Applicants should complete this checklist and include it with their submittal; this list asks whether each criterion is met and, if so, where it is demonstrated in the proposal.

B. Ranking

All complete and eligible proposals will be ranked according to the category of Project proposed (i.e. Levee Stability HMP, Levee Stability Delta Specific PL 84-99, Delta Aqueduct Levee Project HMP or Delta Aqueduct Levee Delta Specific PL 84-99). As a general matter, HMP proposals will be funded before the Department funds Delta Specific PL 84-99 proposals, assuming they meet all minimum requirements. The highest ranked proposals will be selected for funding subject to available funds based on an estimate of the total Project cost and the estimated State cost-share.

The Department reserves the right to deny proposals that do not adequately meet the dictates of California Water Code Sections 12310-12318.

Local Agencies must offer sufficient information for the Department to evaluate its proposal under each criterion. Any criterion that is not met will receive a score of zero for that component. The Department retains discretion to check the reasonableness and accuracy of submitted materials.

i. Levee Stability HMP[1]

Criterion	Score	Notes
Life Safety (Number of People Protected)	70 = 5000 and above 35 = 1000 to 4999 15 = 1 to 999	This criterion rates each Project based on the total number of people the Project would protect.
Construction	60 = within one season 30 = within two season 15 = more than two seasons	Schedule to bring all the Districts levees up to HMP standards

[1] HMP Project proponents should be aware that Local Agencies seeking to raise a levee beyond HMP status must demonstrate that all of the levees and flood protection facilities in their jurisdiction have been raised to HMP.

i. Levee Stability HMP (Continued)

Criterion	Score	Notes
Habitat Impacts and Mitigation	**Maximum 18 points** 18 = Project avoids or mitigates habitat impacts prior to time of construction. 9 = Project avoids or mitigates its habitat impacts at time of construction. 5 = Project accurately describes unavoidable habitat impacts and describes how these impacts will be mitigated at a future date. 0 = Project does not accurately describe its habitat impacts nor adequately provide for their avoidance or mitigation.	Local Agency to offer documentation of consultations with the California Department of Fish and Game to substantiate the assertions in their application.
Habitat Improvement and Ecosystem Restoration Target Habitats Delta smelt and other native fish Ecosystem Benefits	**Maximum 20 points** (components below can be additive) 5 = Project includes habitat enhancement and/or restoration of targeted habitats (Appendix H1) 5 = Project creates habitat that improves conditions for delta smelt and other native fish (Appendix H2) 5 = Project demonstrates ecosystem benefits (Appendix H3) including landscape and hydrologic connectivity and improved conditions for other Delta T&E species.	Points will be awarded based on anticipated ecological benefits

i. Levee Stability HMP (Continued)

Criterion	Score	Notes
Approach and Feasibility	5 = Project describes a well thought out and feasible approach to restoration (Appendix H4). 0 = Proposal's habitat features, benefits and approaches are not described or are not consistent with current understanding of the improvements required for the health of the Delta Ecosystem.	Points will be awarded based on the quality of the restoration approach and technical qualifications.
Project description and permits	12 = Application contains a complete Project Description, identifies needed permits and outlines a clear plan to obtain permits in a timely way to ensure project can proceed to construction within 6 months.	This criterion evaluates the completeness of the Project Description and thoroughness of Local Agency's plan to obtain the required permits (e.g., an identification of all required permits with corresponding budget and timeline).
Partnerships	20 = 50% or more 15 = 40% to 49% 10 = 25% to 39% 5 = 24% or less	Percentage of Total cost-share that will be provided by an outside party, partnered with the Local Agency.

ii. Levee Stability Delta Specific PL 84-99

Criterion	Score	Notes
Life Safety (Number of People Protected)	40 = 5000 and above 25 = 1000 to 4999 10 = 1 to 999	This criterion rates each Project based on the total number of people the Project would protect.
Infrastructure State Highways Emergency Local Assets Water Conveyance Facilities	**Maximum 40 points** 10 = Project will increase protection of a state highway 10 = Project increases protection of emergency infrastructure 10 = Project increases protection of local assets 10 = Project increases protection to water conveyance facilities	Protection of utilities, roads, services, fuel center, and food centers, etc. Project provides protection to local assets, such as local businesses, agricultural operations and facilities, local transportation routes, etc
Water Quality	25 = Project contributes to protecting Delta water quality	Protects the quality of water by limiting salinity intrusion, contamination, etc.
Habitat Impacts and Mitigation	**Maximum 25 points** 25 = Project avoids or mitigates habitat impacts prior to time of construction. 15 = Project avoids or mitigates its habitat impacts at time of construction. 8 = Project accurately describes unavoidable habitat impacts and describes how these impacts will be mitigated at a future date. 0 = Project does not accurately describe its habitat impacts nor adequately provide for their avoidance or mitigation.	Local Agency to offer documentation of consultations with the California Department of Fish and Game to substantiate the assertions in their application.

ii. Levee Stability Delta Specific PL 84-99 (Continued)

Criterion	Score	Notes
Habitat Improvement and Ecosystem Restoration	**Maximum 30 points** (components below can be additive)	Points will be awarded based on anticipated ecological benefits
Target Habitats	10 = Project includes habitat enhancement and/or restoration of targeted habitats (Appendix H1)	
Delta smelt and other native fish	10 = Project creates habitat that improves conditions for delta smelt and other native fish (Appendix H2)	
Ecosystem Benefits	5 = Project demonstrates ecosystem benefits (Appendix H3) including landscape and hydrologic connectivity and improved conditions for other Delta T&E species.	
Approach and Feasibility	5 = Project describes a well thought out and feasible approach to restoration (Appendix H4). 0 = Proposal's habitat features, benefits and approaches are not described or are not consistent with current understanding of the improvements required for the health of the Delta Ecosystem.	Points will be awarded based on the quality of the restoration approach and technical qualifications.
Project description and permits	20 = Application contains a complete Project Description, identifies needed permits and outlines a clear plan to obtain permits in a timely way to ensure project can proceed to construction within 6 months.	This criterion evaluates the completeness of the Project Description and thoroughness of Local Agency's plan to obtain the required permits (e.g., an identification of all required permits with corresponding budget and timeline).

ii. Levee Stability Delta Specific PL 84-99 (Continued)

Criterion	Score	Notes
	10 = Application contains a complete Project Description, identifies needed permits and outlines a satisfactory plan to obtain permits in the foreseeable future 0 = Project Description, permit description and plan to obtain permits is unsatisfactory	
Partnerships[2]	20 = 50% or more 15 = 40% to 49% 10 = 25% to 39% 5 = 24% or less	Percentage of Total cost-share that will be provided by an outside party, partnered with the Local Agency.

iii. Delta Aqueduct Levee Project HMP[3]

Criterion	Score	Notes
Levee proximity to aqueduct	20 =Project raises the levee to the intended level of protection out to 1500 feet from the Delta Aqueduct to be protected 10 = Project raises the levee to the intended level of protection out to 1000 feet from the Delta Aqueduct to be protected 5 = Project raises the levee to the intended level of protection, but less than 500 feet from the Delta Aqueduct to be protected	Additional Delta Aqueduct Project factor.

[2] Any Local Agency bringing third party funds into the proposed project will receive a 50% matching from State. This criterion is limited to the 95% maximum State cost-share of the Local Agency expenditures or the eligible project cost.
[3] HMP Project proponents should be aware that Local Agencies seeking to raise a levee beyond HMP status must demonstrate that all of the levees and flood protection facilities in their jurisdiction have been raised to HMP.

iii. Delta Aqueduct Levee Project HMP (Continued)

Criterion	Score	Notes
Life Safety (Number of People Protected)	60 = 5000 and above 30 = 1000 to 4999 15 = 1 to 999	This criterion rates each Project based on the total number of people the Project would protect.
Construction	50 = within one season 25 = within two season 10 = more than two seasons	Schedule to bring all the Districts levees up to HMP standards
Habitat Impacts and Mitigation	**Maximum 18 points** 18 = Project avoids or mitigates habitat impacts prior to time of construction. 9 = Project avoids or mitigates its habitat impacts at time of construction. 5 = Project accurately describes unavoidable habitat impacts and describes how these impacts will be mitigated at a future date. 0 = Project does not accurately describe its habitat impacts nor adequately provide for their avoidance or mitigation.	Local Agency to offer documentation of consultations with the California Department of Fish and Game to substantiate the assertions in their application.
Habitat Improvement and Ecosystem Restoration Target Habitats Delta smelt and other native fish	**Maximum 20 points** (components below can be additive) 5 = Project includes habitat enhancement and/or restoration of targeted habitats (Appendix H1) 5 = Project creates habitat that improves conditions for delta smelt and other native fish (Appendix H2)	Points will be awarded based on anticipated ecological benefits

iii. Delta Aqueduct Levee Project HMP (Continued)

Criterion	Score	Notes
Ecosystem Benefits	5 = Project demonstrates ecosystem benefits (Appendix H3) including landscape and hydrologic connectivity and improved conditions for other Delta T&E species.	
Approach and Feasibility	5 = Project describes a well thought out and feasible approach to restoration (Appendix H4). 0 = Proposal's habitat features, benefits and approaches are not described or are not consistent with current understanding of the improvements required for the health of the Delta Ecosystem.	Points will be awarded based on the quality of the restoration approach and technical qualifications.
Project description and permits	12 = Application contains a complete Project Description, identifies needed permits and outlines a clear plan to obtain permits in a timely way to ensure project can proceed to construction within 6 months.	This criterion evaluates the completeness of the Project Description and thoroughness of Local Agency's plan to obtain the required permits (e.g., an identification of all required permits with corresponding budget and timeline).
Partnerships	20 = 50% or more 15 = 40% to 49% 10 = 25% to 39% 5 = 24% or less	Percentage of Total cost-share that will be provided by an outside party, partnered with the Local Agency.

iv. Delta Aqueduct Levee Project Delta Specific PL 84-99

Criterion	Score	Notes
Levee proximity to aqueduct	20 =Project raises the levee to the intended level of protection out to 1500 feet from the Delta Aqueduct to be protected 10 = Project raises the levee to the intended level of protection out to 1000 feet from the Delta Aqueduct to be protected 5 = Project raises the levee to the intended level of protection, but less than 500 feet from the Delta Aqueduct to be protected	Additional Delta Aqueduct Project factor.
Life Safety (Number of People Protected)	25 = 5000 and above 12 = 1000 to 4999 6 = 1 to 999	This criterion rates each Project based on the total number of people the Project would protect.
Infrastructure	**Maximum 40 points**	
State Highways	10 = Project will increase protection of a state highway	
Emergency	10 = Project increases protection of emergency infrastructure	Protection of utilities, roads, services, fuel center, and food centers, etc.
Local Assets	10 = Project increases protection of local assets	Project provides protection to local assets, such as local businesses, agricultural operations and facilities, local transportation routes, etc
Water Conveyance Facilities	10 = Project increases protection to water conveyance facilities	
Water Quality	20 = Project contributes to protecting Delta water quality	Protects the quality of water by limiting salinity intrusion, contamination, etc.

iv. Delta Aqueduct Levee Project Delta Specific PL 84-99 (Continued)

Criterion	Score	Notes
Habitat Impacts and Mitigation	**Maximum 25 points** 25 = Project avoids or mitigates habitat impacts prior to time of construction. 15 = Project avoids or mitigates its habitat impacts at time of construction. 8 = Project accurately describes unavoidable habitat impacts and describes how these impacts will be mitigated at a future date. 0 = Project does not accurately describe its habitat impacts nor adequately provide for their avoidance or mitigation.	Local Agency to offer documentation of consultations with the California Department of Fish and Game to substantiate the assertions in their application.
Habitat Improvement and Ecosystem Restoration Target Habitats Delta smelt and other native fish Ecosystem Benefits	**Maximum 30 points** (components below can be additive) 10 = Project includes habitat enhancement and/or restoration of targeted habitats (Appendix H1) 10 = Project creates habitat that improves conditions for delta smelt and other native fish (Appendix H2) 5 = Project demonstrates ecosystem benefits (Appendix H3) including landscape and hydrologic connectivity and improved conditions for other Delta T&E species.	Points will be awarded based on anticipated ecological benefits .

iv. Delta Aqueduct Levee Project Delta Specific PL 84-99 (Continued)

Criterion	Score	Notes
Approach and Feasibility	5 = Project describes a well thought out and feasible approach to restoration (Appendix H4). 0 = Proposal's habitat features, benefits and approaches are not described or are not consistent with current understanding of the improvements required for the health of the Delta Ecosystem.	Points will be awarded based on the quality of the restoration approach and technical qualifications
Project description and permits	20 = Application contains a complete Project Description, identifies needed permits and outlines a clear plan to obtain permits in a timely way to ensure project can proceed to construction within 6 months. 10 = Application contains a complete Project Description, identifies needed permits and outlines a satisfactory plan to obtain permits in the foreseeable future 0 = Project Description, permit description and plan to obtain permits is unsatisfactory	This criterion evaluates the completeness of the Project Description and thoroughness of Local Agency's plan to obtain the required permits (e.g., an identification of all required permits with corresponding budget and timeline).
Partnerships	20 = 50% or more 15 = 40% to 49% 10 = 25% to 39% 5 = 24% or less	Percentage of Total cost-share that will be provided by an outside party, partnered with the Local Agency.

C. Cost-Share

The Guidelines require the Applicant to submit a justification for the Applicant's Project cost-share estimate of what the State cost-share of the Project should be if the submitted Project is funded.

Projects evaluated under this PSP will be cost-shared according to the rules set forth in the Near-Term Guidelines Pages 23 through 26.

6. APPLICATION TIMELINE

A. Anticipated Schedule

The following is the anticipated schedule for the application and review process:

February 16, 2010	Final Near-Term Guidelines released to the public.
February 16, 2010	PSP released to the public.
March 26, 2010	**Proposals due by 4:00 p.m. (or postmarked)**
May 2010	Department notifies Local Agencies of funding decisions.
May - June, 2010	Department develop agreements for signature by Local Agency; Local Agency develops work plan.
June 30, 2010	Last day for Funding Agreement to be executed. Local Agency begins work.

7. PREPARING THE PROPOSAL

Applications must include the following when submitting a Project proposal:[4]

- An application cover sheet that provides an overview of the Project;
- A statement identifying the Applicant's representatives;
- Local Agency Information (Appendix L2);

[4] Applicants with questions about what to provide should consult with the Department. Typical FloodSAFE projects require an economic justification. Projects eligible under the Near-Term Guidelines, however, do not need to provide any economic justification since the California Water Code includes specific mandates for the Delta Special Projects Program.

- A resolution signed by the Local Agency authorizing submission of the application and designating a representative to sign the application, entering into a contract with the State of California, implementing a flood protection program, and providing the local cost-share (Appendix L3);

- A detailed Project Description; including maps, drawings and a statement explaining the assets the Project will protect and justification for the project. The level of detail provided in the Project Description is at the discretion of the Applicant, but it is in the Applicant's interest to offer as much detail and documentation as possible, as the eligibility and ranking criteria in these Guidelines require a great deal of specific information;

- A statement from a professional civil engineer who has reviewed the Project Description discussing the benefits of the project to flood protection and/or habitat;

- A detailed statement of expected Project costs and detailed Financial Plan;

- A detailed description of the impact the Project has on habitat and the environment, a detailed discussion of the environmental permits required for the Project, and a schedule for permit completion;

- A detailed description of how the Project will meet the requirements of Water Code Sections 12314, which require no net long-term loss of habitat and net habitat improvement;

- A cost-share recommendation estimate for the amount of State cost-share to which the Local Agency believes it is entitled and a LABA if the Local Agency intends to request an alternative cost-share;

- A statement of loans from other sources or bonds that are associated with the Financial Plan and a statement of repayment method and loan security for such other financing sources; and

- A checklist of the materials required for a complete application is presented in Section XI of the Near Term Guidelines.

8. HOW TO SUBMIT A PROPOSAL

Prepare the attached application form. All items are required. If an item does not apply, provide complete justification for not providing the information. Append all required attachments and other submitted material. In addition, be sure that:

- Three copies of each hard-copy item are submitted in person or postmarked by the deadline.
- The application form is hard copy.
- Plans and other graphic material are submitted full size.
- Hard copies or hard-copy attachments are completely legible and suitable for copying.

9. CONFLICT OF INTEREST AND CONFIDENTIALITY

All participants are subject to State and Federal conflict of interest laws. Failure to comply with these laws, including business and financial disclosure provisions, will result in the application being rejected and any subsequent contract being declared void. Other legal action may also be taken. Applicable statues include, but are not limited to, Government Code, Section 1090, and Public Contract Code, Sections 10410 and 10411.

Applicants should note that by submitting an application, they will waive their rights to the confidentiality of that application, though Department staff will endeavor to keep all applications confidential until Project selection. After the Projects are selected, all applications (those selected and those not) will be public documents.

Appendix H1

Habitat Goals

The Department intends to fund Habitat Projects that enhance and/or restore habitats that have been impacted by historic levee construction and provide benefits to the overall ecosystem health of the Delta. The following habitats are considered the highest priorities based on multiple analyses.

Habitat types include:
-- **AB360** habitat mitigation goals include the following habitat types:

- Shaded Riverine Aquatic (SRA)
- Freshwater Marsh (FM) Habitat
- Scrub-shrub (SS) Habitat
- Riparian Forest (RF) Habitat
- Riverine Aquatic Bed (RAB)

-- **Additional** habitat goals consistent with improving the overall ecological health of the Delta include:

- Intertidal marsh restoration including brackish and freshwater intertidal marshes.
- Channel margin habitat restoration aimed at returning suitable sites along the water side of levees to a more natural condition for increased food production, rearing habitat, and improved water temperature conditions for fish.
- Riparian habitat restoration aimed at establishing native vegetation near channels, rivers, and streams.
- Shallow sub-tidal habitat restoration aimed at improving shallow tidal habitats.

Appendix H2

Native Fish

Native Fish: Project demonstrates benefit to native fish species, including delta smelt and other threatened and endangered species. Consistent with Senate Bill X2 1, the best scores will reflect projects that propose to improve conditions for delta smelt and other native fish (especially threatened and endangered species). Project proposals should provide a concise justification for why native fish will benefit from the project, by indicating whether the project is in the vicinity of historical or currently observed native fish habitat and whether the project restores the habitat(s) known to be beneficial to at least one the targeted species. The following table provides an indication of habitats suitable for Delta native fish species.

	Seasonally Inundated Floodplain	Freshwater Tidal Marsh	Brackish Tidal Marsh	Channel Margin
Steelhead, Central Valley DPS	X	X	X	X
Chinook Sacramento R. winter-run	X	X	X	X
Chinook Central V. spring-run	X	X	X	X
Chinook Central V. fall-/late fall-run	X	X	X	X
Longfin smelt		X	X	
Delta smelt	X	X	X	
Sacramento splittail	X	X	X	X
White sturgeon		X	X	
Green sturgeon		X	X	
Pacific lamprey		X	X	X
River lamprey		X	X	X

Appendix H3

Ecosystem Benefits

The following factors that should be considered in developing a successful restoration proposal include:

Threatened and Endangered Species: Project demonstrates benefit to multiple threatened and endangered species, consistent with other Delta restoration planning efforts (CALFED ERP, Bay Delta Conservation Plan, etc.)

Landscape Approach: Enhance habitat connectivity to encourage natural movement of native species and facilitate adaptation to climate change. Restoration approaches should enhance habitat connectivity of existing habitats, acknowledge the importance of upland habitats, and provide linkages to other restoration efforts.

Natural Hydrologic Regime: Restore natural hydrologic processes with an understanding of historic conditions and current constraints. Projects that provide multiple benefits to protecting the integrity of the levee system and which consider how the natural hydrologic regime can be restored in the face of climate change and possible changes in Delta hydrodynamics will score the highest. Projects that lead to the restoration of floodplain and/or tidal processes score the highest. Projects such as setback levees, in channel islands, and in-channel benches are favored by this criterion.

Appendix L1

Levee Stability and Delta Aqueduct Levee Project Eligibility Requirements

General Requirements

Criterion	Is this criterion met? Where is it demonstrated in the proposal?
Project must be intended to: (a) study, design or construct work that will bring the levee system up to HMP or Delta Specific PL 84-99 standards, (b) conduct Delta Levee Studies and Research, (c) create, restore, enhance or protect habitat, or (d) complete a Five-Year Plan.	
Project must not significantly impair the functionality of the levee system.	
Where and when applicable, Department must approve of the level of protection the Local Agency seeks to achieve through build-out of its Five-Year Plan.	
Project should address the impacts of climate change on the Local Agencies levees and discuss features that allow accommodation or adaptation to future moderate changes.	
Project must not induce growth (e.g. urbanization).	
Project proposal must include a Project Description, Financial Plan and schedule.	
Application should identify all potential beneficiaries of the proposed Project, including population estimates, infrastructure, environmental resources and other improved property.	
Projects must meet the requirements of California Water Code Section 12310-12318.	

Appendix L1 (Continued)

HMP Specific Requirements (If Project is HMP) (Applies to Levee Stability and Delta Aqueduct Levee Projects)

Specific Requirements	Is this criterion met? Where is it demonstrated in the proposal?
Project must be consistent with the Local Agency's Long Term Plan (if a Plan has been completed).	
Local Agency must provide proof that successful construction of this Project will result in a flood protection facility that meets HMP standards.	
Local Agency should demonstrate that the proposed HMP Project is consistent with the Department's objective of raising all levees in a district to HMP standard.	
A design upgrade (overbuild) may be proposed in a HMP project to add 0.5 foot of extra crest elevation. An additional 0.5 foot may be added if the levee crest includes a state or county paved road. Additional overbuild may be considered, with DWR prior approval, if the Local Agency submits adequate engineering analysis.	

Appendix L1 (Continued)

Delta Specific PL 84-99 Requirements (If Project is Delta Specific PL 84-99) (Applies to Levee Stability and Delta Aqueduct Levee Projects)

Specific Requirements	Is this criterion met? Where is it demonstrated in the proposal?
Project must be consistent with Local Agency's DWR-approved Long Term Plan (if a Plan has been completed).	.
Project must raise the length of levee addressed to the Delta Specific PL 84-99 criteria (with additional improvements responsive to Bulletin 192-82 non-urban criteria).	
Local Agency's Financial Plan demonstrates plan to achieve Delta Specific PL 84-99 compliance for the entire protected area by FY 2015-2016 (assuming needed state funding is available).	
A design upgrade (overbuild) may be proposed in a Delta Specific PL 84-99 project to add 0.5 foot of extra crest elevation. An additional 0.5 foot may be added if the levee crest includes a state or county paved road. Additional overbuild may be considered, with DWR prior approval, if the Local Agency submits adequate engineering analysis.	

Appendix L1 (Continued)

Delta Aqueduct Eligibility Requirements (Applies only to Delta Aqueduct Levee Projects)

Specific Criteria	Is this criterion met? Where is it demonstrated in the proposal?
Project does not seek to improve levees beyond Delta Specific PL 84-99 level of protection.	
Project must be for work to reinforce levees that have the highest potential to suffer breaches or failure and cause harm to municipal and industrial water supply aqueducts that *cross* the Delta that are vulnerable to flood damage.	

Appendix L2

Local Agency Information

Title of Project :

Short Description :
:

Applicant Agency
Legal Name:
Mailing Address:
City, State, Zip Code:
Telephone: ( )
Fax: ( )
E-Mail:

Authorized Representative
Name:
Title:
Telephone: ( )
Fax: ( )
E-Mail:

Alternate Contact
Name:
Title:
Telephone: ( )
Fax: ( )
E-Mail:

Cities/Communities in the Protected Area:

County :

Members of Congress
Name, District No.:
Name, District No.:

State Senators
Name, District No.:
Name, District No.:

Members of the State Assembly
Name, District No.:
Name, District No.:

Appendix L3

Resolution No. _____

Resolved **by the _____ of the**
(Name of Agency's Governing Body)

_____
(Name of Agency)

That pursuant to and subject to all of the terms and provisions of California Public Resources Code Section 5096.21 and/or 75030 application by this

_____
(Type of Agency)

be made to the California Department of Water Resources to obtain funding for _____.
(Project Title)

The _____ of the
(Authorized Representative)

_____ is hereby authorized and directed
(Type of Agency)

to prepare the necessary data, make investigations, sign certifications required as part of the application, and sign and file such application with the California Department of Water Resources.

Passed and adopted **at the regular meeting of the**

_____ of the
(Name of Agency's Governing Body)

_____
(Name of Agency)

on _____.
(Date)

Authorized Signature _____

Printed Name _____

Title _____

Clerk/Secretary _____

Attachment C

Notes from Staff Evaluations of Proposals

These notes are rough in that they may be inconsistent in format and contain errors in spelling or grammar. They were made by individuals during their evaluations of the projects for ranking and are included here as information for the Delta Stewardship Council.

Attachment C

Project A

LMA: Upper Jones Tract, RD 2039 (located in the Primary Zone of the Delta)

Objective: Levee Improvement to HMP **(applicable State base cost share is 90% of the project cost)**

Description – Design and construction of 3.7 miles of levee to HMP standard. It appears that all work is more than 1500 feet away from the aqueduct.

Project Cost - $1,843,444

State Cost Share Requested in the Proposal - 95%. Including additional 5% enhanced State cost share (2% emergency response measures, 3% for subsidence reversal, and 10% for statewide interests). Justifications for additional cost share nor adequate since the project doesn't have specific features to support State cost share beyond 90%.

Cost Share Recommendation – 90%

Comments on meeting the criteria
Proximity: No points were awarded because the work was beyond 1500 feet of the aqueduct.
Construction: The committee only awarded 60 points to the islands for which it had a high degree of confidence that the proposed work be completed within one construction season, then the entire island would be at HMP standard.
Habitat: No impacts expected due to avoidance. 0.5 acre budgeted in event needed.
Project Description: Project description was unclear. Permits considered adequate for landside work.
Habitat Improvement: No Discussions
Water Quality: Points not awarded for water quality; not one of 8 western islands.
Approach and Feasibility: No Discussions
Target Habitat: No Discussions

Total Score: **51**

Attachment C

Project B

Project Summary: LMA: Lower Roberts Island, RD 684 (located in the Primary Zone of the Delta)

***Objective*:** Levee Improvement to PL84-99 **(applicable State base cost share is 75% of the project cost)**

Description – Work consists of PL84-99 work including both the slopes and crown of the levee (various locations), construction of stability and seepage berm, and habitat enhancement. Approximately 20% of the work will provide levee protection out to 1500 feet from the aqueduct.

Project Cost - $4,015,328

State Cost Share Requested in the Proposal *– 95%, including additional 20% enhanced State cost share (*5% for emergency response measures, 10% habitat, 5% subsidence control, and 7.5% statewide interests). Both subsidence reversal and habitat work was considered and as a result applicant received additional 10%.

Cost Share Recommendation – 85%

Comments on meeting the criteria
Proximity: Points were awarded because the work as proposed (20%) provides intended level of protection out to 1500 feet of the aqueduct.
Construction: No Discussions
Habitat: No evidence provided that credits are reserved. Mitigation bank credits could at anytime become unavailable (sold out) and the next release could be months to a year, so full points were not given
Project Description: Project description was unclear. Application never stated if work will enter the high water mark nor if the areas below waterline already have rip rap. If either of these conditions occurs, a schedule change to allow for permits will be necessary, thus full points were not given. Provided RMA would be inadequate to cover enhancement.
Habitat Improvement: enhancement feature proposed should be evaluated for 'no regrets" and an evaluation by regulatory agencies will be needed to determine if design results is a benefit for fish.
Approach and Feasibility: Points for approach and feasibility were not given. Points for ecosystem benefits were given based on the location not design.
Water Quality: Points not awarded for water quality; not one of 8 western islands.
Approach and Feasibility: No Discussions
Target Habitat: No Discussions

***Total Score*:** **84**

Attachment C

Project C

Project Summary: LMA: Upper Jones Tract, RD 2039 (located in the Primary Zone of the Delta)

***Objective*:** Levee Improvement to PL84-99 **(applicable State base cost share is 75% of the project cost)**

Description – Design and construction of multiple projects around the district. This includes 7,700 feet of PL84-99, seepage berm, crown and slope work and 1600 feet of habitat enhancement. A good percentage of the work is located outside the 1500 foot demarcation.

Project Cost - $4,054,526

State Cost Share Requested in the Proposal – 95%, including 10% for emergency response measures, 10% habitat, 5% subsidence control, and 10% statewide interests. Both subsidence reversal and habitat work was considered and as a result applicant received additional 10%.

Cost Share Recommendation – 85%

Comments on meeting the criteria
Proximity: Full points were awarded because the work as proposed provides intended level of protection out to 1500 feet of the aqueduct. Various projects are located outside the 1500 foot demarcation.
Construction: No Discussions
Habitat: No evidence provided that credits are reserved. Mitigation bank credits could at anytime become unavailable (sold out) and the next release could be months to a year, so full points were not given.
Project Description: Project description was unclear. Application never stated if work will enter the high water mark nor if the areas below waterline already have rip rap. If either of these conditions occurs, a schedule change to allow for permits will be necessary, thus full points were not given. Provided RMA would be inadequate to cover enhancement.
Habitat Improvement: The enhancement feature proposed should be evaluated for 'no regrets" and an evaluation by regulatory agencies will be needed to determine if design results in a benefit for fish or other native species.
Water Quality: Points not awarded for water quality; not one of 8 western islands.
Approach and Feasibility: Points for approach and feasibility were not given.
Target Habitat: 10 points awarded.

***Total Score*:** **79**

Attachment C

Project D

Project Summary: LMA: Lower Roberts Island, RD 684 (located in the Primary Zone of the Delta)

Objective: Levee Improvement to PL84-99 **(applicable State base cost share is 75% of the project cost)**

Description – Description was diffuse and unclear. Project included both HMP and PL84-99 slope and crown work (various locations), stability and seepage berm, and habitat enhancement. Approximately 20% of the work will provide levee protection out to 1500 feet from the aqueduct.

Project Cost - $3,157,895

State Cost Share Requested in the Proposal – *95%, including* 10% for emergency response measures, 10% habitat, 5% subsidence control, and 10% statewide interests. Both subsidence reversal and habitat work was considered and as a result applicant received additional 10%.

Cost Share Recommendation – 85%

Comments on meeting the criteria
Proximity: Full points were awarded because the work as proposed (10%) provides intended level of protection out to 1500 feet of the aqueduct.
Construction: No Discussions
Habitat: Appeared to correctly identify impacts. No evidence provided that credits are reserved. Mitigation bank credits could at anytime
become unavailable (sold out) and the next release could be months to a year, so full points were not given.
Project Description: No points given. Project description was grossly unclear. Permit strategy appears incomplete, because RMA unlikely to cover the proposed work. Application never stated if work will enter the high water mark nor if the areas below waterline already have rip rap. If either of these conditions occurs, a schedule change to allow for permits will be necessary, thus full points were not given. Provided RMA would be inadequate to cover enhancement.
Habitat Improvement: The enhancement feature proposed should be evaluated for 'no regrets" and an evaluation by regulatory agencies will be needed to determine if design results in a benefit for fish.
Points for ecosystem benefits were given based on the location not design.
Water Quality: Points not awarded for water quality; not one of 8 western islands.
Approach and Feasibility: No Discussions
Target Habitat: 10 points awarded.

Total Score: **74**

Attachment C

Project E

Project Summary: Orwood-Palm (2), RD 2024 (located in the Primary Zone of the Delta)

***Objective*:** Levee Improvement to PL84-99 **(applicable State base cost share is 75% of the project cost)**

Description – Construction of 5.7 miles of PL84-99 slope construction including 2,500 feet of toe berm and 2,000 feet of habitat enhancement. A good portion of the proposed work lies outside the 1500 foot aqueduct demarcation.

Cost - $5,513,158

State Cost Share Requested in the Proposal *95%, including* 10% for emergency response measures, 10% habitat, 5% subsidence control, and 10% statewide interests Both subsidence reversal and habitat work was considered and as a result applicant received additional 10%.

Cost Share Recommendation – 85%

Comments on meeting the criteria
Proximity: Full points were awarded because the work as proposed provides intended level of protection out to 1500 feet of the aqueduct.
Construction: No Discussions
Habitat: Only generally identified impacts. No evidence provided that credits are reserved. Mitigation bank credits could at anytime become unavailable (sold out) and the next release could be months to a year, so full points were not given.
Project Description: No points given. Project description was unclear. Permit strategy appears incomplete, because RMA unlikely to cover the proposed work.
Habitat Improvement: enhancement feature proposed should be evaluated for 'no regrets" and an evaluation by regulatory agencies will be needed to determine if design results in a benefit for fish.
Points for ecosystem benefits were given based on the location not design.
Water Quality: Points not awarded for water quality; not one of 8 western islands.
Approach and Feasibility: No Discussions
Target Habitat: 10 points awarded.

***Total Score*:** **74**

Attachment C

Project F

Project Summary: Orwood-Palm, RD 2024 (located in the Primary Zone of the Delta)

***Objective*:** Levee Improvement to PL84-99 **(applicable State base cost share is 75% of the project cost)**

Description – Design and construction of approximately 1.4 miles levee PL84-99 standard, 1 mile seepage and stability berm, 1,000 feet of habitat enhancement, and an emergency stockpile for flood fight materials. Proposal is not clear if 100% HMP will be achieved for the island. Project proposal was unclear, scattered and had many errors.

Cost - $3,093,864

State Cost Share Requested in the Proposal - 10% for emergency response measures, 10% habitat, 5% subsidence control, and 10% statewide interests. Both subsidence reversal and habitat work was considered and as a result applicant received additional 10%.

Cost Share Recommendation – 85%

Comments on meeting the criteria
Proximity: Full points were not awarded because the work as proposed provides intended level of protection out to 1400 feet of the aqueduct.
Construction: No Discussions
Habitat: Appeared to correctly identify impacts. No evidence provided that credits are reserved. Mitigation bank credits could at anytime become unavailable (sold out) and the next release could be months to a year, so full points were not given.
Project Description: No points given. Project description was grossly unclear, with too many significant errors/inclusions (cut & paste errors). Permit strategy appears incomplete, because RMA unlikely to cover the proposed work.
Habitat Improvement: enhancement feature proposed should be evaluated for 'no regrets" and an evaluation by regulatory agencies will be needed to determine if design results in a benefit for fish. Erroneously indicated enhancement site would be adjacent to a WAPA mitigation area. Points for ecosystem benefits were given based on the location not design.
Water Quality: Points not awarded for water quality; not one of 8 western islands.
Approach and Feasibility: No Discussions
Target Habitat: 10 points awarded.

***Total Score*:** **64**

Attachment C

Project G

Project Summary: Woodward Island (2), RD 2072 (located in the Primary Zone of the Delta)

Objective: Levee Improvement to PL84-99 **(applicable State base cost share is 75% of the project cost)**

Description – Proposal was unclear, scattered and had many errors/inconsistencies. Construction of 1.9 miles of PL84-99 crown work (including toe berm), approximately 1 mile of slope protection at various locations, 1000 feet of habitat enhancement, and emergency stockpile of 2,000 tons of slope protection.

Project Cost - $5,244,158

State Cost Share Requested in the Proposal - 95%. including 3% emergency response measures, 10% for habitat, 5% for subsidence reversal, and 10% for statewide interests. Both subsidence reversal and habitat work was considered and as a result applicant received additional 10%.

Cost Share Recommendation – 85%

Comments on meeting criteria
Proximity: Full points were awarded because most of the work as proposed provides intended level of protection out to 1500 feet of the aqueduct.
Construction: No Discussions
Habitat: Appeared to correctly identify impacts. No evidence provided that credits are reserved. Mitigation bank credits could at anytime
become unavailable (sold out) and the next release could be months to a year, so full points were not given.
Project Description: No points given. Project description was grossly unclear, with too many significant errors/inclusions (cut & paste errors). Stationing of work overlaps with other proposal as well as for different types of work within this proposal.
Habitat Improvement: The enhancement feature proposed should be evaluated for 'no regrets'' and an evaluation by regulatory agencies will be needed to determine if design results in a benefit for fish.
Water Quality: Points not awarded for water quality; not one of 8 western islands.
Approach and Feasibility: No Discussions
Target Habitat: 10 points awarded.

Total Score: **63**

Attachment C

Project H

Project Summary: Woodward Island, RD 2072 (located in the Primary Zone of the Delta)

Objective: Levee Improvement to PL84-99 **(applicable State base cost share is 75% of the project cost)**

Description –Diffuse, unclear and confusing. Project included both PL84-99 and HMP work. 6% of project work is within 1500 feet of the aqueduct.

Project Cost - $5,225,942

State Cost Share Requested in the Proposal - 95%, including 5% for emergency response measures, 10% habitat, 5% subsidence control, and 10% statewide interests. Both subsidence reversal and habitat work was considered and as a result applicant received additional 10%.

Cost Share Recommendation – 85%

Comments on meeting criteria
Proximity: Work proposed is within 1500 feet of the aqueduct.
Construction: No Discussions
Habitat: Staff found evidence of impacts not addressed in application. No evidence provided that credits are reserved. Mitigation bank credits could at anytime become unavailable (sold out) and the next release could be months to a year, so full points were not given.
Project Description: No points given. Project description was grossly unclear. Permit strategy appears incomplete, because RMA unlikely to cover the proposed work.
Habitat Improvement: enhancement feature proposed should be evaluated for 'no regrets" and an evaluation by regulatory agencies will be needed to determine if design results in a benefit for fish.
5 points for approach and feasibility were not given.
Water Quality: Points not awarded for water quality; not one of 8 western islands.
Approach and Feasibility: No Discussions
Target Habitat: 10 points awarded. Ecosystem benefit given for location, not for design.

Total Score: **60**

Attachment C

Project I

Project Summary: Upper Jones Tract 2, RD 2039 (located in the Primary Zone of the Delta)

Objective: Levee Improvement to PL84-99 **(applicable State base cost share is 75% of the project cost)**

Description - No work was proposed within 1500 feet of the aqueduct. Design and construct 1.7 miles of PL844-99 levee including seepage berm, slope and crown work, and habitat enhancement.

Project Cost - $3,573,983

State Cost Share Requested in the Proposal - 95%, including 5% for emergency response measures, 10% habitat, 5% subsidence control, and 10% statewide interests. Both subsidence reversal and habitat work was considered and as a result applicant received additional 10%.

Cost Share Recommendation – 85%

Comments on meeting criteria
Proximity: No work was proposed within 1500 feet of the aqueduct.
Construction: No Discussions
Habitat: No evidence provided that credits are reserved. Mitigation bank credits could at anytime become unavailable (sold out) and the next release could be months to a year, so full points were not given.
Project Description: Project description was unclear. Application never stated if work will enter the high water mark nor if the areas below waterline already have rip rap. If either of these conditions occurs, a schedule change to allow for permits will be necessary, thus full points were not given. Provided RMA would be inadequate to cover enhancement.
Habitat Improvement: enhancement feature proposed should be evaluated for 'no regrets" and an evaluation by regulatory agencies will be needed to determine if design results in a benefit for fish or other native species.
Water Quality: Points not awarded for water quality; not one of 8 western islands.
Approach and Feasibility: No Discussions
Target Habitat: 10 points awarded.
Life Safety: No Discussions

Total Score: **59**

Attachment C

Project J

Project Summary: Lower Jones Tract (2), RD 2038 (located in the Primary Zone of the Delta)

Objective: Levee Improvement to PL84-99 **(applicable State base cost share is 75% of the project cost)**

Description - – Improve 9,500 feet of levee to PL84-99 standards including a seepage berm and enhance 2,500 feet of levee. Project description was hard to understand. It appears that all work is more than 1500 feet away from the aqueduct. Proposal 1 and 2 are linked in the fact that together they will address seepage issues and levee problems on the northwest corner of the island

Project Cost - $5,540,216

State Cost Share Requested in the Proposal - 95%. including 10% emergency response measures, 5% for subsidence reversal, 10% for statewide interests. Both subsidence reversal and habitat work was considered and as a result applicant received additional 10%.

Cost Share Recommendation – 85%

Comments on meeting criteria
Proximity: Work proposed within 1500 feet of the aqueduct does not improve the levee.
Construction: No Discussions
Habitat: No evidence provided that credits are reserved. Mitigation bank credits could at anytime become unavailable (sold out) and the next release could be months to a year, so full points were not given.
Project Description: Project description was unclear. Application never stated if work will enter the high water mark nor if the areas below waterline already have rip rap. If either of these conditions occurs, a schedule change to allow for permits will be necessary, thus full points were not given.
Habitat Improvement: The enhancement feature proposed should be evaluated for 'no regrets" and an evaluation by regulatory agencies will be needed to be determined if design results in a benefit for fish.
Water Quality: Points not awarded for water quality; not one of 8 western islands.
Approach and Feasibility: No Discussions
Target Habitat: No Discussions

Total Score: **59**

Attachment C

Project K

Project Summary: Lower Jones Tract (1), RD 2038 (located in the Primary Zone of the Delta)

Objective: Levee Improvement to PL84-99 **(applicable State base cost share is 75% of the project cost)**

Description – Improve 14,000 feet of levee to PL84-99 standards including seepage berm and enhance 2,500 feet of levee. Project description was hard to understand. It appears that all work is more than 1500 feet away from the aqueduct. Proposal 1 and 2 are linked in the fact that together they will address seepage issues and levee problems on the northwest corner of the island.

Cost - $5,538,467

State Cost Share Requested in the Proposal – 95%. including 10% emergency response measures, 5% for subsidence reversal, 10% for statewide interests. Both subsidence reversal and habitat work was considered and as a result applicant received additional 10%.

Cost Share Recommendation **- 85%**

Comments on meeting criteria
Proximity: Work proposed within 1500 feet of the aqueduct does not improve the levee.
Construction: No Discussions
Habitat: No evidence provided that credits are reserved. Mitigation bank credits could at anytime become unavailable (sold out) and the next release could be months to a year, so full points were not given.
Project Description: Project description was unclear. Application never stated if work will enter the high water mark nor if the areas below waterline already have rip rap. If either of these conditions occurs, a schedule change to allow for permits will be necessary, thus full points were not given.
Habitat Improvement: enhancement feature proposed should be evaluated for 'no regrets" and an evaluation by regulatory agencies will be needed to determine if design results in a benefit for fish.
Water Quality: Points not awarded for water quality; not one of 8 western islands.
Approach and Feasibility: No Discussions
Target Habitat: 10 points awarded.
Life Safety: No Discussions

Total Score: **59**

Attachment C

Project L

Project Summary: Upper Jones, RD 2039 (located in the Primary Zone of the Delta)

Objective: Levee Improvement to PL84-99 **(applicable State base cost share is 75% of the project cost)**

Description – Preparation of plans, specifications, and construction of an 800 foot section of sheet pile adjacent to the EBMUD aqueduct. This project is adjacent to the railroad trestle opening between Upper and Lower Jones Tracts. This project does not raise level of protection of district levee.

Cost – $1, 1815,926

State Cost Share Requested in the Proposal – unclear if 90% or 95% is requested, requested cost share includes; 5% for emergency response, and 10% for statewide interests. Both subsidence reversal and habitat work was considered and as a result applicant received additional 10%.

Cost Share Recommendation **– 85%**

Comments on meeting criteria
Proximity: Work does not raise level of protection of a levee. No points awarded.
Construction: No Discussions
Habitat: Project intends to avoid all impacts. However, minimal mitigation area provided in case it is needed.
Project Description: Project description was unclear concerning EBMUD's endorsement. No background engineering provided or mentioned for the adequacy of the design of the sheet pile.
Habitat Improvement: No enhancement proposed.
Water Quality: Points not awarded for water quality; not one of 8 western islands.
Approach and Feasibility: No Discussions
Target Habitat: No Discussions
Life Safety: Project does not protect life on the island. No points awarded.

Note: Habitat conclusions above are based upon committee's assumption and limited info provided.
Location of project is outside limits of AB 360 program.
Evaluation panel encourages the consideration of alternative projects.

Total Score: **50**

Attachment D

Near Term Guidelines, February 2010

Delta Levees
Special Flood Control Projects

Final

Near-Term Guidelines
For
Providing Funding to Local Public Agencies

Department of Water Resources
Delta Suisun Marsh Office
February 2010

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EXIBITS

A. Requirements for the Five-Year Plan
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C. Local Agency Benefit Assessment

I. INTRODUCTION

The Delta Levee Special Flood Control Projects Program (the Program or Special Projects) was established in 1988 by Senate Bill 34. It continues to operate under subsequent legislation that extended and provided funding for the program. Originally, the Program was authorized to address flooding on the eight Western Delta Islands and in the towns of Thornton and Walnut Grove. In 1996, Assembly Bill 360 expanded the Program to include the entire Delta and to portions of Suisun Marsh (approximately 12 miles of levees on islands bordering the Northern Suisun Bay from Van Sickle Island westerly to Montezuma Slough) as outlined in Section 12311 of the California Water Code. Today, any Local Agency with a Project or Non-Project levee in the Primary Zone of the Delta or a Non-Project levee in the Secondary Zone of the Delta is eligible to submit proposals and apply for the Special Projects fund.

The State, through the Delta Levees Maintenance Subventions Program and Delta Levees Special Flood Control Projects, has invested over $200 million in flood control and habitat projects carried out by Local Agencies in the Delta. Department of Water Resources (Department or DWR) funding has been dedicated to maintaining and improving the aging Delta levees. Under California Water Code Section 12314, the Program must not only mitigate the habitat impacts of each Project it funds, but must also ensure that the Program creates a result of a net long-term habitat improvement in the Delta. With the passage of Proposition 1E and Proposition 84 in November 2006, the amount of money potentially available for levee projects in the Delta has significantly increased.

In January 2009, the Department published the Interim Guidelines for Providing Funding to Local Agencies in the Delta (Interim Guidelines) for expenditure of Propositions 1E and 84 funds. Those Guidelines governed work authorized in Fiscal Year 2008-09.

