

SACRAMENTO VALLEY FLOOD MANAGEMENT
STRATEGY
DRAFT (10/31/05)

I. BACKGROUND

California is confronting the serious and complex challenge of reducing the risk of flooding and its associated liabilities during a period of rapid growth and development. This challenge is particularly pressing in the Sacramento Valley, where the State of California and local entities are confronting an unprecedented confluence of legal, historical, regulatory and fiscal conditions, including:

- The devastation of Hurricane Katrina along the Gulf Coast and in the protected floodplain occupied by the City of New Orleans, which has underscored the vulnerability of urban developments in protected floodplains;
- The recent appellate decision Paterno v. State of California, which has greatly expanded California's common law of inverse condemnation and held the state liable for damages resulting from the failure of a federal project levee in Yuba County;
- The challenge of the State and local levee maintaining agencies to address design deficiencies in the aging system of levees, weirs, bypass channels, and reservoirs that comprises the federal Sacramento River Flood Control Project (SRFCP);
- Increasing urbanization behind portions of the federal levee system that have not been systematically evaluated for their performance and reliability; and
- Ongoing regulatory and fiscal constraints on the ability of the State and its local governmental partners to operate and maintain the system.

In response to these circumstances, the Legislature is urgently considering the steps that should be taken to reduce the risk of flooding and limit the State's liability for flood damages. Toward this end, this paper suggests that it would be wise to focus on the Sacramento Valley where the flood risks are most acute and the opportunities for risk reduction are most robust. The paper presents an integrative approach to managing flood risk that recognizes the special demands imposed on the flood control system by urban development; emphasizes the need for both structural and non-structural improvements to the system; and incorporates smart growth principles into the risk management strategy. This approach could serve as a starting point for new legislation that could be a model for the steps that might ultimately be taken throughout the entire Central Valley.

II. LEGISLATIVE FRAMEWORK

A. **Identify the Elements of the State's Flood Risk Management Plan for the Sacramento Valley**

The legislation should direct DWR to explicitly identify the fundamental documents that explain the development of the SRFCP. These documents should be used to create a single comprehensive description of the plan that identifies the State's expectations for the SRFCP. These expectations should be framed in the following manner:

- The main purpose of the SRFCP is to reduce the risk of flooding on agricultural lands within the floodplains of the Sacramento River and its tributaries. Toward this end, SRFCP levees are designed to contain flows and water surface elevations roughly based on an evaluation of 1907 and 1909 floods. (referred to as the "1957 profile") with a relatively low risk of failure. The design is based on a minimum levee cross section and freeboard above the design flood water surface profile. Levees meeting this minimum standard provide adequate protection to support agricultural/rural land uses but retain a residual risk that is not compatible with urban development.
- Several SRFCP protected floodplains are experiencing substantial urban development. These floodplains should be specifically designated as urban development areas and should be required to meet an urban levee standard that exceeds both the minimum requirements of the National Flood Insurance Program and the minimum design criteria of the SRFCP.
- The residual risk of flooding in the urban and non-urban areas protected by SRFCP levees should be addressed by requiring the responsible cities and counties to develop and maintain effective emergency response programs and capabilities, and by requiring property owners in these areas to maintain flood insurance obtained through the National Flood Insurance Program. This insurance requirement should be considered a non-structural element of the State's plan.

Comment [JDC1]: This isn't quite right. These floods were used to determine the design flows that would occur once the levees were constructed. The loss of storage due to the levees was evaluated and proper adjustments to the flows were made.

B. **Identify the Urban and Non-Urban Levees Comprising the SRFCP**

Based on the above expectations, and as part of the description of the State plan, the legislation should direct DWR to identify the urban and non-urban levees comprising the SRFCP. The urban levees should be those that are protecting the portions of the Sacramento Valley that contain substantial urban developments such as: Sacramento, including Natomas; West Sacramento, including Southport; Woodland; Marysville, including

Reclamation District 784; and the cities of Yuba City and Live Oak in Sutter County. The SRFCP levees protecting the areas of the Sacramento Valley that do not contain such developments should be identified as non-urban levees.

C. Establish a Minimum Design Standard for the SRFCP's Non-Urban Levees

The legislation should direct DWR to develop an appropriate minimum design standard for the SRFCP's non-urban levees. This standard should be similar to the the existing SRFCP design standards but have additional underseepage criteria that is less stringent than the urban area requirement and would address the lateral erosion threat to the levees.