This document contains the Department's Near-Term Special Projects Guidelines. The Near-Term Guidelines represent the next phase in the Guidelines process and govern Special Projects expenditure of funds appropriated through Senate Bill X2 1, Senate Bill X7 8, and other funds available to the Program during Fiscal Years 2009-2010 and 2010-2011.[1] After that time, the Department anticipates issuing Long-Term Guidelines which will govern Special Projects funding for the duration of Propositions 1E and 84.

[1] The Near-Term Guidelines only cover funding of competitive proposals the Department solicits from Local Agencies through a Projects Solicitation Package. The Department will also directly expend funds for Special Projects in cooperation with Local Agencies. The internal policies the Department will apply to "direct expenditure" Projects are discussed in these Guidelines at section XVI. In addition, the Department reserves the right to increase the funding for previously approved Projects with executed Project Funding Agreements by amending the Funding Agreement *after* reassessing those Projects to determine continuing consistency with these Guidelines in order to complete those Projects in a timely manner.

Senate Bill X2 1 authorizes a total of $235 million from Propositions 1E and 84 for various flood related projects. The Department expects that additional funds will be available through the State budget process for this program through Fiscal Year 2010-2011.

Additionally, Senate Bill X7 8 authorizes DWR to spend $202 million ($32 million from Proposition 84 and $170 million from Proposition 1E) for flood protection projects in the Delta to reduce the risk of levee failures that would jeopardize water conveyance.

These Near-Term Guidelines implement several important DWR goals, including, but not limited to

- protecting statewide interests through raising delta levees to HMP;
- protecting life and infrastructure through other levee improvements, such as selectively funding construction of levees that offer advanced (Delta Specific PL 84-99) levels of protection;
- funding studies and research that help to characterize the Delta levees, deepen the Department's understanding of levee stability issues, or further the goals of subsidence reversal;
- funding habitat mitigation and enhancement Projects to benefit the Delta ecosystem and statewide interests; and
- funding subsidence reversal work.

The implementing legislation and these DWR goals reflect a variety of potential Projects. As a result, each application must meet certain common eligibility and other requirements, but will have category-specific (i.e. HMP, Delta Specific PL 84-99, Habitat, etc.) eligibility requirements, selection criteria, and cost-share formulas.

The Department will release Projects Solicitation Packages (PSP) requesting proposals for a variety of projects including: levee improvement projects, studies and research, and habitat works.

All completed applications will be reviewed, scored[2] and cost-shared according to the requirements common to all Projects and the dictates of the category to which they belong.

The Department will not fund Projects that do not meet the minimum requirements of Water Code Sections 12310 - 12318. Projects funded under these Guidelines may include construction, design, study and/or engineering work, and habitat enhancement.

[2] Scoring criteria will be defined in the Projects Solicitation Packages.

II. DEFINITIONS AND ACRONYMS

“Alternative State Cost-Share:” Refers to the State cost-share determined by the Local Agency’s Local Agency Benefits Assessment (LABA).

“Applicant:” Refers to the agency submitting an application under these Guidelines. Also referred to as “Local Agency.”

“Base State Cost-Share:” Is the amount the State will pay in a given cost-share arrangement assuming the Local Agency does not qualify for an Alternative Cost-Share and has not proposed a Project with any qualifying Enhanced Cost-Share.

"Beneficial Reuse:" Refers to the practice of making beneficial use of dredged materials.

"CEQA:" The California Environmental Quality Act.

"Corps:" The United States Army Corps of Engineers.

"Cost-Share Recommendation and Report:" Refers to the recommendation and report regarding cost-share that the Applicant must include in its Special Projects application.

"Delta:" The area of the Sacramento-San Joaquin Delta as defined in Section 12220 of the Water Code. Also referred to as the "Legal Delta."

"Delta Levee Special Flood Control Projects" or "Special Projects:" Refers to a Project(s) funded under these Guidelines - a Delta Levee Special Flood Control Project, one of the components of the Department's Delta Levees Program codified at Sections 12300 -12318 of Water Code.

"Delta Primary Zone" or "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. Where the boundary between the Primary Zone and Secondary Zone is a river, stream, channel, or waterway, the boundary line shall be the middle of that river, stream, channel, or waterway. The Primary Zone consists of approximately 500,000 acres. Cal. Pub. Resources Code Section 29728.

"Delta Secondary Zone" or "Secondary Zone:" is 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 above. The Secondary Zone consists of approximately 238,000 acres. Cal. Pub. Resources Code Section 29731

“Delta Specific PL 84-99 Design Standards:” See Exhibit B.

"Department or DWR:" The Department of Water Resources.

“Direct Expenditures” or “Directed Activities:” Project expenditures made by the Department that are not necessarily in response to a competitive proposal from a Local Agency, but rather are made to implement Department priorities.

"Eligible Projects:" Refers to Projects eligible for funding under these Guidelines.

"Eligible Project Costs:" The reasonable and necessary actual costs associated with an Eligible Project.

"Eligible Real Estate Capital Outlays:" Refers to real estate costs that are eligible under these Guidelines. In the Special Projects program, real estate costs are generally the responsibility of the Local Agency. For certain Projects, however, particularly Habitat Enhancement Projects, the Department will fund Eligible Real Estate Capital Outlay Costs. Only reasonable real estate costs for land that has been assessed and deemed suitable for its intended purposes by the Department will be eligible.

"Enhanced Cost-Share:" Refers to increased State cost-share (above the Base State Cost-Share or Alternative State Cost-Share) which an Applicant earns by offering Project aspects that qualify it for a higher cost-share under Section XV, below.

"Financial Plan:" Refers to the plan required by these Guidelines that describes, in detail, how the Applicant will fund design, construction, and maintenance of the proposed Project.

"Five-Year Plan" or "Plan:" The Five-Year Plan is a document that describes, in detail, an Applicant's integrated work plan to repair and improve flood protection infrastructure for the next five to ten years in the geographic area controlled by the Applicant.

"Funding Agreement" or "Agreement:" An Agreement entered into by a successful Applicant and the State to provide funds for the Project.

"Habitat Projects:" Refers to a Project under these Guidelines that supports net habitat improvement or habitat banking. This category includes planning and on-going management where appropriate.

“Habitat Bank:” A habitat area created to provide mitigation for unavoidable habitat impacts for multiple projects carried out through the Delta Levees Program. The habitat bank must create transferable credits of habitat, allow transfer of liability for habitat impacts, and develop a system of accounting.

“HMP Design Standards:” See Exhibit B.

"Local Agency:" Means a reclamation district or levee district or other public agency responsible for the maintenance of a Non-Project levee as defined in Water Code Section 12980(e) or a Project Levee as defined in Water Code Section 12980(f).

"Local Agency Benefits Assessment (LABA):" Is the benefits assessment a Local Agency may perform or have performed to derive an Alternative State Cost-Share based on the benefits the proposed Project will provide to the Local Agency, separate from the benefits that the Project offers statewide or to other nearby beneficiaries.

"Local Agency Emergency Response Plan:" Refers to an Emergency Response Plan developed by or for Applicant for emergency response in a particular Reclamation District or area.

"Non-Construction Costs:" Costs associated with engineering, design, permitting, environmental compliance, Eligible Real Estate Capital Outlays and other aspects of the Project that do not include actual construction.

"Non-Eligible Projects:" Projects not eligible for funding under the Special Projects Program.

"Non-Project Levee:" Means a local Delta levee 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.

"No Regrets Projects:" Are Projects that meet the No Regrets requirements outlined in these Guidelines. Generally, these are Projects that the Department sees as an imperative to build even if they are built out of sequence or before all long-term planning has concluded. These Projects will not create Stranded Investments.

"OMRR&R:" Operation, maintenance, repair, replacement, and rehabilitation.

"Project:" Means a proposal for work to be cost-shared by the State under these Guidelines.

"Project Description:" Is the document each Applicant must include with their application that describes the proposed Project in detail. The Project Description must offer as much detail and documentation about the Project as possible, as the eligibility criteria, selection criteria, and cost-share formulae established in these Guidelines require significant specific information to be properly implemented.

"Project Levee:" Is a federal flood control levee, 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).

"Projects Solicitation Package (PSP):" Refers to the solicitation package the Department will issue to inform Local Agencies that the Department is accepting Special Projects applications. This package also offers Applicants specific information about deadlines, scoring, and more information regarding how to apply for Special Project funding.

"Scope of Work:" After a Project is selected and before a Project Funding Agreement is signed, the Applicant must develop a Scope of Work that provides detailed plans and information about how the Project will be implemented.

"Setback Levee:" A new levee constructed behind an existing levee which allows for removal of a portion of the existing levee and creation of additional floodplain connected to the stream. In the Delta, a Setback Levee may not necessarily result in removal of the existing levee.

"State:" The State of California, acting by and through the Department of Water Resources.

“Stranded Investments:” Are funds committed to Projects that do not eventually contribute to the overall flood protection system or, at the very least, provide lasting benefits that are greater than the Project cost.

III. NO-REGRETS PROJECTS

The Department is developing a long-term levee policy in the Delta that will be adapted as the Delta Risk Management Strategy (DRMS) and a number of other planning processes are finalized, including, but not limited to the Delta Vision Strategic Plan, the Bay Delta Conservation Plan, the CALFED Ecosystem Restoration Program Strategic Plan, the Central Valley Flood Protection Plan, and the Strategic Plan of the State Water Resources Control Board, and the planning processes, such as the Delta Plan, initiated by the enactment of recent Senate Bills signed into the law in November 2009.

Like the January 2009 Interim Special Projects Guidelines, the Department issues these Near - Term Guidelines to continue critical flood protection work in the Delta while Delta-wide planning progresses. As a result these Guidelines require all Projects to be No-Regrets meaning all work funded under these Guidelines must be a strategic action that can immediately take advantage of Senate Bill X2 1 and Senate Bill X7 8 funding or any other Special Projects funding available during the Near-Term period. These actions must not conflict with the current knowledge within the plans (and draft plans) referenced above and will not foreclose future habitat restoration opportunities. Such Projects must not be likely to lead to Stranded Investments.

No-Regrets Projects include levee works and habitat projects that:

- Are clearly legislatively authorized; and
- Protect assets of statewide importance; and

- Ensure no net loss of habitat and are consistent with a net long-term habitat enhancement program.

In addition to these three required components, No Regrets Projects must include one of the following characteristics:

- Repair or improve levee sections that provide protection of public investments; or;
- Improve the levee up to HMP or the Delta Specific PL 84-99 standards as provided for in these Guidelines; or
- Support needed urgent repairs to prevent levee breach or failure; or
- Provide studies or research critical to Delta flood protection issues; or
- Meet the Special Projects habitat enhancement priorities.

In addition, if a Local Agency has any interaction with ongoing flood protection programs it must consider that relationship and detail how it is coordinating this Project with those programs.

IV. AVAILABLE FUNDING

Senate Bill X2 1 authorized DWR to spend $100 million of Proposition 84 funds to improve levee stability, reduce subsidence, and assist in restoring the Delta ecosystem, with a priority on projects that benefit delta smelt and other native fish. It also provides DWR with $35 million in Proposition 1E funds for levee works to protect aqueducts crossing the Delta. Finally, $20 million of the $100 million of Proposition 1E funds dedicated to emergency response and preparedness are authorized by Senate Bill X2 1 to be allocated to the Delta Levees Special Projects to be spent on emergency repairs. The remaining $80 million will be allocated to the Flood Operations Center for emergency response. Senate Bill X7 8 authorizes DWR to spend $202 million ($32 million from Proposition 84 and $170 million from Proposition 1E) for flood protection projects in the Delta to reduce the risk of levee failures that would jeopardize water conveyance. Both Senate Bill X2 1 and Senate Bill X7 8 funded Projects are subject to the approval of the Secretary of the Natural Resources Agency.

The Department expects that additional funds will be available through the State budget process for this program through Fiscal Year 2010-2011.

V. ELIGIBLE PROJECTS

Eligible Projects include levee evaluation, repair and/or improvement and habitat enhancement. Acceptable work is not limited to construction but includes engineering, studies, research, and design. Under these Guidelines, Eligible Projects must meet the No Regrets requirements discussed in Section III, the eligibility requirements, and any additional category-specific requirements discussed in Section XIII.

Eligible Projects in no specific order include, but are not limited to:

- Field Investigations, including electromagnetic survey, topographical survey, or other testing research needed to formulate the Scope of Work;
- Habitat Projects, including restoration and protection that meets program mandates to ensure no net loss of habitat and net habitat enhancement. This includes planning, management, and monitoring.
- Setback Levees, to reduce flood risk for the Local Agency;
- Levee Improvement, to reduce flood risk for the Local Agency;
- Levee Repair, as needed to improve the levee integrity and provide additional flood risk reduction benefits to the Local Agency;
- Emergency Response Planning and Preparedness, planning efforts and flood preparation efforts (such as stockpiling flood fight materials) to support ongoing FloodSAFE Program actions to improve emergency response. Such work should be consistent with the Department's Delta Specific Flood Emergency Operation Plan that is currently under development.
- Engineering Analysis and Design work, needed to pursue a Project;
- Environmental Permitting and Planning work. This work includes preparing CEQA or NEPA documents, obtaining other environmental permits (e.g., USACE, FWS, or DFG permits), preparing and filing environmental documents related to a specific project or developing programmatic documents for future projects;
- Planning Studies, to better understand the future flood control needs of the Local Agency;
- Scientific Studies and Research, to assist the Department and Local Agency to better understand Delta characteristics such as subsidence or ecosystem restoration related to improvement of levees to HMP or Delta Specific PL 84-99 standards;

- Beneficial Reuse Projects, to assist federal, State, and Local Agencies to promote the Beneficial Reuse of clean dredged materials for levee rehabilitation and habitat enhancement projects as appropriate, related to improvement of levees to HMP or Delta Specific PL 84-99 standards;

- Water Projects, a project to improve/reinforce levees that protect water supply and quality, to the extent that such Projects are a component of a larger Project intended to raise a levee to HMP or Delta Specific PL 84-99 standards or protect Delta aqueducts; and

- Development of a Five-Year Plan, for rehabilitation, repair or improvement of a Local Agency's facilities to a desired levee standard or level of protection.

VI. INELIGIBLE PROJECTS

Ineligible Projects include projects which do not meet eligibility requirements and those directly related to work on agricultural, water supply and waste disposal facilities. Such Projects generally do not meet the primary purpose of the Special Projects and the intent of California Water Code Section 12311: "the [flood] protection of discrete and identifiable public benefits, including the protection of public highways and roads, utility lines and conduits, and other public facilities, and the protection of urbanized areas, water quality, recreation, navigation, and fish and wildlife habitats, and other public benefits."

Under these Guidelines Ineligible Projects might also include Projects that do not meet the No Regret requirements, but might otherwise be eligible. To the extent a Project appears ineligible but actually may meet the intent of Water Code Section 12311, the Department retains discretion to approve the Project. Examples of Projects that are not eligible include, but are not limited to:

- Drainage projects when the scope of the proposed Project is the responsibility of the Local Agency as part of its routine maintenance work;

- Irrigation projects;

- Projects that support agricultural operations, such as repair of pumping stations, or routine maintenance activities, such as maintaining drainage ditches that are the responsibility of the Local Agency;

- Water supply projects to develop or repair facilities for the purpose of water delivery within the jurisdiction of the Local Agency (Projects increasing protection of water supply facilities are eligible);

- Projects that do not meet the No Regrets requirements discussed above; and

- Waste disposal projects to develop or repair conveyance facilities for the purpose of waste disposal within the jurisdiction of the Local Agency.

VII. ELIGIBLE COSTS

Eligible Project Costs are the reasonable and necessary actual costs associated with an Eligible Project incurred after November 7, 2006 (date of passage of Propositions 84 and 1E). Reimbursement will not be provided for Eligible Project Costs incurred before a Project Funding Agreement is executed, except in extraordinary circumstances when the Local Agency has obtained written authorization from the Department prior to incurring the cost. Credit may normally be provided for Eligible Project Costs incurred prior to execution of a Funding Agreement with written approval from the Department prior to incurring the cost. Eligible Project Costs may include, but are not limited to, the following:

- Project engineering, design, and construction costs;[3]
- Costs of planning, implementing, and maintaining habitat mitigation and/or enhancement associated with the project
- Costs of obtaining environmental permits and associated environmental mitigation costs including the costs of preparing CEQA and NEPA documents (if applicable) that are directly related to and necessary for the proposed Project;
- Costs of obtaining necessary federal or state governmental approvals;
- Reasonable legal fees associated with incurring Eligible Project Costs, such as those listed above;
- Reasonable overhead costs relating to the Project;
- Cost of conducting a Project Review, if required by the Department; and
- Eligible Real Estate Capital Outlays. Special Projects real estate costs are generally the responsibility of the Local Agency. For some Projects, such as Habitat and Setback Levee projects, the Department may fund a portion of real estate costs. Only the fair market value of real estate costs for land that has been appraised and deemed suitable for its intended purposes by the Department will be considered Eligible Costs.
- The Department may consider costs for removal or relocation on a case by case basis.

VIII. INELIGIBLE COSTS

Costs that are not eligible may include, but are not limited to, the following:

[3] For construction Projects, the State will only pay its State share of Non-Construction Costs up to 20% of the total Project cost. Any additional reimbursement exceeding the 20% will require prior approval by the Department.

- Operation, maintenance, repair, replacement, and rehabilitation costs of the completed levee works, including the cost to maintain the HMP or Delta Specific PL 84-99 standards once they have been achieved through a Project funded under the Special Projects program;

- Purchase of equipment that is not an integral part of the Project;

- Replacement of existing funding sources for ongoing projects;

- Support of existing Local Agency requirements and mandates;

- Purchase of land in excess of the minimum required acreage or at a price in excess of its market value, unless the Local Agency provides evidence demonstrating the cost effectiveness of the transaction. The Project Funding Agreement will detail the terms and conditions of such an exception. For purposes of Special Projects, the minimum required acreage is determined by the amount of acreage an agency purchases to acquire the land it actually needs. For example, if an agency needs a 1 acre piece of land inside a 5 acre parcel and the landowner is only willing to sell the 5 acres as a whole, the minimum required acreage is the 5 acres, not the 1 necessary acre;

- Costs that the State does not authorize as part of final accounting; i.e. works not related to flood protection and/or habitat.

- Costs incurred as part of any and all necessary response and cleanup activities required under CERCLA, RCRA, Hazardous Substances Control Act or other applicable law; and

- Costs, including engineering and environmental expenses, associated with preliminary studies that are not directly related to the proposed Project, unless approved in writing by the Department prior to incurring the cost.

IX. FIVE-YEAR PLANS

Under these Guidelines, Local Agencies in the Delta continue to have the opportunity to develop a Five-Year Plan. The Five-Year Plan assesses the current conditions of a Local Agency's levees and sets out a strategy for rehabilitation, repair and/or improvement of its facilities to meet a desired levee standard and/or level of protection.

All Applicants seeking funding for Special Projects will eventually be required to provide, with their application, a complete Five-Year Plan. For this reason the Department strongly urges all Local Agencies that have not completed a Five-Year Plan to request funding for, and complete such a Plan before applying for other Special Projects.

The State will fund 100% of the first $50,000 spent on the preparation of Five-Year Plan, 75% of any costs between $50,000 and $100,000 and will not share any costs

related to the Five-Year Plan beyond $100,000. The Five-Year Plan must provide an assessment of the district's existing levee system and a strategic plan to meet a desired levee standard and/or level of protection. These plans must identify risks to island assets, assets of statewide importance and provide a long-term funding strategy. Plans must also describe how habitat impacts from proposed levee work will be avoided or mitigated, whether any enhancement activities are planned, and how the planned projects will address CEQA and environmental permitting requirements. The final plan shall be submitted to DWR for review and evaluation. An outline of what is required in the Five-Year Plan is attached as Exhibit A.

X. APPLICATION PROCESS

The Department anticipates that it will issue multiple Special Projects Solicitation Packages (PSP) under the Near-Term Guidelines.

PSPs will be sent out to all Local Agencies that qualify for Special Project Funding. These PSPs will also be posted on the Special Projects website. They will describe all application requirements (as more fully set forth in these Guidelines) and will establish the application and selection timeline as well as the scoring system to rank each project.

Again, **Five-Year Plans will eventually be required of all Applicants** seeking funding for Special Projects. As a result, any Local Agency that has not yet executed a Project Funding Agreement to complete a Five-Year Plan should send a letter of request and apply to complete a Plan.

XI. REQUIRED APPLICATION MATERIALS

Applications must include the following when submitting a Project proposal:[4]

- An application cover sheet that provides an overview of the Project;
- A statement identifying the Applicant's representatives;
- A resolution signed by the Local Agency authorizing submission of the application and designating a representative to sign the application, entering into a contract with the State of California, implementing a flood protection program, and providing the local cost-share;
- A detailed Project Description; including maps, drawings and a statement explaining the assets the Project will protect and justification for the project. The level of detail provided in the Project Description is at the discretion of the Applicant, but it is in the Applicant's interest to offer as much detail and

[4] Applicants with questions about what to provide should consult with the Department. Typically FloodSAFE requires an economic justification. Projects eligible under these guidelines, however, do not need to provide any economic justification since the California Water Code includes specific mandates for the Delta Special Projects Program.

documentation as possible, as the eligibility and ranking criteria in these Guidelines require a great deal of specific information;

- References for information used in the proposal should be cited.
- A statement from a California registered professional civil engineer who has reviewed the Project Description discussing the benefits of the project to flood protection and/or habitat;
- A detailed statement of expected Project costs and a detailed Financial Plan;
- A detailed description of the impact the Project has on habitat and the environment, a detailed discussion of the environmental permits required for the Project based on the anticipated impact, and a schedule for permit completion;
- A statement addressing the impacts of climate change on the Local Agency levees and possible features allowing accommodation or adaptation to future moderate changes.
- A detailed description of how the Project will mitigate for all environmental impacts, including the requirements of Water Code Section 12314, which requires no net long-term loss of habitat and net habitat improvement (through impact avoidance, minimization, or mitigation). The statement of expected Project costs should include habitat costs;
- A cost-share recommendation and report detailing the amount of State cost-share to which the Local Agency believes it is entitled and a Local Agency Benefit Assessment (LABA) if the Local Agency intends to request an Alternative Cost-Share.

All participants are subject to State and Federal conflict of interest laws. Failure to comply with these laws, including business and financial disclosure provisions, will result in the application being rejected and any subsequent contract being declared void. Other legal action may also be taken. Applicable statutes include, but are not limited to, Government Code, Section 1090, and Public Contract Code, Sections 10410 and 10411, for State conflict of interest requirements.

In addition, the Applicants will be required to keep informed of and take all measures necessary to ensure compliance with applicable California Labor Code requirements, including but not limited to Section 1720 *et seq*. of the California Labor Code regarding public works, limitations on use of volunteer labor (California Labor Code Section 1720.4), labor compliance programs (California Labor Code Section 1771.5) and payment of prevailing wages for work done under a Funding Agreement.

For Projects that receive funding pursuant to the provisions of Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection

Bond Act of 2006, Cal. Pub. Res. Code § 75076 *et seq*., the Local Agency will be required to maintain a labor compliance program that meets the requirements of California Labor Code Section 1771.5. Written evidence of the Labor Compliance Program will need to be submitted to the State before the project is funded.

XII. SUBMITTAL DEADLINE

Project Proposals that do not meet the deadline established in the Projects Solicitation Package will not be reviewed. The Department will review all timely submittals for completeness after proposals are submitted. Proposals that are not substantially complete will not be further reviewed. The Department may contact proponents of proposals that are substantially complete but missing some items. If a Local Agency is contacted by the Department with a request for more materials, it will have one week to provide all requested information.

XIII. PROJECT ELIGIBILITY CRITERIA

Under these Guidelines, applications will be solicited for work that improves Delta levees to HMP and/or Delta Specific PL 84-99 standards[5], Delta Levee Studies or Research related to improvement of levees to HMP or Delta Specific PL 84-99 standards, work that improves protection of aqueducts that cross the Delta, work to reduce the risk of levee failures that would jeopardize water conveyance, and/or work that provides significant habitat enhancements. Eligible Projects also include stand-alone engineering and design Projects. Review of stand-alone applications for engineering and design, or studies, will assume that the Project is actually built and will measure the strength of the application based on how it meets the criteria of the category (HMP, Delta Specific PL 84-99 etc.) into which it would fall if it were an actual construction Project.

Applications must meet the Eligibility Criteria and other general requirements described in these Guidelines. Where applicable, applications must also meet category-specific Eligibility Criteria.

1. Project must be intended to: (a) research, study, design or construct work that will bring the levee system up to HMP or Delta Specific PL 84-99 standards, (b) conduct Delta Levee Studies or Research related to improvement of levees to HMP or Delta Specific PL 84-99 standards, (c) create, restore, enhance or protect habitat, or (d) complete a Five-Year Plan.
2. Project must not significantly impair the functionality of the levee system.
3. Where and when applicable, the Department must approve of the level of protection and/or levee standard that the Local Agency seeks to achieve through build-out of its Five-Year Plan.

[5] See Exhibit B

4. Project should address the impacts of climate change on the Local Agency levees and discuss features that allow accommodation or adaptation to future moderate changes.
5. Project must not induce growth (e.g. urbanization).
6. Project proposal must include a Project Description, Financial Plan, and a schedule.
7. Application should identify all potential beneficiaries of the proposed Project, including population estimates, infrastructure, environmental resources (terrestrial and aquatic), and other improved properties.
8. Projects must meet the requirements of California Water Code Section 12310 *et seq.*

Table 1: Project Eligibility Criteria

A) HMP Project Eligibility Requirements:

Specific Requirements	Notes
Project must be consistent with the Local Agency's Five-Year Plan (if a Plan has been completed). Local Agency must provide proof that successful construction of this Project will result in a flood protection facility that meets HMP standards. Local Agency should demonstrate that the proposed HMP Project is consistent with the Department's objective of improving all levees within a district to HMP standard. A design upgrade (overbuild) may be proposed in a HMP project to add up to 0.5 foot of extra crest elevation. An additional 0.5 foot may be added if the levee crest includes a state or county paved road, for a total of up to 1.0 foot. Additional overbuild may be considered, with DWR prior approval, if the Local Agency submits adequate engineering analysis.	The State's goal is to raise Delta Levees to HMP for the following reasons. 1) HMP is a key first-step improvement to many of the existing Delta levees. Many Local Agencies desire to improve their systems beyond this level, but HMP is an important building block. 2) Levees that are HMP rated meet FEMA standards for disaster assistance. Raising levees to HMP may help to ensure the State or Local Agencies can secure federal funds for disaster relief in case of a significant Delta flood event. Local Agencies should, generally, propose to raise all levees within its jurisdiction to HMP standard before considering work that brings all or a portion of the levees to a higher standard. Local Agencies may propose work to increase flood protection beyond HMP, particularly when completing HMP and Delta Specific PL 84-99 improvements concurrently is more efficient and cost effective.

Table 1: Project Eligibility Criteria (Continued)

B) Delta Specific PL 84-99 Project Eligibility Requirements:

Specific Requirements	Notes
Project must be consistent with the Local Agency's Five-Year Plan (if a Plan has been completed). Project must raise the length of levee addressed to the Delta Specific PL 84-99 criteria (with additional improvements responsive to Bulletin 192-82 non-urban criteria). Local Agency's Financial Plan demonstrates a plan to achieve Delta Specific PL 84-99 compliance for the entire protected area by FY 2015-2016 (assuming needed state funding is available). A design upgrade (overbuild) may be proposed in a Delta Specific PL 84-99 project to add up to 0.5 foot of extra crest elevation. An additional 0.5 foot may be added if the levee crest includes a state or county paved road, for a total of up to 1.0 foot. Additional overbuild may be considered, with DWR prior approval, if the Local Agency submits adequate engineering analysis.	The Department is committed to improving most facilities to HMP standard, but it actually intends to allocate more funds over the course of these Guidelines to Projects seeking to raise their level of protection to the Delta Specific PL 84-99 Standard. Levees that meet this standard may be able to qualify for rehabilitation assistance by the USACE when the levees are damaged.

C) Delta Aqueducts Protection Eligibility Requirements:

Specific Requirements	Notes
Project must be for work to reinforce levees that have the highest potential to suffer breaches or failure and cause harm to municipal and industrial water supply aqueducts that *cross* the Delta that are vulnerable to flood damage.	Projects that qualify for Delta Aqueduct funding will be ranked against other Delta Aqueduct Projects using a modified version of ranking criteria for HMP or Delta Specific PL 84-99, depending on the level of protection sought in the Project.

Table 1: Project Eligibility Criteria (Continued)

D) Habitat Project Eligibility Requirements:

Specific Requirements	Notes
Project assists in restoring one or more habitats that can contribute to health of the Delta or Suisun Marsh Ecosystem consistent with the net habitat improvement requirements of the Program OR	The Department intends to fund habitat restoration or improvement projects that benefit habitats that have been impacted by historic levee construction. The program seeks to enhance or restore the four habitats commonly associated with the Delta Levees Program – Scrub Shrub, Riparian Forest, Freshwater Marsh, and Shaded Riverine Aquatic Habitats. Consistent with the requirements of Senate Bill X2 1, projects that improve conditions for Delta Smelt and other native fish are also considered priorities.
Project results in a habitat bank larger than 50 acres that can be used by any eligible Local Agency within the Program to mitigate the habitat impacts of their levee repair work consistent with the program mandates. Such a habitat bank must be consistent with guidance provided by DWR and DFG and will come under a separate directed action.	The Department also intends to support a pilot project to develop a habitat conservation (mitigation) bank to provide mitigation for multiple islands' anticipated habitat impacts. The habitat bank must be consistent with the regulatory structures that have been developed by the Department and the Department of Fish and Game and be tailored specifically to the needs of the Program. Additional detail on this approach and specific requirements will be provided to Local Agencies in the Projects Solicitation Package.

XIV. PROJECT SELECTION CRITERIA

As discussed above, the Special Projects program covers a variety of work. As a result, Projects will be categorized for ranking purposes. This will ensure that applications compete with like applications. Local Agencies should offer sufficient information to meet the required criteria. Department retains discretion to check for reasonableness and accuracy of submitted materials. The following are Project selection tables:

To the extent that funding is limited, Eligible Projects will be ranked using category-specific Selection Criteria. There are a number of selection criteria that address similar aspects of levee projects in several ways. It is the intent of these Guidelines that credit for only one condition will apply; therefore, there will be no double counting of Selection Criteria for similar aspects of the proposed project.

Table 2: Project Selection Criteria

A) HMP Project Selection Criteria:

Selection Criteria	Notes
The Department intends to allow Local Agencies the opportunity to achieve HMP. If the amount of money available for HMP Projects is insufficient to fund qualified HMP proposals, the Department will rank proposals based on the size of geographic area to be protected by the proposed Project, the extent to which the Project protects life and safety and the likelihood that the Project will be completed in the current construction season. In addition, Projects will be selected based on the extent to which the project identifies potential habitat impacts and avoids these impacts or provides for their mitigation. Where applicable (i.e., subject to Senate Bill X2 1 proposition 84 funding), priority shall be given to projects that improve conditions for delta smelt and other native fish.	HMP Project proponents should be aware that Local Agencies seeking to raise a levee beyond HMP status must demonstrate that all of the levees and flood protection facilities in their jurisdiction have been raised to HMP.

Table 2: Project Selection Criteria (Continued)

B) Delta Specific PL 84-99 Project Selection Criteria:

Selection Criteria	Notes
Life Safety (Number of People Protected)	This criterion rates each Project based on the total number of people the Project would protect at the Delta Specific PL 84-99 level.
Infrastructure (Highways)	This criterion rates each Project based on whether and how much it will increase protection to one or more state highway systems.
Infrastructure (Emergency)	This criterion rates each Project based on whether it increases protection of utilities, roads, services, fuel center, food centers, etc.
Infrastructure (Local Assets)	This criterion rates each Project based on whether it increases protection to local assets, such as local businesses, agricultural operations and facilities, local transportation routes, etc.
Infrastructure (Water Conveyance, Water Supply Reliability)	This criterion rates each Project based on whether it increases protection to water conveyance structures.
Water Quality	This criterion rates each Project based on whether it increases protection of Delta water quality.
Habitat Impacts and Mitigation	This criterion rates each Project based on how well it meets the “no net long-term loss” of habitat requirement of the Special Projects program. Projects that avoid or mitigate habitat impacts at the time of construction will be favored. Projects that describe unavoidable habitat impacts and describe how these impacts will be mitigated at a future date will be less favored. Local Agency to offer sufficient information to meet this criterion, including documentation of any consultation with the California Department of Fish and Game to substantiate the assertions in their application. Department retains discretion to check for reasonableness and accuracy of submitted materials.

Table 2: Project Selection Criteria (Continued)

B) Delta Specific PL 84-99 Project Selection Criteria (Continued):

Selection Criteria	Notes
Habitat Improvement and Ecosystem Restoration	This criterion rates the anticipated ecological benefits of the project consistent with the Program's net long-tem habitat improvement requirement. Consistent with Senate Bill X2 1 requirements, projects that improve conditions for delta smelt and other native fish are most favored. Projects that create or improve habitats including tidal marsh, wetland, and floodplain habitats fragmented by historic levee construction, or upland habitats associated with the maintenance or improvement of levees will be priorities. All projects will be evaluated under this criteria based on their demonstrated ecological benefits, soundness of their approach, and feasibility.
Project description and permits	This criterion evaluates the completeness of the Project Description and thoroughness of Local Agency's plan to obtain the required permits (e.g., an identification of all required permits with corresponding budget and timeline).
Partnerships	This criterion evaluates how much (if any) of the Eligible Project cost is being shared by a partner.

C) Delta Aqueduct Project Selection Criteria:

Selection Criteria	Notes
Levee proximity to aqueduct	Projects will be favored if the increase in the level of protection a levee will offer the aqueduct begins close to the aqueduct and continues out from the aqueduct to a distance of 1000 feet.
Life Safety (Number of People Protected)	This criterion rates each Project based on the total number of people the Project would protect at the Delta Specific PL 84-99 level.
Infrastructure (Highways)	This criterion rates each Project based on whether and how much it will increase protection to one or more state highway systems.
Infrastructure (Emergency)	This criterion rates each Project based on whether it increases protection of utilities, roads, services, fuel center, food centers, etc.

Table 2: Project Selection Criteria (Continued)

C) Delta Aqueduct Project Selection Criteria (Continued):

Selection Criteria	Notes
Infrastructure (Local Assets)	This criterion rates each Project based on whether it increases protection to local assets, such as local businesses, agricultural operations and facilities, local transportation routes, etc.
Infrastructure (Water Conveyance, Water Supply Reliability)	This criterion rates each Project based on whether it increases protection to water conveyance structures.
Water Quality	This criterion rates each Project based on whether it increases protection of Delta water quality. Local Agency to offer sufficient information to meet this criterion. Department retains discretion to check for reasonableness and accuracy of submitted materials.
Habitat Impacts and Mitigation	This criterion rates each Project based on how well it meets the "no net long-term loss" of habitat requirement of the Special Projects program. Projects that avoid or mitigate habitat impacts at the time of construction will be favored. Projects that describe unavoidable habitat impact and how these impacts will be mitigated at a future date will be less favored. Local Agency to offer sufficient information to meet this criterion, including documentation of any consultation with the California Department of Fish and Game to substantiate the assertions in their application. Department retains discretion to check for reasonableness and accuracy of submitted materials.
Habitat Improvement and Ecosystem Restoration	This criterion rates the anticipated ecological benefits of the project consistent with the Program's net long-tem habitat improvement requirement. Projects that create or improve habitats including tidal marsh, wetland, and floodplain habitats fragmented by historic levee construction, or upland habitats associated with the maintenance or improvement of levees will be favored. All projects will be evaluated under this criteria based on their demonstrated ecological benefits, soundness of their approach, and feasibility.
Project description and permits	This criterion evaluates the completeness of the Project Description and thoroughness of Local Agency's plan to obtain the required permits (e.g., an identification of all required permits with corresponding budget and timeline).

Table 2: Project Selection Criteria (Continued)

C) Delta Aqueduct Project Selection Criteria (Continued):

Selection Criteria	Notes
Partnerships	This criterion evaluates how much (if any) of the Eligible Project cost is being shared by a partner.

D) Habitat Project Selection Criteria:

Habitat Improvement and Ecosystem Restoration	
Selection Criteria	**Notes**
Habitat Goals or Targets	This criterion evaluates the types and locations of habitats the project will establish and describes its relationship to other existing or emerging Delta-wide restoration plans.
Delta smelt and other native fish	This criterion evaluates the extent to which the proposed project improves habitat conditions for delta smelt or other native fish.
Ecosystem Benefits	This criterion evaluates the extent to which the project describes and demonstrates its anticipated ecological benefits, including but not limited to opportunities to improve habitats impacted by historical levee work, improve conditions for threatened and endangered species, provide a landscape-scale approach, and restore natural hydrological regimes.
Approach and Feasibility	This criterion evaluates the extent to which the project describes a restoration approach that is feasible based on the best available information, including project location, restoration methods, timing and long-term viability.
Project description and permits	This criterion evaluates the completeness of the Project Description and thoroughness of Local Agency's plan to obtain the required permits (e.g., an identification of all required permits with corresponding budget and timeline).
Technical Capacity and Resources	This criterion evaluates the technical resources of the proposed restoration project team. In addition to engineering competence, this includes restoration ecology and design professionals.
Partnerships	This criterion evaluates how much (if any) of the Eligible Project cost is being shared by a partner.
Project Performance and Adaptive Management	This criterion evaluates how the project will evaluate its own success and the robustness of its long-term management plan, including the financial resources allocated to manage or maintain the habitat in perpetuity.

XV. COST-SHARE FORMULA

The state share of the Project cost will be limited to no more than $5 million to achieve economies of scale yet maintain the ability to complete the Project in one construction season.[6] For the Delta Specific PL 84-99 work, the State share of the cost in excess of $5 million will only be at 50 percent subject to availability of funds. The State will pay a maximum of 20% for pre-construction engineering costs (e.g. planning, permitting, or design).[7]

State cost-share is determined by Project category. The Local Agency must submit, along with the rest of its application, a cost-share recommendation estimate that makes its claim to the amount of cost-share the State should offer for its proposed Project. The following table describes the cost-share approach by category:

Table 3: Project Cost-Share

A) HMP Project Cost-Share:

Category	Cost-Share
Projects meeting HMP standard.	The State will cost-share HMP Projects at a minimum of 90%.[8] HMP Project proponents may qualify for Enhanced Cost-Share, as described below (Delta Specific PL 84-99 Cost-Share). Cost share of HMP Projects will be capped at 95% of the Local Agency expenses or total Project cost.

B) Delta Specific PL 84-99 Project Cost-Share:

Category	Cost-Share
Projects meeting Delta Specific PL 84-99 standard.	Delta Specific PL 84-99 Projects will be cost-shared in accordance with the following three steps: **Base State Share** – The Base State Cost-Share for projects within the Primary Zone of the Delta, as defined under the Water Code Section 12220, will be set at 75%. The Base State Cost-Share for projects within the Secondary Zone of the Delta, as defined under the Water Code Section 12220, will be set at 50%. This share is the amount the State will contribute

[6] The Department may, in unique circumstances, fund projects with a State share of costs of more than $5 million. However, the priority shall be given to projects requesting State share of $5 million or less.
[7] This only applies to Projects that include actual construction. Any additional reimbursement exceeding the 20% will require prior approval by the Department.
[8] Local Agencies submitting an HMP Project proposal or those in the Primary Zone may not conduct a LABA for this round of funding.

Table 3: Project Cost-Share (Continued)

B) Delta Specific PL 84-99 Project Cost-Share (Continued):

Category	Cost-Share
	towards the Project before Enhanced Cost-Share is considered (assuming that the LABA does not raise the State Share). If the State or Local Agency identifies specific, discrete third-party beneficiary to the Project (such as a utility company whose transmission or gas lines will experience increased flood protection as a result of the project) and that third-party beneficiary refuses to contribute its fair share to funding the Project, the State reserves the right not to raise its share above this base level or otherwise restrain or withdraw its support for the Project. **Alternative State Share** – For all projects within the Secondary Zone the Base State Cost-Share may be increased to an Alternative State Share, based on the LABA[9]. The LABA must be performed according to Delta Levees Program methodology. *See* Exhibit C.[10] The maximum State share established by this step will be 75%, unless, at the sole discretion of the Department, it is waived. **Enhancement of State Cost-Share***:* that the State cost-share may be increased, by as much as 20%, if the proposed Project achieves a significant contribution to specific public purposes as described below. Applicants seeking to enhance their state cost-share must provide documentary information sufficient to demonstrate, to the Department's satisfaction, that the specific public purposes are significant and an Enhanced State Cost-Share is merited. Enhanced Cost-Share will apply to the entire project; however, it cannot qualify a Project for a 100% State Share. The ceiling for the overall State share (including Enhanced Cost-Share) is generally 95% of the Local Agency expenses to complete the Project (if in Partnership) or total project cost.[11]

[9] The Department will provide a cost-share of 75% for the development of a LABA, up to a maximum of $20,000. A separate funding agreement will be required for the preparation of a LABA.
[10] As an example, if a Local Agency's LABA indicates that the benefits the Local Agency will receive (locally) from the Project are 15%, the State Share will generally be raised to 75%.
[11] DWR may, at its sole discretion, waive this ceiling for projects that have primarily statewide or program-wide benefits, such as a habitat enhancement project.

Table 3: Project Cost-Share

B) Delta Specific PL 84-99 Project Cost-Share (Continued):

Category	Cost-Share
	Eligible Enhanced Cost-Share includes the following: **Emergency Response Measures** – The Local Agency should demonstrate how its proposed Project contributes to emergency response and/or preparedness. The State may increase its cost-share of the Project by the amount (expressed as a percentage of the overall Eligible Projects costs) that the emergency response aspect of the Project increases the total cost. The emergency response measures may be separable (emergency response only) costs or emergency response allocable costs. This increase will be capped at 10%. **Habitat** – The State may enhance its cost-share for Projects that fully mitigate habitat impacts prior to or at the time of construction and contribute to program-wide net habitat improvement by incorporating habitat enhancement or ecosystem restoration features consistent with the Program's net long-term habitat improvement mandate including elements that improve conditions for delta smelt and other native fish. The amount of cost-share enhancements associated with habitat features will be commensurate with the habitat benefits provided by the improvements and will be specified in applicable Projects Solicitation Packages. This increase will be capped at 10%. **Subsidence Control or Reversal** – The Local Agency should demonstrate how its proposed Project contributes to subsidence control or reversal. The State may increase its cost-share of the Project by the amount (expressed as a percentage of the overall Eligible Projects costs) that the subsidence reduction aspect of the Project increases the total cost. The subsidence reduction measures may be separable (subsidence reduction only) costs or subsidence reduction-allocable costs. This increase will be capped at 10%. **Statewide Interests** – The State may increase its cost-share for Projects that increase flood protection to statewide interests. Statewide interests may include water quality protection, water supply reliability, or public transportation or other public infrastructure. The State's cost-share of the Project may be increased up to a maximum of 10%.

Table 3: Project Cost-Share

B) Delta Specific PL 84-99 Project Cost-Share (Continued):

Category	Cost-Share
	Beneficial Reuse – The State may increase its Cost-Share for Projects that beneficially reuse dredged material. The Local Agency must demonstrate the savings that use of existing dredged material will create. The State will reimburse these savings to the Local Agencies. Any cost-share calculation will be performed after these savings have been deducted from the project cost. These savings are not to exceed 10% of the Eligible Project Costs. **Cost share Partners** – Local Agencies may receive a 50% State matching of a third party contribution to the Project, up to 95% of the Local Agency expenses or total Project cost, for secured funding outside of the Delta Levees Program for their Projects.

C) Delta Aqueduct Project Cost-Share:

Category	Cost-Share
Delta Aqueduct	Delta Aqueduct Projects will be cost-shared based on the level of protection they achieve. If HMP, then they will be cost-shared like HMP Projects, discussed above. If Delta Specific PL 84-99, they will be cost-shared like a Delta Specific PL 84-99 Project, as discussed above.

D) Habitat Project Cost-Share:

Category	Cost-Share
Habitat	Projects that assist in restoring one or more habitats that contribute to the improvement in the Delta or Suisun Marsh ecosystem on a system-wide basis consistent with the net habitat improvement requirements of the program may receive an increased cost-share of 40% over base funding[12]. Projects that provide habitat consistent with the interagency cooperative mitigation banking program for Delta levees may receive an increase of up to 40% over base funding.

[12] DWR may, at its sole discretion, waive this ceiling for projects that have primarily statewide or program wide benefits, such as a habitat enhancement project.

XVI. DIRECTED ACTIVITIES

The Department reserves the right to develop and support Projects through a collaborative process between the Department and Local Agencies.

Such Projects will be called Direct Expenditures or Directed Activities. The Department will apply these Guidelines, as it deems applicable and appropriate, to such Directed Activities. The Department will also seek guidance from Propositions 1E and 84, California Water Code Section 12310 *et. seq.*, California Water Code Section 83000 *et seq*. and prevailing California law in determining how it will direct its expenditures.

The types of Projects that DWR may implement directly are likely to be subsidence reversal and habitat Projects, but may include other kinds of Projects, such as the development of a habitat bank project for the Delta Levees Program. DWR may implement these Directed Expenditure Projects directly or through agreements with Local Agencies.

XVII. RESERVE FUND

No less than $6 million of the funds made available for the Delta Special Projects Program during the Fiscal Years governed by these Guidelines will be reserved for emergency repairs until after the flood season (April 15) each year. If any of this money is unspent, it will be used to fund additional Eligible Projects in the Delta.

XVIII. PROJECT ADMINISTRATION

Selected Projects will not be funded until a Funding Agreement is executed between the State and Local Agency. This Funding Agreement is comprehensive and will cover reporting requirements, work plans, progress reports, statements of cost, State hold-backs, and more. Five-Year Plan Projects will be governed by a streamlined Funding Agreement, but will still require a Funding Agreement.

EXHIBIT A

Requirements for the Five-Year Plan

1. Assessment of the status of existing levee system and future goals

The Plan should provide a clear description of the following:

- *a. Describe historical flood problems, including:*
  - ◊ *Dates of events*
  - ◊ *Estimated flood frequencies of events*
  - ◊ *Levee performance during these events,*
  - ◊ *Consequences of events*
- *b. What is the existing level of protection provided by the levee system? Include the source of this information. Specifically,*
  - ◊ *What portion of the levee is below or at HMP Standard?*
  - ◊ *What portion of the levee is at PL84-99?*
  - ◊ *What portion of the levee is above PL84-99?*
- *c. What level of protection is expected to be achieved at the end of the five years? Provide justifications in support of the anticipated outcomes.*

2. Strategy to meet desired level of protection

The Plan should elaborate on the desired level of protection at the end of five years (item "c" above) and discuss the following:

- *a. A complete description of the desired level of protection as a goal to achieve in the next five years.*
- *b. Phasing of the work, including a description of recommended projects needed to achieve the five year goal.*
- *c. Total estimated cost of the work and its distribution on a project-by-project basis over the five years.*
- *d. Potential cost sharing with other partners.*
- *e. Schedule of work.*
- *f. Discussion of potential obstacles to meet the desired goal.*

3. Identification of need for improvements to alleviate or minimize existing hazards

The Plan should provide an inventory of the local and non-local assets/critical infrastructures, both public and private, being protected by the levees. Local assets are those for which the Local Agency can levy assessments for flood protection; non-local assets are those the Local Agency cannot levy assessments for. The Local Agency should identify public benefits where applicable, such as:

- ◊ *Water quality*
- ◊ *Recreation*
- ◊ *Navigation*
- ◊ *Fish and wildlife*
- ◊ *Protection of State Infrastructure*
- ◊ *Other*

4. Identification of the risks for current land use based on the existing assets

The Plan needs to discuss risks associated with levee failure. In particular:

- ◊ *Consequences of levee failure or breach*
- ◊ *Existing deficiencies in the system, including existing seepage, boils, or voids under the levee*
- ◊ *Urgency of repair work*

5. Identification of opportunities for multi-objective projects

The Plan should, at a minimum, describe opportunities and significant constraints for achieving the following objectives:

- ◊ *Ecosystem restoration and habitat enhancement component*
- ◊ *Reversing land subsidence.*
- ◊ *Ensuring adequate and effective emergency response plans*
- ◊ *Benefitting water quality*
- ◊ *Improving water supply reliability*

6. Habitat Mitigation and Enhancement

The Plan should describe how work to be carried out under the plan will meet the requirements of Water Code Sections 12314 which require no net loss of habitat and consistency with net habitat improvement. The plan should describe the following:

a. *Baseline habitat conditions prior to the plan.*
b. *The anticipated impact to habitats and anticipated extent of the impact based on the identified needs for levee repair and other work outlined in the plan.*
c. *How the requirements for no net loss of habitat, and net habitat enhancement will be met.*

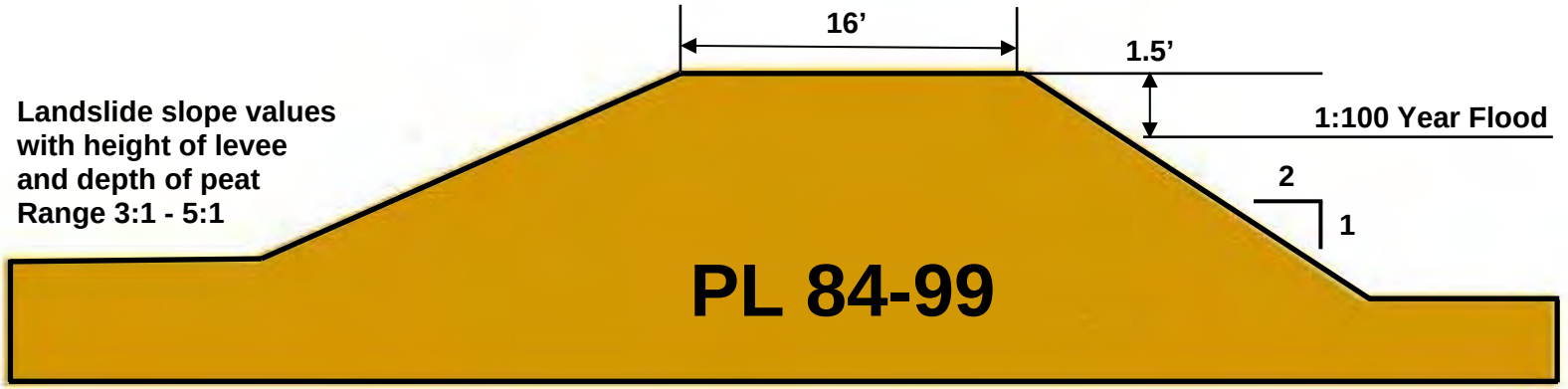
7. Compliance with CEQA and obtaining required permits

The Plan should describe all of the following:

a. *Types of permits and environmental compliance documents required.*
b. *Status of the environmental documentation.*
c. *Status of the permit process.*

Exhibit B

Typical Levee Cross-Sections



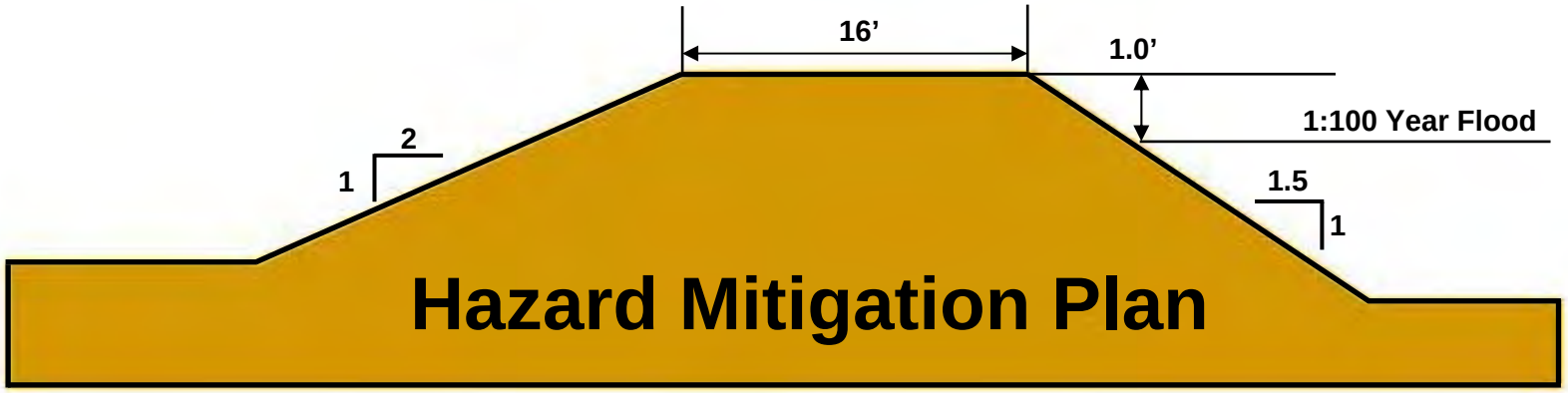


EXHIBIT C: LOCAL AGENCY BENEFIT ASSESSMENT

I. OVERVIEW

This appendix describes the methodology for a Local Agency Benefit Assessment. Applicants must complete a Local Agency Benefit Assessment if they are requesting State cost sharing based on an Alternative State Cost Share rather than the Base State Cost Share. An Alternative State Cost Share is capped at 75 percent of eligible project costs.

The purpose of the Local Agency Benefit Assessment is to estimate local flood damage reduction benefits from implementing the projects contained in the Applicant's Five-Year Plan. The Alternative State Cost Share is computed as one minus the ratio of the present value of estimated local flood damage reduction benefits to the present value of the estimated costs of plan implementation. The Applicant may request an Alternative State Cost Share when this value is greater than the State Base Cost Share. For example, if the State Base Cost Share is 50 percent and the computed value is 70 percent, the Applicant could propose an Alternative State Cost Share of 70 percent (before cost-sharing enhancements).[1].

Calculation of an Alternative State Cost Share is not necessary for projects in the Primary Zone of the Delta, since the Base State Cost Share for projects in the Primary Zone is already set to the 75 percent maximum State share. Likewise, calculation of an Alternative State Cost Share is not necessary for an HMP project, regardless of which zone it occurs in, since the Base State Cost share for HMP projects is already set to the 90 percent maximum State share.

An Alternative State Cost Share can be applied against the first $5 million of eligible project costs. State cost sharing of eligible project costs in excess of $5 million is capped at 50 percent. This restriction establishes a maximum State cost share (before enhancements). For projects costing $10 million or less, the maximum State share is 75 percent. For projects costing more than $10 million, the maximum State share is 50 percent plus an additional percentage equal to $2.5 million divided by the project's cost.

An Alternative State Cost Share is applicable to all (non-HMP) projects contained in the Applicant's Five-Year Plan. Thus, the Applicant only needs to complete a Local Agency Benefit Assessment once. The Applicant may use the results of the Local Agency Benefit Assessment on all funding applications pertaining to projects contained in its Five-Year Plan. The final State cost share on individual projects contained in the Applicant's Five-Year Plan may also include cost-sharing enhancements (see Section V of the Guidelines) and therefore may exceed the Alternative State Cost Share derived from the Local Agency Benefit Assessment.

An example is used to illustrate the process just described. For simplicity, assume the Five-Year Plan contains just one proposed project. The project would upgrade certain levees in the Secondary Zone to the Delta specific P.L.84-99 standard and has a present value cost of $20 million. A Base State Cost Share at the 50 percent level is $10 million. The Local Agency Benefit Assessment concludes the project would result in local flood damage reduction benefits

[1] Enhanced Cost Sharing is discussed in the Program Guidelines.

with a present value of $7 million. In this case, the Alternative State Cost Share would equal 65 percent (1 – 7/20), or $13 million. The maximum State share, however, is 62.5 percent (0.5 + 2.5/20), or $12.5 million. Therefore, the final State cost sharing (before enhancements) would be reduced to $12.5 million.

There are three possible outcomes of the Local Agency Benefit Assessment with regard to State cost-sharing, as follows:

1. The calculated Alternative State Cost Share is less than or equal to the State Base Cost Share. In this case, the Applicant would use the State Base Cost Share.

2. The calculated Alternative State Cost Share is greater than the State Base Cost Share and less than or equal to 75 percent. In this case, the Applicant would use the lesser of the Alternative State Cost Share and the maximum state share.[2]

3. The calculated Alternative State Cost Share is greater than 75 percent. In this case, the Applicant would use the lesser of the 75 percent Alternative State Cost Share and the maximum state share.

The purpose of the Local Agency Benefit Assessment is not an overall benefit-cost assessment, but rather an assessment of the benefits of the projects in the Five-Year Plan to the Applicant and its ratepayers. The Base or Alternative State Cost Share is intended to cover the costs of broader public benefits of the projects.

[2] For projects costing $10 million or less, the maximum state share is 75 percent. For projects costing more than $10 million, the maximum state share is 50 percent plus an additional percentage equal to $2.5 million divided by the project cost.

II. ESTIMATING FLOOD DAMAGE REDUCTION BENEFITS

A. Relationship to the Applicant's Five-Year Plan

Flood damage reduction benefits must be calculated in reference to the levee improvements and other flood risk mitigation actions specified in the Applicant's Five-Year Plan. The requirements for the Five-Year Plan are described in Exhibit A. This section discusses plan elements that pertain most directly to completion of a Local Agency Benefit Assessment. All discussion of benefits below refers only to the Local Agency benefits unless otherwise specified.

Information from the Five-Year Plan needed to complete the Local Agency Benefit Assessment includes the following:

- A quantitative assessment of the current and future level of flood protection provided by the levee system assuming the Five-Year Plan is not implemented;
- A quantitative assessment of the current and future level of flood protection provided by the levee system assuming the Five-Year Plan is implemented
- A description of the planned improvements, including estimates of when they will come on-line and their expected useful lives;
- A quantitative assessment of expected eligible costs of each planned improvement; and
- An inventory, valuation, and flood damage assessment of assessable structures and other property within the Applicant's service area.

A key aspect of determining flood damage reduction benefits is the specification of the *with-plan* and *without-plan conditions.*

> ***Without-plan condition*:** The without-plan condition is a forecast of conditions over the period of analysis that describes the risks of flooding if the levee improvements contained in the Five-Year Plan are not implemented. The characterization of the without-plan condition is one of the most important tasks of a flood risk management study. Specification of the *without-project* condition is described further in the USACE's *National Economic Development Manual for Flood Damage Reduction Studies*.[3] ***With-plan condition*:** The with-plan condition is a forecast of conditions over the analysis period that describes the risks of flooding if the levee improvements contained in the Five-Year Plan are implemented. Any changes in future land use and development included in the without-plan condition should be reflected in the with-plan condition. However, no future development *induced by the improvements* should be reflected in the with-plan condition if they would stimulate population growth. The *with-plan* condition must also carefully consider how flood probabilities associated with hydrologic events would change *with* the projects in the Five-Year Plan compared to *without* them.

B. Dollar Base Year and Discount Rate

[3] http://www.pmcl.com/nedprototype/index.asp

Express flood damages and eligible costs of the Five-Year Plan in current year dollars. In other words, if the Benefit Assessment is being conducted in, say, 2012, all benefits and costs shall be expressed in 2012 dollars. This will simplify the analysis and presentation of results. If dollar estimates are only available for prior years, these should be updated to current year dollars using an appropriate cost index. To update construction costs, appropriate indices include the US Bureau of Reclamation Construction Cost Indices[4], the Engineering News-Record Construction Cost Index[5], or the US Army Corps of Engineers' (USACE) Civil Works Construction Cost Index System.[6] To update building stock construction costs, Marshall & Swift (or a similar appraisal services company) comparative cost multipliers can be used.[7] Finally, a useful "all purpose" index is the Gross Domestic Product Implicit Price Deflator.[8] The analysis should identify which cost indices are used to convert prior-year benefit or cost estimates to current year dollars.

Discounting of future benefits and costs to present value should be done using a real discount rate of 6 percent. As described above, the dollar value of benefits and costs should be expressed in current year dollars prior to discounting.[9]

C. Categories of Flood Damage Reduction Benefits

Levee projects funded by the Special Projects Program provide local inundation reduction benefits. Inundation reduction benefits consist of avoided (1) physical damages or losses, (2) loss-of-function costs, and (3) emergency management costs. Each land use affected by a flood may experience losses in one or more of these areas. The following definitions of flood damages are from DWR's *Economic Analysis Guidelines: Flood Risk Management*.

> ***Physical damages*:** This category (also known as direct flood damage) is typically the most straightforward to estimate. Structures, contents, infrastructure (transportation systems, utilities, schools, hospitals, etc.), landscaping, vehicles, equipment, and crops can be damaged by flood events. The monetary damage is the cost to repair or replace the damaged property. If direct damage estimates are not available, then depth/damage curves can be used to estimate damage, at least for structures and their contents.

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[4] www.usbr.gov/pmts/estimate/cost_trend.html

[5] www.enr.construction.com

[6] www.usace.army.mil/inet/usace-docs/eng- manuals/em1110-2-1304/entire.pdf

[7] http://www.marshallswift.com

[8] www.research.stlouisfed.org/fred2/series/GDPDEF/21

[9] The present value of D dollars received or spent n years in the future when the discount rate is i is given by the formula:

$$PV(D) = \frac{D}{(1+i)^n}$$

Structures that are potentially inundated with floodwater should be valued using depreciated replacement cost rather than full replacement costs.[10]

***Avoided loss-of-function costs*:** These costs (also known as indirect flood damage) occur when facilities are damaged thereby disrupting their normal functions. For example, occupants of residential, commercial, or public buildings may incur displacement costs for temporary quarters when flood damage makes buildings unsafe for occupation. Other costs include loss of business net income, loss of rental income, loss of wages, disruption time, and deterioration in the overall "quality of life." In addition, flooding of some types of critical facilities may have negative impacts on the community as a whole. These types of impacts would include the loss of public facilities (e.g., schools, hospitals, police/fire stations, nursing homes), transportation systems (e.g., highways, airports, ports) and utilities (e.g., water, sewer, electricity).

Emergency management costs: These costs include disaster response and recovery costs that may be incurred by a community during and immediately following a flood. Examples include avoided emergency operations costs (e.g., personnel and equipment mobilization, materials purchases), evacuation and rescue costs, debris removal/cleanup, temporary security costs, and emergency repairs to flood management systems (such as levees, floodwalls, etc.).

D. Steps to Determine Flood Damage Reduction Benefits

The steps for determining the flood damage reduction benefits for levee improvements contained in an Applicant's Five-Year Plan are outlined below.

1. Identify existing *without-plan* conditions:

i. Delineate the potential affected floodplain area;
ii. Determine floodplain characteristics (structures, infrastructure, etc.);
iii. Determine flood damages for existing floodplain conditions.

2. Identify future *without-plan* conditions:

i. Estimate future activities, structures, and land uses in the affected floodplain area (these should be the same as existing without–plan conditions unless future development is reasonably certain);
ii. Estimate annual (*without-plan*) flood-proofing costs incurred by individuals within the floodplain;
iii. Estimate annual (*without-plan*) flood damages for each year of planned life of the levee improvements.

[10] FEMA's HAZUS model is one method by which structure depreciation can be estimated.

3. Identify future *with-plan* conditions:

i. Forecast future with-plan activities, structures, and land uses in the affected floodplain area (these will usually be the same as the future without plan since population growth-inducing projects are excluded from state cost sharing consideration);
ii. Estimate the change in annual flood-proofing costs (*with-plan)* incurred by individuals within the floodplain;
iii. Estimate future (*with-plan*) flood damages for each year of planned life of the levee improvements.

4. Calculate expected annual damages as described in Section F of this appendix.

5. Calculate the expected annual flood damage reduction benefit as described in Section G of this appendix.

Chapter 6 of DWR's "Economic Analysis Guidelines: Flood Risk Management" provides sample tables for compiling and presenting the data required to calculate flood damage reduction benefits.

E. Exclusion of Non-Assessed Assets

Only include assets belonging to property owners subject to assessment by the Applicant when estimating avoided physical damage, avoided loss-of-function costs, and avoided emergency response costs. Exclude non-assessable property and assets from the analysis. For example, damage and loss-of-function costs for a state highway or county road would be excluded from a tally of flood damages unless this property was subject to assessment by the Applicant. The purpose of the analysis is not an overall benefit-cost assessment, but rather an assessment of the benefits of the projects in the Five-Year Plan to the Applicant and its ratepayers. The Base or Alternative State Cost Share is intended to cover the costs of broader public benefits of the projects.

F. Calculating Expected Annual Damage

Expected annual flood damage (EAD) is the amount of annual flood damage estimated to occur *on average.* EAD should be calculated for the without-plan and the with-plan conditions.

EAD can be determined from three variables:

1. The probability of an event occurring that could result in flooding;
2. The probability that the levee system fails given the event's occurrence; and
3. The resulting damage if the levee system fails.

Table I-1 and Figure I-1 below provide an example of how these three variables are combined to estimate EAD for the without-plan and with-plan conditions. The table identifies five hydrologic events that could result in flooding. These events are described in terms of their probability of

occurrence, the probability of levee failure for each event, and the damage that would result if the levees failed.

The probability of an event resulting in flooding depends on the without- and with-plan level of protection. In the example table, there is a 25 percent chance a 10-Year event will result in flooding without the plan. With the plan, the flood risk for this event is zero.

Expected event damage equals the damage if the levees fail times the probability that the levees will fail for this event magnitude. In this example, expected event damage is greater for the without-plan condition than for the with-plan condition.

Frequency-damage curves are generated by plotting expected event damage against the corresponding event frequency, as in Figure II-1. The area under a frequency damage curve equals the expected annual damage (EAD) from flooding. In this example, EAD is greater for the without-plan condition than for the with-plan condition.

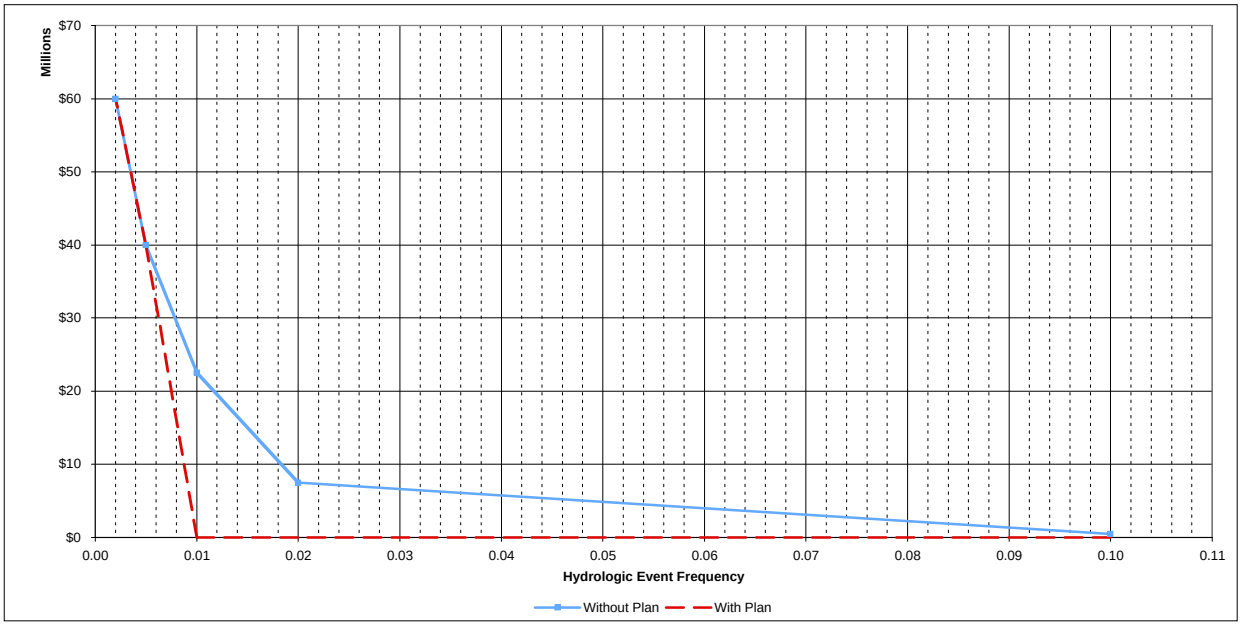
G. Calculating Expected Annual Benefit

The expected annual benefit (EAB) of the Five-Year Plan equals the difference between EAD without the plan and EAD with the plan. In the example in Table II-1, EAD without the plan is $0.9 million and with the plan is $0.37 million. Plan EAB is therefore $0.53 million.

Table I-1. Expected Annual Damage of Flood Events

Hydrologic Event	Event Frequency	Damage if Levees Fail (Million $)	Probability Levees Fail		Expected Event Damage (Million $)		Expected Event Benefit (Million $)
			Without Plan	With Plan	Without Plan	With Plan	
10-Year	0.100	$2.0	0.250	0.00	$0.5	$0.0	$0.50
50-Year	0.020	$15.0	0.500	0.00	$7.5	$0.0	$7.50
100-Year	0.010	$30.0	0.750	0.00	$22.5	$0.0	$22.50
200-Year	0.005	$40.0	1.000	1.00	$40.0	$40.0	$0.00
500-Year	0.002	$60.0	1.000	1.00	$60.0	$60.0	$0.00
Expected Annual Damage (EAD)					**$0.90**	**$0.37**	**EAB: $0.53**
Note: EAD and EAB are determined by integrating the areas under the curves shown in Figure II-1.							

Figure I-1. Frequency-Damage Curve



III. DETERMINING THE ALTERNATIVE STATE COST SHARE

Use the following steps to determine the Alternative State Cost Share:

1. Calculate the present value of 30 years of expected annual benefits by multiplying EAB (as determined in Section II.G) by 13.765.[11]

2. Divide Step 1's result by the present value cost of the levee improvements contained in the Five-Year Plan.

3. Subtract Step 2's result from one (1.0).[12]

4. If the value from Step 3 is less than 0.75, set the Alternative State Cost Share to this value. Otherwise, set the Alternative State Cost Share to 0.75.

Example: Taking EAB from Table II-1, Step 1 results in a value of $7.3 million ($0.53 x 13.765). Assume the present value cost of the plan is $24.0 million. The result of Step 2 is thus 0.304 ($7.3÷$24.0). Step 3 subtracts this value from 1.0, which equals 0.696, or 69.6%. Since this value is less than 0.75, the Alternative State Cost Share in this example is 69.6%, or $16.7 million. However, the maximum State share would be limited to $14.5 million ($5 million plus 50% of $19 million).

[11] The present value of 30 years of a constant annual benefit is found by multiplying the annual benefit by the factor

$$\frac{(1+r)^{30}-1}{r(1+r)^{30}}$$

where r is the real discount rate. Setting r to 6% yields a factor equal to 13.765. While levee improvements may have useful lives longer than 30 years, a 30-year period is used to reflect the typical period for long-term debt financing.

[12] Note that in cases where local benefits exceed project costs, the result will be negative, implying an Alternative State Cost Share of 0 percent.

IV. TOOLS FOR ESTIMATING FLOOD DAMAGE REDUCTION BENEFITS

A. Manuals and Guidelines for Estimating Flood Damages

The USACE has prepared a new *NED Flood Damage Reduction Manual* that provides a detailed discussion on calculating non-farm flood damages and EAD.[13] Likewise, the U.S. Water Resources Council's *Principles & Guidelines* describe the procedures for estimating crop flood damage reduction benefits.[14] Additional guidance on the estimation of flood protection benefits is available from DWR's *Economic Analysis Guidelines: Flood Risk Management.* These manuals and guidelines should be consulted prior to estimating flood hazard reduction benefits of the proposed levee improvement projects in the Applicant's Five-Year Plan.

B. Data and Models for Estimating Flood Damages

Flood damage reduction benefits should be estimated using the best information available at the time the analysis is conducted. Many of the steps described for estimating physical damages of flooding can be implemented with data and models developed for the Delta Risk Management Strategy (DRMS), as discussed in the next section.[15] The U.S. Army Corps of Engineers and FEMA also have developed analytical software and data that can be used to compute flood hazard reduction benefits. These tools are described in Chapter 5 of DWR's *Economic Analysis Guidelines: Flood Risk Management*. Although tools such as these can facilitate the computation of flood protection benefits, use of them is not a requirement of the Special Projects Program.

C. DRMS Data and Models

DRMS developed a variety of data sets and models that can facilitate the calculation of avoided physical damages, loss-of-function costs, and emergency response costs of a levee improvement project. This section briefly describes these tools and data sets.

1. Flood Rapid Assessment Model (F-RAM)

F-RAM is an Excel-based spreadsheet model designed to calculate with- and without-project EAD and to assess the benefits and costs of flood protection projects. F-RAM was originally developed to determine levee rehabilitation priorities within the San Joaquin River Basin, but it is also suited to evaluating projects located throughout the Delta. The model and user documentation are available from DWR upon request.

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[13] http://www.pmcl.com/nedprototype/index.asp

[14] http://www.usace.army.mil/cw/cecw-cp/library/planlib.html.

[15] http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/

2. Delta Asset Inventory and Damage Tables

Calculation of physical damages to infrastructure requires an inventory of existing and projected structures and infrastructure at risk for the with- and without-project conditions. The inventory should show the following: (1) number of existing and projected structures and other point and linear assets at risk, such as residential, commercial, industrial, public facilities, etc., for without- and with-project conditions; (2) value of inventoried assets; (3) value of structure contents. DRMS compiled structure and infrastructure inventories and flood damage tables by Delta Island and land tract. Damages were estimated for two levels of inundation: (1) 100-year flood event inundation and (2) Mean-Highest-High inundation.[16] These tables are contained in the DRMS document *Delta Risk Management Strategy: Impact to Infrastructure Technical Memorandum*.[17] Prior to using a DRMS asset inventory, it should be compared to actual on-the-ground conditions to verify the accuracy and completeness of the inventory. Note that it may be necessary to update or supplement the DRMS inventory with additional information.

3. Farmland Damage Tables

Scour and inundation can damage farmland and result in the destruction of permanent crops. DRMS estimated farmland damages by Delta island and land tract for 100-year and Mean-Highest-High flood events. The estimates are presented in farmland damage lookup tables. Each table includes several examples demonstrating how to use the tables to look up farmland damage estimates. The data, assumptions, and methodology are presented in the DRMS document *Delta Risk Management Strategy: Economic Consequences Technical Memorandum.*[18] These tables are available upon request from DWR.

4. Non-Farm Loss-of-Function Costs

Loss-of-function costs from a flood event include: lost use of residential structures; disruption of non-farm commercial enterprises; disruption of public services; and disruption of farm commercial enterprises. DRMS developed data and models to estimate loss-of-function costs by Delta island or land tract. Loss of function cost estimates by Delta island and land tract are presented in Appendix A of the DRMS document *Delta Risk Management Strategy: Economic Consequences Technical Memorandum.*

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[16] The 100-year flood level is the level of inundation that is expected to occur following a levee breach during 100-year storm event. The Mean-Highest-High flood level is the level of inundation expected to occur following a seismic event or some other "sunny day" cause of levee failure. For many interior Delta islands, the area and depth of inundation is the same for the two flood types because of their bowl-shaped topography.

[17] http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Infrastructure_TM-updated07.pdf. This memorandum also documents the data, assumptions, and methodology used to construct the inventory and damage tables.

[18] http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Economic_TM-updated07.pdf.

5. Farm Loss-of-Function Costs

Income losses for Farm Commercial Enterprises from a flood event depend on the time of year the flood event occurs, the time until the flooded area is dewatered, and the mix of crops affected. DRMS estimated farm income losses by Delta island and land tract for 100-year and Mean-Highest-High flood events. The estimates are presented in farm income loss lookup tables. Each table includes several examples demonstrating how to use the tables to estimate farm income losses. The data, assumptions, and methodology are presented in the DRMS document *Delta Risk Management Strategy: Economic Consequences Technical Memorandum.* The tables are available from DWR. These tables are available upon request from DWR.

6. Emergency Response Costs

Emergency costs include emergency sheltering and other public services, levee stabilization and repair, and island dewatering. DRMS estimated the costs of levee stabilization, repair, and dewatering by Delta island and land tract. These estimates are presented in the DRMS document *Delta Risk Management Strategy: Emergency Response & Repair Technical Memorandum.*[19]

[19] http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/ER&R_TM-updated07.pdf.

V. EXAMPLE LOCAL AGENCY BENEFIT ASSESSMENTS

This section provides an example that demonstrates the application of the foregoing methodology. The example considers a plan to upgrade Reclamation District No. 2029's (Empire Tract) levees to the PL84-99 standard.

RD 2029 EXAMPLE ANALYSIS

The RD 2029 example analysis consisted of applying the methodology for determining an Alternative State Cost Share for a hypothetical upgrade of RD 2029 existing levees to a 1-in-100 year level of protection consistent with the PL84-99 standard. The analysis of flood damage reduction benefits was based on existing land uses within RD 2029. No foreseeable changes in current land uses were identified, with or without the levee upgrade.

1. Overview of RD 2029 Land Uses

RD 2029, also known as Empire Tract, is located on the eastern side of the Delta close to the middle of the Delta's north-south axis (Figure V-1). Eight Mile Road bisects the district from east to west and terminates on the western edge of the island. The district comprises a total of 3,677 acres.

Most of this acreage is used for agricultural production (Figure V-2). Some acreage on the northern side of the district has been converted to hunting and wildlife habitat. A large parcel in the center of the island and just south of the existing hunting and wildlife acreage is being converted into a duck club (Figure V-2). There are currently no structures on this parcel and it is unknown whether this land will be used for commercial hunting purposes. It is also unclear whether this acreage will continue to be farmed as well. For the analysis of flood damage reduction benefits, it was assumed 50% of this acreage (about 260 acres) would remain in farming. About 350 acres of farmland on the southern side of Eight Mile Road has recently been planted to blueberries, a high-valued perennial crop (Figure V-2).[20] On the western edge of the district, adjacent to Eight Mile Road is a marina complex and ferry to Venice Island. There are few other structures within RD 2029 besides a small number of residences and farm buildings.

The marina complex on the district's western border is not subject to assessment by RD 2029, and therefore is excluded from the calculation of flood damage reduction benefits. Likewise, the county road bisecting the island is not subject to district assessment. Therefore, it also is excluded from the analysis.

The Delta Risk Management Strategy (DRMS) project identified six manufactured housing units (mobile homes) and three single-family residential structures. Table V-1 provides a summary of non-farm assets inventoried by DRMS. This inventory included the marina complex and county road, but did not include non-residential farm structures. Satellite imagery of RD 2029 shows what appear to be three farm-related structures. These structures were not included in the calculation of flood damage reduction benefits due to lack of information on their value.

Crop acreage for RD 2029 is shown in Table V-2. Field and grain crops account for approximately 85% of farmed acreage. Corn is the primary crop grown on the island. Higher valued truck crops and the new blueberry acreage account for about 15 percent of farmed acreage on the island.

[20] Established blueberries can produce for 20 to 25 years.

Figure V-1. Empire Tract (RD 2029)

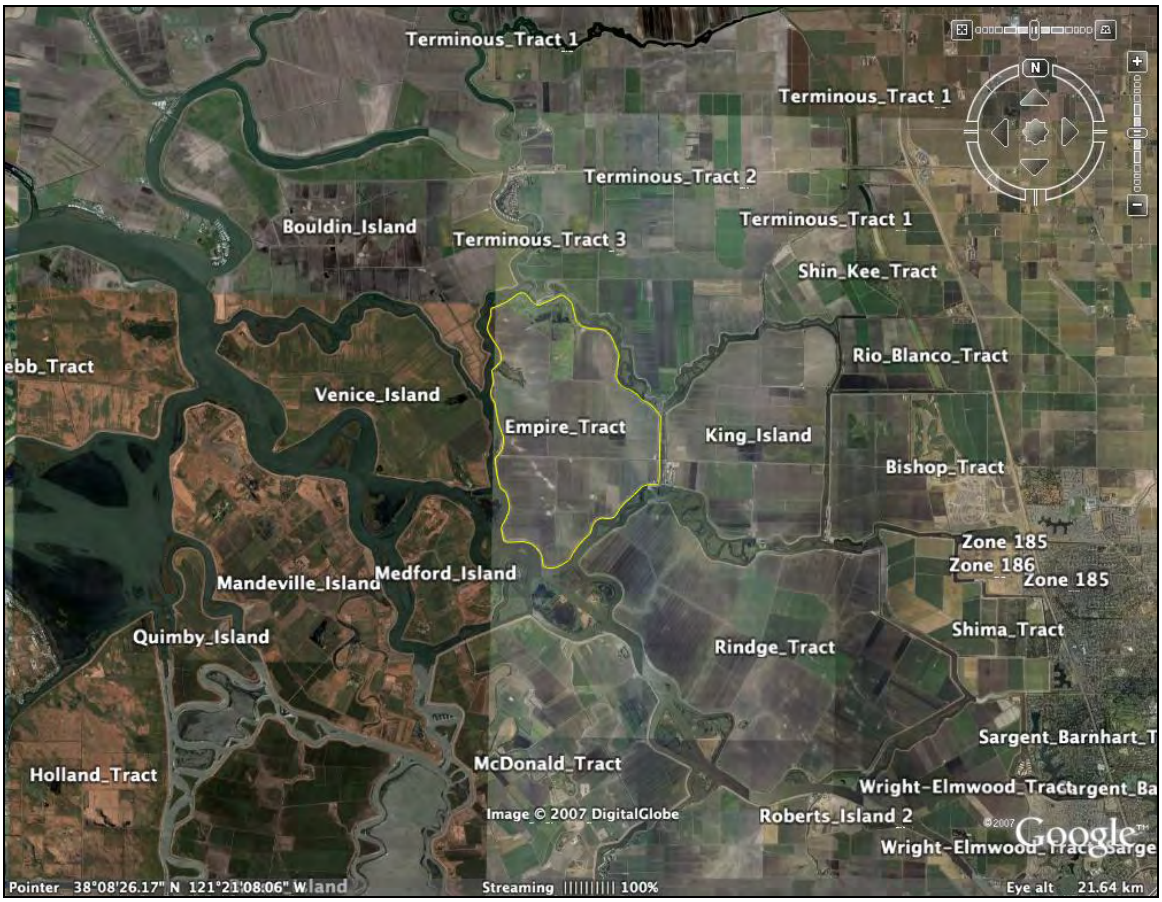


Table V-1. RD 2029 Non-Farm Asset Inventory

Asset Type	Unit	GIS Qty	Avg. Flood Depth	Total Asset Value (Thou. $)
Boat Launch, Marina*	Count	1	22	100
Delta Roads, PBSJ Minor Roads*	Length (ft)	44263	21	8853
PBSJ Gas-Oil Wells – non operational	Count	5	18	0
Residential - Manufactured Housing**	Count	6	21	326
Residential - Single Family Dwelling**	Count	3	21	512

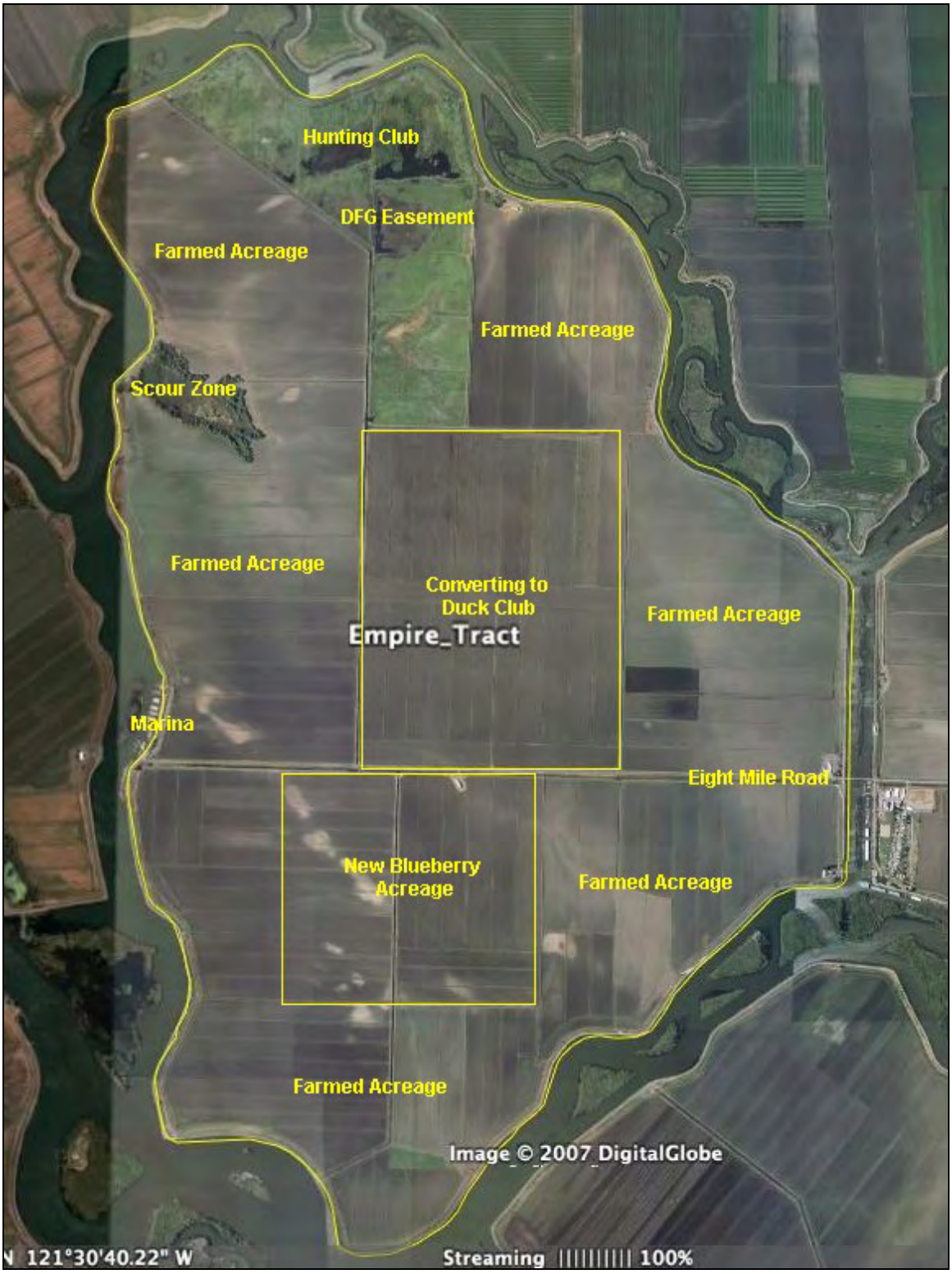
* These assets are not subject to district assessment and therefore are not included in the calculation of flood damage reduction benefits.
**Includes value of structure contents.
Source: Numbers in Table V-1 are from Tables 7-1a and 7-1b. Delta Risk Management Strategy (Phase 1), Technical Memorandum: Impact to Infrastructure, Draft 2, June 2007.

Table V-2. Empire Tract Crop Acreage

Crop	Acreage
Field crops (a)	1,981
Grain other than corn	666
Blueberries	350
Other Truck (b)	140
Total	3,138

Notes:
(a) Field crop acreage includes corn, the primary crop grown on Empire Tract.
(b) DWR/UC Davis acreage data for Empire Tract identified 490 acres of truck crop acreage. For the benefit assessment, we assume the new blueberry acreage came from this truck acreage.

Figure V-2. RD 2029 Current Land Uses



2. RD 2029 Flood Damage Estimation

a. Flood Depth

Flood damage to RD 2029 land, structures and improvements following a levee breach primarily depends on depth of inundation. Because of the island's bowl-shaped geography, depth of inundation will be the same regardless of whether a levee breach occurs during a sunny day event (e.g. a seismic event) or a flood event. All of RD 2029 is below sea level. DRMS estimated an average inundation depth of about 20 to 22 feet (Table V-1). At this level of inundation, all structures and improvements within the levees would be inundated and expected to incur significant flood damage.

b. Damage to Structures and Infrastructure

The DRMS analysis estimated the percent of damage to structures and infrastructure for each Delta tract following a flood event. The estimates for RD 2029 are shown in Table V-3. DRMS used the FEMA HAZUS method to calculate the cost of structure damages.[21] This method multiplies the percent of structure damage by the structure replacement cost. Damage estimates in Table V-3 include damages to structure contents, as well as cleanup costs. Estimation of structure contents and cleanup costs are discussed in subsequent sections.

Damages to the marina and county road are excluded from the calculation of the Alternative State Cost Share because they are not assessable properties. They are therefore not listed in Table V-3.

c. Damage to Structure Contents

Damage to structure contents is included in the DRMS structure damage estimates shown in Table V-3. DRMS used the FEMA HAZUS approach to calculating damages to structure contents. This method estimates structure contents as a percentage of the structural replacement value and multiplies this estimate by the percentage of structural damage based on HAZUS depth-damage relationships for different building types. HAZUS provides the following building content values as percentages of structural replacement values:

Residential	-	50%
Commercial	-	100%
Industrial	-	150%
Government	-	100%

[21] HAZUS is a flood damage estimation software package developed by FEMA. More information on HAZUS is available at http://www.fema.gov/plan/prevent/hazus/.

d. Debris Removal and Cleanup Costs

Debris removal and cleanup costs are included in the DRMS structure damage repair estimates shown in Table V-3. Debris removal costs are a substantial cost immediately following a flood event. After a review of the literature, DRMS concluded that these costs are highly variable, but typically constitute about 10% of total damages. In its analysis of flood damages, DRMS estimated debris removal and cleanup costs at 10% of structural and content damages.

Table V-3. DRMS Structure/Infrastructure Damage Estimates for Empire Tract

Asset Type	Inventory Unit	GIS Qty	% Damage	Total Asset Value (Thou. $)	Repair Costs (Thou. $)	Repair Time (months)
Levee Roads, Scour Damage (2)	Length (ft)	750	100	150	154	6
PBSJ Gas-Oil Wells – Non Operational	Count	5	NA	0	0	0
Residential - Manufactured Housing	Count	6	100	326	338	24
Residential - Single Family Dwelling	Count	3	100	512	544	24
Total (excludes marina and county road):				988	1,036	

Notes:
(1) County assessor's value for Boat Launch/Marina was used instead of DRMS estimate. Total asset value includes structure contents, estimated at 100% of the structure replacement value, per the HAZUS method.
(2) Assume road destroyed at breach site. Road repair cost estimate at breach site equals length of road damaged by scour divided by total road length times road asset value times 1.025 (cost escalator). Length of road damaged by scour equals breach width (500 ft) plus 50% of breach width (250 ft).
Source: Numbers in Table V-3 are from Tables 7-1a and 7-1b. Delta Risk Management Strategy (Phase 1), Technical Memorandum: Impact to Infrastructure, Draft 2, June 2007.

e. Damage Cost and Repair Time Scaling Factors

The damage and repair time estimates in Table V-3 are applicable for simultaneous flooding of up to five Delta islands. The cost and time required for repairs in the case of a larger number of simultaneous island failures is expected to be higher. DRMS used the cost and repair time scaling factors shown in Table V-4 to adjust damage cost estimates for flood events involving a large number of islands. The insurance industry refers to these scaling factors as "post event inflation" or "demand surge". The scaling factors apply to total flood damages (structure + contents + cleanup). To support the use of scaling factors, DRMS reviewed the literature from a variety of post-catastrophic events. The scaling factors shown in Table V-4 were used to estimate structure damages on RD 2029 in the case of a large number of simultaneous flood events.