Comment [JDC2]: Why not specify that the existing design standard is adequate except for erosion and underseepage. Rural areas will not be required to meet the underseepage requirements. Lateral erosion will be addressed as part of a system wide evaluation by the state?

D. Develop a Capital Improvement and Maintenance Program to Address Design Deficiencies in the SRFCP's Non-Urban Levees, Including Systemic Erosion and Sedimentation

Based on the minimum design standard, the legislation should direct DWR to complete a comprehensive evaluation of the SRFCP's non-urban levees, identify any design deficiencies, and develop a capital improvement program to address these deficiencies, including systemic erosion and sedimentation. The legislation should anticipate that the actions needed to address systemic erosion and sedimentation will be carried out through a reauthorization of the Sacramento River Bank Protection Project and an expansion of the State's levee and channel maintenance program under Water Code Section 8361. The objectives of these programs should be to (1) ensure the reliability of the non-urban levees consistent with the design of the SRFCP and (2) enhance the fish and wildlife habitat value of the river and stream channels confined by these levees.

E. Ensure that Non-Urban Levees are Properly Maintained

The legislation should seek to improve the maintenance of the SRFCP's non-urban levees by:

- Expanding the State's maintenance responsibilities to include the levees of the Sutter Bypass and the Yolo Bypass.
- Directing DWR to establish clear guidelines for non-urban levee maintenance based on the adopted minimum design standard for the SRFCP's non-urban levees.
- Requiring local districts to prepare regular reports (every two years) to the Reclamation Board on the condition of their levees.
- Directing DWR to work with the appropriate State and federal regulatory agencies to establish a mitigation banking program for fish and wildlife habitat values that will streamline the permitting process for levee maintenance activities.

- Revamping the State's power to ensure compliance with the guidelines by providing financial assistance to cooperating local districts and streamlining the Reclamation Board's enforcement procedures.

F. Establish Design Standards for the SRFCP's Urban Levees and Guidelines for Urban Development of SRFCP Protected Floodplains

The legislation should seek to limit new sources of inverse condemnation liability by imposing stricter requirements on urban development in floodplains protected by the SRFCP based on designating these floodplains as hazard zones for such development. Urbanization would be allowed in these zones only if the responsible land use agency prepares a flood risk management plan that addresses the following issues.

1. Require the SRFCP's Urban Levees to Safely Contain the Flows and Water Surface Elevations Produced by an Urban Standard Flood (USF)

The legislation should direct DWR to develop guidelines for urban standard flood protection. Local land use agencies desiring to proceed with urban development in an SRFCP protected floodplain would be required to indicate, as part of their adopted risk management plan, how this new State standard will be achieved over time. Assuming the plan's engineering, environmental, and financial assumptions and expected completion dates are reasonable and feasible, local agencies would be permitted to proceed with development based on meeting FEMA's minimum 100-year standard.

2. Complete a Comprehensive Evaluation of the Levees Protecting the Urbanizing Areas

The local risk management plan should provide reasonably current data that is sufficient in scope to demonstrate that the levees protecting the urbanizing floodplain will meet FEMA's minimum 100-year standard before any new development proceeds. This data should be a product of a comprehensive evaluation of the affected levees that addresses all aspects of the FEMA standard, including the geotechnical guidelines of the Corps 2003 Levee Seepage Task Force. This evaluation should also serve as the basis for identifying the steps needed to achieve urban standard flood protection.

3. Ensure that SRFCP Levees Protecting Urban Development are Maintained in Accordance with Urban Standards

The legislation should direct DWR to clarify the guidelines applicable to maintenance of SRFCP levees protecting urban development. These guidelines should address all aspects of urban levee maintenance, including seepage evaluation and erosion control and should include provisions to

enhance fish and wildlife habitat values in the affected river and stream channels.

4. Ensure that Urban Development in SRCP protected floodplains does not Increase the Volume of Stormwater Discharged from the District When River Flows Equal or Exceed the Design of the SRFCP

Since urban development has the potential to alter the infiltration capacity of agricultural land and change the drainage patterns of the protected floodplain, the local risk management plan should also indicate how new development will be designed to ensure that there is no net increase in the volume of stormwater discharged from the floodplain when flows in the SRCP system equal or exceed the design of the system.