Table V-4. DRMS Repair Cost and Time Scaling Factors

Number of Island Failures	Repair Cost Scaling Factors	Repair Time Scaling Factors
1 to 5	1.0	1.0

10	1.2	1.4
20	1.6	2.2
30	2.0	3.0

Source: Tables 7-7. Delta Risk Management Strategy (Phase 1), Technical Memorandum: Impact to Infrastructure, Draft 2, June 2007.

f. Residential and Commercial Displacement

A flood event would displace RD 2029 residents and businesses. Residents would need to secure temporary shelter during the period of dewatering and rebuilding. Businesses would likely be closed during the dewatering and repair period.[22] Like rebuilding costs, the period of displacement is a function of the number of structures damaged and requiring repair and the number of other islands and tracts flooded. DRMS used the FEMA HAZUS method for estimating residential displacement costs. This method assumes a one-time cost of $500 per flooded household, plus $500 per month per flooded household, plus a monthly cost based on local rental rates. DRMS estimated average monthly rental rates for typical housing of $747 for the Delta region. Residential displacement costs for a 1-to-5 flooded tract scenario are summarized in Table V-5.

Commercial displacement costs are equal to the revenues net of variable expenses businesses forgo by having to shutdown during the dewatering and repair period. The DRMS estimates for non-agricultural commercial displacement costs for a Tract 1-to-5 flooded tract scenario are shown in Table V-5. While not explicitly stated in DRMS documents, it was assumed estimated business income losses pertained to the marina complex, which is the only commercial enterprise on the island other than farming. Since the marina is not subject to district assessment, its business losses were not included in the calculation of flood damage reduction benefits.

Table V-5. RD 2029 Residential and Commercial Displacement Costs (Thou. $)

Residential*	190
Businesses (other than agriculture)**	40
Total	230
Total, excluding marina losses	190

* Based on 1-to-5 flooded tracts. Residential lost use costs based on 24 month repair time for single family dwelling units.
** These assets are not subject to district assessment and therefore are not included in the calculation of flood damage reduction benefits.
Source: LostUseCost033007.xls; Delta Risk Management Strategy (Phase 1), Technical Memorandum: Economic Consequences, Draft 2, June 2007.

[22] The only non-agricultural commercial operations on the island are the marina and ferry. These facilities are not assessable by the reclamation district and therefore are not included in the benefit assessment.

g. Agricultural Disruption Costs

DRMS estimated agricultural disruption costs for each Delta island/tract. Total costs comprised four components: (1) destruction of or damage to permanent crops, (2) loss of productive land due to scour, (3) field cleanup costs, and (4) loss of crop revenue net of variable production expenses. Agricultural losses for RD 2029 are summarized in Table V-6. The original estimates prepared by DRMS have been updated to account for the new blueberry acreage. The costs in Table V-6 assume levee repair and dewatering would be completed within four months of the breach. In the event of a large scale disaster with multiple island failures, dewatering and repair could be substantially delayed and agricultural disruption costs would be higher than shown in Table V-6. The agricultural loss estimate also assumes a flood event would result in the total loss of the blueberry investment, valued at 1/2 of the establishment cost.[23] The blueberry acreage accounts for approximately 78% of the estimated agricultural losses.

Table V-6. Empire Tract Agricultural Disruption Costs (Thou. $)

	Perm Crops	Scour Damage	Field Cleanup	Income Losses	Total
Fall/Winter Flood	$2,868	$85	$600	$3,321	$6,874
Spring/Summer Flood	$2,868	$85	$600	$3,027	$6,580
Annual Average	$2,868	$85	$600	$3,174	$6,727

Sources: Delta_Flooded_Island_Ag_Impacts_MHH.xls; Delta Risk Management Strategy (Phase 1), Technical Memorandum: Economic Consequences, Draft 2, June 2007.
UC Cooperative Extension (2002). Sample Costs to Produce Fresh Market Blueberries, San Joaquin Valley, Tulare County.

h. Levee Repair and Dewatering Costs

DRMS estimated levee repair and dewatering costs for single breach events for each island/tract in the Delta. For RD 2029, DRMS estimated a cost of $3.4 million to repair a single levee breach and dewater the tract.[24] DRMS assumed the same cost scaling factors previously discussed would apply to levee repair and dewatering.

i. Summary of RD 2029 Flood Damages

Table V-7 summarizes the flood damage estimates. For purposes of this example analysis, it is assumed that the district or its landowners would incur the costs of levee repair and dewatering.

[23] The loss could occur at any time during the useful life of the blueberry bushes, so on average, the loss will occur at the midpoint of the useful life.

[24] The source of the repair cost estimate is Table 12-1 of the Delta Risk Management Strategy Phase 1 Draft Report, June 2007. Repair and dewatering time is from Table 5-4 of the DRMS Emergency Response and Repair Technical Memorandum, draft 2, June 2007. Repair costs assume a single, 500 ft wide breach with a 500 x 2000 square foot scour zone. Fill material is assumed to cost $55/ton; dewatering costs $35/AF pumped.

Table V-7. Empire Tract Flood Damage Costs (Million $)

Island Failures	Up to 5	Up to 10	Up to 20	Up to 30
Structures (1)	$1.04	$1.25	$1.66	$2.08
Res. & Comm. Displace. (2)	$0.19	$0.27	$0.42	$0.57
Ag. Disrupt. (3)	$6.73	$6.73	$10.30	$10.30
Levee Repair (1)	$3.40	$4.20	$5.44	$6.80
Total	$11.36	$12.45	$17.82	$19.75

Notes:
(1) Damage costs for more than 5 flooded islands based on cost scaling factors from Table V-4.
(2) Lost use costs for more than 5 flooded islands based on repair time scaling factors from Table V-4.
(3) Assumes one year of production is lost for 10 or fewer flooded islands; two years for more than 10 flooded islands. Field clean up cost for more than 10 flooded islands is multiplied by a scaling factor of 1.4. The second year of agricultural income loss is based on the value for a fall/winter flood event. The calculation is: 6.727+0.240+3.321 = 10.288, which is rounded to 10.3 in the table.

3. Expected Annual Flood Damage Without the Plan

Expected annual flood damage (EAD) is equal to the estimated damages from a flood event times the probability of occurrence. Estimated flood damages shown in Table V-7 are based on the number of islands and tracts flooded in an event. DRMS estimated the probabilities for simultaneous island flooding. These probabilities were used to estimate the average damage for an RD 2029 flood event. Sunny day and hydrologic events were considered.

Sunny day events can be divided into two categories: seismic and non-seismic. For non-seismic sunny day events, DRMS concluded that the probability of more than one simultaneous island/tract failure is negligible.[25] Therefore, the expected annual flood damage for a non-seismic sunny day event is equal to the probability of occurrence times the damage for 1 to 5 failures.[26] For RD 2029, DRMS estimated a 0.11% annual probability of a non-seismic sunny day failure, such as the Jones Tract failure in 2004.[27] This is approximately a 1-in-1000 year flood risk of a sunny day failure. The expected annual damage from a non-seismic sunny day event given current land uses is therefore approximately $12,500 (0.0011 x $11.36 million).

The same seismic risks were assumed with and without the hypothetical level improvement.[28] Thus, expected damages from sunny day seismic events would be the same with and without the plan and therefore do not need to be calculated.

[25] Section 13.2.1, Delta Risk Management Strategy (Phase 1) Draft Report, June 2007.

[26] Sunny day flood depths are determined by tidal level, and therefore damages for MHHW flood depths rather than hydrologic event flood depths are relevant.

[27] See Table 13-1, Delta Risk Management Strategy (Phase 1) Draft Report, June 2007.

[28] The hypothetical levee improvement did not include seismic upgrading to enable the levees to survive large seismic events

For flood events, DRMS estimated the probabilities of multiple island/tract failures shown in Table V-8. These probability estimates were combined with the damage estimates in Table V-7 to calculate the expected damage of a hydrologic flood event, as shown in Table V-9. The expected damage from a hydrologic flood event is $11.65 million.

Table V-8. DRMS Probability Estimates of Multiple Island/Tract Failures

Number of Island/Tract Failures	Probability of Exceedance
1	60.5%
3	28.1%
10	3.4%
20	0.9%
30	0.4%

Source: Table 13-5, Delta Risk Management Strategy (Phase 1) Draft Report, June 2007.

DRMS estimated a 4.41% annual probability (a 1-in-23 chance) of a flood-related failure under the *without plan condition*.[29] EAD for hydrologic events for the without plan condition is equal to the expected damages shown in Table V-9 times this probability, or approximately $514,000.

The total EAD for the *without plan condition* is equal to EAD for sunny day events and EAD for hydrologic events, which equals $526,500 ($514,000 + $12,500).

[29] Table 13-6. Delta Risk Management Strategy (Phase 1) Draft Report. June 2007.

Table V-9. RD 2029 Expected Flood Damage from Hydrologic Flood Events

(1)	(2)	(3)	(4)	(5)	(6)
Flooded Islands	DRMS Exceedance Probability [From Table V-8*]	Probability flooded islands less than or equal to Col. (1) [1-Col. (2)]	Probability flooded islands equals Col. (1) [Row n – Row n-1]	RD 2029 Damages (million $) [From Table V-7*]	[Col. (4) x Col. (5)]
1	**0.6050**	0.395	0.3950	**11.36**	4.487
2	*0.4430*	0.557	0.1620	**11.36**	1.840
3	**0.2810**	0.719	0.1620	**11.36**	1.840
4	*0.2457*	0.754	0.0353	**11.36**	0.401
5	*0.2104*	0.790	0.0353	**11.36**	0.401
6	*0.1751*	0.825	0.0353	*11.58*	0.409
7	*0.1399*	0.860	0.0353	*11.80*	0.416
8	*0.1046*	0.895	0.0353	*12.01*	0.424
9	*0.0693*	0.931	0.0353	*12.23*	0.432
10	**0.0340**	0.966	0.0353	**12.45**	0.439
11	*0.0315*	0.969	0.0025	*12.99*	0.032
12	*0.0290*	0.971	0.0025	*13.52*	0.034
13	*0.0265*	0.974	0.0025	*14.06*	0.035
14	*0.0240*	0.976	0.0025	*14.60*	0.036
15	*0.0215*	0.979	0.0025	*15.14*	0.038
16	*0.0190*	0.981	0.0025	*15.67*	0.039
17	*0.0165*	0.984	0.0025	*16.21*	0.041
18	*0.0140*	0.986	0.0025	*16.75*	0.042
19	*0.0115*	0.988	0.0025	*17.28*	0.043
20	**0.0090**	0.991	0.0025	**17.82**	0.045
21	*0.0085*	0.992	0.0005	*18.01*	0.009
22	*0.0080*	0.992	0.0005	*18.21*	0.009
23	*0.0075*	0.993	0.0005	*18.40*	0.009
24	*0.0070*	0.993	0.0005	*18.59*	0.009
25	*0.0065*	0.994	0.0005	*18.79*	0.009
26	*0.0060*	0.994	0.0005	*18.98*	0.009
27	*0.0055*	0.995	0.0005	*19.17*	0.010
28	*0.0050*	0.995	0.0005	*19.36*	0.010
29	*0.0045*	0.996	0.0005	*19.56*	0.010
30	**0.0040**	0.996	0.0005	**19.75**	0.010
31	*0.0036*	0.996	0.0004	**19.75**	0.008
32	*0.0032*	0.997	0.0004	**19.75**	0.008
33	*0.0028*	0.997	0.0004	**19.75**	0.008
34	*0.0024*	0.998	0.0004	**19.75**	0.008
35	*0.0020*	0.998	0.0004	**19.75**	0.008
36	*0.0016*	0.998	0.0004	**19.75**	0.008
37	*0.0012*	0.999	0.0004	**19.75**	0.008
38	*0.0008*	0.999	0.0004	**19.75**	0.008
39	*0.0004*	1.000	0.0004	**19.75**	0.008
40	*0.0000*	1.000	0.0004	**19.75**	0.008
				Expected Damages	**$11.648**

* Bold values are from Table V-7 or V-8. Italic values are linearly interpolated.

4. Expected Annual Flood Damage With the Plan

The hypothetical levee improvement would reduce the risk of levee failure from hydrologic events from 1-in-23 years to 1-in-100 years. The hypothetical improvement would not appreciably change the risk of non-seismic sunny day events. Therefore, EAD for the *with-plan condition* is equal to the previously calculated EAD for sunny day events and EAD for hydrologic events based on the lower flood risk. EAD for hydrologic events is equal to the expected damages shown in Table V-9 times the 1 percent probability of failure, or approximately $116,500.

The total EAD for the *with-plan condition* is equal to EAD for sunny day events and EAD for hydrologic events, which equals $129,000 ($116,500 + $12,500).

5. Expected Annual Benefit for RD 2029

The expected annual flood damage reduction benefit (EAB) of the plan is equal to the difference between EAD *without the plan* and EAD *with the plan*. This amount is $397,500. Multiplying this amount by 13.765 gives the present value of EAB.[30] This amount is approximately $5.5 million.

6. Determining the Alternative State Cost Share for RD 2029

DRMS estimated it would cost approximately $49 million to improve RD 2029's levees to meet PL84-99 standards and provide 1-in-100 year flood protection from hydrologic events.[31]

The ratio of the present value of EAB to the present value of the project cost ($5.5 million ÷ $49 million) is equal to 0.112. Subtracting this amount from 1 yields 0.888. Because this value is greater than 0.75, the Alternative State Cost Share (before cost sharing enhancements) would be 0.75, or $36.75 million. However, the maximum State share on this project would be limited to $27 million ($5 million plus 50% of $44 million).

[30] Based on a real discount rate of 6% over 30 years.

[31] DRMS did not provide a numeric estimate of the reduction in seismic risk from improving the levees to PL84-99 other than to indicate the risk reduction would be small to negligible.

Attachment E

Map showing Infrastructure of the Legal Delta (Detail)

Franks Tract
Jersey Island
Bethel Island
Big Break
Dutch Slough
Hotchkiss Tract
Holland Tract
ROCK SLOUGH PUMPING PLANT
CONTRA COSTA ROCK SLOUGH INTAKE
Rock Slough
Veale Tract
BIXLER PUMPING PLANT
MOKELUMNE AQUEDUCT
Bixler Tract
Palm-Orwood Tract
Woodward
Woodward Canal
Old River Pipeline
Mandeville Island
Medford Island
Quimby
L. Mandeville
Connection Slough
Mildred Is.
McDonald Island
Bacon Island
Fay
Lower Jones Tract
Upper Jones Tract
Rindge Tract
Atlas
Shima Tract
Wright-Elmwood
Sargent-Barnhart
Smith
Weber
Boggs
Stockton Shipping Channel
STOCKTON
Roberts Island
Drexler Tract
Victoria Island
OLD RIVER INTAKE FOR LOS VAQUEROS RESERVOIR
Byron Tract
CCWD ALTERNATIVE INTAKE AT VICTORIA CANAL
Union Island
CLIFTON COURT FOREBAY
Coney Is.
Clifton Court South
Grant Line Canal
Fabian Tract
RD17
OLD RIVER
MIDDLE RIVER
SAN JOAQUIN RIVER
Q87
6CL8
CA48
SCK
CL52
BANKS
MANTE

Legend

- AIRPORT
- FERRY
- PARK
- BOAT LAUNCH
- BRIDGE
- NATURAL GAS STORAGE
- MAJOR WATER DIVERSION
- WATER DIVERSION (OTHER)
- MOKELUMNE AQUEDUCT
- DEEP WATER SHIP CHANNEL
- RAILROAD
- TRANSMISSION LINE
- LEGAL DELTA BOUNDARY
- GAS & OIL PRODUCTION FIELD
- DELTA ISLANDS

TRAFFIC FLOW
Average number of vehicles per day
- 0 - 12,200
- 12,201 - 43,500
- 43,501 - 83,000
- 83,001 - 130,000
- 130,001 - 216,000

INFRASTRUCTURE OF THE LEGAL DELTA

Miles 0 1 2
Kilometers 0 1 2

Attachment F

Map showing Infrastructure of the Legal Delta & Suisun Marsh

INFRASTRUCTURE OF THE LEGAL DELTA & SUISUN MARSH

Legend

- AIRPORT
- FERRY
- BOAT LAUNCH
- PARK
- BRIDGE
- NATURAL GAS STORAGE
- MAJOR WATER DIVERSION
- WATER DIVERSION (OTHER)
- MOKELUMNE AQUEDUCT
- DEEP WATER SHIP CHANNEL
- MAJOR ROAD
- RAILROAD
- TRANSMISSION LINE
- LEGAL DELTA BOUNDARY
- SUISUN MARSH BOUNDARY
- GAS & OIL PRODUCTION FIELD
- YOLO BYPASS

TRAFFIC FLOW
Average number of vehicles per day

- 0 - 12,200
- 12,201 - 43,500
- 43,501 - 83,000
- 83,001 - 130,000
- 130,001 - 216,000

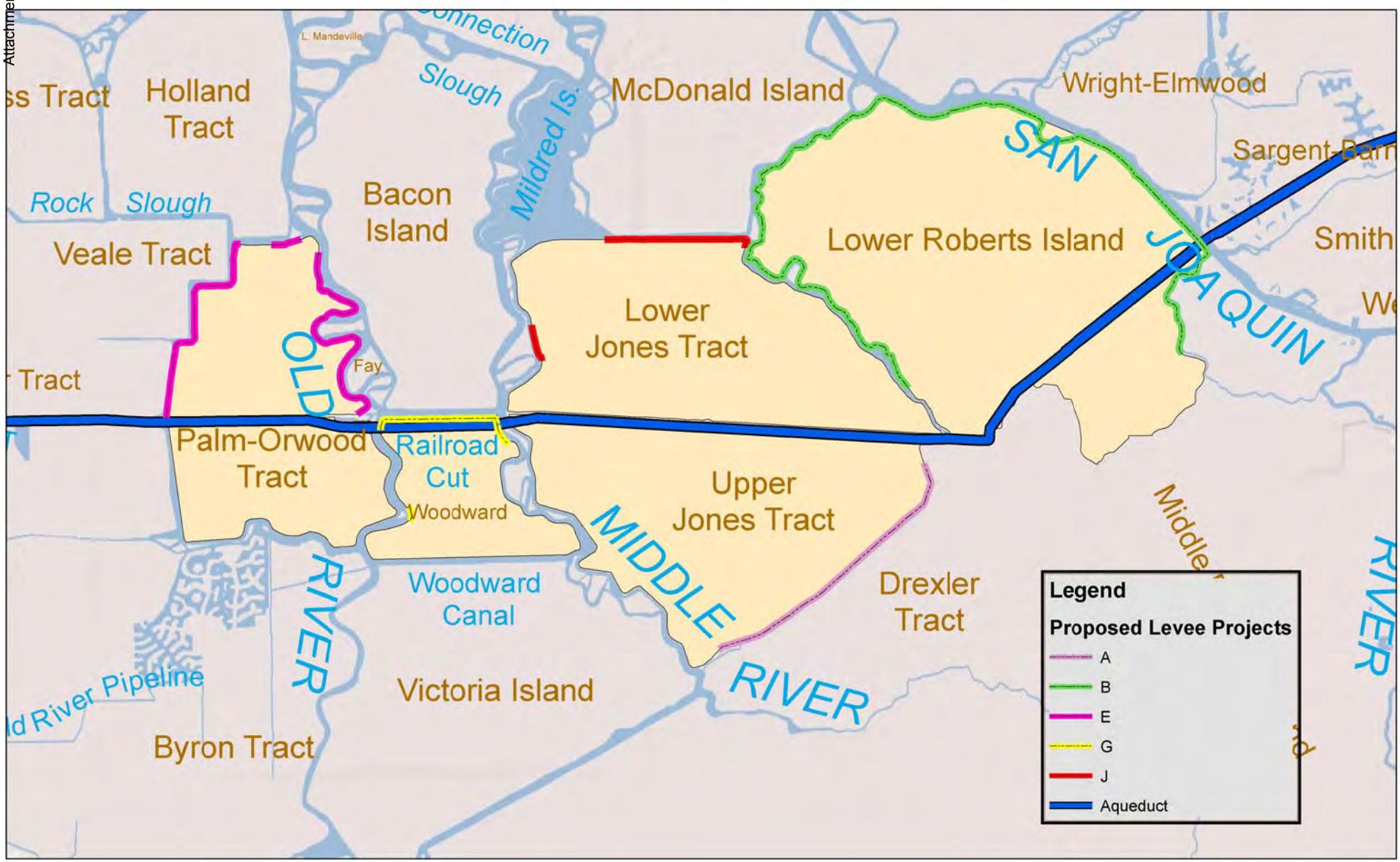
Miles: 0, 5, 10
Kilometers: 0, 5, 10

Attachment G

Maps Showing Locations of the Proposed Projects

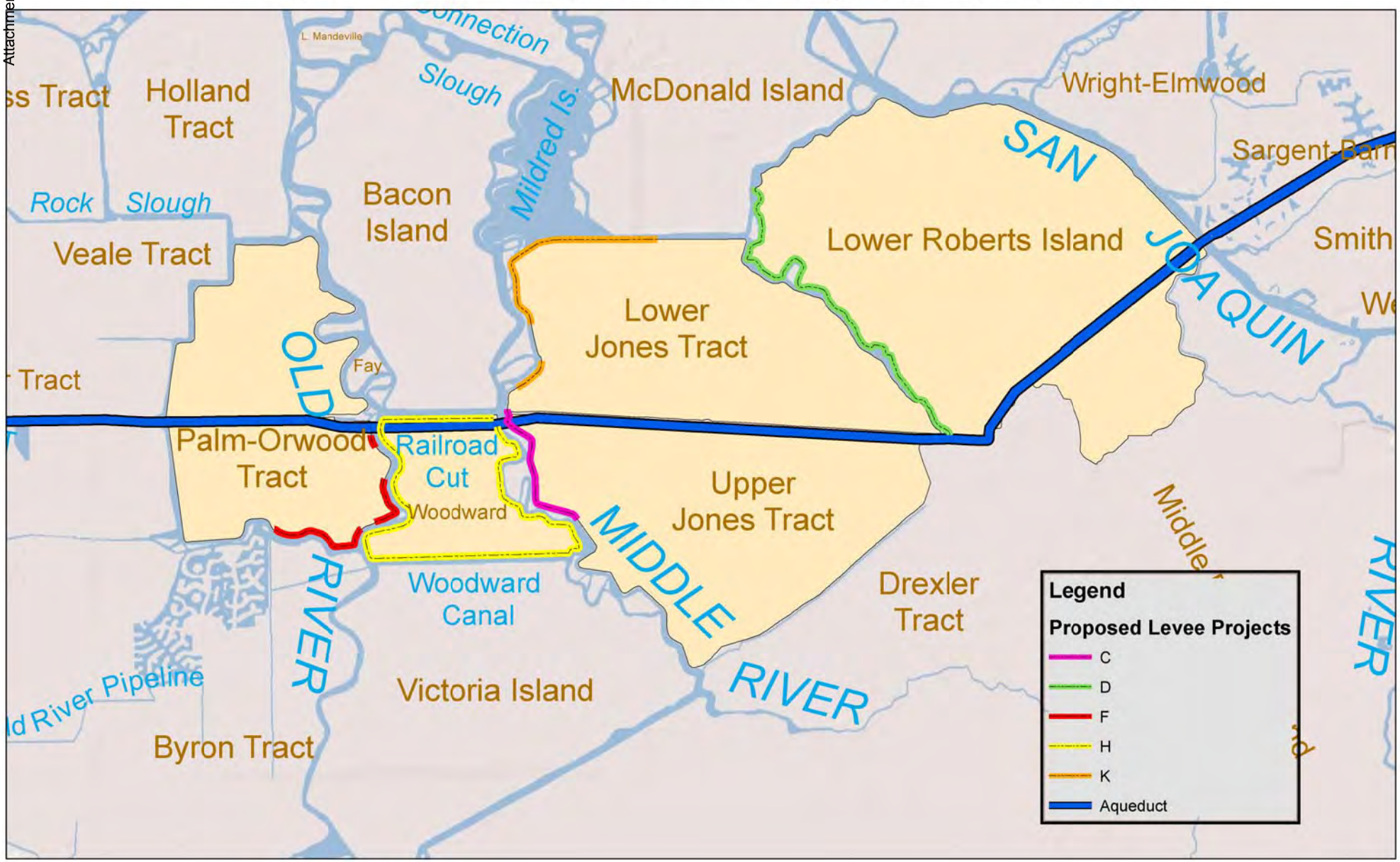
Agenda Item 11
Attachment 1

Map 1 - PSP Proposals for Projects A, B, E, G, J

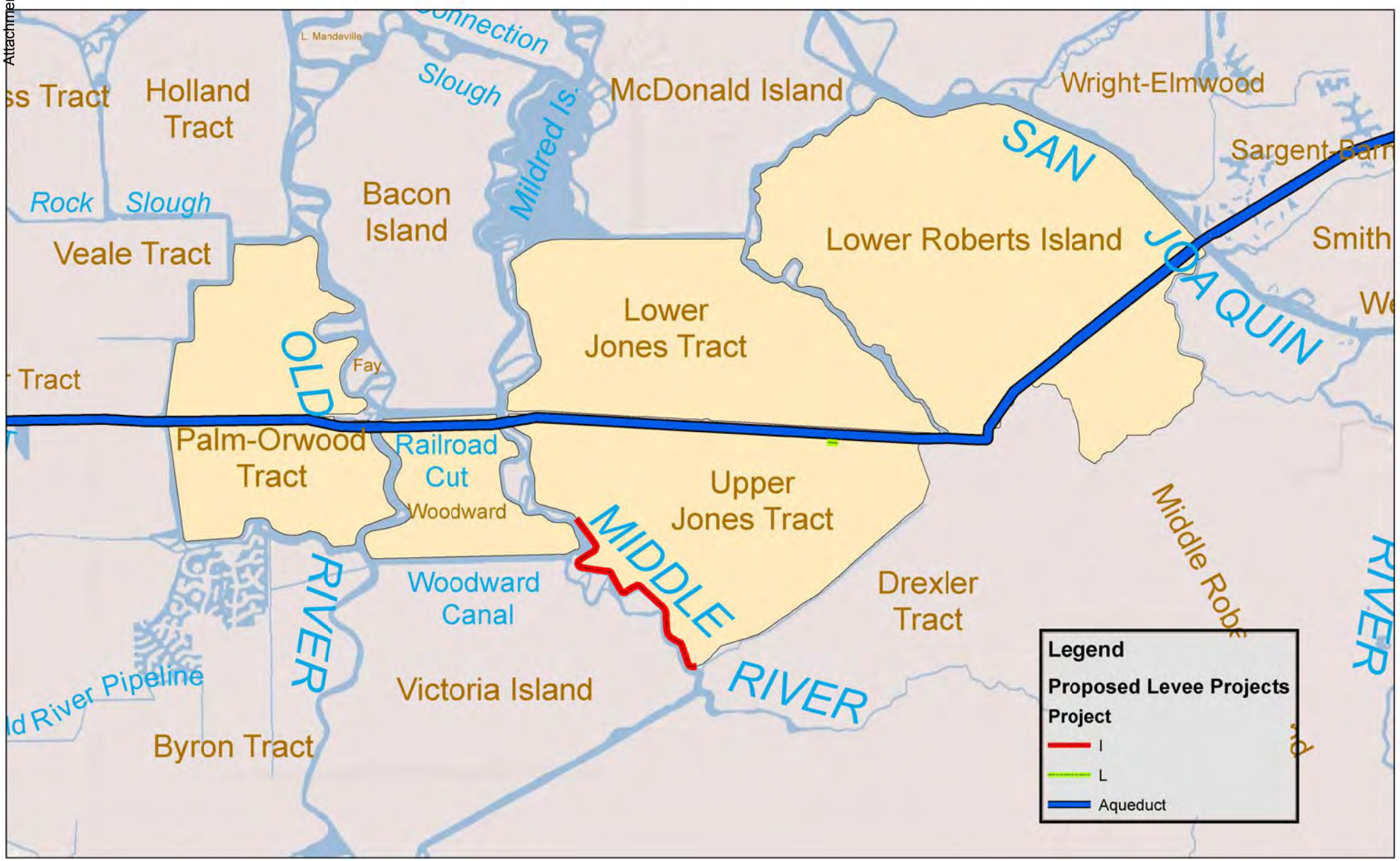


Agenda Item 11
Attachment 1

Map 2 - PSP Proposals for Projects C, D, F, H, K



Map 3 - PSP Proposals for Projects I and L



EAST BAY
MUNICIPAL UTILITY DISTRICT

DENNIS M. DIEMER
GENERAL MANAGER

June 14, 2010

Phil Isenberg, Chair
Delta Stewardship Council
650 Capitol Mall, Fifth Floor
Sacramento, California 95814

Subject: Support for Delta Levees Special Flood Control Projects

Dear Mr. Isenberg:

East Bay Municipal Utility District (EBMUD) strongly supports the Department of Water Resources (DWR) recommendation to approve the Delta Levees Special Flood Control Projects.

EBMUD operates the Mokelumne Aqueducts which convey the primary water supply from Pardee Reservoir, located in Calaveras County and Amador County, across the Sacramento-San Joaquin Delta region to over 1.3 million people in Contra Costa County and Alameda County. To reduce the risks of levee failures, EBMUD has partnered with the Reclamation Districts on Woodward Island, Orwood, Palm, Upper, and Lower Jones Tracts for decades to fund levee improvements.

Since the early 1980's, EBMUD has voluntarily contributed a total of almost $15 million towards levee repairs and improvements on the five Delta islands that protect Mokelumne Aqueducts. Levee improvements have included raising the crest at least one foot above the 100-year flood level, widening the crest, reducing levee slopes, and adding riprap for wave protection. However, these levees continue to settle and subside, and have failed three times over the past sixty years. Levee improvements are necessary to protect the region's agricultural, cultural and historical resources as well as protect the water supply to over twenty million people.

Failure of one of the levees surrounding EBMUD's aqueducts, and the resulting flooding of one of the islands, would in turn stress adjacent islands, and could result in progressive failures of surrounding levees. This would threaten critical facilities in the area including the Mokelumne Aqueducts, Kinder Morgan petroleum pipeline, Burlington Northern Santa Fe rail line, and State Highway 4. Any damage to the levees may also result in adverse impacts to the Old and Middle Rivers that route water to the State Project at the Clifton Court Forebay and, potentially, affect the ecosystems in the Delta, degrade water quality and compromise the water supply to over twenty million people and hundreds of farms south of the Delta who rely on this water supply. The financial impact of this would be billions of dollars to the California economy.

375 ELEVENTH STREET . OAKLAND . CA 94607-4240 . (510) 287-0101

Preliminary results of an analysis conducted by EBMUD indicate that the impact on the Gross Regional Product (GRP) for EBMUD's 1.3 million customers related to recovery time in the event of a failure of the District's aqueduct system would be disastrous. Over 90 percent of the water we serve comes via these aqueducts to the East Bay region and about 30 percent of the water serves businesses. Repair could take longer than six months and result in a loss to the GRP of about $62 million per day. A failure of these aqueducts would have a crippling effect on the economy of the Bay Area, and in turn, the State of California. To minimize these risks, EBMUD has invested $40 million in ratepayer funds to retrofit its aqueducts to improve their ability to withstand a maximum credible seismic event.

The Mokelumne Aqueducts are above ground, crossing over five Delta islands for approximately a 15-mile stretch in the central Delta. The levees that protect these islands have experienced a major failure three times over the past sixty years: 1955; 1980; and 2004. Under slightly different conditions than occurred, the hydraulic force of the tidal action could have caused major damage to the aqueducts. We have attached photos to show the flooded islands and the submerged aqueducts from these past events where the levees have failed. These aqueducts were not designed to function submerged or withstand tidal action.

Throughout the existence of CalFed and the California Bay Delta Authority, EBMUD has been a consistent supporter of the State establishing a Delta Levee Protection program as part of the Delta Plan. In 2007, EBMUD supported SB 34 (Senator Torlakson), to establish a Delta Benefit Assessment District that would have identified all of the entities that benefit from the maintenance and protection of the Delta islands and would have established an assessment upon such beneficiaries to help pay for this program. Unfortunately, that legislation did not become law.

In addition, during the informational hearings last Fall on the Delta bill package, EBMUD's written and oral testimony also included a recommendation to the Legislature to include a strong Delta levee component in that bill package. EBMUD remains a strong supporter of establishing a Delta Levee Program.

EBMUD urges the Council to approve the $35 million for levee improvements in recognition of the following:

1) The three levee failures that have occurred in the past, most recently in 2004, have placed the economy of the Bay Area, and, in turn, the entire state at serious risk of water rationing associated with such a major disaster and we cannot afford to take the chance of a fourth, more catastrophic failure in the future.

2) The substantial investments that EBMUD has made, and continues to make, towards levee strengthening in partnership with the Reclamation Districts.

Sincerely,

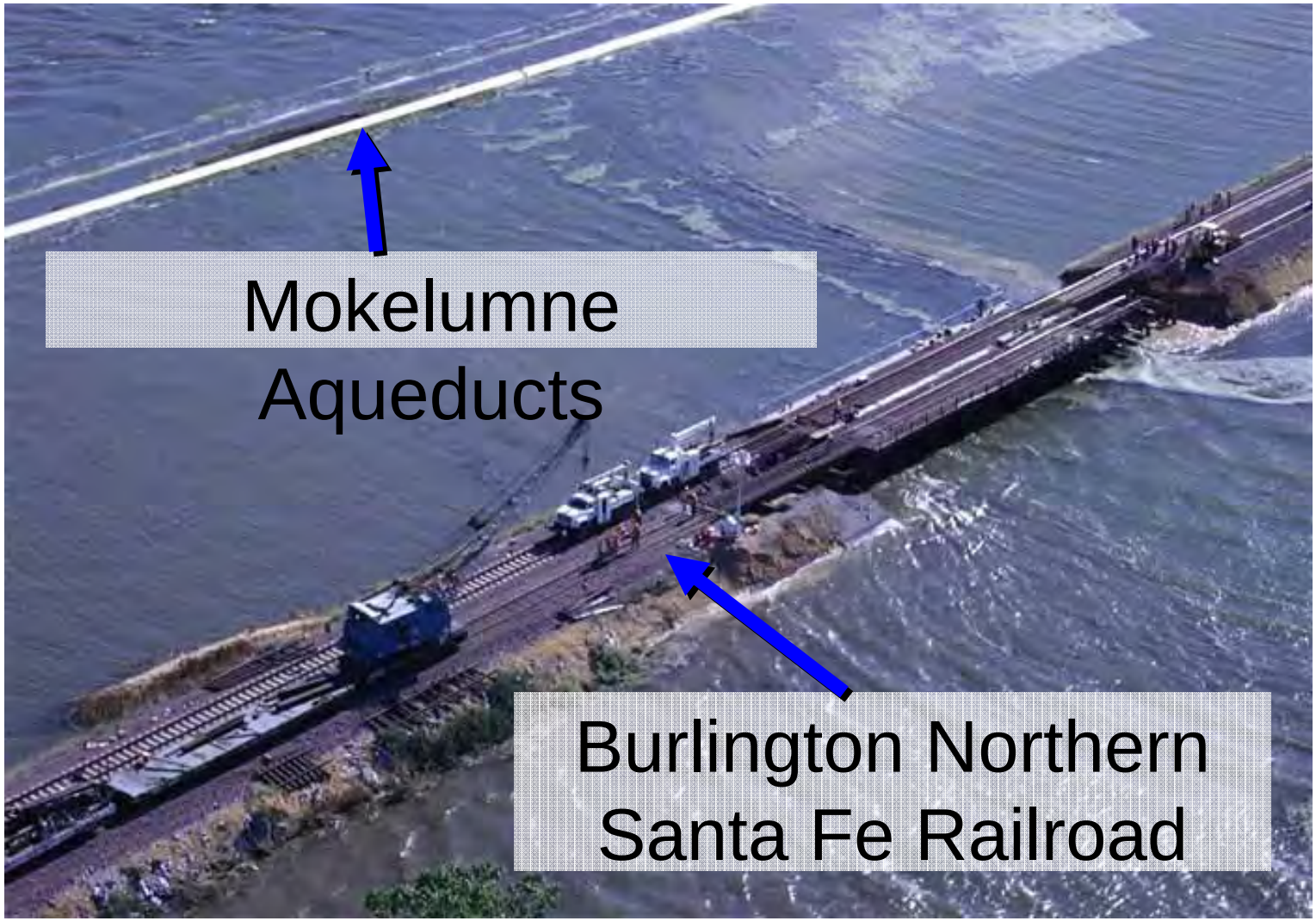
Dennis M. Diemer
General Manager

DMD:EMW:ss

cc: Delta Stewardship Council Members
Mark Cowin, Director, Department of Water Resources

Attachments

Jones Tract Flooding - 2004



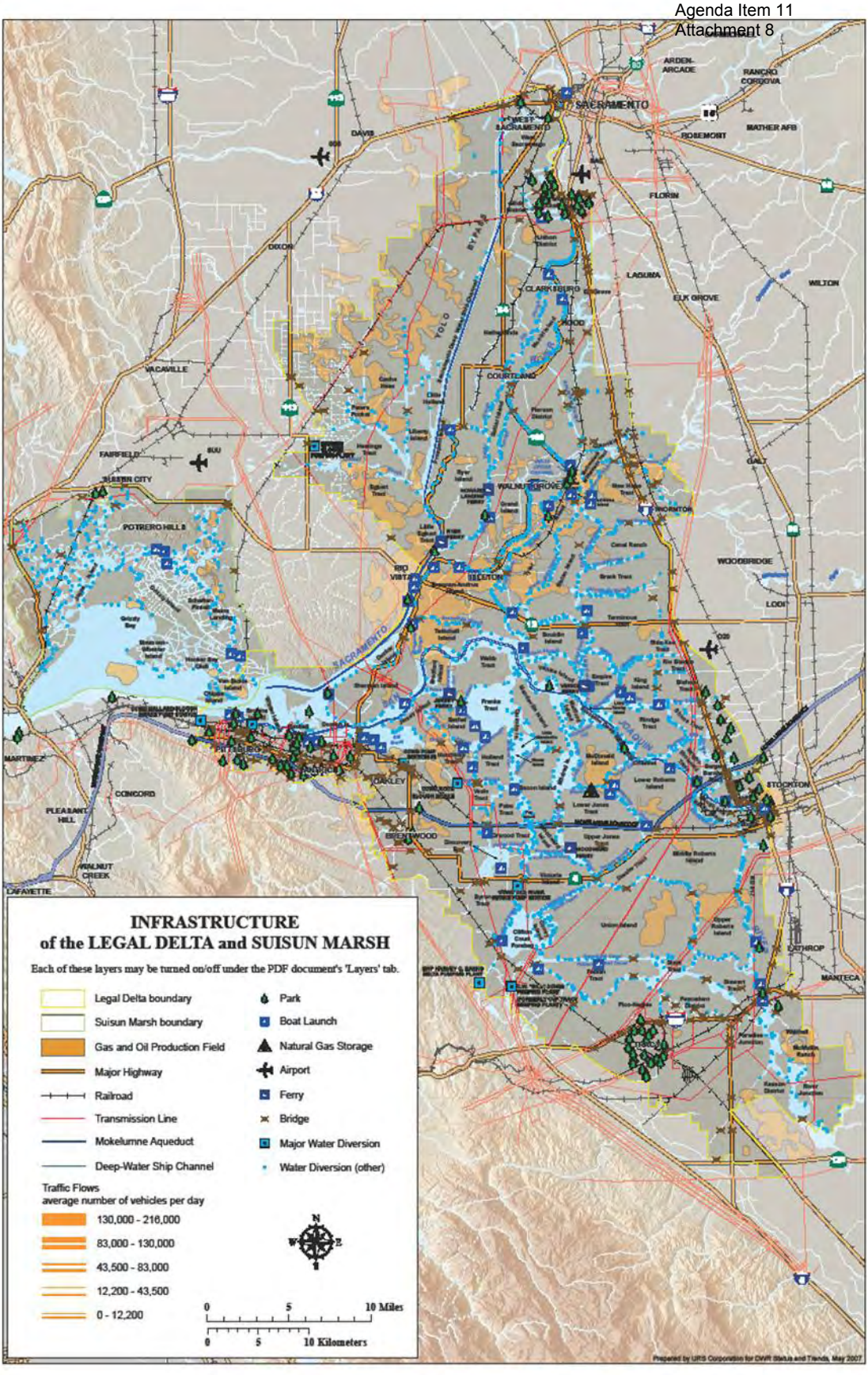
Jones Tract Flooding - 2004


Mokelumne Aqueduct parallels railroad

Trapper Slough levee raised 6 feet

		Infrastructure																Land use
ID	Name	Schools	Hospitals	Police stations	Fire stations	Marinas	Public access	Recreation	Waste water facilities	Solid waste facilities	Sewage treatment facilities	Water wells	Tank farms	Gas/Oil wells	Gas/Oil fields (sq. miles)	PG&E natural gas lines (miles)	Liquid gas lines (miles)	Land use (majority)
1	Atlas Tract	1												1				Urb
2	Bacon Island											3		8		5		Ag
3	Bethel Island				1					1		29		23	1	4		Veg
4	Bishop Tract											1		1				Ag
5	Bixler Tract													4				Ag
6	Boggs Tract	3			1				1	1	1		5				4	Urb
7	Bouldin Island													17				Ag
8	Brack Tract													19		5		Ag
9	Bradford Island													16	1	1		Veg
10	Brannan-Andrus Island	1		1	1					1		17		138	13	14		Ag
	MERGE Upper Andrus Island													18	1			Ag
11	Byron Tract										1	4		2				Ag
12	Cache Hass Area											1		131	8	10		Ag
13	Canal Ranch													11				Ag
14	Clifton Court Forebay South													1				Ag
15	Coney Island																	Ag
16	Cosumnes River Area													18	2	4		Veg
17	Deadhorse Island													3		1		Ag
18	Dutch Slough													5		1		Ag
19	Egbert Tract											2		106	5	6		Ag
20	Little Egbert Tract													2				Veg
21	Ehrheardt Club													6				Ag
22	Elk Grove	1			2				1			13		32	1	5		Urb/Ag/Veg
23	Empire Tract											2		5				Ag
24	Fabian Tract											3		9		1		Ag
25	Fay Island																	Ag
26	Glanville Tract											5		23		1		Ag
27	Glide District											1						Ag
28	Grand Island	1										10		95	4	2		Ag
29	Hastings Tract											6		46	1	3		Ag
30	Holland Tract											2		9				Ag
31	Hotchkiss Tract											4		26	1	5		Veg/Ag
32	Jersey Island									1				15	1	2		Ag
33	Kasson District													4				Ag
34	King Island											2		10				Ag
35	Libby McNeil Tract 1											2		7				Veg
36	Liberty Island													24	1	5		Ag
37	Lisbon District + Glide											1		21	1			Ag
38	Little Mandeville																	Water
39	Lower Jones Tract													24		2		Ag
	MERGE Upper Jones Tract											1		8		1	5	Ag
40	Mandeville Island													10				Ag
41	McCormack Williamson Tract													20	1	1		Ag
42	McDonald Tract											6		105	3	4		Ag
43	McMullin Ranch													37	3	4		Ag
44	Medford Island																	Ag
45	Merritt Island											2		15				Ag
46	Roberts Islands									1		2		55	3	12		Ag
	MERGE Drexler Tract											1		2				Ag
	MERGE Holt Station													1			1	Ag
	MERGE Lower Roberts Island	1										4		47	2		5	Ag
	MERGE Upper Roberts Island													32	2	4		Ag
47	Netherlands	2			1					2		11		90	2			Ag
48	New Hope Tract									1		5		66	3	8		Ag
49	Palm-Orwood Tract													6		6	3	Ag
50	Paradise Junction											5		7				Ag
51	Pescadero										1	1		13		1	1	Ag
52	Peter's Pocket											1		16	1	2		Ag
53	Pico Naglee Tract			1										14		8		Ag
54	Pierson Tract	2			1							5		18				Ag
	MERGE Randall Island														1			Ag
55	Prospect Island													11				Ag

56	Quimby Island											1						Ag
57	RD 17 (Mossdale)	1			1					10		17						Ag
58	Rindge Tract											13						Ag
59	Rio Blanco Tract									1		2						Ag
60	River Junction Tract									5		2		2				Ag
61	Rough and Ready Island									4	2	1			2			Urb
62	Ryer Island				2					1		22	1					Ag
63	Sacramento Pocket Area	93	4	5	11		2	38	6	50	3	14		15	5			Urb
64	Sargent Barnhart Tract East	7			1					2					3			Urb
65	Sherman Island									2		60	2	28				Ag
66	Shima Tract	1								1		1						Ag
67	Shin Kee Tract								1			4						Ag
68	Smith Tract	15								12								Urb
69	Stark Tract											1		1				Ag
70	Staten Island									2		34	3	5				Ag
71	Stewart Tract											6						Ag
	MERGE Mossdale RD 2107									7		1						Ag
72	Sutter Island											5						Ag
73	Terminous Tract	1								8		26	2					Ag
74	Tinsley Island									1								Ag
75	Twitchell Island									1		35	3	2				Ag
76	Tyler Island							1		3		95	7	7				Ag
77	Union Island	1								2		55	5	14				Ag
78	Veale Tract											6						Veg/Ag
79	Venice Island											4						Ag
80	Victoria Island											2		2				Ag
81	Walnut Grove			1	1					6		5						Ag
82	Walthal Tract											11	2					Ag
	MERGE Wetherbee Lake									2								Ag
83	Webb Tract											18						Ag
84	Weber Tract	1																Urb
85	West Sacramento	15		1	5		2	5		39	2	24		7	12			Urb/Ag
86	Woodward Island														1			Ag
87	Wright-Elmwood Tract											2						Ag
88	Denverton Slough											6						Veg
89	Frost Lake																	Veg
90	Grizzly Island									1		30		7	2			Veg
91	Honker Bay												1	1	1			Veg
92	Shafter-Pintail											1						Veg
93	Simmons-Wheeler Island																	Veg
94	Sunrise Club																	Veg
95	Van Sickle Island								1			16						Veg
96	Winter Island																	Veg


SACRAMENTO
ARDEN-ARCADE
RANCHO CORDOVA
MATHER AFB
ROSEMONT
FLORIN
LAGUNA
ELK GROVE
WILTON
DAVIS
WEST SACRAMENTO
DIXON
CLARKSBURG
COURTLAND
VACAVILLE
FAIRFIELD
SUISUN CITY
POTRERO HILLS
WALNUT GROVE
THORNTON
GALT
WOODBRIDGE
LODI
RIO VISTA
ISLETON
SACRAMENTO
YOLO
MARTINEZ
CONCORD
PITTSBURG
OAKLEY
BRENTWOOD
PLEASANT HILL
WALNUT CREEK
LAFAYETTE
STOCKTON
LATHROP
MANTECA
INFRASTRUCTURE
of the LEGAL DELTA and SUISUN MARSH
Each of these layers may be turned on/off under the PDF document's 'Layers' tab.
Legal Delta boundary
Suisun Marsh boundary
Gas and Oil Production Field
Major Highway
Railroad
Transmission Line
Mokelumne Aqueduct
Deep-Water Ship Channel
Park
Boat Launch
Natural Gas Storage
Airport
Ferry
Bridge
Major Water Diversion
Water Diversion (other)
Traffic Flows
average number of vehicles per day
130,000 - 216,000
83,000 - 130,000
43,500 - 83,000
12,200 - 43,500
0 - 12,200
N
W
E
S
0 5 10 Miles
0 5 10 Kilometers
Prepared by URS Corporation for DWR Status and Trends, May 2007

Court of Appeal, Third District, California.
Peter PATERNO et al., Plaintiffs and Appellants,
v.
STATE of California et al., Defendants and Respondents.
No. C040553.
Nov. 26, 2003.
As Modified on Denial of Rehearing Dec. 24, 2003.
Review Denied March 17, 2004.

Background: Landowner filed action against state and county reclamation district seeking damages caused by flooding after levee broke. The Superior Court of Yuba County, Nos. 2104 & 2104A, Thomas Mathews, J., entered verdicts for defendants. The Court of Appeal, 87 Cal.Rptr.2d 754, reversed and remanded with directions. On remand, the Superior Court, Judicial Council Coordination Proceeding, John J. Golden, J., entered judgment for state and county. Landowner and defendants appealed.

Holdings: The Court of Appeal, Morrison, J., held that:
(1) state was liable to landowner for inverse condemnation damages;
(2) state accepted levee from county; and
(3) county was not jointly liable with state.

Affirmed in part, reversed in part and remanded with directions.

West Headnotes

[1] KeyCite Notes

148 Eminent Domain
148IV Remedies of Owners of Property; Inverse Condemnation
148k266 k. Nature and Grounds in General. Most Cited Cases

Inverse liability stems from the California Constitution and is not dependent on tort or private property principles of fault. West's Ann.Cal. Const. Art. 1, § 19.

[2] KeyCite Notes

235 Levees and Flood Control
235k36 k. Injuries from Defects. Most Cited Cases

A landowner should not bear a disproportionate share of the harm directly caused by failure of a flood control project due to an unreasonable plan; whether plan is unreasonable is not measured by negligence principles, as in a tort case alleging a dangerous condition of public property, but by balancing a number of specific factors referred to as the *Locklin* factors.

See 11 Miller & Starr, Cal. Real Estate (3d ed. 2001) § 30:8.

[3] KeyCite Notes

148 Eminent Domain
148II Compensation
148II(A) Necessity and Sufficiency in General
148k69 k. Necessity of Making Compensation in General. Most Cited Cases

The taking or damaging of private property for public use must be compensated. West's Ann.Cal. Const. Art. 1, § 19.

[4] KeyCite Notes 

148 Eminent Domain
148II Compensation
148II(B) Taking or Injuring Property as Ground for Compensation
148k89 Nature of Injury to Property Not Taken
148k92 k. Proper or Improper Construction or Operation of Works. Most Cited Cases

148 Eminent Domain KeyCite Notes 
148II Compensation
148II(B) Taking or Injuring Property as Ground for Compensation
148k89 Nature of Injury to Property Not Taken
148k93 k. Direct or Remote, Contingent, or Prospective Consequences or Losses. Most Cited Cases

148 Eminent Domain KeyCite Notes 
148IV Remedies of Owners of Property; Inverse Condemnation
148k271 k. Recovery of Damages. Most Cited Cases

Generally, for inverse condemnation liability, whether or not public improvement involved was made with care and skill is irrelevant, as public should pay the costs inherent in public works, including damages, foreseeable or not. West's Ann.Cal. Const. Art. 1, § 19.

See 29 Cal.Jur. (3d ed.1986) § 304.

[5] KeyCite Notes 

148 Eminent Domain
148I Nature, Extent, and Delegation of Power
148k2 What Constitutes a Taking; Police and Other Powers Distinguished
148k2.17 Waters and Water Courses; Flooding
148k2.17(5) k. Flooding. Most Cited Cases
(Formerly 148k2(10))

When a flood control project fails to function as intended, causing damage to properties historically subject to flooding, strict liability for a taking does not apply.

[6] KeyCite Notes

148 Eminent Domain
148I Nature, Extent, and Delegation of Power
148k2 What Constitutes a Taking; Police and Other Powers Distinguished
148k2.17 Waters and Water Courses; Flooding
148k2.17(5) k. Flooding. Most Cited Cases
(Formerly 148k2(10))

Inquiry in inverse condemnation action into reasonable design, construction, operation, and maintenance of public flood control project is not limited to a narrow examination whether the system's technical specifications, intended capacities, materials, workmanship, and repairs were adequate under all the circumstances, but also whether the location and configuration of the system, and its purpose to divert the natural flow, were themselves reasonable.

[7] KeyCite Notes

148 Eminent Domain
148IV Remedies of Owners of Property; Inverse Condemnation
148k266 k. Nature and Grounds in General. Most Cited Cases

148 Eminent Domain KeyCite Notes
148IV Remedies of Owners of Property; Inverse Condemnation
148k270 k. Recovery of Compensation. Most Cited Cases

The purpose of balancing *Locklin* factors in inverse condemnation action is to determine if a disproportionate burden has been inflicted on landowner by a public project; factors are not elements of a cause of action for inverse liability, but, when balanced, indicate whether the owner, if uncompensated, would contribute more than his proper share of the public undertaking. West's Ann.Cal. Const. Art. 1, § 19.

[8] KeyCite Notes

148 Eminent Domain
148I Nature, Extent, and Delegation of Power
148k2 What Constitutes a Taking; Police and Other Powers Distinguished
148k2.17 Waters and Water Courses; Flooding
148k2.17(5) k. Flooding. Most Cited Cases
(Formerly 148k2(10))

148 Eminent Domain KeyCite Notes
148II Compensation
148II(B) Taking or Injuring Property as Ground for Compensation
148k94 Elements of Compensation for Injuries to Property Not Taken
148k98 k. Alteration of Flow or Discharge of Water. Most Cited Cases

A constitutional analysis for determining inverse condemnation liability in the flood

control context should not include a fruitless search for the somewhat artificial moral elements inherent in the tort concepts of negligence and intentional wrongs; instead, liability is based on the balancing of interests that the California Constitution requires, which serves both the private sector and public improvement efforts by addressing the cost-spreading objective of the just compensation clause while protecting public entities from unlimited, undeserved liability that could well inhibit further construction of public works. West's Ann.Cal. Const. Art. 1, § 19.

See 11 Miller & Starr, Cal. Real Estate (3d ed. 2001) § 30:8.

[9] KeyCite Notes

148 Eminent Domain
148I Nature, Extent, and Delegation of Power
148k2 What Constitutes a Taking; Police and Other Powers Distinguished
148k2.17 Waters and Water Courses; Flooding
148k2.17(5) k. Flooding. Most Cited Cases
(Formerly 148k2(10))

148 Eminent Domain KeyCite Notes
148II Compensation
148II(B) Taking or Injuring Property as Ground for Compensation
148k94 Elements of Compensation for Injuries to Property Not Taken
148k98 k. Alteration of Flow or Discharge of Water. Most Cited Cases

When implementing the constitutional command that the State must compensate landowners when it damages their property through failure of flood control projects, foreseeability plays no role in the causation analysis and is not determinative in the balancing step, only informative. West's Ann.Cal. Const. Art. 1, § 19.

[10] KeyCite Notes

148 Eminent Domain
148I Nature, Extent, and Delegation of Power
148k2 What Constitutes a Taking; Police and Other Powers Distinguished
148k2.17 Waters and Water Courses; Flooding
148k2.17(5) k. Flooding. Most Cited Cases
(Formerly 148k2(10))

In balancing need for flood control projects against damages occasioned by their failure, to determine whether taking of flooded land has occurred, court weighs as *Locklin* factors: (1) purpose served by the project; (2) offsetting reciprocal benefits; (3) feasible alternatives; (4) risk-bearing capabilities; (5) whether the damage is a normal risk of land ownership; (6) distribution of damage across the project. West's Ann.Cal. Const. Art. 1, § 19.

[11] KeyCite Notes

148 Eminent Domain

148I Nature, Extent, and Delegation of Power
148k2 What Constitutes a Taking; Police and Other Powers Distinguished
148k2.17 Waters and Water Courses; Flooding
148k2.17(5) k. Flooding. Most Cited Cases
(Formerly 148k2(10))

In balancing need for flood control projects against damages occasioned by their failure, to determine whether taking of flooded land has occurred, court weighs, in addition to *Locklin* factors: (1) damage, if reasonably foreseeable, would have entitled the property owners to compensation; (2) likelihood of public works not being engaged in because of unforeseeable direct damage to property; (3) damage was the proximate result of the work as deliberately planned and carried out: (4) damage could better be absorbed, and with less hardship, by taxpayers as a whole (5) owner if uncompensated would contribute more than proper share to public undertaking. West's Ann.Cal. Const. Art. 1, § 19.

[12] KeyCite Notes

148 Eminent Domain
148I Nature, Extent, and Delegation of Power
148k2 What Constitutes a Taking; Police and Other Powers Distinguished
148k2.17 Waters and Water Courses; Flooding
148k2.17(5) k. Flooding. Most Cited Cases
(Formerly 148k2(10))

148 Eminent Domain KeyCite Notes
148II Compensation
148II(B) Taking or Injuring Property as Ground for Compensation
148k94 Elements of Compensation for Injuries to Property Not Taken
148k98 k. Alteration of Flow or Discharge of Water. Most Cited Cases

As operator of levee which had been built almost a century previously with porous, uncompacted mining debris, State was liable, under inverse condemnation theory, for damages caused by unreasonable state plan which resulted in failure of levee; failure was foreseeable, levee system benefited all of California and saved billions of dollars, and landowner could not be required to bear cost of partial failure of that system caused by construction, operation, and deferred maintenance of unstable levee. West's Ann.Cal. Const. Art. 1, § 19.

See 7 Witkin, Summary of Cal. Law (9th ed. 1988) Constitutional Law, § 941.

[13] KeyCite Notes

235 Levees and Flood Control
235k1 k. Power to Establish and Maintain in General. Most Cited Cases

When a public entity accepts responsibility for an improvement, such as a levee, it becomes that entity's public improvement regardless of who built it.

[14] KeyCite Notes

148 Eminent Domain
148IV Remedies of Owners of Property; Inverse Condemnation
148k289 k. Parties, Process, and Appearance. Most Cited Cases

A public entity is a proper defendant in an action for inverse condemnation if the entity substantially participated in the planning, approval, construction, or operation of a public project or improvement that proximately caused injury to private property; it is immaterial which sovereign holds title or has the responsibility for operation of the project.

[15] KeyCite Notes

148 Eminent Domain
148IV Remedies of Owners of Property; Inverse Condemnation
148k285 k. Corporations or Persons Liable. Most Cited Cases

For purposes of inverse condemnation liability, approval and acceptance by the public agency of a public improvement may be implied by official acts of dominion or control of the property and by continued use of the improvement by that agency for many years.

[16] KeyCite Notes

235 Levees and Flood Control
235k36 k. Injuries from Defects. Most Cited Cases

State plans that called for the State to exercise control and to incorporate a levee into a unified public flood control system established that State accepted levee and liability for it, and could not be relieved of liability, if otherwise applicable, because of the fortuity that a county built the levee.

[17] KeyCite Notes

148 Eminent Domain
148IV Remedies of Owners of Property; Inverse Condemnation
148k285 k. Corporations or Persons Liable. Most Cited Cases

Acceptance doctrine making public entity liable for damages caused by public improvement is not limited to strict liability cases, but may be applied to inverse condemnation.

[18] KeyCite Notes

148 Eminent Domain
148I Nature, Extent, and Delegation of Power
148k2 What Constitutes a Taking; Police and Other Powers Distinguished
148k2.17 Waters and Water Courses; Flooding

⇐148k2.17(5) k. Flooding. Most Cited Cases
(Formerly 148k2(10))

Increasing the level of flood protection of a project constitutes an "upgrade" that the state is not required to undertake to avoid inverse condemnation liability in the event of flooding, but measures required so that a project provides the planned level of protection are not upgrades; work that restores a levee's design level of protection is maintenance, not an upgrade.

[19] KeyCite Notes 

⇐148 Eminent Domain
⇐148IV Remedies of Owners of Property; Inverse Condemnation
⇐148k285 k. Corporations or Persons Liable. Most Cited Cases

County reclamation district that did routine maintenance for the State and collected assessments from local landowners for State flood control project, was not jointly liable with State for damages suffered by landowners when levee failed due to faulty State plan for levee; nothing in State's relationship with district gave district ability to change the levee, and inverse condemnation liability did not occur during the performance of an agreement inter sese. West's Ann.Cal.Gov. Code § 895.2.

***856 *1002** Desmond, Nolan, Livaich & Cunningham, Gary Livaich, David Collins, and Richard F. Desmond, Sacramento, and Law Office of Clifford E. Hirsch; Howard, Rice, Nemerovski, Canady, Falk & Rabkin, Jerome B. Falk, Jr., and Simon J. Frankel, San Francisco, for First Union Real Estate Equity & Mortgage Investments; Kronick, Moskovitz, Tiedemann & Girard and Lloyd Hinkelman; Law Offices Of Stanley Bell, Sally G. Bergman; Robins, Kaplan, Miller & Ciresi, and Scott G. Johnson, Los Angeles; and Frederick A. Jacobsen for Plaintiffs and Appellants.

Bill Lockyer, Attorney General, Andrea Hoch, Chief Assistant Attorney General, Darryl Doke, Supervising Deputy Attorney General, Sterling A. Smith, Deputy Attorney General, for State of California; G. Steven Jones, La Jolla, and Carl R. Lindmark, Yuba City, for Reclamation District 784, Defendants and Respondents.

MORRISON, J.

The environmental aftermath of the Gold Rush continues to plague California. Hydraulic mining debris caused flooding which led to the building of levees at the confluence of the Yuba and Feather Rivers. Almost a century ago the Linda levee was built with uncompacted mining debris, and the use of that debris caused the levee to collapse on February 20, 1986.

***1003** About 3,000 plaintiffs sued the State of California (State), Reclamation District ***857** 784 (District) and others not now parties, seeking damages. In *Paterno v. State of California* (1999) 74 Cal.App.4th 68, 87 Cal.Rptr.2d 754 (*Paterno I*), we affirmed a defense jury verdict finding no dangerous condition of public property and reversed an inverse condemnation liability finding against defendants, and remanded for another trial on inverse liability. A new coordination judge (Hon. John J. Golden), conducted a lengthy court trial and issued a defense judgment against sample plaintiffs (collectively, Paterno) who filed this appeal.

Paterno embraces Judge Golden's factual findings, which in his view, create inverse liability on the part of the State as a matter of law. We agree. When a public entity operates a flood control system built by someone else, it accepts liability as if it had planned and built the system itself. A public entity cannot be held liable for failing to upgrade a flood control system to provide additional protection. But the trial court found the levee was built with porous, uncompacted mining debris, in a location which

encouraged seepage, leading directly to the failure of the levee, and that long before the failure, feasible cures could have fixed the problems. Use of such technology would not have been an upgrade, but would have ensured the planned flood control capacity was achieved.

[1] [2] Inverse liability stems from the California Constitution and is not dependent on tort or private property principles of fault. (See *Albers v. County of Los Angeles* (1965) 62 Cal.2d 250, 261-262, 42 Cal.Rptr. 89, 398 P.2d 129 (*Albers*).) California Supreme Court precedent dictates that a landowner should not bear a disproportionate share of the harm directly caused by failure of a flood control project due to an unreasonable plan. Whether the plan is unreasonable is not measured by negligence principles, as in a tort case alleging a dangerous condition of public property, but by balancing a number of specific factors referred to as the *Locklin* factors. (*Locklin v. City of Lafayette* (1994) 7 Cal.4th 327, 27 Cal.Rptr.2d 613, 867 P.2d 724 (*Locklin*).) Based on the facts found by the trial court and application of the *Locklin* factors, we conclude Paterno's damages were directly caused by an unreasonable State plan which resulted in the failure of the Linda levee and the State is liable to pay for Paterno's damages. In large part our conclusion is based on the fact that the levee system benefited all of California and saved billions of dollars, and to require Paterno to bear the cost of the partial failure of that system--a failure caused by construction and operation of an unstable levee--would violate *Locklin*. A basic part of the State's flood plan was to accept existing levees as much as possible, to reduce the cost of an extensive, coordinated, floodcontrol system. The People benefited from that cost-saving feature. However, the record shows the State never tested the Linda levee, or reviewed the records of its construction, to see if it was as strong as the global plans assumed it was, and the State even ***1004** ignored specific warnings about the levee's weaknesses. In such circumstance, the costs of the levee failure must be deemed part of the deferred costs of the project. We do not separately address an alternate theory that the State is liable because of an inadequate levee inspection plan, although we discuss the lack of any plan to examine the heart of the levee.

Although in some ways the District is a coparticipant with the State in operating the levee, we conclude it is entitled to judgment. The District was responsible for and only for ordinary maintenance and could not alter the structure of the levee, even if it had the financial means to do so.

We will affirm the judgment in favor of the District, reverse the judgment in favor **858 of the State with directions to enter judgment in favor of Paterno, and remand for further proceedings. In making this order, we realize this case is as hoary as *Jarndyce v. Jarndyce*. We expedited this appeal, and counsel assisted this court by providing much of the record and the briefs in computerized format. We will direct that this case be given priority in the trial court and that all available means to expedite the remaining triable issues be implemented.

BACKGROUND FACTS

Much of the evidence from the first trial was introduced on retrial and although we set out the trial court's findings in this opinion, the interested reader should review *Paterno I*. (See *Paterno I, supra*, 74 Cal.App.4th at pp. 75-91, 96-99, 87 Cal.Rptr.2d 754.) Judge Golden adopted parts of Judge Lorenzo Sawyer's decision in *Woodruff v. North Bloomfield Gravel Mining Co.* (C.C.D.Cal.1884) 18 Fed. 753 (*Woodruff*), which famously declared certain hydraulic gold mining practices to be a nuisance. *Woodruff* helps explain the origin of Linda levee's problems.

"Hydraulic mining ... is the process by which a bank of gold-bearing earth and rock is excavated by a jet of water, discharged through the converging nozzle of a pipe, under great pressure, the earth and *debris* being carried away by the same water, through sluices, and discharged on lower levels into the natural streams and water-courses below." (*Woodruff, supra*, 18 Fed. at p. 756.) The technology improved until large pipes, or monitors, could discharge 185,000 cubic feet of water per hour at a speed of 150 feet

per second, and "at the North Bloomfield, several of these Monitors are worked, much of the time, night and day, the several levels upon which they are at work being brilliantly illuminated by electric lights, the electricity being generated by water power. A night scene ... is in the highest degree weird and startling, and it cannot fail to strike strangers with wonder and admiration." (*Id.* at p. 757.)

***1005** But admiration was far from universal. The environmental damage is indescribable, and must be seen at the Malakoff Diggins State Historic Park to be believed. (See *Woodruff, supra*, 18 Fed. at p. 757 [scale of project "can only be duly appreciated by actual observation"].) Millions of cubic yards of "slickens" (fine wet mining debris) filled up the riverbeds and ruined vast agricultural tracts. (*Id.* at pp. 758-760.) Levees built to protect Linda township failed in 1881 and 1883, and the space between the levees filled with debris. (*Woodruff, supra*, 18 Fed. at pp. 760, 765-767.)

"The California Debris Commission (CDC) was formed by Congress [in 1893] to counter the effects of hydraulic mining" and the Army Corps of Engineers (Corps) worked on the Yuba. (*Western Aggregates, Inc. v. County of Yuba* (2002) 101 Cal.App.4th 278, 287, 130 Cal.Rptr.2d 436; see 33 U.S.C.A. § 661; *Gray v. Reclamation District No. 1500* (1917) 174 Cal. 622, 628-630, 163 P. 1024 (*Gray*).) In 1911, the State adopted the Jackson Report as its flood control plan. (*Reclamation District v. Riley* (1923) 192 Cal. 147, 149-150, 218 P. 762 (*Riley*).) On appeal the State describes the report as "a skeletal or conceptual plan for a flood control system to be developed over time with the benefit of further studies and experience...." (See *Gray, supra*, 174 Cal. at pp. 629-630, 163 P. 1024 ["the details of it were still to be worked out. The reclamation board ... was called into existence to do these things"].) The Sacramento River Flood Control Project (SRFCP) was based on the Grant Report (a modification of the Jackson Report) approved by California in 1925 and by Congress in 1928. (*American Riv. Flood Control Dist. v. Sweet* (1932) 214 Cal. 778, 781-782, 7 P.2d 1030; *Beckley v. Reclamation Board* (1962) 205 Cal.App.2d 734, 740-741, 23 Cal.Rptr. 428 (*Beckley*); 11 Ops.Cal.Atty.Gen. 93, 93-94 ****859** (1948); Wat.Code, § 8525 [report as modified approved as a plan for flood control].)

"In 1953, the SRFCP works were transferred to the state. A memorandum of understanding confirmed the state's obligation to operate and maintain all completed works of the SRFCP and to hold the federal government harmless. The state turned the levees over to [local reclamation] districts for maintenance and operation but maintained responsibility for the project." (*Akins v. State of California* (1998) 61 Cal.App.4th 1, 11, 71 Cal.Rptr.2d 314 (*Akins*).) The State agreed to this plan for financial reasons. (See 9 Ops.Cal.Atty.Gen. 87, 89-91 (1947).) At trial the State took responsibility for "policy-making functions as they pertain to all flood control matters of the SRFCP," and by statute it has "supervisory powers" over the SRFCP. (Wat.Code, § 8360; see *Paterno I, supra*, 74 Cal.App.4th at p. 77, 87 Cal.Rptr.2d 754.)

As we have said before, the SRFCP "consists of a vast and intricate general plan for levees, bypasses, weirs and other works designed for flood control, reclamation and improvement of navigation. It is a cooperative ***1006** federal-state venture which has been in the process of design and construction for over half a century. It has been described in so many reported appellate decisions that further exposition is unnecessary." (*Sacramento, etc. Drainage Dist. ex rel. State Reclamation Bd. v. Reed* (1963) 215 Cal.App.2d 60, 65, 29 Cal.Rptr. 847.) Before this comprehensive scheme existed, flood control consisted of public or private projects protecting small areas, often conflicting with other projects, or "dog-eat-dog reclamation" as we have called it. (*Beckley, supra*, 205 Cal.App.2d at p. 740, 23 Cal.Rptr. 428; see *People v. Sacramento Drainage Dist.* (1909) 155 Cal. 373, 379-381, 103 P. 207.) This followed from the "common enemy" rule which allowed each landowner to fend off flood waters regardless of the effect on other lands. (See *In re Sutter-Butte By-Pass Assess. No. 6* (1923) 191 Cal. 650, 656, 218 P. 27; Van Alstyne, *Inverse Condemnation: Unintended Physical Damage* (1969) 20 Hastings L.J. 431, 499-502 [criticizing doctrine as applied to public projects] (Van Alstyne).)

As stated, 19th-century levee projects failed near Linda. (*Woodruff, supra*, 18 Fed. at

pp. 760, 765-767.) In 1904 Yuba County adopted a resolution authorizing construction of a levee known as the Morrison Grade, which became the Linda levee. It was built by men and horses using scrapers to borrow nearby material, mostly mining debris. The trial court found: "In the process, little or no compaction of the material was attempted or achieved. [¶] As built, Morrison Grade was highly susceptible to seepage failure because of its siting on top of fifteen feet of porous hydraulic mining debris, the porosity of the material of which it was constructed, and the absence of any compaction of that material during construction." The Linda levee was part of the District, formed in 1908, and incorporated into the SRFCP.

Pursuant to the Grant Report the Corps improved the levee in 1934 and 1940 but the trial court found "the existing levee was incorporated into the finished work" without change. The floods of 1955 sorely tested the SRFCP and exposed many deficiencies, but no problems were revealed in the Linda levee, in particular the south levee on the Yuba between the Southern Pacific Railroad and the E Street Bridge (before the Feather confluence). Although the flood stage *exceeded* design capacity and water came within a *foot* of the top, it held. In the 1964 flood year the Linda levee was also subjected to higher waters than in 1986, yet held.

"In February 1986, a tropical weather system brought much warm rain, which in turn caused snow melt" triggering massive flooding in California. ***860** (*Paterno I, supra*, 74 Cal.App.4th at p. 77, 87 Cal.Rptr.2d 754.) For three days the Linda levee held water reaching to 76 feet (U.S. Engineering Datum), but it failed when the water had receded to about 74.3 feet; it is designed to hold up to 80 feet. The State concedes the levee failed at about *half* its designed capacity. The trial court found "the resulting 150 foot gap in the embankment allowed roughly ***1007** 20,000 acre-feet of water ... to inundate some 7,000 acres of land situated in the communities of Linda and Olivehurst, lying across the river south of Marysville in a territory which had been protected by the [levee] from flooding for many years. The flooding resulted in damage ... estimated to be in the range of one hundred million dollars." "By 1986, the value of property protected by the levee ... was about $409,400,000. [¶] There was evident no general perception that the area was not a safe place for urban development."

The parties stipulated Paterno's property (real and personal) was damaged as a proximate result of the failure of a public flood control project to function as planned. The trial court found it failed because seepage had eroded soil from the levee, probably over decades, resulting in an impaired foundation which could not withstand the third major flood test. Underneath the levee were channels from prior geologic river configurations, providing watercourses which made the levee vulnerable to seepage. However, the trial court reasoned that the defendants had not built the levee and therefore were not responsible for creating these problems, characterizing proposed available fixes as "upgrades," upon which liability could not be based.

In his objections to the proposed statement of decision, Paterno partly complained that there was no basis for the trial court's "conflation of 'feasible alternatives' and 'upgrades.' " Paterno also urged that liability be predicated on the Jackson and Grant reports, which in effect ratified the Linda levee's configuration on the ground, i.e., as Yuba County had sited and built it. This was based on a theory known as the "acceptance" doctrine. Paterno asked the trial court to balance the *Locklin* factors--which we discuss in detail later--and determine if the plans were unreasonable. Paterno raised other points which have been abandoned. (See *Estate of Randall* (1924) 194 Cal. 725, 728-729, 230 P. 445.)

The trial court adopted the tentative decision, with insignificant changes, as the statement of decision.

We disagree with the trial court's legal conclusions, but the thorough yet concise statement of decision has been of enormous assistance. Because the parties dispute its meaning, we quote it at length, and italicize certain critical portions.

STATEMENT OF DECISION EXCERPT

"CAUSE OF FAILURE

"The physical process implicated in the failure of the levee was one in which water ... seeped through the levee's foundation (the ground upon ***1008*** which the levee's embankment was constructed) and so eroded it as to permit the levee's embankment (that portion of the earthen structure which was constructed above the foundation) to collapse into the weakened foundation thereby creating an opening in the embankment through which the river's waters flooded. The precise physical phenomena which accompanied the process were described in considerable detail by well-informed and credible experts whose accounts and opinions varied in some details but were fairly consistent in advancing the general proposition that seepage, attributable to the natural physical properties of the elements implicated in the process--soil and water--produced the failure.

"It is likely that the process of seepage and erosion of the foundation was ****861*** one which had been underway during high water events in the decades preceding the failure [e.g., in 1955 and 1964] and culminated in collapse on that occasion because the degree of erosion produced during the event of February 1986, when added to that produced during such events in the preceding decades, resulted in a foundation critically impaired.

"Throughout the scenario of the construction and collapse of the Linda levee, seepage had been a constant presence in the lower reach of the Yuba--and elsewhere in the Sacramento River drainage--and was an entity whose vigor and effect were affected by the permeability of the soil in which it existed.

"The site of Linda levee is one characterized by the deposition of hydraulic mining debris to a depth of approximately 15 feet, under which lay natural over-bank deposits, under which were sand channels, under which was very [coarse] gravel with sand seams. The ... debris was highly porous material which could have a profound effect on the stability of a levee, long term. Moreover, in the area where the levee failed, there were 5 different former river channels which had been there in the recent geologic past and were natural courses for the movement of underground water.

"The embankment of the levee had been built with mining debris dug out of borrow pits near the levee and was characterized as very unstable and loose; the upper part of the foundation was characterized as very poor. These conditions rendered the levee susceptible to becoming unstable as a result of seepage.

"One of plaintiff's experts, Meehan, characterized the levee as an inferior, high-risk levee which was poorly constructed and didn't meet any engineering standards that existed any time during its life; it was built on a very unstable foundation which was subject to severe seepage pressure and offered little resistance to seepage over the course of its history; the embankment was ***1009*** composed of loose, sandy material and its composition and construction were not adequate. *This is an indictment which the evidence supports.* [(Italics added.)]

"Nevertheless, the cause of the failure of this levee is found to be that which was stated at the outset of this discussion: an interaction of the physical properties of natural elements: soil and water.

"CONTROLLING LEGAL PRINCIPLES

"... [¶] ... [¶]

APPLICATION OF PRINCIPLES TO EVIDENCE

"Pursuant to a stipulation of the parties, a pre-trial order ... determined that [the failure of the Linda levee] proximately caused damage to sample plaintiffs' property.

"The inquiry, then, becomes whether the evidence demonstrates that the failure of Linda levee was substantially caused by a plan adopted by the State or [District] for the design, construction, operation or maintenance of the levee.

"It does not.

"The evidence demonstrates that the failure of the levee was caused entirely by a natural process involving natural elements.

"Moreover, the plan of design and construction of Morrison Grade, out of which Linda levee evolved, was one adopted by [Yuba County] and if that plan were a substantial

cause of the levee's failure by reason of its specification of siting, construction materials or ... techniques, such a circumstance **862 would not engage liability of [Defendants].

"PLAINTIFFS' CONTENTIONS

"THE 'PLAN'

"[Paterno advocates] the view that ... the 'plan' which is seen as the substantial cause of the failure of the ... Linda levee, is the 'plan' for the [SRFCP].

"Pursuit of [this] contention requires a consideration of the question whether a plan adopted by the State for the [SRFCP] caused Linda levee to *1010 fail. The contention is ... the 'plan' adopted ... in 1911, when the [Jackson Report was adopted] was the genesis of a plan which is not found in any particular document, but is a plan which ... had been constantly evolving and manifesting itself in the many [plans of the project.]

"The evidence does not demonstrate that any such amorphous 'plan' for the [SRFCP] played a causal role in the failure of Linda levee.

"Moreover, the 'plan' which the relevant legal principle refers to is a discrete plan, considered and adopted by an authorized governmental decision-making entity, for the design, construction, operation or maintenance of a specific flood control project which failed. That project is identified as the Linda levee and a relevant plan must be one having something to do with the physical properties of that project or a prescribed system of its operation or maintenance.

"There are four such plans identified by the evidence.

"The first of them was the plan approved in 1904 by [Yuba County] for the original construction of Morrison Grade, but, for reasons earlier discussed, it cannot form the basis for liability of [defendants.]

"The second was the plan approved ... for the 1934 work ... but no element of that plan ... contributed to the 1986 failure of the levee....

"The same evaluation is made with respect to the third plan, that involving the [1940 improvements]. "A fourth plan was one resulting in work done on Linda levee in 1960 [.] There is no evidence that the work played any role in causing the [levee failure].

"In conclusion, the evidence does not demonstrate the existence of any relevant plan which was a substantial cause of the failure of the levee.

"ALIGNMENT

"[Paterno contends] that a substantial factor in the failure of the levee was the selection of its alignment along a course in the active channel of the river, underlain by permeable hydraulic mining debris from which construction material for the embankment was borrowed, over former channel beds, whereas there was a preferred course southerly of the one selected, lying outside of the area of the active channel of the river, the former channels and the hydraulic mining debris.

*1011 *"The decision to select the course selected was made by [Yuba County], before [defendants] had any involvement with the levee and cannot be said to represent a plan adopted by either of them.* [(Italics added.)]

"... [¶] ... [¶]

"SEEPAGE CONTROL

"Seepage is the underground movement of water between a stream and adjacent lands. It has been an historic and persistent condition along the Sacramento River and its tributaries, including the Yuba[.] Seepage occurred **863 through and under the levees of the [SRFCP]. *Linda levee was in an area in which there was a recorded history of seepage and siting the levee in the Yuba River channel, when it was originally constructed, markedly increased the seepage failure potential.* [(Italics added.)]

"A 1955 State report [citation] recommended a study of modifications of levees in the project system which might mitigate or prevent seepage. After the failure of the Linda levee [an evaluation], of the system by the Corps in 1990 found that the project levees were susceptible to seepage problems which deprived them of their ability to provide design levels of flood protection. The [Corps] report recommended seepage control measures.

"Before the failure of the levee, however, there were seepage control measures available which had been evolving during the 20th century and, in 1978, design standards

[citation] adopted on behalf of the Corps for project levees prescribed seepage control measures ... none of which was possessed by Linda levee.... [T]hese were techniques that were employed by the Corps in performing repairs to the levee. They proved to be effective during the bigger high-water event of 1997 and would have been effective in 1986[.]

"When the 1934 and the 1940 work was done on Linda levee, similar seepage control measures were available but not used. Had the available measures been used in the design of the 1934 or 1940 work, it is probable that the levee would not have failed at the site where such measures had been used. Thus, the argument can be made that the plan for the 1934 work and the plan for the 1940 work, each, was a substantial cause of the failure of the levee in 1986 for the reason that each plan failed to provide for the use of available seepage control measures which probably would have prevented the failure. A similar argument can be made that, had the original levee been removed and a new levee segment constructed in accordance with current engineering standards at the time of either of those projects, rather than simply incorporating the old segment into the new work, the 1986 failure probably would have been prevented. Likewise, it could be said that, at the time of the 1934 and 1940 projects, the entire alignment of the Linda levee could have been [fixed].

***1012** "*Although the factual foundation for each of these contentions is sound, each is rejected.* [(Italics added.)]

"Each of the 1934 and 1940 projects was designed for the purpose of achieving specified and discrete levee design characteristics and the objective of each was achieved. There was no failure of either plan to achieve its objective and it was not the failure of either plan to achieve its objective which was a substantial cause of the failure of the levee in 1986....

"Moreover, the provision of seepage control features and the reconstruction of the levee segments or their realignments would constitute upgrades in the condition of the levee which the State was not required to provide and which the court may not consider as the basis for imposition of inverse condemnation liability ([*Paterno I,*] *supra,* 74 Cal.App.4th at pp. 96-98, 87 Cal.Rptr.2d 754).

"CONCLUSION

"Since the evidence does not demonstrate that the failure of Linda levee on February 20, 1986 was substantially caused by a plan adopted by either defendant for the design, construction, operation or maintenance of the levee, it ***864** would be an incongruous exercise to attempt to determine whether any such plan was unreasonable and that effort will not be undertaken.

"The ultimate conclusion resulting from the foregoing discussion is that plaintiffs shall recover nothing from either defendant."

The trial court issued a defense judgment and Paterno filed a timely notice of appeal therefrom.

DISCUSSION

Paterno does not contest the factual findings, he asserts the facts "compel the legal conclusion that the Linda levee's failure to function as intended was a legal cause" of his damages. Defendants did not object to the statement of decision, and they, too, largely embrace the trial court's findings, arguing they do not show liability.

We will first discuss the trial court's causation finding and conclude the trial court found the initial poor construction of the levee caused a seepage failure, and that feasible repairs were not undertaken. We will then discuss the rules applicable when a flood control project fails to function as intended, flooding properties historically subject to flooding. Applying those rules we will conclude the State, but not the District, is liable for Paterno's damages, because of the unreasonable plan within the SRFCP, which accepted the levee ***1013** as built without any measures to ensure it met design standards. Then we will discuss the two legal reasons given by the trial court to absolve the State of liability. We will conclude that the fact Yuba County built the levee does not relieve the State of liability because the State accepted the levee within the SRFCP. Moreover, the State never added seepage controls, and we explain why imposing liability for not doing

so does not impose liability for failing to upgrade the system. We conclude there is no basis to apportion any liability to the District.

I. The Cause of the Failure

In *Paterno I* we emphasized Paterno would have to prove that some unreasonable aspect of an official *plan* caused the levee to break. (*Paterno I, supra*, 74 Cal.App.4th at p. 91, 87 Cal.Rptr.2d 754.) "Where damage results from the acts of employees, and not from a policy decision, there is no taking. Recovery, if any, lies in a tort action, such as negligence. [Citation.] In the case of alleged shoddy maintenance ... it is the *plan* of maintenance which must be unreasonable to establish a taking. Poor *execution* of a maintenance plan does not result in a taking." (*Id.* at pp. 86-87, 87 Cal.Rptr.2d 754.) Paterno quotes a snippet of transcript to suggest the trial court thought we erred in *Paterno I* in our " 'insistence on focusing on a plan for the purpose of establishing inverse condemnation liability[.]' " The trial court properly implemented *Paterno I* on retrial, and required Paterno to show an unreasonable plan caused his damages.

The State points to parts of the decision to argue that the trial court found no plan for the levee contributed to its collapse. For example, the trial court concluded that "seepage, attributable to the natural physical properties of the elements implicated in the process--soil and water--produced the failure [;]" "the cause of the failure of this levee is found to be that which was stated at the outset of this discussion: an interaction of the physical properties of natural elements: soil and water[;]" the "evidence demonstrates that the failure of the levee was caused entirely by a natural process involving natural elements."

The State is correct but only in a superficial way. In the language used by the State, the trial court did find no *relevant* plan caused Paterno's damages, but this ***865*** was based on erroneous legal premises. A fair reading of the statement of decision shows that *factually* the trial court found the initial levee construction was abysmal and that feasible technology existed in the 1930's and 1940's which, if implemented, would have brought the levee within engineering standards and averted the failure. As for the former point, the trial court credited Paterno's expert, who "characterized the levee as an inferior, high-risk levee which was poorly constructed and didn't meet any ***1014*** engineering standards that existed any time during its life; it was built on a very unstable foundation which was subject to severe seepage pressure and offered little resistance to seepage over the course of its history; the embankment was composed of loose, sandy material and its composition and construction were not adequate. *This is an indictment which the evidence supports.*" (Italics added.) As for the latter, the trial court found feasible curative measures "were available but not used. Had the available measures been used in the design of the 1934 or 1940 work, it is probable that the levee would not have failed at the site where such measures had been used."

The trial court rejected Paterno's claim that any plan of the defendants contributed to the levee failure for two *legal* reasons: (1) Defendants were not liable for the original (1904-1905) alignment or construction of the levee because Yuba County built it; and (2) liability could not be predicated on subsequent plans (the repairs in the 1930's and 1940's) because those plans achieved their design goals and there can be no inverse liability for failing to upgrade a project.

The State argues the SRFCP cannot be a relevant plan, but does not explain why simply because a plan incorporates a number of subsidiary plans, the larger plan cannot lead to liability. It was a central cost-saving feature of the early reports (which evolved into the SRFCP) to use existing levees, but there was never any effort to test those levees (or at least, the Linda levee) for structural soundness. The global plans assumed the levee met engineering standards, despite the fact that the records of its construction were public and showed that mining debris was simply scraped up and heaped, without compaction, to form the Morrison Grade, which later was raised and slightly reshaped, retaining the defective core. The State claims "Linda levee as it existed after the work performed in 1934 was incorporated into the finished 1940 work[,] in conformance with the levee design standards of the day," but although the improvements may have been *designed* to the standards of the day, the trial court found the levee never *met* those standards.

The State asserts the trial court found the levee failed due to "hydro-consolidation" and defines that theory as "a physical process whereby sandy material consolidates or settles when loaded or reloaded (with weight or additional weight) and exposed to water. Hydro-consolidation began at Linda levee decades before its failure when flood waters entered subsurface flood plain soils and from there, formed a subterranean pathway for water that later flood events progressively extended closer to the levee's foundation. Once underground flood waters eventually permeated the levee's foundation material to reach a point inland of its landside toe in 1986, 'hydro-fracture' caused a sudden, catastrophic failure by rapid evacuation of large amounts of soil from the levee's foundation."

*1015 But the statement of decision never uses the terms "hydro-fracture" or "hydro-consolidation." (See *Lafayette Morehouse, Inc. v. Chronicle Publishing Co.* (1995) 39 Cal.App.4th 1379, 1384, 46 Cal.Rptr.2d 542 ["When the record clearly demonstrates **866 what the trial court did, we will not presume it did something different"].) The State gives a lengthy explanation of the evidence in its effort to show the trial court *meant* "hydro-consolidation" caused the failure. We are confident that if that is what Judge Golden meant, he knew how to say it. Moreover, the State's point appears to be that if we agree a "hydro-fracture" was the immediate cause of the failure we would have to conclude the failure was unforeseeable, a claim we discuss below.

We reject the State's efforts in this court to impliedly relitigate the factual cause of the levee failure.

II. Inverse Liability for Flood Projects

In this section we explain the general liability rules which governed the retrial. We will address the significance of foreseeability, *vel non.* Because the trial court concluded no relevant plan caused the failure, it did not proceed to balance the *Locklin* factors. We will do so on appeal.

A. General Rules.

[3] [4] The taking "or damag[ing]" of private property for "public use" must be compensated. (Cal. Const., art. I, § 19; *Locklin, supra,* 7 Cal.4th at p. 362, 27 Cal.Rptr.2d 613, 867 P.2d 724.) Generally, "whether or not the public improvement involved was made with care and skill is irrelevant." (29 Cal.Jur.3d (1986) Eminent Domain, § 304, pp. 454-455, fns. omitted.) The public should pay the costs inherent in public works, including damages, foreseeable or not. (*Holtz v. Superior Court* (1970) 3 Cal.3d 296, 310-311, 90 Cal.Rptr. 345, 475 P.2d 441 (*Holtz*) [since the undertaking at a lower cost created some risk of damage to private property, it was proper to require the public to bear the loss]; *Albers, supra,* 62 Cal.2d at pp. 261- 264, 42 Cal.Rptr. 89, 398 P.2d 129.)

"Inverse condemnation liability ultimately rests on the notion that the private individual should not be required to bear a disproportionate share of the costs of a public improvement" and where liability results, "compensation 'constitutes no more than a reimbursement to the damaged property owners of their contribution of more than their "proper share [to] the public undertaking." ' " (*Locklin, supra,* 7 Cal.4th at pp. 367-368, 27 Cal.Rptr.2d 613, 867 P.2d 724.) For example, if a project intentionally floods lands not otherwise subject to flooding for the purpose of protecting other lands, it would be unfair to make the flooded property owners subsidize the others. *1016 (*Akins, supra,* 61 Cal.App.4th at pp. 31-33, 71 Cal.Rptr.2d 314; see *Odello Brothers v. County of Monterey* (1998) 63 Cal.App.4th 778, 791- 792, 73 Cal.Rptr.2d 903.)

[5] The following passage of *Paterno I, supra,* 74 Cal.App.4th at pages 82-83, 87 Cal.Rptr.2d 754, sets out the law governing the retrial:

"When a flood control project fails to function as intended, causing damage to properties historically subject to flooding, strict liability for a taking does not apply. [Citation.] Instead, a rule of reasonableness must be applied, as Paterno concedes. This rule arose in [*Belair v. Riverside County Flood Control Dist.* (1988) 47 Cal.3d 550, 253 Cal.Rptr.

693, 764 P.2d 1070 (*Belair*)] and [*Locklin*] and balances the need for flood control projects against the damages occasioned by their failure, by means of weighing a number of specific factors. [Citations.] Here damage was caused by a failure of the levee and the lands were historically subject to flooding, which explains why the levee was built...."

"Foreseeability does not suffice. "Plan or design characteristics that incorporate ***867* the probability of property damage under predictable circumstances may later be judicially described as 'negligently' drawn; yet, in the original planning process, the plan or design with its known inherent risks may have been approved by responsible public officers...." (Van Alstyne, [*supra,* 20 Hastings L.J. at pp. 489-490, fns. omitted, approved, *Bunch v. Coachella Valley Water Dist.* (1997) 15 Cal.4th 432, 450, 63 Cal.Rptr.2d 89, 935 P.2d 796 (*Bunch*)].) " '[T]he placement, design, and construction of even the most effective system inherently involve a complex balancing of interests and risks.... The dangers posed to individual lands by the failure of any public flood control project are "potentially enormous" and sometimes deserve compensation. However, strict and "open-ended" liability for the failure of a project whose overall design, construction, operation, and maintenance was "reasonable" would unduly deter the development of these vital bulwarks against common disaster.... [¶] [*Bunch* concluded:] "... [A] flood control agency does not necessarily exact 'disproportionate,' and thus compensable, contributions from particular landowners simply because it constructs adjacent flood control improvements that may alter how floodwaters will affect those landowners if the improvements fail to contain the flow. When a public flood control system fails to protect land from historic periodic flooding, the only way to determine whether a damaged private landowner has thereby been forced to contribute a compensable 'disproportionate' share of the public undertaking is to determine whether the system, as designed, constructed, operated, and maintained, exposed him to an 'unreasonable' risk of harm, either individually or in relation to other landowners.' "

**1017* The *Locklin* court approved two partially overlapping sets of factors to be used in making the reasonableness calculus, quoting from *Albers, supra,* 62 Cal.2d at page 263, 42 Cal.Rptr. 89, 398 P.2d 129, and adapting from Van Alstyne's article. (*Locklin, supra,* 7 Cal.4th at pp. 368- 369, 27 Cal.Rptr.2d 613, 867 P.2d 724; see *Akins, supra,* 61 Cal.App.4th at pp. 26-27, fn. 18, 71 Cal.Rptr.2d 314.) When we speak of the "*Locklin* " factors we will refer to both the "Van Alstyne" factors and the "*Albers* " factors.

The Van Alstyne factors have been summarized as follows (*Bunch, supra,* 15 Cal.4th at p. 446, 63 Cal.Rptr.2d 89, 935 P.2d 796):

" '(1) The overall public purpose being served by the improvement project; (2) the degree to which the plaintiff's loss is offset by reciprocal benefits; (3) the availability to the public entity of feasible alternatives with lower risks; (4) the severity of the plaintiff's damage in relation to risk-bearing capabilities; (5) the extent to which the damage of the kind the plaintiff sustained is generally considered as a normal risk of land ownership; and (6) the degree to which similar damage is distributed at large over other beneficiaries of the project or is peculiar only to the plaintiff.

"In addition, ... '[r]easonableness ... also considers the historic responsibility of riparian owners to protect their property from damage caused by the stream flow and to anticipate upstream development that may increase that flow.... [P]laintiff must demonstrate that the efforts of the public entity to prevent downstream damage were not reasonable in light of the potential for damage posed by the entity's conduct, the cost to the public entity of reasonable measures to avoid downstream damage, and the availability of and the cost to the downstream ***868* owner of means of protecting that property from damage.' "

[6] A footnote says "inquiry into 'reasonable' design, construction, operation, and maintenance is not limited to a narrow examination whether the system's technical specifications, intended capacities, materials, workmanship, and repairs were adequate

under all the circumstances. [Citation.] Instead, the inquiry should include specific consideration whether the *location* and *configuration* of the system, and its *purpose to divert the natural flow,* were themselves 'reasonable.' " (*Bunch, supra,* 15 Cal.4th at p. 446, fn. 3, 63 Cal.Rptr.2d 89, 935 P.2d 796.)

Before discussing the Van Alstyne factors, *Locklin* stated (7 Cal.4th at p. 368, 27 Cal.Rptr.2d 613, 867 P.2d 724):

"The factors which the court identified as important in imposing liability in *Albers, supra,* 62 Cal.2d 250, 263, 42 Cal.Rptr. 89, 398 P.2d 129, are also important here: 'First, the damage to [the] property, if reasonably foreseeable, would have entitled the property owners to compensation. Second, the likelihood of public works not being ***1018** engaged in because of unseen and unforeseeable possible direct physical damage to real property is remote. Third, the property owners did suffer direct physical damage to their properties as the proximate result of the work as deliberately planned and carried out. Fourth, the cost of such damage can better be absorbed, and with infinitely less hardship, by the taxpayers as a whole than by the owners of the individual parcels damaged. Fifth, ... "the owner of the damaged property if uncompensated would contribute more than his proper share to the public undertaking." ' "

The trial court proposed that if it got to the *Locklin* weighing stage, that is, if it found a relevant plan which caused Paterno's damages, it would weigh these *Albers* factors in addition to the Van Alstyne factors. The State argued the *Albers* factors were inappropriate because *Albers* itself involved strict liability and because those factors were not discussed in *Bunch* or *Paterno I.* We disagree with the State.

First, as Professor Arvo Van Alstyne himself noted, *Albers* was *not* a true "strict liability" case: "Three important qualifications are indicated. First, *Albers* supports liability absent foreseeability of injury (*i.e.,* without fault) only when inverse liability would obtain in a situation involving the same facts plus foreseeability (*i.e.,* plus fault). Secondly, the rule is limited to instances of 'direct physical damage.' Finally, the damage must be 'proximately caused' by the public improvement as designed and constructed." (Van Alstyne, *supra,* 20 Hastings L.J. at pp. 434; *id.* at pp. 434-438 [discussing these points in detail]; see *Holtz, supra,* 3 Cal.3d at p. 304, 90 Cal.Rptr. 345, 475 P.2d 441.)

Second, in *Akins* we quoted the portion of *Locklin* quoting the *Albers* factors and stated, "We assume all of the foregoing factors could be properly considered." (*Akins, supra,* 61 Cal.App.4th at pp. 26-27, fn. 18, 71 Cal.Rptr.2d 314.) We adhere to that view.

[7] Third, in *Locklin* the California Supreme Court called the *Albers* factors "also important here" (*Locklin, supra,* 7 Cal.4th at p. 368, 27 Cal.Rptr.2d 613, 867 P.2d 724), and neither *Paterno I* nor the later California Supreme Court case of *Bunch* purported to give an exhaustive list of factors. *Locklin* repeatedly emphasized that the *purpose* of balancing is to determine if a disproportionate burden has been inflicted by a public project. (*Locklin, supra,* 7 Cal.4th at pp. 366, 369, 27 Cal.Rptr.2d 613, 867 P.2d 724.) The *Locklin* factors are not elements of a cause of action for inverse liability, but, when balanced, ****869** indicate whether "the owner, if uncompensated would contribute more than his proper share of the public undertaking." (*Akins, supra,* 61 Cal.App.4th at p. 27, fn. 18, 71 Cal.Rptr.2d 314; see *Belair, supra,* 47 Cal.3d at p. 558, 253 Cal.Rptr. 693, 764 P.2d 1070 [decisive consideration]; *Barham v. Southern Cal. Edison Co.* (1999) 74 Cal.App.4th 744, 752, 88 Cal.Rptr.2d 424 ["fundamental policy ... is to spread among the benefiting community any burden disproportionately borne ***1019** by a member of that community, to establish a public undertaking for the benefit of all"].) This mode of analysis stems from the shift of inverse liability away from tort and private property concepts and towards policy-based constitutional analysis. (See *Holtz, supra,* 3 Cal.3d at p. 303, 90 Cal.Rptr. 345, 475 P.2d 441 [" 'to socialize the burden ...--to afford relief to the landowner in cases in which it is unfair to ask him to bear a burden that should be assumed by society' "], quoted with approval by *Locklin, supra,* 7 Cal.4th at p. 365, 27 Cal.Rptr.2d 613, 867 P.2d 724; *Clement v. State Reclamation Board* (1950) 35 Cal.2d 628, 642, 220 P.2d 897 (*Clement*).) Consideration of the *Albers* factors will help answer

the question of disproportionate burden (although admittedly that ultimate issue itself is framed as the fifth *Albers* factor).
The true cost of a project must include certain deferred costs. (*Paterno I, supra,* 74 Cal.App.4th at p. 86, 87 Cal.Rptr.2d 754.) Two inverse liability cases not involving flood control hold that because the cost-savings realized by plans deferring maintenance benefit the public, it is fair for the public to compensate the owners of the property which happens to be damaged when a failure caused by such plan of deferred maintenance takes place.
In *McMahan's of Santa Monica v. City of Santa Monica* (1983) 146 Cal.App.3d 683, 194 Cal.Rptr. 582 (*McMahan's*), a city's plan ensured water pipes would be used past their lifetimes. (*Id.* at pp. 687-688, 693, 194 Cal.Rptr. 582.) When a landowner sued after a break, the city argued it was due to poor maintenance (for which inverse liability will not lie). But "whether the City's program of water main installation and replacement is characterized as 'construction' or 'maintenance,' the fact remains that it was inadequate and contributed to the break due to corrosion of the [main which failed]. The City's knowledge of the limited life of such mains and failure to adequately guard against such breaks caused by corrosion is [a deliberate act]." (*Id.* at pp. 695-696, 194 Cal.Rptr. 582.) "[T]he City was taking a calculated risk by adopting a plan ... it knew was inadequate. The City's plan of replacement of the water mains reflected the deferred risks of the project both foreseeable and unforeseeable, and it is proper to require the City to bear the loss when the damage occurs." (*Id.* at pp. 697-698, 194 Cal.Rptr. 582.)
In *Pacific Bell v. City of San Diego* (2000) 81 Cal.App.4th 596, 96 Cal.Rptr.2d 897 (*Pacific Bell*) the lack of any plan to monitor pipe deterioration saved money, therefore "The burdens attending City's cost-saving approach should be spread to the community benefiting from lower water rates rather than imposing the entire cost on those property owners placed in harm's way by City's program." (*Id.* at pp. 607-608, 96 Cal.Rptr.2d 897.)

[8] In these two examples, the harm was foreseeable because the plans guaranteed failures. But we must not conflate inverse liability with tort liability. Inverse liability is generally not based on fault. An exception has been carved out for failures of flood control projects in areas historically ***1020*** subject to flooding, requiring use of the *Belair*- *Locklin* reasonableness calculus, but this does not reimport traditional notions of fault or foreseeability into ****870*** this branch of inverse liability. "A constitutional analysis for determining inverse condemnation liability in the flood control context should not include 'a fruitless search for the somewhat artificial moral elements inherent in the tort concepts of negligence and intentional wrongs.' " (*Bunch, supra,* 15 Cal.4th at p. 449, 63 Cal.Rptr.2d 89, 935 P.2d 796, quoting Van Alstyne, *supra,* 20 Hastings L.J. at p. 495.) Instead, liability is based "on the balancing of interests that [the California Constitution] requires. This balancing of interests serves both the private sector and public improvement efforts by addressing the cost-spreading objective of the just compensation clause while protecting public entities from unlimited, undeserved liability that could well inhibit further construction of public works." (*Bunch, supra,* 15 Cal.4th at p. 451, 63 Cal.Rptr.2d 89, 935 P.2d 796; see *Belair, supra,* 47 Cal.3d at pp. 565- 566 [" 'Reasonableness, in this context, is not entirely a matter of negligence, but represents a balancing of public need against the gravity of private harm' "], quoting Van Alstyne, *supra,* 20 Hastings L.J. at p. 455.)
"In the presumably rare instance where substantial damage does in fact eventuate 'directly' from the project, [fn. omitted] and is capable of more equitable absorption by the beneficiaries of the project (ordinarily either taxpayers or consumers of service paid for by fees or charges) than by the injured owner, [fn. omitted] absence of fault may be treated as simply an insufficient justification for shifting the unforeseeable loss from the project that caused it to [the] equally innocent owners. Absence of foreseeability, like the other factual elements in the balancing process, is, in effect, merely a mitigating but not necessarily exonerating circumstance." (Van Alstyne, *supra,* 20 Hastings L.J. at pp.

493-495.)
On appeal the State (but not the District) asserts the levee broke due to unforeseeable causes (e.g., "hydro-consolidation") and therefore the State cannot be liable to Paterno. We tend to agree with Paterno that the State has waived this argument. At trial the State objected to the trial court's proposal that it consider the *Albers* factors, which included foreseeability. Elsewhere at trial the State asserted it "has never contended that foreseeability was an issue in this case, ever." The State appears to be improperly changing its theory on appeal by claiming lack of foreseeability as a defense. (*Richmond v. Dart Industries* (1987) 196 Cal.App.3d 869, 874, 242 Cal.Rptr. 184.) But the point is important and raises no new factual issues, so we will address it.

[9] The State misapprehends the role of foreseeability. As Paterno points out, foreseeability plays no role in the causation analysis and is not determinative in the balancing step, only informative. This is not a case involving a dangerous condition of public property, and we are not applying tort or water *1021 law standards of liability. We are implementing the constitutional command that the State must compensate landowners when it damages their property. As Paterno points out, "Even if the State failed to appreciate the risk of failure, this is not a defense to proximate cause. *Paterno I*, 74 Cal.App.4th at 87, 87 Cal.Rptr.2d 754. In other words, the levee's planned design and construction throughout its life 'endangered the levee in a way not adequately valued by the planners.' *Id.* at 98, 87 Cal.Rptr.2d 754." We agree with Paterno's interpretation and the point has been made elsewhere. (*Arreola v. County of Monterey* (2002) 99 Cal.App.4th 722, 762-763, 122 Cal.Rptr.2d 38 (*Arreola*) ["the entity either failed to appreciate the probability that the project would result in some damage to private property, or ... took the calculated risk that damage would **871 result"]; see *Akins, supra*, 61 Cal.App.4th at pp. 11, 13-14, 71 Cal.Rptr.2d 314 [plan failed to include measures to close gap in flood control system].)
The "reasonableness" balanced here is not a negligence standard of care, which might turn on foreseeability, but is "determined by balancing the public benefit and private damage in each case." (*Locklin, supra*, 7 Cal.4th at p. 368, 27 Cal.Rptr.2d 613, 867 P.2d 724.) "In *Belair* the Supreme Court refined the 'proximate cause' element, noting *Albers* 'contained the seeds of confusion through its combination of "proximate cause" terminology with the elimination of foreseeability as an element of inverse condemnation.' [Citation.] The causation element is restated with greater precision in terms of 'substantial causation.' " (*Akins, supra*, 61 Cal.App.4th at p. 20, fn. 13, 71 Cal.Rptr.2d 314; see *Goebels v. City of Santa Barbara* (2001) 92 Cal.App.4th 549, 555, 111 Cal.Rptr.2d 901 ["The injury need not be foreseeable, but the public improvement must be a substantial cause" of injury].)
Thus, while foreseeability may weigh in favor of the landowner, lack of foreseeability does not defeat the claim.
In this case the evidence overwhelmingly shows the failure of the levee was foreseeable. The State says "There were no events that reasonably put the State on notice before Linda levee failed that its capability to safely carry flood flows was or was becoming compromised." Paterno does not argue the State actually foresaw the levee failure. But the State must be charged with knowledge of how the levee was built. It operated the levee for decades and had ample opportunity to examine it. If it chose not to do so for fiscal reasons, that would indicate the loss should be absorbed by the State. We explain. First, the method of construction and available technology in 1904 were detailed in public documents available to the State had it chosen to look at them. In a telling passage the State asserts: "The 1911 Plan is a policy for control of flooding in the Sacramento and San Joaquin Valleys by a unified *1022 system in accord with the general parameters the Jackson Report proposed. Its references to the Yuba River and its south bank as geographically part of the proposed system, and recommendation that 'present levees be used as far as practicable' within the proposed project, is not a 'plan' for the design, construction, operation or maintenance of Linda levee, a 3000 foot

segment along the Yuba River. [Citations.] The report's proposals, including that 'no work is needed along the Yuba River except the protecting and strengthening of the south levee at a few points,' were subject to change based upon further studies and experience." But this passage concedes the State accepted the levee as built, and by implication that the State failed to undertake any studies to determine its adequacy to meet the waters the State was proposing to route against it. The State's later assertion that the 1986 levee was a "different structure" than the 1911 levee, because of the intervening changes, merely shows that the State made some efforts to improve the levee, (e.g., raising the height and grooming the crown) *but never took steps to ensure its basic foundation was sound.*

Second, in 1978 the Corps adopted levee design standards and these standards discuss the problem of levees made of "uncompacted, or hydraulic fill" or those with "serious underseepage problems, weak foundation soils, or undesirable borrow materials[.]" The standards provide that basic general design procedure involves a geologic study followed by seepage analysis. Even what those standards describe as a mere "office study," that is, review of existing data on the levee in question rather than field subsurface testing (borings, ***872*** seismic studies and so forth), would have revealed the poor construction of the Linda levee.

Third, in 1970, well before the levee failure, the District engineer sent a letter to the State, complaining (with specifics) about the sorry condition of the levee: "During past years, the south or left bank of the main channel of the Yuba River, from upstream of the Southern Pacific Railroad bridge to near the 'E' Street highway bridge, has gradually degraded, thereby endangering a shift of the main river channel from its historic location in the north channel to a new location in the south channel immediately adjacent to a substantial reach of Reclamation District No. 784's project levee. [¶] Reclamation District No. 784 views with alarm this potential shift of the main stream of the river to against its levee without adequate levee and bank protection works first being installed to insure the integrity of the levee. *The levee at this location, consisting mainly of sand and founded on sandy materials, is believed by the District to be unsafe to withstand violent river flows as may occur.*" (Italics added.) Assuming the State was ignorant of the condition of its own levee up to that point, after this letter the State had 15 years to investigate this detailed warning before the collapse. So far as the record shows, the State did nothing.

1023 In another case where the public entity was warned about the danger which later led to damage, the court held "The 'plan' was the long-term failure to mitigate a known danger. That failure persisted for 20 years." (*Arreola, supra,* 99 Cal.App.4th at p. 746, 122 Cal.Rptr.2d 38.) Here, the State failed to acknowledge the danger despite adequate evidence at its disposal, and we reject its claim the failure was "unforeseeable."

The State concedes that sometimes "the public entity failed to recognize a risk of harm inherent in its plan but should have, because the risk was foreseeable. In other words, the government failed 'to recognize the probability that, functioning as deliberately conceived, the public undertaking as altered and maintained *would result* in some damage to private property.' " This flows from the California Supreme Court's early observation that one measure of "fault" in such cases is the "failure to appreciate the probability that, functioning as deliberately conceived, the public improvement as altered and maintained would result in some damage to private property." (*Bauer v. Ventura County* (1955) 45 Cal.2d 276, 286, 289 P.2d 1, quoted with approval in Van Alstyne, *supra,* 20 Hastings L.J. at p. 439; see also *Paterno I, supra,* 74 Cal.App. 4th at p. 98, 87 Cal.Rptr.2d 754 [viable theory that "approval of the pit endangered the levee in a way not adequately valued by the planners"]; *Arreola, supra,* 99 Cal.App.4th at p. 746, 122 Cal.Rptr.2d 38; *Akins, supra,* 61 Cal.App.4th at pp. 11, 13-14, 71 Cal.Rptr.2d 314.) At best for the State, that happened here.

B. Application of the *Locklin* Factors.

The trial court did not address the *Locklin* factors because it found no relevant plan of either defendant caused the failure. Paterno asks that we engage in the *Locklin* reasonableness calculus on appeal, and both he and the State have set out an analysis

of some of those factors in their briefs. Because of Judge Golden's detailed factual findings, the application of the *Locklin* factors to those facts presents a legal question. At bottom, based on the factual findings made by Judge Golden and the evidence at the second trial, we conclude the Locklin factors tilt sharply in Paterno's favor.

****873** 1. *The Six Van Alstyne Factors.*

a. *The purpose served by the project.*

[10] The overall purpose served by the project is huge; according to the evidence, the levee system protected billions of dollars of property throughout the State. (See *Akins, supra,* 61 Cal.App.4th at p. 14 & fn. 6, 71 Cal.Rptr.2d 314.) As the State concedes, the SRFCP purposes include flood control, reclamation of lands subject to flooding, and improvement of navigation. Although both this case and *Akins* demonstrate the system did not prevent all damage, the ***1024** SRFCP exists to protect billions of dollars of property and millions of lives and largely accomplished its mission. Tellingly, in response to the trial court's question whether other areas benefited from the levee, the State replied: "Not specifically from the Linda levee, but certainly from the [SRFCP] of which the Linda levee is one component[.]" Just so: The Linda levee is part of a comprehensive system of flood control works and cannot be evaluated in isolation.

b. *Offsetting reciprocal benefits.*

Paterno (or his predecessors) paid for flood protection by taxes and by assessments to maintain the levee, as did all Californians who own land protected by the SRFCP. As Paterno notes, quoting a finding in another case, " 'the longstanding negligent operation of a flood control project, such as is documented here, serves no legitimate purpose, nor does it promote any "reciprocal benefit" which offsets or justifies the damage that was caused by the failure of the Project.' " (*Arreola, supra,* 99 Cal.App.4th at p. 741, fn. 7, 122 Cal.Rptr.2d 38.) At best for the State Paterno did benefit to the extent that his land was protected in 1955, 1964 and other high water years, but he shared that benefit with all others protected by the SRFCP. He received no *offsetting* benefit due to the defective levee.

c. *Feasible alternatives.*

The trial court found feasible alternatives would have saved the levee, by bringing it into design capacity.

Contrary to the District's view, Paterno's proof of feasible seepage controls is not "just another way or restating their previous claim on appeal from the first trial that Defendants were liable for failing to upgrade the levee." We disagree that introducing seepage controls to counter the poor construction, thus ensuring the project actually met design standards, would have been an "upgrade."

We agree that fiscal constraints are a critical part of the feasibility analysis and feasibility must account for the costs of the project as a whole. (*Bunch, supra,* 15 Cal.4th at pp. 451-452, 63 Cal.Rptr.2d 89, 935 P.2d 796.) This is partly because the benefits of the entirety of the project (or plan) that causes damage must be balanced against the harm to those damaged. But "fiscal constraints are never alone determinative of the government's reasonableness in its flood control measures[.]" (*Id.* at p. 452, 63 Cal.Rptr.2d 89, 935 P.2d 796.)

Paterno points to evidence in the record showing the curative measures were available at a reasonable cost. At trial Judge Golden examined the State ***1025** budgets from 1949 to 1986 and indicated the State had adequate funds although the statement of decision is silent on that question, perhaps because the court did not proceed to the balancing step. Although the statement of decision does not recite the cost of seepage controls in the 1930's or 1940's, or at any other time, the tenor of the statement of decision indicates the court found the curative measures were fiscally feasible, and the State makes no contrary claim on appeal.

****874** Paterno claims that the existence of feasible alternatives shows the damages inflicted were not "necessary" to accomplish the public purpose and no more need be

shown. But *Locklin* requires a court to weigh all relevant factors and not stop at this one, albeit critical, factor.

d. *Risk-bearing capabilities.*

The cost of Paterno's damage can better be absorbed, and with far less hardship, by the taxpayers, due to the severity of his damages in relation to risk-bearing capabilities. In a general passage of *Paterno I* we commented about the availability of flood insurance. (*Paterno I, supra,* 74 Cal.App.4th at p. 85, 87 Cal.Rptr.2d 754.) The State asserts this indicates Paterno could adequately bear the risk of flooding by buying flood insurance. To the extent that passage of our prior opinion can be so read, we eschew it for the reasons stated by Paterno: Insurance does not eliminate the loss, it simply shifts the loss from the landowner to the insurer, which is then entitled to assert its subrogation rights. (*Aetna Life & Casualty Co. v. City of Los Angeles* (1985) 170 Cal.App.3d 865, 873-875, 216 Cal.Rptr. 831 [rejecting claim that availability of fire insurance eliminates need for inverse liability; allowing insurers to recover]; *McMahan's, supra,* 146 Cal.App.3d at pp. 690-691, 194 Cal.Rptr. 582.)

Locklin requires consideration of "the availability of and the cost to the downstream owner of means of protecting" the property. (*Locklin, supra,* 7 Cal.4th at p. 369, 27 Cal.Rptr.2d 613, 867 P.2d 724.) There is nothing Paterno could have done to avoid the risk, because the project works funnel huge quantities of water through Linda and there is no defensive measure Paterno could have taken to turn away those waters. Moreover, it would be absurd to require landowners, whose taxes have paid for the levee system and whose yearly assessments pay for its maintenance, to construct secondary protective systems, individually or in groups.

e. *Whether the damage is a normal risk of land ownership.*

Flooding, particularly in the Sacramento Valley, is a normal risk of land ownership, and if the SRFCP (or similar works) did not exist, Paterno's property would have flooded anyway (and would have in 1955, 1964 and in many other years).

***1026** But over time artificial works became the natural condition and parties are generally entitled to rely on them. (See *Clement, supra,* 35 Cal.2d at p. 638, 220 P.2d 897; *Paterno I, supra,* 74 Cal.App.4th at p. 86, 87 Cal.Rptr.2d 754; *Beckley, supra,* 205 Cal.App.2d at p. 751, 23 Cal.Rptr. 428; Van Alstyne, *supra,* 20 Hastings L.J. at pp. 454, 459, 492.)

As the California Supreme Court said in another case, "By inducing plaintiffs to make substantial improvements in reliance on its providing protection [to a certain capacity], and then failing to provide such protection, the levee plainly constituted a 'substantial cause' of plaintiffs' damages." (*Belair, supra,* 47 Cal.3d at p. 560, 253 Cal.Rptr. 693, 764 P.2d 1070.) So it is here.

The trial court found there was no perception of lack of safety and, as Paterno points out, the State itself relied on the levee, by locating a Caltrans yard behind it. (Cf. *U.S. v. Zenni* (E.D.Ky.1980) 492 F.Supp. 464, 466-468 & fn. 18 [nonverbal safety assertions].) The risk was not normal.

f. *Distribution of damage across the project.*

The flood waters inundated the properties below the levee and in the environs of Linda and Olivehurst, rather than impacting the vast SFRCP-protected properties generally.

***875** 2. *The Five Albers factors.*

a. *The damage, if reasonably foreseeable, would have entitled the property owners to compensation.*

[11] Had the State foreseen the levee was in danger of collapsing due to its poor alignment and composition, and refused to correct the problem, it would have been liable to Paterno on a theory of dangerous condition of public property. Indeed, that was Paterno's central theory at the first trial. (See *Paterno I, supra,* 74 Cal.App.4th at p. 100, 87 Cal.Rptr.2d 754 [affirming first jury's verdict rejecting this theory].) As we explain elsewhere, despite the jury's verdict on the facts from the first trial, the facts found on retrial compel the conclusion that the failure was foreseeable, if not foreseen.

b. *The likelihood of public works not being engaged in because of unforeseeable direct damage to property.*

The SRFCP, of which the Linda levee is but one small component, would have been built regardless because even despite its isolated failures, it has saved many lives and billions of dollars by preventing floods, and it has ***1027** opened or improved thousands of acres of land to productive use throughout the Sacramento Valley. Liability here would not likely deter future beneficial public works.

In *Akins* we pointed out that it is not always bad policy to discourage deleterious governmental practices. (*Akins, supra,* 61 Cal.App.4th at pp. 31-32, 71 Cal.Rptr.2d 314.) We do not think imposing liability for maintaining a physically flawed structure which does not meet basic engineering standards will discourage reasonable planners from engaging in further flood control projects, it will only discourage them from failing to determine if the projects physically meet the designed standards and discourage them from failing to heed warnings about dangers lurking beneath the surface of projects. That, we think, is the appropriate public policy under the California Constitution.

c. *The damage was the proximate result of the work as deliberately planned and carried out.*

Proximate causation was partly stipulated at trial: It was stipulated that Paterno's damage was proximately caused by the failure of the levee. We have explained why that failure resulted from the project as planned.

d. *The damage can better be absorbed, and with less hardship, by the taxpayers as a whole.*

This is not a "deep pockets" question, but instead overlaps with the Van Alstyne factor of the relative risk-bearing capability of the landowner. This weighs in Paterno's favor. This does not mean that whenever a number of properties are flooded the taxpayers have to pick up the tab. That "would make flood control projects insurers against floods, a result eschewed by the California Supreme Court." (*Paterno I, supra,* 74 Cal.App.4th at p. 97, 87 Cal.Rptr.2d 754.)

e. *The owner if uncompensated would contribute more than a proper share to the public undertaking.*

This *Albers* factor restates the object of the *Locklin* balancing exercise. We now summarize our views.

[12] The public received the benefit from the levee without having to bear the expense of ensuring it met the designed standards and was capable of carrying the water channeled to it by upstream features of the project. That the levee did not break in 1955 or 1964 is either miraculous or simply indicates "third time pays for all," meaning that the earlier high water events weakened the levee but not enough ***876** to cause a failure. The savings from not correcting the ***1028** problems with the levee benefited the State, and it would be unfair to require Paterno to bear all of the risk of that plan.

There is also a statutory policy to consider. The trial court found seepage caused the failure and the seepage was caused by the poor location and construction of the levee. Inverse liability for constructing water works with or over porous material, causing seepage, is not novel, although the cases usually involve damage from seeping water itself. (See, e.g., *Turpen v. Turlock Irrigation Dist.* (1903) 141 Cal. 1, 3, 74 P. 295 [canal seepage due to porous bed of sand]; *Tormey v. Anderson-Cottonwood I. Dist.* (1921) 53 Cal.App. 559, 568, 200 P. 814 (opn. of Supreme Ct.) [where damage "caused directly by seepage of water carried in said canal through the intervening soil on to the adjoining land[,]" the plaintiffs need not show negligence].) But by statute, "It is declared to be the policy of the State that the costs of solution of seepage and erosion problems which arise or will arise by reason of construction and operation of water projects should be borne by the project." (Wat.Code, § 12627.3, Stats.1959, ch. 2128, § 1, p. 5030.) This policy weighs in Paterno's favor. (Van Alstyne, *supra,* 20 Hastings L.J.

at pp. 464-465 ["statutory policy supports the view that seepage damage should be treated as a costs of the water project"].) The State relegates the seepage statute and policy to a footnote deriding Paterno's assertion as "having no application here. Moreover, the [trial court] did not find that the damage was caused by reason of Linda Levee." In light of our interpretation of the factual findings in the statement of decision, we reject the State's view.

Here, the seepage directly led to the levee collapse, and we see no reason why the flood damages should not be attributed to the project as a whole, rather than fall on the hapless property owners behind the levee. The State in effect gambled that the location and construction of the levee would prove adequate. A grossly disproportionate burden would fall on Paterno were his damages not spread out as part of the deferred costs of the project for flood control.

As stated, the trial court credited expert testimony that the levee "was poorly constructed and didn't meet any engineering standards that existed any time during its life[,]" which shows it was fortunate it did not break in 1955 or in 1964. Like a corroding pipe buried under Santa Monica or San Diego, the Linda levee was destined to fail. Therefore, Paterno has borne the deferred costs of maintenance of the system, which costs should instead be spread to the public at large, which benefited from that system. (*Pacific Bell, supra,* 81 Cal.App.4th at pp. 607-608, 96 Cal.Rptr.2d 897; *McMahan's, supra,* 146 Cal.App.3d at pp. 697-698, 194 Cal.Rptr. 582 [plan shifted "the deferred risks of the project ... and it is proper to require the City to bear the loss when the damage occurs"]; see *Belair, supra,* 47 Cal.3d at p. 566, 253 Cal.Rptr. 693, 764 P.2d 1070 ["reimbursement ... of their contribution of more than their 'proper share [to] the public undertaking' "].)

***1029** III. *The Acceptance Doctrine*

The trial court held defendants could not be liable for the alignment or basic construction of the levee because those plans were crafted by Yuba County, a former defendant that got out of this case over a decade ago, after an appellate settlement conference. (*Abbott v. County of Yuba* (May 9, 1991, C009262).)

[13] [14] When a public entity accepts responsibility for an improvement, it becomes that entity's public improvement regardless ***877** of who built it. (*Heimann v. City of Los Angeles* (1947) 30 Cal.2d 746, 756-757, 185 P.2d 597; *Tyler v. Tehama County* (1895) 109 Cal. 618, 626, 42 P. 240; *Souza v. Silver Development Co.* (1985) 164 Cal.App.3d 165, 170, 210 Cal.Rptr. 146; *Marin v. City of San Rafael* (1980) 111 Cal.App.3d 591, 595-596, 168 Cal.Rptr. 750; *Sheffet v. County of Los Angeles* (1970) 3 Cal.App.3d 720, 734-735, 84 Cal.Rptr. 11; *Stoney Creek Orchards v. State of California* (1970) 12 Cal.App.3d 903, 906-907, 91 Cal.Rptr. 139.) Some cases speak of "substantial participation," but the concept is the same: "A public entity is a proper defendant in an action for inverse condemnation if the entity substantially participated in the planning, approval, construction, or operation of a public project or improvement that proximately caused injury to private property. [Citation.] So long as the plaintiffs can show substantial participation, it is immaterial 'which sovereign holds title or has the responsibility for operation of the project.' " (*Arreola, supra,* 99 Cal.App.4th at p. 761, 122 Cal.Rptr.2d 38.)

[15] "Approval and acceptance by the public agency may be implied by official acts of dominion or control of the property and by continued use of the improvement by that agency for many years." (2 Condemnation Practice in Cal. (Cont.Ed.Bar 2d ed. 2003) General Background, § 13.3, p. 657.) "Streets, utilities, and drainage systems, when accepted and approved by a municipality, become a public improvement and part of its system of public works." (*Id.,* § 13.7, p. 670; cf. *DiMartino v. City of Orinda* (2000) 80 Cal.App.4th 329, 337-340, 95 Cal.Rptr.2d 16 [no evidence entity approved of or accepted drainpipe under private property].)

[16] In this case the State plans (the Jackson Report, modified by the Grant Report, resulting in the SRFCP) call for the State "to exercise control [and] to incorporate the [levee] into a unified public [flood control] system." (*Locklin, supra*, 7 Cal.4th at p. 370, 27 Cal.Rptr.2d 613, 867 P.2d 724.) The State benefited by the cost savings of accepting the Morrison Grade and improving it slightly, rather than rerouting the levee or correcting its structural flaws. The State should not be relieved of liability, if otherwise applicable, because of the fortuity that Yuba County *built* the levee. In short, the State *accepted* the levee as a State levee.

[17] ***1030** The State argues that the acceptance doctrine does not apply in this case, asserting the doctrine applies in and only in strict liability cases. But other cases applying *Belair's* reasonableness standard have used the doctrine. One claim in *Locklin* itself was that a creek had become a work of public improvement, but *Locklin* held the evidence did not show "intent to exercise control or to incorporate the creek into a unified public drainage system." (*Locklin, supra*, 7 Cal.4th at p. 370, 27 Cal.Rptr.2d 613, 867 P.2d 724; see also *id.* at p. 338, 27 Cal.Rptr.2d 613, 867 P.2d 724 ["if it has incorporated the watercourse into a public drainage system or otherwise converted the watercourse itself into a public work"].) *Locklin* then recited a traditional formulation of the acceptance doctrine: "A governmental entity must exert control over and assume responsibility for maintenance of the watercourse if it is to be liable for damage caused by the streamflow on a theory that the watercourse has become a public work." (*Id.* at p. 370, 27 Cal.Rptr.2d 613, 867 P.2d 724.) None of this discussion would have been necessary if the doctrine applies in and only in strict liability cases. Another case not involving strict liability concluded "a public entity is a proper defendant in a claim for inverse condemnation if it has the power to control or direct the aspect of the public improvement that **878 is alleged to have caused the injury." (*Arreola, supra*, 99 Cal.App.4th at pp. 762-763, 122 Cal.Rptr.2d 38; cf. also *Bunch, supra*, 15 Cal.4th at p. 437, 63 Cal.Rptr.2d 89, 935 P.2d 796 [private developer built flood control system taken over by public entity, no suggestion this made any difference; finding of no inverse liability based on other grounds].) Based on these authorities we reject the attempt to cabin the doctrine to strict liability cases.

The State had the "power to control or direct the aspect of the public improvement that is alleged to have caused the injury" (*Arreola, supra*, 99 Cal.App.4th at pp. 762-763, 122 Cal.Rptr.2d 38), and "incorporated the [levee] into a public [flood control] system." (*Locklin, supra*, 7 Cal.4th at p. 338, 27 Cal.Rptr.2d 613, 867 P.2d 724.) No more need be shown.

In the trial court the State argued that adoption of the Jackson Report "shifted no risks of damage" to Paterno's predecessors because it was Yuba County which "caused Linda levee to have the siting, alignment, foundation and core composition that it had at the time of the 1986 flood.... [T]hose risks were shifted to private property in 1904 before the Jackson Report, Grant Report and their adoption by the State of California." But if, as we have said, we determine disproportionate burdens by determining " 'whether the system, as *designed, constructed, operated, and maintained* ' " exposed an owner to an unreasonable risk of harm, the inquiry cannot be frozen as of the date of construction, which necessarily predates operation and maintenance. (*Akins, supra*, 61 Cal.App.4th at p. 28, fn. 20, 71 Cal.Rptr.2d 314.) This negates the State's view that the only relevant shift of risk took place in 1904. The many years the State operated the levee is also relevant.

***1031** As we explain below, the District did not control the levee in such a way that it could cure its defects.

IV. *Liability for Failure to Upgrade*

Although parts I through III of this opinion demonstrate that an unreasonable State plan caused Paterno's damages and that he is entitled to recover therefor, it is important to clarify what we meant in *Paterno I* by an impermissible "upgrade" liability theory, to

avoid confusion in future cases.
The SRFCP plan called for the levee to carry about 120,000 cubic feet per second (c.f.s) of water. Paterno does not now argue it should have been able to carry *more* water, or for a longer time. Nor does he claim that simply because the levee broke while carrying about 63,000 c.f.s. that he is entitled to recover. He complains the levee did not carry the planned water because of poor construction and alignment, causing severe seepage problems leading to its collapse.
In *Paterno I,* we rejected Paterno's claim that liability could be predicated on the failure to increase the flow capacity of the levee (*Paterno I, supra,* 74 Cal.App.4th at pp. 96-97, 87 Cal.Rptr.2d 754):
"The trial court ... found the levee should have been upgraded in light of increased urbanization below the levee.... [T]he government need not provide any level of flood protection.... It would be an unwarranted usurpation of power for a judge to impose liability for failure to *upgrade* a project, rather than for a defect in the project planned by the executive and legislative branches.
"... [¶] ... [¶]
"The Attorney General properly observes liability based on a failure to upgrade 'places the determination of a project's scope in the hands of those who have caused the protected area to be more extensively used, rather than in the hands of the public entities and elected officials charged with that determination.' **879 He also observes flood concerns invoke competing public interests ... and continues, ... 'Whether [resolution of such concerns] should be achieved by building more dams, bigger levees, restricting development in high risk areas, or some other means, however, has not been assumed by the courts as within their province to decide.' We agree. Judges do not decide where to build dams and levees, nor how high.
"Paterno's argument also ignores the passage of Van Alstyne, approved in *Bunch,* to the effect the reasonableness calculus must be made as of the time *1032 the public entity is making the decision, for example, to erect an 80- foot levee, instead of a 90-foot levee."
Thus, in *Paterno I,* we emphasized that the State was not an insurer against flood risks, and rejected a claim of liability based on the idea that the State has to increase flood protection simply because the value of property to be protected has increased. (See also *Bunch, supra,* 15 Cal.4th at p. 454, 63 Cal.Rptr.2d 89, 935 P.2d 796.) Imposing liability for the failure to redesign levees and dams to provide greater levels of protection would in effect allow the courts to usurp executive functions and would ultimately deter the construction of flood control projects. We simply applied the evolving rules of inverse condemnation to the claim raised by Paterno in that case, *viz.,* that "the levee should have been upgraded in light of increased urbanization below the levee." (*Paterno I, supra,* 74 Cal.App.4th at p. 96, 87 Cal.Rptr.2d 754.)
However, the trial court derived a different rule from *Paterno I.* After finding that the 1934 and 1940 projects met their limited objectives, the trial court stated "the provision of seepage control features and the reconstruction of the levee segments or their realignments would constitute upgrades in the condition of the levee which the State was not required to provide and which the court may not consider as the basis for imposition of inverse condemnation liability." As the District put it, the trial court found defendants had no duty to "beef up existing Linda levee structures by installing seepage controls or reconstructing or relocating the levee."
Taken to its end, this would mean that once a public work was built, no inverse liability could be predicated on a claim that it was *poorly* designed or built, and *any* curative measure would be an upgrade. That would contravene precedent. (*Belair, supra,* 47 Cal.3d at p. 565, 253 Cal.Rptr. 693, 764 P.2d 1070 [where "design, construction or maintenance of a flood control project is shown to have posed an unreasonable risk of harm to the plaintiffs, and such unreasonable design, construction or maintenance constituted a substantial cause of the damages, plaintiffs may recover"].)
In *Paterno I,* we said, "the reasonableness calculus must be made as of the time the public entity is making the decision," (*Paterno I, supra,* 74 Cal.App.4th at p. 97, 87 Cal.Rptr.2d 754, citing Van Alstyne and *Bunch*) but we were speaking of a specific

hypothetical decision ("for example, to erect an 80-foot levee, instead of a 90-foot levee"), and we did not hold that the reasonableness calculus is frozen at the time an official plan is adopted, as the State implies. We agree with Paterno that the State reads this passage out of context. We did not mean an entity can ignore evidence the improvement does not actually meet design standards and poses a risk of failure, then seek refuge in the defense that any cures after the date of construction would be upgrades. The ***1033** State's view has been rejected: "Counties also contend that the reasonableness calculus must be made as of the time the public entity is making the decision to approve ****880** the project, and that the trial court incorrectly focused on conduct that took place after adoption of the federal maintenance regulations. This contention confuses the purpose of the balancing analysis. The balancing analysis required by *Locklin* applies to the public entities' action that results in the injury. In *Belair, supra*, 47 Cal.3d 550, 253 Cal.Rptr. 693, 764 P.2d 1070, it was the design of the levee system that resulted in the injury so that the reasonableness of the design would have been the proper consideration. Here, the trial court applied the analysis to the Counties' long-standing policy of allowing the Project channel to deteriorate.... [I]t was that long-standing policy that caused the damage." (*Arreola, supra*, 99 Cal.App.4th at p. 741, 122 Cal.Rptr.2d 38.)

[18] We largely agree with Paterno that "*Paterno I* made clear that *increasing* the level of flood protection of a project is what constitutes an upgrade. [Citation.] Nothing in *Paterno I*--or any other authority-- suggests that measures required so that a project provides the *planned* level of protection are somehow an upgrade. Work that restores a levee's design level of protection is maintenance, not an upgrade."

Our conclusion does not punish the State for failing to upgrade the project, nor does it interfere with the State's executive prerogative to choose where and how to build levees. It simply implements the California Constitution's command that the State must pay for damaging property, as refined by California Supreme Court precedent applicable to flood control cases, to the effect that it is unfair to saddle Paterno with a disproportionate share of the damages caused directly by the SRFCP when the SRFCP plans deferred the costs of curing the defects not called for by the designers.

V. *Apportionment of Responsibility*

As we have explained, liability is based on the *State's* plan which incorporated the Linda levee into what is now the SRFCP. Paterno argues the District is also liable. Not so. "A plaintiff in inverse condemnation must establish the proportion of damage attributable to the public entity from which recovery is sought." (*Jordan v. City of Santa Barbara* (1996) 46 Cal.App.4th 1245, 1274, 54 Cal.Rptr.2d 340, citing *Locklin, supra*, 7 Cal.4th at p. 372, 27 Cal.Rptr.2d 613, 867 P.2d 724; see *Mehl v. People ex rel. Dept. Pub. Wks.* (1975) 13 Cal.3d 710, 718, 119 Cal.Rptr. 625, 532 P.2d 489.) In theory, two public entities might be equally liable if they were "in joint charge of the public works." (*Akins, supra*, 61 Cal.App.4th at p. 48, fn. 41, 71 Cal.Rptr.2d 314.)

[19] ***1034** The District does routine maintenance for the State. (See *Clement, supra*, 35 Cal.2d at p. 645, 220 P.2d 897; *Riley, supra*, 192 Cal. at p. 150, 218 P. 762.) It collects assessments from local landowners to control weeds and rodents, and patrol for boils during high water. (See *Paterno I, supra*, 74 Cal.App.4th at p. 104, 87 Cal.Rptr.2d 754.) It has no authority to reconstruct the levee, even if it had the resources to do so. (See Van Alstyne, supra, 20 Hastings L.J. at p. 494, fn. 288 [discussing financial problems of small entities and difficulty of insuring against inverse liability].) As the District puts it, Paterno "failed to establish that the siting, design, or construction of the levee was attributable to any plan *adopted by RD 784* [.]" (Italics added.)

We reject Paterno's claim that the State's relationship with the District mandates a joint liability finding. Such liability extends to acts arising "in the performance of" an agreement between public entities. (Gov.Code, § 895.2.) ****881** Nothing in the State's

relationship with the District gave the District the ability to change the levee, and the liability we find did not occur during the performance of an agreement inter sese. (See 1 Van Alstyne, Cal. Government Tort Liability (Cont.Ed.Bar 4th ed. 2003) Defenses and Indemnification, § 4.32, p. 140.)

DISPOSITION

The judgment in favor of the District is affirmed. Paterno shall pay the District's costs on appeal. (Cal. Rules of Court, rule 27(a).) The District also will be entitled to its costs of suit from Paterno. (*Locklin, supra,* 7 Cal.4th at pp. 375-377, 27 Cal.Rptr.2d 613, 867 P.2d 724.)

The judgment in favor of the State is reversed and the cause is remanded with directions to enter judgment for Paterno and conduct such further proceedings as are necessary to determine the damages of nonsample plaintiffs. The State shall pay Paterno's costs on appeal. (Cal. Rules of Court, rule 27(a).) Paterno also will be entitled to his costs of suit from the State, including "reasonable attorney, appraisal, and engineering fees" actually incurred. (Code Civ. Proc., § 1036.)

The trial court is directed to give this case priority over all civil cases except as statutes otherwise require, and to take all feasible steps to expedite this case.

We concur: SIMS, Acting P.J., and NICHOLSON, J.

Cal.App. 3 Dist.,2003.
Paterno v. State
113 Cal.App.4th 998, 6 Cal.Rptr.3d 854, 03 Cal. Daily Op. Serv. 10,309, 03 Cal. Daily Op. Serv. 11,143, 2003 Daily Journal D.A.R. 12,879

Risks and Liability: Who is Responsible for Avoiding a California "Katrina," and Who Will Pay If We Do Not?

A Joint Hearing of the Judiciary Committee,
the Water, Parks and Wildlife Committee, and the Insurance Committee of the California Assembly

Recent events repeatedly have raised alarms about the State's responsibility and liability for the Central Valley flood management system. On a sunny June day in 2004, a private levee in the Sacramento-San Joaquin Delta unexpectedly collapsed and flooded a Delta island, shutting down a State highway, a major railroad line, and State Water Project pumps that ordinarily move much of Southern California's drinking water south. The State alone spent $45 million to repair the levee and pump out the island. In spring 2005, the Yuba County Board of Supervisors approved a new housing development on lands that were covered by 15 feet of water during the 1997 flood. This summer, the Legislature approved $500-million in settlements of claims against the State for failed levees in the 1986 and 1997 floods. Finally, this fall, Hurricane Katrina hit the Gulf Coast, levees failed, New Orleans flooded, and more than a thousand people died. Newspaper reports and editorials emphasized the obvious comparisons between New Orleans and Central Valley cities like Sacramento.

In 2003, a State appeals court highlighted the liability risks the State faces from failed levees. *See, Paterno v. State*, (2003) 113 Cal.App.4th 998; *rev. denied* March 17, 2004. The *Paterno* court held the State liable for failure of a levee generally operated and maintained by a local levee maintenance district. The State's liability was substantial because homes and a shopping center were built behind the levee and suffered from the resulting flood. The *Paterno* decision – and recent events – set the stage for this hearing to establish the broad outlines of the flood liability challenges facing the State of California.

I. The California Flood Management System

The 2003 *Paterno* decision unveiled a looming flood management system crisis that had been building for decades. A combination of an outdated flood management system, deferred maintenance, diffused flood management responsibilities and substantial Central Valley growth and development produced serious risks of loss of life and damage to property from inundation of flood waters. The recent disaster arising out of Hurricane Katrina again highlighted certain flood vulnerabilities that California's Central Valley shares with Louisiana's Mississippi delta. These vulnerabilities include substantial dependence on aging levees. Most such levees were built decades ago, without the benefit of modern designs, materials and technology.

A. History of California Flood Management

California has suffered from Central Valley flooding since its earliest days as a state. Native Americans had called the Central Valley the "inland sea" when water covered the valley during the winter. Immense stretches of farms and open lands, particularly in the Sacramento-San Joaquin Delta, flooded annually. In 1862, flood water – as deep as 20 feet – covered the young City of Sacramento, forcing Governor Leland Stanford to row across those waters to get to his inauguration. At the bottom of the watershed, the Delta's vast expanse was covered with water as it flowed toward the Golden Gate. This regular flooding of the Valley's river bottoms and adjacent lands led to early Californians trying to "control" the floods to protect their lives and livelihoods.

1. Flood Management in the 1800's

In the nineteenth century, individuals and local governments built most of the flood control facilities, usually levees. Farmers worked with neighbors to build levees to protect their lands. Cities would build levees to protect their citizens. In the Delta, prospective landowners could acquire land for $1 per acre if they paid to construct the levees to "reclaim" and turn Delta areas into the islands that exist in the Delta today. Landowners often created levee maintenance districts (commonly called reclamation districts) or other entities that maintained the levees.

The Gold Rush and the hydraulic mining that followed created a legacy that presented the greatest flood control challenge of the nineteenth century – an enormous volume of sediment that filled Northern California rivers, leaving little room for flood flows. Hydraulic mining, as shown in the picture below, was outlawed in 1884, but the legacy continued. In 1893, the Federal Government created the California Debris Commission to examine debris-related flood and navigation issues, primarily in the Sacramento Valley. The Commission uncovered, modified and adopted an 1880 flood control plan by the State Engineer, to address how best to reduce river sediment. The plan included a system of levees, weirs and bypass channels.

2. State Flood Management Program

In 1911, the State effectively adopted the flood plan from the California Debris Commission and created the Reclamation Board to implement the plan, working with the Federal Government. The State's adoption of a valley-wide flood management plan was meant to counteract local flood control projects that conflicted with each other, in what has been called "dog-eat-dog reclamation." Six years later, California gained federal authorization for the United States Army Corps of Engineers (the Corps) to collaborate with the State in building and maintaining the Sacramento River Flood Control Project.

For the next seven decades, the state and federal governments built or rebuilt levees, weirs and bypasses to increase conveyance of flood waters downstream. Project levees stretch about 1600 miles. The Corps often constructed the federal "project levees" in both the Sacramento and San Joaquin Basin from already existing private levees. In 1953, the Federal Government transferred the Sacramento River Flood Control Project to the State, which in turn passed responsibility for operation and maintenance to local reclamation districts.

The design goal of these flood facilities was to aid navigation and flush sediment remaining from the earlier hydraulic mining. These facilities also constrained the river to specific alignments, significantly reducing historic channel meandering and further isolating the rivers from their historic floodplains. In the second half of the twentieth century, the federal and state government also built upstream reservoirs to retain some flood waters, to allow more measured releases after the flood danger had passed.

B. Responsibility for Today's Flood Management System

Responsibility for operating California's flood management system is diffuse, spread among multiple agencies at all three levels of government. Consistent with the United States Constitution's Commerce Clause, the Corps has primary responsibility for regulating the flows (including flood waters) in the "waters of the United States," which include the Sacramento River and the San Joaquin River. In addition to its regulatory authority, the Corps has a long history of building water projects, particularly for flood control. Traditionally, Congress authorizes specific flood control projects for the Corps, usually in a "Water Resources Development Act," which often passes every 2-3 years. Any substantial change to those water projects requires the Corps' authorization. As for federal Central Valley Project reservoirs with flood control space, the Bureau of Reclamation operates such reservoirs for flood control, under the Corps' direction.

1. State Responsibility for Flood Management

The State – through the Reclamation Board – shares in the costs of construction, assumes responsibility for the operation and maintenance of the facilities, and holds the Federal Government harmless from liability. For Central Valley flood management projects, the Reclamation Board delegates operation and maintenance to the Department of Water Resources (DWR) or local flood agencies. DWR's primary responsibilities lie in the Sacramento Valley, while primarily local agencies take responsibility in the San Joaquin Valley.

The Reclamation Board has the legal responsibility for oversight of the entire Central Valley flood management system, although it resides, administratively, within DWR. Its

jurisdiction extends through 14 counties and comprises 1.7 million acres lying along the most flood-prone portions of the two rivers. Its authorities include:

- cooperation with the Corps in building and operating the Central Valley flood management system (including levees)
- oversight of flood management facility operation and maintenance
- development and administration of floodways
- acquisition of property necessary for flood management
- regulation of encroachments on the flood management system

Perhaps most importantly, the Reclamation Board has authority to approve or deny any plan of land reclamation (*i.e.* development) or flood control that involves excavation near the rivers and their tributaries. Cal. Water Code § 8710. The geographic jurisdiction for this regulatory authority appears to apply to the entire floodplain. Specifically, without Reclamation Board approval, no construction can begin:

> in the bed of or along or near the banks of the Sacramento or San Joaquin Rivers or any of their tributaries or connected therewith, or upon any land adjacent thereto, or within any of the overflow basins thereof, *or upon any land susceptible to overflow* therefrom.

Id. (emphasis added.) Historically, however, the Reclamation Board has not always exercised this authority.

The Department of Water Resources also plays a significant role in California's flood management system, with staff "on the ground" inspecting and maintaining many miles of levees and other flood management facilities. DWR inspects and evaluates the maintenance of all of the State's federally designated project levees and channels. While most project levees are maintained by local agencies, DWR may perform the levee maintenance where the levees provide broad system benefits and local interests are unable to perform satisfactory maintenance. DWR also maintains the Sacramento River system channels (*e.g.* dredging), while local agencies maintain the San Joaquin River system channels. DWR's Division of Flood Management describes its mission as follows:

> The mission of the Division of Flood Management is to prevent loss of life and reduce property damage caused by floods, to facilitate recovery efforts following any natural disaster, and to carry out its public safety responsibilities in ways that preserve and restore the environment.

2. Local Agencies

Local agencies play a significant role in flood management. Their activities and responsibilities are as diverse as their legal structures. These local agencies include levee maintenance and reclamation districts, counties, cities and water districts. In many areas, these local agencies maintain, operate, and assume responsibility for project levees and other flood management facilities, on the State's behalf. In 1986, federal and state law shifted greater financial responsibility for flood management facility construction to local agencies, which today typically pay 25% (or more) of construction or rehabilitation costs for federal-state project facilities. In other cases, local agencies pay the entire cost of flood management, but remain subject to Reclamation Board and Corps of Engineers oversight.

C. Liability Risks Arising from Current Flood Project Conditions

The State's flood management system in the Central Valley includes reservoirs with flood detention space, approximately 1,600 miles of project levees, and a series of overflow weirs and bypass channels (e.g. Yolo Bypass). An attached map shows the location of the project levees. In areas that show no project levees, local landowners or agencies may maintain private levees or other protections for local lands. The State's system discharges through the Sacramento-San Joaquin Delta, which contains over 1,000 miles of non-project (local) levees, which are generally maintained by local reclamation districts.

Levee failures, similar to those in New Orleans, have drawn the most attention. Such failures in the 1986 and 1997 floods led to this year's legislative approval for settling claims against the State for approximately $500 million. Levee failures may be caused by overtopping, seepage, instability (*e.g.* settling), burrowing animals, or erosion. Because many levees were deliberately built close to the river channel to help scour mining debris from rivers and improve navigation, erosion has become a major problem. A 2004 Corps study found 183 spots along the Sacramento River where levees have visibly eroded, including 25 sites deemed "critical."

Levees also may be weakened by subsidence on lands behind the levees, which undermines the levee's foundation. In some cases, subsidence occurs because of groundwater overdraft. Delta levees (approximately 6,000 miles, with 4,300 miles privately maintained) remain the most at risk due to subsidence, which has led to some lands behind levees falling 25 feet below the adjacent water level. This Delta subsidence arises from the nature of Delta peat soils, which have oxidized and disappeared after decades of farming. Scientists estimate that 2,700 cubic meters of organic soil are lost daily.

Key Terms

100-Year Protection: forecast of survival through a flood that would occur once in 100 years. A 100-year flood has a 1% chance of occurring in any given year, or 26% chance during a typical homeowner's 30-year mortgage.

Project Levee: structure protecting adjacent lands from river flooding constructed or adopted by the federal and state governments in a flood control project

Paterno liability: State liability for damage arising out of failure of a project levee

In recent years, both federal and state agencies have prepared reports emphasizing the deteriorating conditions of the Central Valley flood management system. In January 2005, DWR issued a "White Paper" regarding flood management, noting that powerful flood flows have eroded levees and deferred maintenance has not caught up. In addition, the White Paper observed that the Central Valley's growing population is pushing new housing developments and job centers into areas that are particularly vulnerable to flooding. DWR estimated the following risks from flood damage:

- 500,000 people in floodplains
- 2 million acres of cultivated acreage
- 200,000 structures with a value of $47 billion

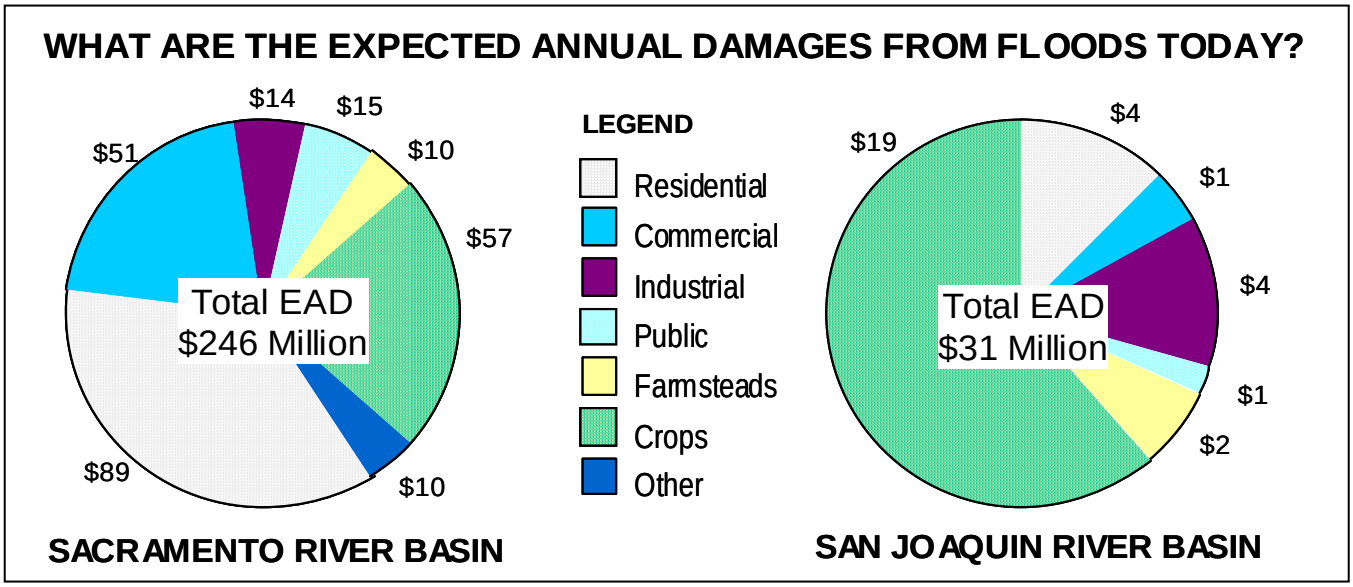
The DWR White Paper concludes: "These factors have created a ticking time-bomb for flood management in California."

In December 2002, the Corps issued an "Interim Report" on its Sacramento and San Joaquin River Basins Comprehensive Study, which arose out of the devastation from the 1997

floods. In assessing the existing flood management system, the Corps identified the following issues:

- reduced flood conveyance capacity, due to reduced flow area (from sediment, vegetation growth and encroaching development), poor levee foundation conditions, deteriorating levees, and subsidence.
- "choke points" created by infrastructure development (*e.g.* bridges)
- substantial reliance on Sacramento Valley bypass system, with reduced bypass capacity
- reduced ecosystem function from constraining river channels from historic floodplain
- reservoir flood capacity
- land subsidence

The Interim Report estimated average annual flood damages of $246 million in the Sacramento system and $31 million in the San Joaquin system. These estimates reflect the average annual flood costs, although California may not actually incur them until the next major flood. The report included the following graphic estimating particular types of damage:



Source: U.S. Army Corps of Engineers, Sacramento District

II. Who is potentially liable in the event of a flood?

A. Is Federal Immunity Complete?

The federal government is generally immune to claims for damages caused by floods or flood waters. In response to the massive Mississippi River floods of 1927 which ravaged the Midwest, Congress enacted the Flood Control Act of 1928. The Act includes a broad immunity provision which states, "No liability of any kind shall attach to or rest upon the United States for any damage from or by floods or flood waters at any place." 33 USC Section 702c; *Central Green Co. v. US*, (2001) 531 U.S. 425, 426. As the U.S. Supreme Court has noted, "It is difficult to imagine broader language." *US v. James*, (1986) 478 US 597, 604. This language generally protects the federal government against any claims for property damages, personal injury or death resulting from floods or floodwaters. *Id.*

The immunity applies regardless of whether the government has acted with negligence, or would otherwise be liable under the Federal Tort Claims Act. *Id.* This broad grant of immunity has been criticized by the courts as creating injustices, and has even been termed an anachronism by one U.S. Supreme Court justice. *See Hiersche v. United States*, (1992) 112 S. Ct. 1304 (Stevens); Matthew Gregory, *50 Am. Jur. 2d Levees and Flood Control Section 12* (2004).

1. Takings

The immunity provision of the Flood Control Act, 33 USC section 702c, does not extend to "takings" claims. *See, Turner v. U.S.*, (1989) 17 Cl. Ct. 832. The United States Constitution provides that private property shall not be "taken for private use without just compensation." U.S. Const. Amend. V. Flooding caused by the federal government may sometimes constitute a taking. To establish a taking by flooding, a landowner must show that the land is permanently flooded, or it must be subject to frequent and inevitably recurring overflows. *Pumpelly v. Green Bay Co.*, (1871) 80 U.S. (13 Wall.) 166, 181. The landowner must also show that the flooding was caused by government action, caused substantial damage, and that the governmental activities causing the flooding did not benefit the plaintiffs more than it injured them. *Turner*, 17 Cl. Ct. at 836. Only a "taking" is compensable under the Fifth Amendment, damages resulting from lesser invasions are not. *Hartwig v. United States*, (Ct. Cl. 1973) 485 F.2d 615, 619. A lesser damages claim would be a form of a tort action and would be barred by the Flood Control Act's immunity provision.

2. Indemnification

The federal government's immunity does not extend to breach of contract claims for damages from or related to flood management projects. *State of CA v. U.S.*, (Fed. Cir. 2001) 271 F.3d 1377. In 1995, a joint federal and California state water project flooded causing $5.3 million dollars of property damage in California. The state paid several claims seeking compensation for the damages, and then sought partial reimbursement from the federal government pursuant to a contract agreement. A federal appellate court rejected the government's contention that it was immune to such damages under the Flood Control Act of 1928. *Id.* The Court held that to the extent that sovereign immunity might otherwise apply, it had been previously waived by the Tucker Act, 28 U.S.C. section 1491, which permitted breach of contract claims, among others, against the federal government. *Id.*

In summary, California would be able to seek reimbursement from the federal government for flood damages in the event of a major flood if a contract provision between the state and federal government so provided. Otherwise, the federal government would most likely have no legal responsibility for the billions of dollars in potential damages due to the broad grant of immunity in the Flood Control Act and a stringent "takings" standard.

B. Current State Liability Via Inverse Condemnation

Claims for flood damages against the state and other public agencies are often grounded on the theory of inverse condemnation, which is rooted in the following Constitutional provision: “Private property may be taken or damaged for public use only when just compensation . . . has first been paid to . . . the owner.” Cal. Const. Art. 1, Sect. 19. When a public use or improvement (such as a dam or flood management project) results in damage to private property

without having been preceded by just compensation, then the damaged private property owner may bring an action against the public entity to recover just compensation. Because the private property owner, as opposed to the public entity, initiates the action, it is termed an "inverse" condemnation. Cal. Const. Art. 1, Sect. 19. *See also, Breidert v. Southern Pac. Co.* (1964) 61, Cal. 2d 659, 663 fn., 1; *Belmont County Water Dist. v. California* (1976) 65 Cal. App. 3d 13, 19, fn. 3; *Arreola v. County of Monterrey* (2002) 99 Cal. App. 4th 722, 737.

The underlying policy concern in inverse condemnation cases has less to do with deterring negligent behavior (as in tort law) than in preventing an individual private property owner from bearing a disproportionate burden of the costs of a public project (or costs incurred from the failure or inadequacy of those projects). *Paterno v. California (Paterno II)* (2003) Cal App. 4th 998, 1003; *Locklin v. City of Lafayette* (1994) 7 Cal. 4th 327; *Belair v. Riverside County Flood Control District* (1988) 47 Cal. 3d 550, 558; *Holtz v Superior Court* (1970) 3 Cal. 3d 296, 303. A public entity will be liable for inverse condemnation in areas historically prone to flooding, if its design, construction, or maintenance of a public improvement poses an unreasonable risk of harm to the plaintiff's property, and the unreasonable aspect of the improvement is a substantial cause of damage. *Arreola,* 99 Cal. App. 4th at 739. In determining reasonableness, the courts look beyond the conduct of the defending public entity toward a balancing of broader policy considerations as set forth by the Supreme Court in *Locklin. Locklin,* 7 Cal. 4th 327. Ultimately, the reasonableness standard in inverse condemnation cases balances the public need for flood management projects against the risks and severity of damages sustained by private landowners. *Locklin, supra* 7 Cal. 4th at 368; *Paterno II, supra,* 113 Cal. App. at 1018-1019.

In performing this balancing test, the courts apply the so-called "Locklin factors." (As noted in *Paterno I & II*, the "Locklin factors" in fact consist of two overlapping set of factors. *Paterno II, supra,* 113 Cal. App. 4th at 1016-1018.) These factors include (1) The overall public purpose served by the improvement project; (2) the degree to which the plaintiff's loss is offset by reciprocal benefits; (3) the availability to the public entity of feasible alternatives with lower risks; (4) the severity of the plaintiff's damages in relation to risk-bearing capabilities; (5) the extent to which the kind of damage sustained is considered as a normal risk of land ownership; and (6) the degree to which the kind of damage is distributed at large or is peculiar to the plaintiff (i.e. a "special damage.") In addition, a determination of reasonableness may also consider the landowner's responsibility to take reasonable precautions to protect against potential flood damage and to anticipate upstream developments that may increase the stream flow. *Bunch, supra* 15 Cal. 4th at 446; *Paterno II, supra* 113 Cal. App. at 1017.

Recent court decisions have made clear that the state and other public entities may be held liable for the consequences of failing to maintain a flood management system or for failing to mitigate a known danger. *Paterno II,* 113 Cal. App. 4th 998. (See also *Paterno v. California* (*Paterno I*) (1999) 74 Cal. App. 4th 68.); *Arreola,* 99 Cal. App. 4th 722. In the *Paterno* cases, about 3000 plaintiffs sued both the state of California and a local reclamation district for damages caused by the failure of a 1986 Yuba County levee that had been incorporated into a state-managed regional flood management plan. The court of appeals found that the state was liable to the plaintiffs for damages to their property caused by the flooding. The court reasoned that when California incorporated the levee into the state plan it accepted liability as if it had planned and built the system itself. Although the state had operated the levee for 75 years prior to its failure, it had never corrected the levee's underlying structural flaws. The court did not

find liability on the part of the reclamation district because the local district only had responsibility for maintenance; it did not have any authority or duty to correct structural flaws. This ruling ultimately cost the state nearly half a billion dollars.

C. Local Liability in Inverse Condemnation Cases

In cases arising from flood damages, plaintiffs often bring multiple claims against both the state and public entities (e.g. *Paterno, Belair, Akins,* and *Arreola*). The liability that various entities (including cities, counties, reclamation districts, levee districts, etc.) might face in the event of major flooding depends in large part upon the role that they have played in the flood management system of the flooded region. In assessing liability as between various entities, courts consider which entity has sufficient control and authority to prevent, remedy, or guard against the known danger. *Arreola*, 99 Cal. App. 4th at 761-763.

Local public entities will likely not be liable for flooding done to floodplain housing developments where their sole function was in approving the development. The courts have held that inverse condemnation liability will not lie against a public entity for damage to private property caused by private development approved or authorized by that public entity, where the public entity's sole affirmative action was the issuance of permits and approval of a subdivision map. DiMartino v. City of Orinda, (Cal. App. 4 2000) 80 Cal. App. 4th 329, 339; Ullery v. County of Contra Costa, (Cal. App. 1 1988) 202 Cal. App. 3d 562, 570.

However, local entities have been found liable under inverse condemnation when the damages arose from their failure to maintain a flood management project when they were required to do so. In *Galli v. California,* the local levee maintenance district was liable in tort and inverse condemnation for flood damages resulting from the failure of a non-project levee. In that case, the State Reclamation Board was found not to be liable because the Board did not have a mandatory duty to review the maintenance district's work plan for repairing the non-project levee; the levee was not under the control of the state, and the local district was responsible for maintaining the district. *Galli v. State of California* (1979), 98 Cal. App. 3d 662.

In *Arreola*, various local entities (including counties and local water districts) were found liable in tort and inverse condemnation for extensive damage caused when the Pajaro River Levee failed during a heavy rainstorm in 1995. *Arreola*, 99 Cal. App. 4th 722 (also finding the state liable because drainage culverts on Highway 1 were too small). The local entities had assumed complete responsibility for the operation and maintenance of the flood management project within their respective borders, but had subsequently failed to keep the project clear of vegetation and shoals. The appellate court found that inadequate maintenance can support liability for inverse condemnation. It noted, "We conclude that in order to prove the type of governmental conduct that will support liability in inverse condemnation it is enough to show that the entity was aware of the risk posed by its public improvement and deliberately chose a course of action – or inaction – in the face of that known risk." *Id.* at 744.

Thus it appears that assessing the relative liability of the state and local entities will depend upon the particular facts of the case. Important factors include whether the levee is a project or non-project levee, the cause of the flood damages, and the responsibilities of each entity. The liability of public entities will also be impacted by contract provisions and statutes related to indemnification. For example, the Legislature has required local agencies conducting

levee maintenance in the Sacramento-San Joaquin Delta to enter into an agreement with the state prior to receiving funding for maintenance. The agreement requires the local agencies to indemnify the state and prohibits the local agencies from holding the state liable for any damages except those caused by gross negligence. Water Code Section 12992, *see also*, Water Code Section 12316.

D. Negligence and Other Potential Theories of Liability

Most suits against state and local entities brought to recover damages caused by levee and/or flood management failure have been based on a theory of "inverse condemnation." Traditionally, the government was considered immune to tort actions. In 1961, the California Supreme Court concluded, "After a reevaluation of the rule of governmental immunity from tort liability we have concluded that it must be discarded as mistaken and unjust." *Muskopf v. Corning Hosp. Dist.*, (1961) 55 Cal. 2d 211, 213. The Legislature gave legislative approval to the judicial repudiation of sovereign immunity in 1963 by enacting a comprehensive set of statutes. *5 Witkins Sum. Cal. Law Torts Section 129.* Now all state and local public entities are subject to tort liability to the extent declared by statute. *Id*. Although the Tort Claims Act (Government Code section 810, *et seq*.) contains a general immunity provision (section 815), the Act imposes liability in particular circumstances. Successful tort claims arising from a major flood could mean a significant increase in the amount of a public entity's liability since plaintiffs could potentially recover actual damages, including pain and suffering. *5 Witkins Sum. Cal. Law Torts Section 136.*

In short, claims for damages other than "inverse condemnation" can be brought against public entities both at the state and local level. Five alternative theories discussed below, which might allow plaintiffs to circumvent the general immunity provisions of the Torts Claim Act, are (1) dangerous conditions on public property; (2) mandatory duty; (3) employee negligence and vicarious liability; (4) nuisance; and (5) liability implied in statutes creating a flood management project.

1. "Dangerous Condition of Public Property" (Cal. Govt. Code § 835)

California Government Code section 835 creates an exception to the government immunity provision of the California Torts Claim Act. Section 835 imposes liability upon a public entity for injury caused by the dangerous condition of its property. In order to state a cause of action against a public entity under section 835, the plaintiff must plead that (1) a dangerous condition existed on the public property at the time of the injury; (2) the dangerous condition proximately caused the injury; (3) the dangerous condition created a reasonably foreseeable risk of the kind of injury sustained; and (4) the public entity had actual or constructive notice of the dangerous condition in sufficient time to have taken corrective measures. It is not necessary that the injury occur *on* the dangerous property, for the dangerous condition may cause damage to adjacent properties. *Vedder v County of Imperial* (1974) 36 Cal. App. 3d 654; *Cornette v. Dept. of Trans.* (2001) 26 Cal. 4th 63; *Zelig v County of Los Angeles* (2002) 27 Cal. 4th 1112; *Brenner v. City of El Cajon* (2003) 113 Cal. App. 4th 434.

Constructive notice of a dangerous condition can be imputed to the public entity if it can be shown that an obvious danger existed for a sufficient period time to allow public entity employees, when exercising due care, to discover and remedy the danger. *Nashihama v. City and County of San Francisco* (2001), 93 Cal. App. 4th 298.

In non-flooding cases, several courts have held that public entities may be held liable for damages caused by dangerous conditions on public property. *Hibbs v Los Angeles County* (1967) 252 Cal. App. 2d 166. See also *Sumner Peck Ranch v Bureau of Reclamation* (1993) 823 F. Supp. 715 (interpreting section 835). In *Miller v. Los Angeles Flood Control District* (1973) 8 Cal. 3d 689, the California Supreme Court reinstated a jury verdict for plaintiffs in a wrongful death action due to dangerous conditions of public property. The Court held that the jury reasonably concluded that the City and the District had negligently created a dangerous condition by not clearing a debris basin. *Miller,* 8 Cal. 3d at 699.

Although many of the "dangerous conditions" cases suggest that the plaintiff bears a heavy burden in meeting the elements, the courts nonetheless make it clear that injuries caused by dangerous conditions on public property are outside of the scope of general governmental immunity. (See e.g. *Paterno I* (1999).) Should the state's suspect Sacramento-area and Delta levees break and cause widespread flood damage, it seems that the four elements of a "dangerous conditions" action could be met: 1) the condition will have existed at the time of the injury; 2) the break will constitute the proximate cause of the flood damage; 3) flood damage is a foreseeable risk where there are faulty levees in a flood plain; and 4) the state and local entities have actual, or at the very least constructive, notice of the problem. Moreover, where a flood causes death as well as property destruction – as in the Katrina tragedy – plaintiffs could use the "dangerous condition" exception to allege wrongful death, which could lead to increased damages.

2. "Mandatory Duty" (Cal. Govt. Code Section § 815.6)

California law also creates an exception to the general immunity provisions of the Tort Claims Act where a public entity fails to discharge a duty mandated by statute. Government Code section 815.6 states that where a public entity "is under a mandatory duty" imposed by a statute designed to prevent a particular type of injury, then the public entity is liable if its failure to perform that duty causes the type of injury that the statute was designed to prevent. The section allows a suit against a public entity so long as three elements are met: 1) the statute must impose a mandatory, as opposed to a discretionary, duty; 2) the statute must have been designed to prevent the kind of injury suffered; and 3) the breach of mandatory duty must be a proximate cause of the injury suffered. *Braman v State* (1994) 28 Cal. App. 4th 344; *Zolin v Superior Court* (1993) 19 Cal. App. 4th 1157; *State v Superior Court of Sacramento* (1984) 150 Cal. App. 3d 848; *Haggis v City of Los Angeles* (2000) 22 Cal. 4th 490.

In *Galli v. California*, a trial court found the State Reclamation Board liable based on its mandatory duty to review and approve or disapprove district work plans in the Sacramento delta region. Although the appellate court reversed in part, the court did not reject the possibility that statutorily defined duties might trump the immunity provisions. Rather, it simply argued that the particular provision in question did not create the mandatory duty on the part of the state reclamation board as claimed by plaintiffs. *Galli v. State of California* (1979), 98 Cal. App. 3d 662. Therefore, it remains a possibility that public entities could face tort claims arising out of a mandatory duty in the event of a flood disaster.

3. Employee Negligence & Vicarious Liability (Cal. Govt. Code 815.2)

According to Government Code Section 815.2, a public entity may be held vicariously liable for the act or omission of an employee acting within the scope of employment,

notwithstanding provisions of immunity. In addition, Government Code Section 825 provides that an employee or former employee may request a public entity to defend him or her against any claim or action arising out of an act or omission occurring within the scope of employment. *Paterno* recognized in dictum that the acts of employees may result in tort liability. *Paterno*, 113 Cal. App. 4th at 1013 ("Where damage result from the acts of the employees … [r]ecovery, if any, lies in a tort action, such as negligence.")

4. Nuisance (Cal. Civil Code § 3479):

California Civil Code section 3479 defines "nuisance" as "[a]nything which is injurious to health, including, but not limited to … *an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property*, or unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, or river, bay, stream, canal, or basin, or any public park, square, street, or highway, is a nuisance." (Emphasis added.)

Courts have found that the Tort Claims Act does not bar nuisance actions against public entities, citing California Civil Code sections 3479, 3480 and 3481 (which define nuisance in general, and public and private nuisance, in particular). *Vedder v. County of Imperial* (1974) 36 Cal. App. 3d 654. In addition, liability may be established under provisions relating to dangerous conditions of public property (such as Government Code section 835) or under some other applicable statute. *Nestle v. Santa Monica* (1972) 6 Cal. 3d 920; *Paterno v. California (Paterno I)* (1999) 74 Cal. App. 4th 68.

Although the plaintiffs in *Paterno* relied mainly upon an "inverse condemnation" cause of action, they also pleaded nuisance and dangerous conditions. In *Paterno I*, the court recognized that a plaintiff could plead both a "dangerous condition" and "nuisance" claim, even though the two causes of action would rely on essentially the same facts. *Paterno I* concluded that just because "a given set of facts fortuitously supports liability on two legal theories is not a principled reason to deny a party the right to pursue each theory." *Paterno I* at 72-73. See also *Pfleger v. Superior Court* (1985) 172 Cal. App. 421, at 429-432 (criticizing *Longfellow*). Accordingly, it appears that in the event of major flooding, the state and local public entities could face nuisance claims.

5. Liability Implied in Flood Management Project Statutes

In addition to the Tort Claims Act, the acts that created the districts may also provide a potential source of liability. Although *Hayashi v Alameda County Flood Control* (1959) was decided before the modern Tort Claims Act (enacted in 1963), the earlier Public Liability Act (1923) was based on the same principle that a government entity is not liable for tort unless the legislature specifically imposes such liability by statute. The *Hayashi* court found that even though the Public Liability Act did not impose liability on flood control districts, the act creating the flood district did. The court looked at language granting the district the power to sue and be sued, and creating a procedure for filing suit against the district. *Hayashi v. Alameda County Flood Control*, (1959) 167 Cal. App. 2d 584. The reasoning of the *Hayashi* decision may still apply to the extent that the statutes creating local flood control districts may provide an independent source for a cause of action.

E. Are There Realistic Theories of Liability of Builders and Developers?

As discussed later in this paper, rapid development is occurring behind California's levees. This raises the issue of whether a builder or developer could be held liable for constructing houses in a floodplain. Cases arising from flood damages caused by disasters (e.g. severe storms, levee breaks, etc.) have generally not been brought against developers. No cause of action for inverse condemnation may lie against them. However, a cause of action may rest in general tort principles. Such an action would probably be based on claims of negligence. *See e.g., Ektelon v. City of San Diego*, (1988) 200 Cal. App. 3d 804, 810 ("The liability of the private developer … is defined by negligence principles.") A developer would only be negligent if s/he failed to use the skill and care that a reasonably careful developer would have used in similar circumstances (i.e. building new homes in a floodplain). California Civil Jury Instructions (CACI) 401, 600. The basis for liability is the foreseeability of harm in a particular case. *Tucker v. Lombardo*, (1956) 47 Cal. 2d 457, 464. Whether something is an "unreasonable risk" often turns on the question of whether the foreseeable risk of danger outweighs the utility of the act or the manner in which it was done. *Chaplis v. County of Monterey*, (1979) 97 Cal. App. 3d 249, 265.

Therefore, any cases brought against a developer for building in a floodplain will necessarily consider whether the decision to build was reasonable. If the developer has relied upon representations made by FEMA, or state or local entities, that the levees can withstand a specified flood risk, then it is likely that the developer will have been deemed to have acted reasonably. If the developer is aware of a flood risk, or should be aware of a flood risk, but still continues to build on a piece of property, then the developer may be subject to liability. *See Sabella v. Wisler*, (1963) 59 Cal. 2d 21 (builder found to have negligently constructed home on an improperly compacted lot where he negligently failed to discover the unsuitable nature of the ground.)

The Legislature has imposed a statutory duty upon a seller of a piece of property to give notice to a buyer if the property is located in a special flood hazard area designated by FEMA, or is located within an area subject to potential flooding from a dam failure. Cal. Govt. Code Sections 8589.3, 8589.4; Cal. Civ. Code Section 1103. Not all properties behind levees must receive notice. For example, levee updates may result in FEMA removing a property from a special flood hazard area. Cal. Civ. Code Section 1103.2(c). The seller is not liable for inaccurate or omitted information if s/he used ordinary care, relied on information provided by a public agency, and did not have personal knowledge that the property was in a flood hazard area. Cal. Civ. Code Section 1103.4(a). If the buyer does not receive the disclosure prior to the scheduled date of the transfer of property, the buyer may withdraw his or her offer to purchase the property. *Op. Atty. Gen.* No. 01-406 (Aug. 24, 2001). However if the transfer of property occurs without the disclosure, the failure to comply with the notice requirements will not invalidate the transfer of property, but a seller will be liable for any actual damages suffered by the owner. *Id.;* Cal. Civ. Code Section 1103.13. Actual damages represent the buyer's out-of-pocket losses with respect to the transaction (i.e. the difference between the actual value paid for the property and the actual value of the property). *Saunders v. Taylor*, (1996) 42 Cal. App. 4th 1538, 1542-44. These damages could be minimal.

Any action against a builder or developer will depend on the given facts. Realistically, however, it may be difficult for plaintiffs to succeed in any type of cause of action against them.

F. Conclusion Regarding Liability

In summary, a major flooding event could expose the state and local entities to major liability. A finding that the responsible entities failed to maintain the flood management system or knew that the system was at risk and failed to mitigate the risk, would impact the liability of the entities. Injured parties could bring claims against the government on theories of inverse condemnation and various tort theories. The realization that both the state and local governments could potentially be responsible for billions of dollars in damages leads to several additional questions, including, but not limited to, the following:

- ✓ What are the consequences of the existing liability regime?
- ✓ What actions are encouraged or discouraged due to the existing liability regime?
- ✓ Does liability rest with those who can take steps to prevent floods or flood damage?
- ✓ Can and should the state attempt to modify who is legally held liable in the event of a catastrophic flood?
- ✓ If so, how?
- ✓ What effect will this have?
- ✓ Should the focus be solely on investing more money in prevention?

III. Effect of Flood Insurance

Ensuring broader insurance coverage for flood risks may provide one way for the State to minimize the scope of its financial exposure. Currently, flood insurance is provided primarily through the National Flood Insurance Program (NFIP), a division of the Federal Emergency Management Agency (FEMA). Properties located in communities participating in the program are eligible for federal flood insurance, but such insurance is mandated only for properties located in Special Flood Hazard Areas (SFHAs), as mapped by FEMA. However, as illustrated by recent events and past flooding in California, there are significant portions of existing floodplains that are at risk of flooding but are not included in SFHAs as mapped by FEMA, and owners of improved properties in these areas are thus not required to purchase insurance. This has in some cases created the mistaken impression by property owners that their properties are not at risk.

A. National Flood Insurance Program

The NFIP was created by Congress with the passage of the National Flood Insurance Act of 1968, and was substantially amended in 1973 and 1994. The NFIP makes flood insurance available to property owners in participating communities. Cities and counties must meet minimum criteria for floodplain management and building standards to be eligible to participate in the program. Since 1973, federal flood insurance has been mandated for properties located in an SFHA, defined as an area within a floodplain having a 1 percent or greater chance of flood occurrence in any given year. The mandate is enforced through federally regulated mortgage lenders, who are prohibited from making or renewing any loan secured by improved real property located in an SFHA in a participating community unless the secured building and personal property are covered for the life of the loan by flood insurance. The flood insurance requirement is enforced by federal agency lender regulators, and through requirements for monitoring and forced placement if policies lapse.

B. Mapping

FEMA conducts flood insurance studies to determine the location of SFHAs and issues Flood Hazard Boundary Maps showing the location of each of these areas. FEMA is currently in the process of updating and digitizing the maps, and recently issued a circular entitled Procedure Memorandum 34 – Interim Guidance for Studies Including Levees. The memorandum indicates that as FEMA works on updating the maps it is attempting to identify the location of all levees in the study area, and that it is the responsibility of the community or other party seeking recognition of a levee system at the time of a flood risk study to certify that the levees provide protection from a 1-percent-annual-chance flood. While updating the maps to reflect current levee conditions is desirable, some have questioned whether the 1%/100 year flood protection standard is adequate, since this standard also means that there is a 26% chance that the home will flood at some time over a typical 30 year mortgage term.

C. Answers to Common Questions Regarding Flood Insurance

What does Homeowner's (HO) insurance cover?

HO insurance generally covers (up to policy limits) damage due to wind, wind-driven rain and fire, theft, vandalism, and damage caused by fallen trees. HO insurance also provides coverage for the contents of a home and provides Additional Living Expense (ALE) coverage that reimburses the costs of living in a temporary location and living expenses. HO insurance generally does NOT cover losses in the event of a flood.

What does commercial property insurance cover?

Typically commercial property insurance will cover the building and permanently attached fixtures and machinery. Commercial property insurance can be purchased as either a specified perils policy or an open perils policy. A specified perils policy consists of a list of each peril to be insured against, such as fire, explosion, windstorm, vandalism, et cetera. An open perils policy covers all losses unless they are specifically excluded. **Earth movement (including earthquake) and flood are two common perils that are excluded under *open perils* coverage.**

Am I eligible for flood insurance?

If you live in a SFHA, your mortgage lender requires you to have flood insurance. If you do not live in a specially designated SFHA, you may still purchase a flood insurance policy, if you live in a community that is participating in the NFIP program.

Residents of any community that agrees to participate in the program are eligible to purchase insurance from the NFIP. In order to participate the community must have the authority to adopt and enforce floodplain management ordinances for the area under its jurisdiction. Each identified flood-prone community must assess its flood hazard and determine whether flood insurance and floodplain management would benefit the community's residents and economy.

The NFIP requires communities to maintain a minimum level of floodplain management ordinances for its residents to be eligible to purchase flood insurance. To encourage

communities to exceed these minimum requirements, the NFIP established the Community Rating System (CRS). In exchange for increasing flood preparedness and achieving a CRS rating, the community's residents are offered discounted flood insurance premium rates. Communities are rated by Class and fall into one of ten classes.

For CRS participating communities, flood insurance premium rates are discounted in increments of 5%; i.e., a Class 1 community would receive a 45% premium discount, while a Class 9 community would receive a 5% discount (a Class 10 is not participating in the CRS and receives no discount). The CRS classes for local communities are based on 18 creditable activities, organized under four categories: (i) Public Information, (ii) Mapping and Regulations, (iii) Flood Damage Reduction, and (iv) Flood Preparedness.

What does flood insurance cover?

Flood insurance purchased from the federal government's NFIP covers damage caused by the general condition of flooding.

The NFIP offers three Standard Flood Insurance Policy forms. The three policy forms are:

- **The Dwelling Form** insures residential structures and/or contents and individual residential condominium units. Residential insurance for one- to four-family unit buildings and individual residential condominium units are written under the Dwelling Form and are eligible for up to $250,000 in building coverage and up to $100,000 on personal property coverage. On average, a homeowner policy costs about $400 a year for around $100,000 of coverage.
- **The General Property Form** insures residential buildings of more than four families as well as non-residential buildings (schools, churches, businesses, etc.). Residential buildings containing more than four units are written under the General Property Form and are eligible for up to $250,000 in building coverage and up to $100,000 on personal property. Non-residential insurance—for properties like schools, churches and commercial structures— are written under the General Property Form and are eligible for building coverage up to $500,000 and $500,000 on personal property.
- **The Residential Condominium Building Association Policy Form (RCBAP)** insures associations under the condominium form of ownership. Condominium associations are written under the Residential Condominium Building Association Policy—or RCBAP—Form and are eligible for building coverage, which includes all units within the building (and improvements), up to $250,000 times the number of units within the residential building. Personal property coverage is limited to $100,000 per building.

In addition, the **Preferred Risk Policy** is a lower-cost option, for building and contents coverage on properties located in a low- to moderate-risk area. It is available for both residential and non-residential properties.

Generally there is a standard 30-day waiting period, from date of purchase, before a new flood policy goes into effect. However, if a lender requires flood insurance in connection with the making, increasing, extending or renewing of a loan, there is no waiting period.

What happens to those homeowners who did not have flood insurance?

If they are not covered by HO insurance and they don't have flood insurance, then they will have to turn to FEMA for federal taxpayer assistance. Federal disaster assistance is only available if the President formally declares a disaster. In addition, it is often a loan which must be repaid with interest, in addition to the mortgage loan that the property owner still owes on the damaged property. There are also limits on federal disaster assistance for repetitive losses. If a homeowner receives federal disaster assistance for a flood, and then is required to maintain insurance and fails to do so, they may be ineligible for federal disaster assistance in the case of a subsequent flood.

D. State Authority to Require Flood Insurance

Ensuring broader insurance coverage for flood risks may provide one way for the State to minimize the scope of its financial exposure. However, the state's ability to expand flood insurance requirements beyond federal law may be constrained to some extent by federal preemption doctrines, though the extent of preemption remains an open question. As explained above, the NFIP is implemented and enforced through mortgage lenders. National banks are regulated by the Office of the Comptroller of the Currency (OCC). Federal regulations promulgated by the OCC include Title 12 of the Code of Federal Regulations, Part 34, which provides that state laws are preempted if they "obstruct, impair, or condition" a national bank's exercise of its federally authorized lending powers. A state law conditioning a mortgage loan on the purchase and maintenance of flood insurance, in geographic areas beyond the narrow SFHA zones where such insurance is currently mandated under federal law, could be construed as a condition on the extension of credit and preempted as applied to national banks. In addition to the OCC, there are other federal agencies which oversee other types of federally regulated financial institutions, such as the Office of Thrift Supervision, which have similar preemption provisions. Although the state's authority to enforce such requirements through federally regulated lending institutions may be limited, the state may have greater authority to apply such requirements to state chartered banks and other state lending institutions.

The National Flood Insurance Act itself may also limit the ability of states to expand flood insurance requirements beyond federal law. Section 4024 of Title 42 of the United States Code provides that the Director shall consult with other federal agencies, and with states and local agencies having responsibilities for flood control in order to assure that the programs of such agencies and the federal flood insurance program are "mutually consistent." (42 USC 4024.) However, it is possible that if the state were to adopt mandatory flood insurance requirements that were in addition to but not in conflict with the federal law, such state mandates could be construed as "mutually consistent."

The National Flood Insurance Act also contains provisions which indicate that the federal government does contemplate that states will act to restrict development in flood prone areas. For example, Section 4023 of Title 42 of the United States Code provides:

> No new flood insurance coverage shall be provided under this chapter for any property which the Director finds has been declared by a duly constituted State or local zoning authority, or other authorized public body, to be in violation of State or local laws,

regulations, or ordinances which are intended to discourage or otherwise restrict land development or occupancy in flood-prone areas. (42 USC 4023.)

State land use restrictions in flood plain areas are further encouraged by other provisions of the NFIP, including the Community Rating System, which provides incentives in the form of reduced insurance premiums to communities that voluntarily adopt and enforce floodplain management activities which go beyond the minimum required by federal law. Properties located in communities that do not meet the minimum requirements for participation in the NFIP are ineligible for federal flood insurance coverage. Reforms adopted by Congress in an effort to reduce repetitive losses to the NFIP also give FEMA statutory authority in some circumstances to penalize policyholders who refuse government assistance to relocate. FEMA's repetitive loss strategy includes a program to target insured properties which have had repetitive flood losses for mitigative action that includes, in some cases, removing them from the floodplain.

IV. Effect of Land-Use Decisions

Since the 1993 flooding on the Mississippi River, development in the floodplain has received increased attention. A 1994 Corps report suggested greater federal involvement in managing development in floodplains. The National Flood Insurance Program issued a policy on repetitive claims, which encouraged relocation of communities that repeatedly file NFIP claims. The 2002 Corps Comprehensive Study also observed that the Central Valley flood management system was designed for agricultural uses, and urban expansion into agricultural areas "placed demands on the system that were not originally anticipated."

The Central Valley population and associated development have grown dramatically in recent years. In the San Joaquin Valley, population has grown an average of 2.1% annually since 1990. *Water for Growth*, Public Policy Institute of Cal. (2005). Cities in the Sacramento Valley have grown even more dramatically. In the last five years, Yuba City grew 58%, Chico grew 21% and Sacramento grew 11%. *Cities and Counties Ranked*, Dept. of Finance (January 2005). With new housing developments planned, Central Valley population growth does not appear to be subsiding, leading to greater pressure to encroach into flood plains.

A. Increasing Flood Risk for Urban Areas

Both new developments and existing communities face increasing flood risk. In addition to the problem of aging flood control facilities, flood conditions are changing. Greater urban development creates greater volumes of stormwater runoff and increases Valley temperatures. As a result of the Valley heat bubble, the snow elevation level has increased as much as 1500 feet in the last 25 years, meaning less snow and more rain that flows almost immediately into Valley rivers. Current federal floodplain maps fail to reflect these changed flood conditions and the resulting floodplain expansions. Such new information and new analysis leads to changes in community assessments of flood risks.

After the 1986 flood, which nearly caused catastrophic flooding in Sacramento, for example, the Corps reassessed the region’s level of flood protection and concluded that it had less than 100-year level of flood protection. As a result, FEMA remapped the area into the regulatory floodplain in 1989. Since then intensive efforts by the U.S. Army Corps of Engineers,

the State Reclamation Board, and the Sacramento Area Flood Control Agency (SAFCA) have resulted in substantial flood protection improvements. Early measures focused on levee improvements and re-operation of Folsom Dam, which together have provided 100-year level of flood protection for the Natomas area (1988) and the American River floodplain (2005). SAFCA and its partners are now focused on providing 100-year level of flood protection for the South Sacramento area by the end of 2006, and advancing plans for higher regional flood protection through modifications to Folsom Dam storage and outlet capacity. Since SAFCA and its partners began making regional levee improvements in 1990, the understanding of how levees function has advanced significantly and performance criteria have been tightened accordingly. Furthermore, as the storm history for the region accumulates, it appears that we are facing a higher probability of large, intense storm systems. Therefore SAFCA's goal of incrementally achieving 100-year level flood protection, then advancing to better than 200-year level protection, has been a moving target, requiring periodic review of design criteria and completed work along with execution of new projects.

B. Statutory Requirements for Analysis of Flood Risks

In planning and approving new development affected by flood risk, California statutes require some assessment. In the general plan process, local agencies must consider flood risks as part of the safety element and *may* consider flood issues as part of the resource conservation element. Cal. Govt. Code § 65302. For development projects analyzed under the California Environmental Quality Act, the Environmental Checklist also requires some assessment of flood hazards. CEQA Guidelines, Appendix G, § VI. The Reclamation Board also enjoys certain regulatory authority over floodplain developments under its statute. Cal. Water Code § 8710.

C. Recent Development Controversies

In other parts of the Central Valley, proposed housing developments in floodplains also continue to draw attention. In the last year, the Reclamation Board has played an increasingly active role in assessing the flood risks for new developments and criticizing gaps in flood protection. Those projects have included:

- **Plumas Lakes (Yuba County):** The Yuba County Board of Supervisors approved this project despite recent history of flooding (1997) in the aptly named Plumas Lakes. The Reclamation Board has been working with Yuba County to address flood risks.

- **Mossdale Landing (City of Lathrop):** The Reclamation Board expressed concern about this 500-unit mixed use development west of Interstate 5. The Board cited concern over inadequate levees, which were not improved when the Corps of Engineers restored them after the 1997 flood, and flooding due to "a rise of the groundwater level on the landside of the San Joaquin River."

- **Clarksburg/Sugar Mill (Yolo County):** The Reclamation Board has expressed concern about replacing an old sugar mill with a mixed-use development that includes new housing, due to adjacent aging levees along the Sacramento River.

- **River Islands (City of Lathrop):** This proposal involves 11,000 new homes on a Delta island. The developer recently announced that it would build its own levees inside the island, so that it would not touch existing levees that created the island and thereby incur any State regulation by the Reclamation Board.

Governor Schwarzenegger recently replaced all the Reclamation Board members, which were holdovers from the Davis Administration (one from the Wilson Administration) and installed seven new members. Of the new members, four have ties to agriculture, one formerly managed the Sacramento Area Flood Control Agency, and two others are engineers.

D. Recent Legislation Related To Flood Management/Land-Use

This year, several bills related directly or indirectly to flood management, including one bill that addressed the land-use connection.

- **AB 802 (Wolk)** would have required cities, when preparing general plans for development, to assess flood management issues. It did not pass the Assembly floor.

- **AB 1665 (Laird)** started out as the Schwarzenegger Administration's proposal to create a state agency that could raise flood management funding through assessments on Central Valley landowners. Opposition led the Administration organizing a stakeholder process. By the time they drafted a new bill, the deadline for a Senate committee hearing had passed. It now contains various provisions related to floodplain mapping and notice.

- **AB 797 (Wolk)** strengthened the influence of the Delta Protection Commission over local land-use decisions. Although the bill does not expressly relate to flood management, development in the Delta affects the nature of Delta flood management.

- **SB 264 (Machado)** extended the life of the Delta Flood Protection Fund for two years, while DWR completes the "Delta Risk Management Study" for Delta levees. This fund provides "subventions" or funding to local levee agencies to maintain or improve Delta levees.

- **Budget Trailer Bill:** In response to proposals to pay $464 million to settle the *Paterno* litigation, the Senate Budget Subcommittee on Resources proposed requiring, by 2012, that all new development achieve a 200-year level of flood protection.

Both the development community and local government organizations have expressed concern about the State playing a greater role in land-use decisions for the floodplains. Development interests were instrumental in defeating AB 802. During the Senate Budget Subcommittee on Resources hearing on the flood protection requirement, one homebuilder lobbyist asserted that there was no connection between flood management and land use. Considering the continuing controversies over local developments in the floodplain, the issue of land use in floodplains nevertheless will continue to arise in the years ahead.

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME

2010 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT # 000132

STATE CLEARING HOUSE # *(If applicable)*

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: RECLAMATION DISTRICT 684			DATE: 06/16/10
COUNTY/STATE AGENCY OF FILING: SAN JOAQUIN			DOCUMENT NUMBER:
PROJECT TITLE: REC DISTRICT DELTA AQUEDUCT LEVEE HMP PROJ -2010			
PROJECT APPLICANT NAME: RECLAMATION DISTRICT 684			PHONE NUMBER: (209) 478-6525
PROJECT APPLICANT ADDRESS: PO BOX 1461	CITY: STOCKTON	STATE: CA	ZIP CODE: 95201

PROJECT APPLICANT *(Check appropriate box):*

☐ Local Public Agency ☐ School District ☑ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,792.25	$	$0.00
☐ Negative Declaration (ND)(MND)	$2,010.25	$	$0.00
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$	$0.00
☐ Projects Subject to Certified Regulatory Programs (CRP)	$949.50	$	$0.00
☑ County Administrative Fee	$50.00	$	$50.00
☐ Project that is exempt from fees			
☐ Notice of Exemption			
☐ DFG No Effect Determination (Form Attached)			
☐ Other _____		$	

PAYMENT METHOD:

☐ Cash ☐ Credit ☑ Check ☐ Other _____ TOTAL RECEIVED $ $50.00

SIGNATURE: X P Paulsen	TITLE: DEPUTY COUNTY CLERK

ORIGINAL - PROJECT APPLICANT COPY - DFG/ASB COPY - LEAD AGENCY COPY - COUNTY CLERK FG 753.5a (Rev. 10/09)

NOTICE OF EXEMPTION

(Public Resources Code Section 21152(b);
California Administrative Code, Title 14,
Chapter 3, Section 15062)

To: Recorder-County Clerk
County of San Joaquin
44 North San Joaquin, 2nd Floor
Stockton, CA 95202

From: Reclamation District No. 684
P. O. Box 1461
Stockton, CA 95201

PROJECT TITLE: Reclamation District No. 684 Delta Aqueduct Levee HMP Project - 2010

PROJECT LOCATION: Lower Roberts Island, San Joaquin County, California

DESCRIPTION OF PROJECT: The project consists of adding fill to the levee crown and landside slopes, construction of landside seepage and stability toe berms and repair of slope protection.

NAME OF PUBLIC AGENCY APPROVING PROJECT: Reclamation District No. 684

NAME OF PERSON CARRYING OUT PROJECT: Reclamation District No. 684

EXEMPT STATUS: Statutory and Categorical Exemptions
Class 1; California Administrative Code Regulations, 15261(a); 15301; and 15302.

REASONS WHY PROJECT IS EXEMPT: Maintenance of existing facilities. The project is (1) statutorily exempt because it is an ongoing project (Cal. Code Regs. 15261(a)); (2) categorically exempt because the work is repair of existing public facilities involving no expansion of use (Cal. Code Regs. 15301); and (3) categorically exempt because the work is reconstruction of existing facilities located on the same site and the facilities will have the same purposes and capacity (Cal. Code Regs. 15302).

CONTACT PERSON:

District: Dante John Nomellini, Secretary and Counsel (209) 465-5883

Engineer: Dominic Gulli (209) 478-6525; or Thomas J. Rosten (209) 836-0829

DANTE JOHN NOMELLINI, Secretary and Counsel for Reclamation District No. 684

Date: June 16, 2010

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME

2010 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT# 000133

STATE CLEARING HOUSE # *(If applicable)*

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: RECLAMATION DISTRICT 2072			DATE: 06/16/10
COUNTY/STATE AGENCY OF FILING: SAN JOAQUIN			DOCUMENT NUMBER:
PROJECT TITLE: RECLAMATION DISTRICT DELTA AQUEDUCT LEVEE PL 84-99 PRUJ-2010			
PROJECT APPLICANT NAME: RECLAMATION DIST 2072			PHONE NUMBER: (209) 478-6525
PROJECT APPLICANT ADDRESS: PO BOX 1461	CITY: STOCKTON	STATE: CA	ZIP CODE: 95201

PROJECT APPLICANT *(Check appropriate box):*

☐ Local Public Agency ☐ School District ☑ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,792.25	$	$0.00
☐ Negative Declaration (ND)(MND)	$2,010.25	$	$0.00
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$	$0.00
☐ Projects Subject to Certified Regulatory Programs (CRP)	$949.50	$	$0.00
☑ County Administrative Fee	$50.00	$	$50.00
☐ Project that is exempt from fees			
☐ Notice of Exemption			
☐ DFG No Effect Determination (Form Attached)			
☐ Other _____		$	

PAYMENT METHOD:

☐ Cash ☐ Credit ☑ Check ☐ Other _____ TOTAL RECEIVED $ $50.00

SIGNATURE: X T Paulsen	TITLE: DEPUTY COUNTY CLERK

ORIGINAL - PROJECT APPLICANT COPY - DFG/ASB COPY - LEAD AGENCY COPY - COUNTY CLERK FG 753.5a (Rev. 10/09)

NOTICE OF EXEMPTION

(Public Resources Code Section 21152(b);
California Administrative Code, Title 14,
Chapter 3, Section 15062)

To: Recorder-County Clerk
County of San Joaquin
44 North San Joaquin, 2nd Floor
Stockton, CA 95202

From: Reclamation District No. 2072
P. O. Box 1461
Stockton, CA 95201

PROJECT TITLE: Reclamation District No. 2072 Delta Aqueduct Levee PL 84-99 Project - 2010

PROJECT LOCATION: Woodward Island, San Joaquin County, California

DESCRIPTION OF PROJECT: The project consists of adding fill to the levee crown and landside slopes, construction of landside seepage and stability toe berms and repair of slope protection.

NAME OF PUBLIC AGENCY APPROVING PROJECT: Reclamation District No. 2072

NAME OF PERSON CARRYING OUT PROJECT: Reclamation District No. 2072

EXEMPT STATUS: Statutory and Categorical Exemptions
Class 1; California Administrative Code Regulations, 15261(a); 15301; and 15302.

REASONS WHY PROJECT IS EXEMPT: Maintenance of existing facilities. The project is (1) statutorily exempt because it is an ongoing project (Cal. Code Regs. 15261(a)); (2) categorically exempt because the work is repair of existing public facilities involving no expansion of use (Cal. Code Regs. 15301); and (3) categorically exempt because the work is reconstruction of existing facilities located on the same site and the facilities will have the same purposes and capacity (Cal. Code Regs. 15302).

CONTACT PERSON:

District: Dante John Nomellini, Secretary and Counsel
(209) 465-5883

Engineer: Dominic Gulli (209) 478-6525; or
Thomas J. Rosten (209) 836-0829

DANTE JOHN NOMELLINI, Secretary and Counsel
for Reclamation District No. 2072
Date: June 16, 2010

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME

2010 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT # 000131
STATE CLEARING HOUSE # *(If applicable)*

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: RECLAMATION DIST 2039	DATE: 06/16/10
COUNTY/STATE AGENCY OF FILING: SAN JOAQUIN	DOCUMENT NUMBER:
PROJECT TITLE: REC DISTRICT 2039 DELTA AQUADUCT LEVEE PL-84-99 PROJ-2010	
PROJECT APPLICANT NAME: REC DEISTRICT 2039	PHONE NUMBER: (209) 478-6525

PROJECT APPLICANT ADDRESS	CITY	STATE	ZIP CODE
221 TUXEDO CT STE F	STOCKTON	CA	95204

PROJECT APPLICANT *(Check appropriate box):*

☐ Local Public Agency ☐ School District ☑ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,792.25	$ $0.00
☐ Negative Declaration (ND)(MND)	$2,010.25	$ $0.00
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$ $0.00
☐ Projects Subject to Certified Regulatory Programs (CRP)	$949.50	$ $0.00
☑ County Administrative Fee	$50.00	$ $50.00
☐ Project that is exempt from fees		
☐ Notice of Exemption		
☐ DFG No Effect Determination (Form Attached)		
☐ Other _____		$

PAYMENT METHOD:

☐ Cash ☐ Credit ☒ Check ☐ Other _____ TOTAL RECEIVED $ $50.00

SIGNATURE: X C Poulsen	TITLE: DEPUTY COUNTY CLERK

ORIGINAL - PROJECT APPLICANT COPY - DFG/ASB COPY - LEAD AGENCY COPY - COUNTY CLERK FG 753.5a (Rev. 10/09)

NOTICE OF EXEMPTION

(Public Resources Code Section 21152(b);
California Administrative Code, Title 14,
Chapter 3, Section 15062)

To: Recorder-County Clerk
County of San Joaquin
44 North San Joaquin, 2nd Floor
Stockton, CA 95202

From: Reclamation District No. 2039
221 Tuxedo Court, Suite F
Stockton, CA 95204

PROJECT TITLE: Reclamation District No. 2039 Delta Aqueduct Levee PL 84-99 Project - 2010

PROJECT LOCATION: Upper Jones Tract, San Joaquin County, California

DESCRIPTION OF PROJECT: The project consists of adding fill to the levee crown and landside slopes, construction of landside seepage and stability toe berms and repair of slope protection.

NAME OF PUBLIC AGENCY APPROVING PROJECT: Reclamation District No. 2039

NAME OF PERSON CARRYING OUT PROJECT: Reclamation District No. 2039

EXEMPT STATUS: Statutory and Categorical Exemptions
Class 1; California Administrative Code Regulations, 15261(a); 15301; and 15302.

REASONS WHY PROJECT IS EXEMPT: Maintenance of existing facilities. The project is (1) statutorily exempt because it is an ongoing project (Cal. Code Regs. 15261(a)); (2) categorically exempt because the work is repair of existing public facilities involving no expansion of use (Cal. Code Regs. 15301); and (3) categorically exempt because the work is reconstruction of existing facilities located on the same site and the facilities will have the same purposes and capacity (Cal. Code Regs. 15302).

CONTACT PERSON: District: Richard W. Johnson, Secretary and Counsel
(209) 466-1408
Engineer: Dominic Gulli (209) 478-6525; or
Thomas J. Rosten (209) 836-0829

RICHARD W. JOHNSON, Secretary and Counsel
for Reclamation District No. 2039
Date: June 16, 2010

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME

2010 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT # 000130

STATE CLEARING HOUSE # *(If applicable)*

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: RECLAMATION DISTRICT 2038	DATE: 06/16/10
COUNTY/STATE AGENCY OF FILING: SAN JOAQUIN	DOCUMENT NUMBER:

PROJECT TITLE: REC DISTRICT 2038 DELTA AQUADUCT LEVEE PL84-99 - PROJ 2010

PROJECT APPLICANT NAME: REC DISTRICT 2038			PHONE NUMBER: (209) 478-6525
PROJECT APPLICANT ADDRESS: PO BOX 1461	CITY: STOCKTON	STATE: CA	ZIP CODE: 95201

PROJECT APPLICANT *(Check appropriate box):*

☐ Local Public Agency ☐ School District ☑ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,792.25	$	$0.00
☐ Negative Declaration (ND)(MND)	$2,010.25	$	$0.00
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$	$0.00
☐ Projects Subject to Certified Regulatory Programs (CRP)	$949.50	$	$0.00
☑ County Administrative Fee	$50.00	$	$50.00
☐ Project that is exempt from fees			
☐ Notice of Exemption			
☐ DFG No Effect Determination (Form Attached)			
☐ Other _____		$	

PAYMENT METHOD:

☐ Cash ☐ Credit ☑ Check ☐ Other _____ TOTAL RECEIVED $ $50.00

SIGNATURE: X P Paulsen	TITLE: DEPUTY COUNTY CLERK

ORIGINAL - PROJECT APPLICANT COPY - DFG/ASB COPY - LEAD AGENCY COPY - COUNTY CLERK FG 753.5a (Rev. 10/09)

NOTICE OF EXEMPTION

(Public Resources Code Section 21152(b);
California Administrative Code, Title 14,
Chapter 3, Section 15062)

To: Recorder-County Clerk
County of San Joaquin
44 North San Joaquin, 2nd Floor
Stockton, CA 95202

From: Reclamation District No. 2038
P. O. Box 1461
Stockton, CA 95201

PROJECT TITLE: Reclamation District No. 2038 Delta Aqueduct Levee PL 84-99 Project - 2010

PROJECT LOCATION: Lower Jones Tract, San Joaquin County, California

DESCRIPTION OF PROJECT: The project consists of adding fill to the levee crown and landside slopes and construction of landside seepage and stability toe berms.

NAME OF PUBLIC AGENCY APPROVING PROJECT: Reclamation District No. 2038

NAME OF PERSON CARRYING OUT PROJECT: Reclamation District No. 2038

EXEMPT STATUS: Statutory and Categorical Exemptions
Class 1; California Administrative Code Regulations, 15261(a); 15301; and 15302.

REASONS WHY PROJECT IS EXEMPT: Maintenance of existing facilities. The project is (1) statutorily exempt because it is an ongoing project (Cal. Code Regs. 15261(a)); (2) categorically exempt because the work is repair of existing public facilities involving no expansion of use (Cal. Code Regs. 15301); and (3) categorically exempt because the work is reconstruction of existing facilities located on the same site and the facilities will have the same purposes and capacity (Cal. Code Regs. 15302).

CONTACT PERSON:

District: Dante John Nomellini, Secretary and Counsel
(209) 465-5883

Engineer: Dominic Gulli (209) 478-6525; or
Thomas J. Rosten (209) 836-0829

DANTE JOHN NOMELLINI, Secretary and Counsel
for Reclamation District No. 2038
Date: June 16, 2010

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME

2010 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT# 397182
STATE CLEARING HOUSE # *(If applicable)*

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: Reclamation district No 2024 — DATE: 12/16/10
COUNTY/STATE AGENCY OF FILING: CC County Clerk — DOCUMENT NUMBER: 2010-240
PROJECT TITLE: PL 84-99 project-2010
PROJECT APPLICANT NAME: Reclamation district No 2024 — PHONE NUMBER: 209 (478 6525
PROJECT APPLICANT ADDRESS: P.O. Box 1461 — CITY: Stockton — STATE: CA — ZIP CODE: 95201

PROJECT APPLICANT *(Check appropriate box):*
☑ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,792.25	$
☐ Mitigated/Negative Declaration (ND)(MND)	$2,010.25	$
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$
☐ Projects Subject to Certified Regulatory Programs (CRP)	$949.50	$
☑ County Administrative Fee	$50.00	$ 50.00
☑ Project that is exempt from fees		
☑ Notice of Exemption		
☐ DFG No Effect Determination (Form Attached)		
☐ Other _____		$

Rec # 201822

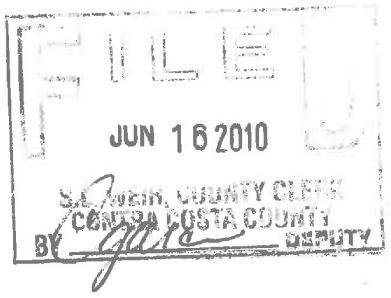
PAYMENT METHOD: # 10878
☐ Cash ☐ Credit ☑ Check ☐ Other _____ TOTAL RECEIVED $ 50.00

SIGNATURE: X [signature] — TITLE: DEPUTY COUNTY CLERK

WHITE - PROJECT APPLICANT | YELLOW - DFG/ASB | PINK - LEAD AGENCY | GOLDEN ROD - COUNTY CLERK | FG 753.5a (Rev. 11/09)

NOTICE OF EXEMPTION

(Public Resources Code Section 21152(b);
California Administrative Code, Title 14,
Chapter 3, Section 15062)



To: Recorder-County Clerk
County of Contra Costa
555 Escobar Street
Martinez, CA 94553

From: Reclamation District No. 2024
P. O. Box 1461
Stockton, CA 95201

PROJECT TITLE: Reclamation District No. 2024 Delta Aqueduct Levee PL 84-99 Project - 2010

PROJECT LOCATION: Orwood Tract and Palm Tract, Contra Costa County, California

DESCRIPTION OF PROJECT: The project consists of adding fill to the levee crown and landside slopes and construction of landside seepage and stability toe berms.

NAME OF PUBLIC AGENCY APPROVING PROJECT: Reclamation District No. 2024

NAME OF PERSON CARRYING OUT PROJECT: Reclamation District No. 2024

EXEMPT STATUS: Statutory and Categorical Exemptions
Class 1; California Administrative Code Regulations, 15261(a); 15301; and 15302.

REASONS WHY PROJECT IS EXEMPT: Maintenance of existing facilities. The project is (1) statutorily exempt because it is an ongoing project (Cal. Code Regs. 15261(a)); (2) categorically exempt because the work is repair of existing public facilities involving no expansion of use (Cal. Code Regs. 15301); and (3) categorically exempt because the work is reconstruction of existing facilities located on the same site and the facilities will have the same purposes and capacity (Cal. Code Regs. 15302).

CONTACT PERSON:

District: Dante John Nomellini, Secretary and Counsel
(209) 465-5883

Engineer: Dominic Gulli (209) 478-6525; or
Thomas J. Rosten (209) 836-0829

DANTE JOHN NOMELLINI, Secretary and Counsel
for Reclamation District No. 2024
Date: June 16, 2010

Project A: Upper Jones Tract, Reclamation District 2039

Background
- Upper Jones Tract comprises about 6,170 acres of land and about 4.83 miles of non-project levee along Middle River and about 4.3 miles of non-project levee along Trapper Slough which is connected to Middle River by an intake pipe and a screw operated gate.
- Upper Jones Tract provides habitat for many Delta wildlife species, including large numbers of migratory waterfowl of the Pacific Flyway.

Objective: Improve levee to HMP Standard

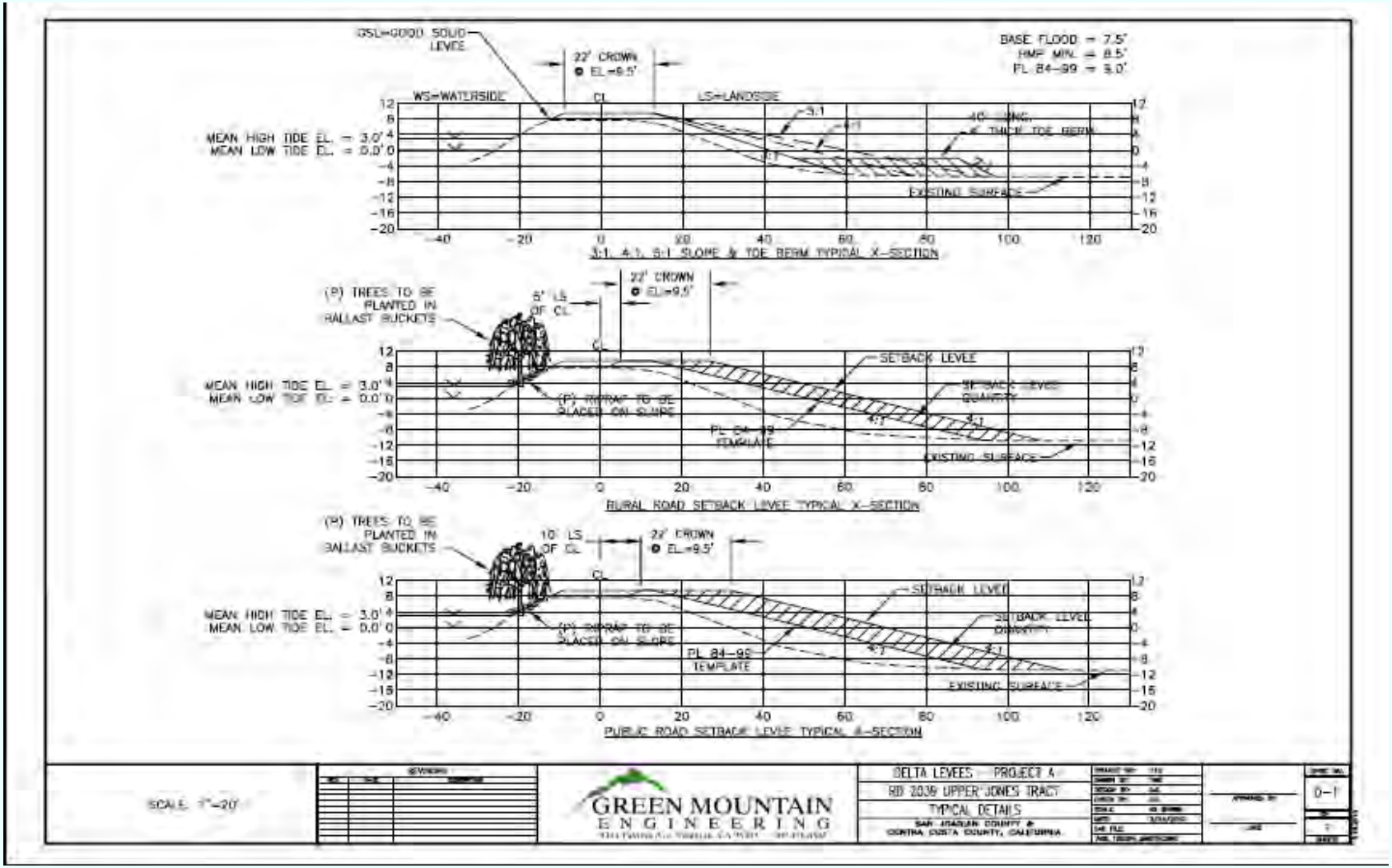
Project Description
- The project consists of raising the Trapper Slough levee to the HMP height and width.

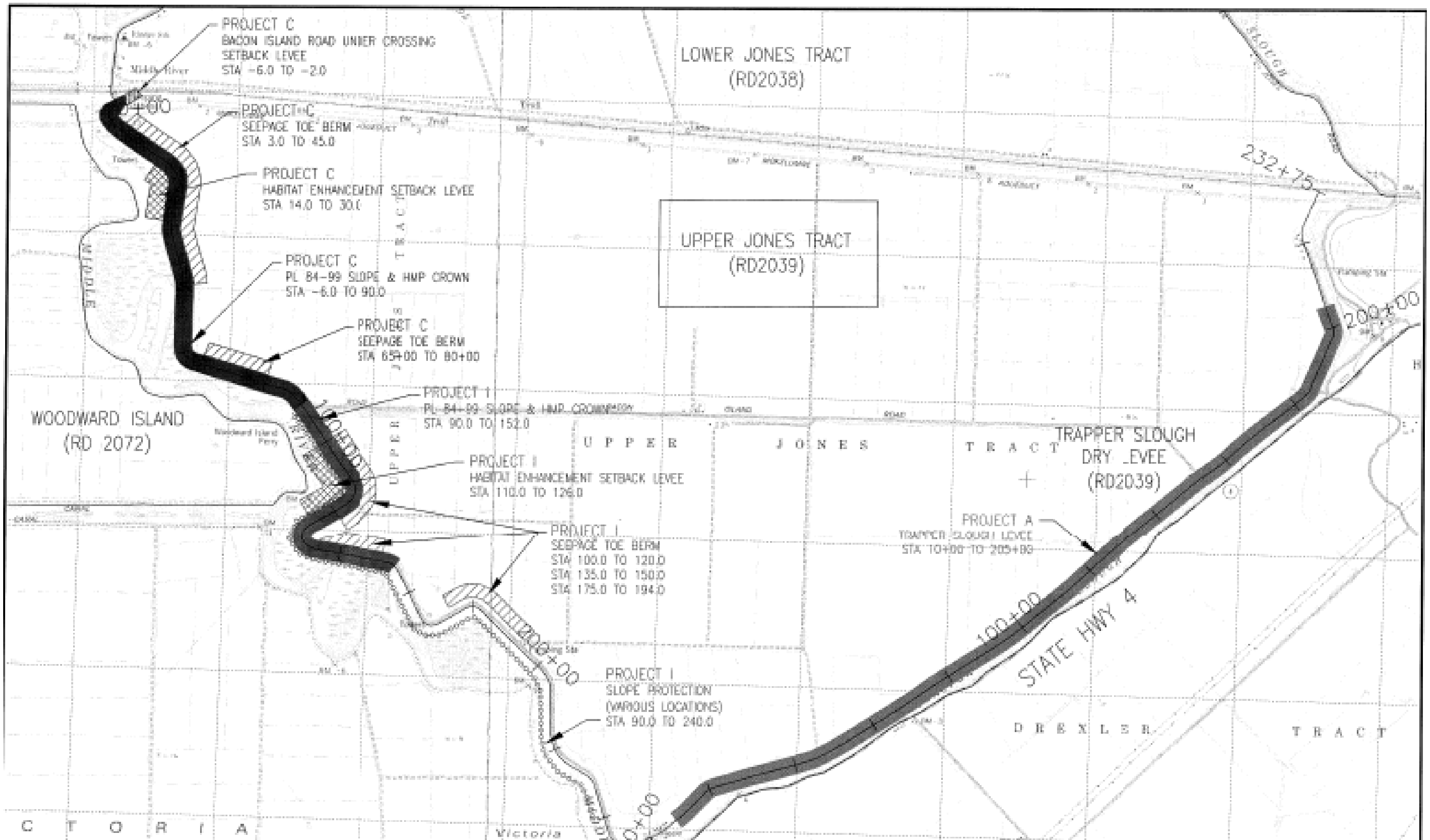
Raise Trapper Slough to HMP Standard
- Stations 10+00 to 205+00
- Length is 19,500 linear feet
- Total quantity of import fill is 90,000 tons
- Total quantity of Class 2 Aggregate Base is 17,478 tons
- Total quantity of Rip Rap slope protection is 300 tons

Assets Protected
- Protection of life and safety (between 50 to 500 people)
- Burlington Northern Santa Fe Railroad
- EBMUD's aqueducts
- Kinder Morgan fuel transmission pipeline
- Highway 4
- PG&E gas transmission pipeline
- PG&E substation
- Local power distribution poles and lines
- Cellular telephone transmission facilities
- Delta ecosystems
- Water quality in the Delta
- Export water deliveries

Total Project Cost: $1,843,444

Upper Jones Tract, Reclamation District 2039





SCALE: 1"=2000'

REVISIONS

GREEN MOUNTAIN ENGINEERING
1314 Paloma Ave Stockton, CA 95209 209.476.6525

DELTA LEVEES
RD 2039 UPPER JONES TRACT
PROJECTS A, C, & I
SAN JOAQUIN COUNTY & CONTRA COSTA COUNTY, CALIFORNIA

SHEET NO. 1 OF 1

Project B: Lower Roberts Island, Reclamation District 684

Background
- Lower Roberts Island comprises about 10,760 acres of land and about 14.57 miles of non project levee along Whiskey Slough, Turner Cut, San Joaquin River, Stockton Deep Water Channel and the Burns Cutoff.
- Lower Roberts Island provides habitat for many Delta wildlife species, including large numbers of migratory waterfowl of the Pacific Flyway.

Objective: Improve levee to PL84-99 Standard

Project Description
- The project consists of adding fill to the levee crown and landside slopes and construction of landside PL 84-99 seepage and stability toe berms to prevent or lessen seepage through and beneath the levee and provide additional stability.

Construct PL84-99 seepage/stability toe berms
- Stations 236+00 to 267+00
- Length is 3,100 linear feet
- Total quantity of import fill is 71,759 tons
- Total quantity of Class 2 Aggregate Base is 5,557 tons

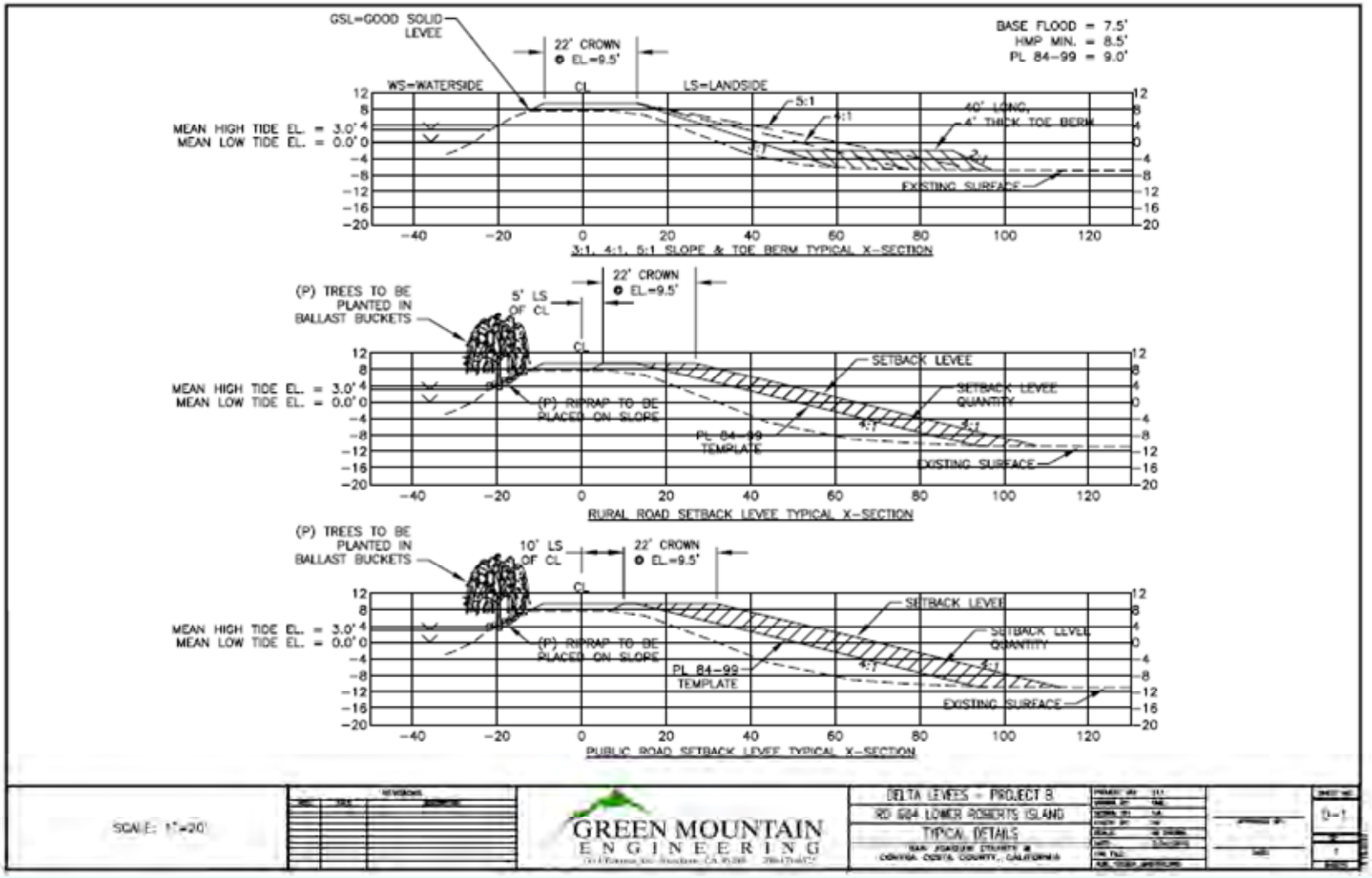
Construct PL84-99 slope and crown improvements
- Stations 44+00 to 58+00, 74+00 to 78+00, 106+00 to 124+00, 134+00 to 148+00, 170+00 to 182+00, 236+00 to 256+00, 328+00 to 342+00, 352+00 to 360+00, 364+00 to 376+00, 524+00 to 530+00, 656+00 to 662+00, 678+00 to 696+00, 726+00 to 740+00
- Length is 16,400 linear feet
- Total quantity of import fill is 117,599 tons
- Total quantity of Class 2 Aggregate Base is 13,363 tons
- Total quantity of Rip Rap for slope protection is 1,000 tons

Habitat Enhancement/Emergency Preparation
- Stations 230+00 to 258+00
- Length is 2,800 linear feet
- Construct Shaded Riverine Habitat to enhance the connectivity of the existing Tidal Freshwater Marsh along sections that the setback levee is constructed to provide valuable habitat and protection for Delta smelt and other aquatic species
- Total quantity of import fill is 66,979 tons
- Total quantity of Class 2 Aggregate Base is 2,510 tons

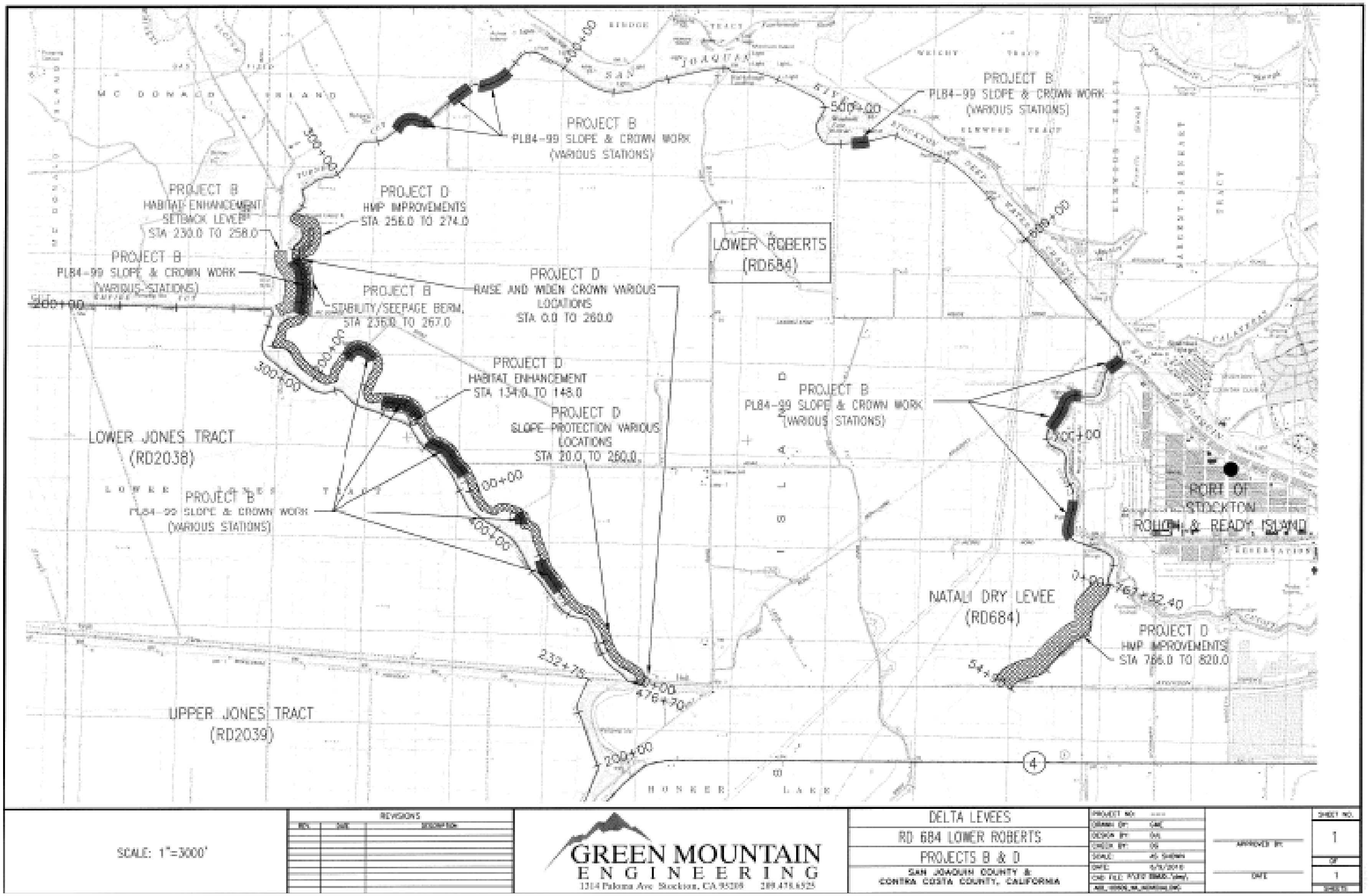
Assets Protected
- Protection of life and safety (between 50 to 500 people)
- Burlington Northern Santa Fe Railroad
- EBMUD's aqueducts
- Kinder Morgan fuel transmission pipeline
- Highway 4
- PG&E gas transmission pipeline
- Cellular telephone transmission facilities
- City of Stockton Sewer Treatment Plant
- Port of Stockton
- Delta ecosystems
- Water quality in the Delta
- Export water deliveries

Total Project Cost: $4,015,328

Lower Roberts Island, Reclamation District 684



Agenda Item 11
Attachment 12



Project C: Upper Jones Tract, Reclamation District 2039

Background
- Upper Jones Tract comprises about 6,170 acres of land and about 4.83 miles of non-project levee along Middle River.
- Upper Jones Tract provides habitat for many Delta wildlife species, including large numbers of migratory waterfowl of the Pacific Flyway.

Objective: Improve levee to PL84-99 Standard

Project Description
- The project consists of adding fill to the levee crown and landside slopes and construction of landside PL 84-99 seepage and stability toe berms to prevent or lessen seepage through and beneath the levee and provide additional stability.

Construct PL84-99 seepage/stability toe berms
- Stations 3+00 to 45+00 and stations 65+00 to 80+00
- Length is 5,700 linear feet
- Total quantity of import fill is 63,333 tons
- Total quantity of Class 2 Aggregate Base is 5,700 tons

Construct PL84-99 slope
- Stations -6+00 to 90+00
- Length is 9,600 linear feet
- Total quantity of import fill is 62,500 tons
- Total quantity of Class 2 Aggregate Base is 2,000 tons
- Total quantity of Rip Rap for slope protection is 3,000 tons

Habitat Enhancement/Emergency Preparation
- Stations 14+00 to 30+00
- Length is 1,600 linear feet
- Total quantity of import fill is 32,525 tons
- Construct Shaded Riverine Habitat to enhance the connectivity of the existing Tidal Freshwater Marsh along sections that the setback levee is constructed to provide valuable habitat and protection for Delta smelt and other aquatic species
- Total quantity of Class 2 Aggregate Base is 3,566 tons
- Total quantity of Rip Rap is 1,200 tons

Construct Bacon Island Road Undercrossing setback levee
- Stations -6+00 to -2+00
- Length is 400 linear feet
- Total quantity of import fill is 25,000 tons
- Total quantity of Class 2 Aggregate Base is 750 tons
- Total quantity of Rip Rap for slope protection is 1,250 tons

Assets Protected
- Protection of life and safety (between 50 to 500 people)
- Burlington Northern Santa Fe Railroad
- EBMUD's aqueducts
- Kinder Morgan fuel transmission pipeline
- Highway 4
- PG&E gas transmission pipeline
- Cellular telephone transmission facilities
- Access to Woodward Island