5. Require Local Agencies to Develop a Flood Emergency Response Plan, including Floodplain Evacuation

Most SRFCP protected floodplains are subject to deep flooding in the event of a levee failure. In order to prevent unnecessary injuries and loss of life in such an event, the local risk management plan should contain appropriate provisions addressing the location and design of critical health and public safety facilities, and plans for emergency response and floodplain evacuation.

G. Continue to Invest in the Capital Improvements Necessary to Reduce the Risk of Flooding in the Urban Areas Protected by the SRFCP

Since the flood of 1986, the State and federal governments have made substantial investments in improvements to the SRFCP that will reduce the risk of flooding in the urban areas protected by the SRFCP. This effort is being carried out in partnership with local agencies supporting development in these areas. The legislation should reaffirm the State's commitment to sponsor the SRFCP improvement projects that are needed to provide urban standard flood protection to the urbanizing areas of the Sacramento Valley.

H. Ensure that Property Owners in All Areas Protected by the SRFCP have Adequate Notice of the Risk of Flooding in their Area

The legislation should declare that the risk of flooding to structures located in SRFCP protected floodplains is a material fact to be disclosed in all real estate transactions involving property in these areas, whether urban or non-urban. In addition, the legislation should require local districts to provide all property owners in SRFCP protected floodplains with regular notice (at least annually) regarding the risk of flooding in their area as well as any progress which has been made in reducing that risk.

I. Require all Property Owners in Areas Protected by SRFCP Levees to Carry Flood Insurance

Flood insurance obtained through the federally backed NFIP is the most reasonable mechanism for equitably distributing the relatively low risk but potentially catastrophic consequences of flooding in the areas protected by the SRFCP. Accordingly, the legislation should require all property owners in SRFCP protected floodplains to maintain NFIP flood insurance policies covering the estimated replacement value of all structures and contents with a replacement value in excess of \$50,000. This flood insurance requirement should be viewed as a key non-structural element of the State's plan and the legislation should direct DWR to develop an appropriate plan for enforcing this requirement. This could be accomplished by:

- Including notice of this requirement in the annual notice of flood risk issued by local districts to property owner in SRFCP protected floodplains,
- Directing insurance companies to notify these property owners regarding the flood insurance requirement in connection with any other insurance transaction affecting the property, and
- Requiring banks and mortgage companies doing business in California to ensure that any mortgage issued on property in a SRFCP floodplain is backed by NFIP flood insurance.

Comment [JDC3]: How will farm structures be dealt with? Should this only apply to residences?

The premiums paid for such policies would vary depending on risk of damage, structure value, and degree of coverage. In order to reduce the cost burden on property owners in the non-urban areas, the legislation should provide a mechanism to offset a portion of the cost of the insurance based on an appropriate affordability index.

J. Update the National Flood Insurance Program (NFIP) Maps Covering the Floodplains Protected by the SRFCP

It is widely recognized that the NFIP flood insurance maps that currently govern development and flood insurance requirements in the floodplains protected by the SRFCP are outdated. The legislation should direct DWR to proceed expeditiously to update these maps based on the best available hydrologic, hydraulic, geotechnical, and maintenance information.

K. Adopt Legislation Clarifying the Criteria for Holding the Government Liable for Flood Damage Claims in Areas Protected by the SRFCP

Governmental liability for flood damages in areas protected by the SRFCP is based on common law principles of inverse condemnation. Under these principles, California courts have held government liable when a flood control project, as designed, constructed, operated, and maintained, exposes a landowner to an unreasonable risk of harm and thus compels the landowner

to contribute a disproportionate share of the cost of the project. In determining what constitutes an “unreasonable risk of harm” courts have cited an increasingly unwieldy list of criteria that tends to confuse rather than clarify governmental and landowner responsibilities. The legislation should address this confusion by establishing the following statutory grounds for holding government liable for flood damage claims in areas protected by the SRFCP:

- The damages resulted from a reasonably foreseeable structural or operational deficiency in the Project that the government had a reasonable opportunity to correct; and
- The government did not make a reasonable effort to ensure that the affected property owners were made aware of the risks associated with owning property in an SRFCP protected floodplain.

Upon meeting both of these conditions, citizens would have a right to claim damages for the full amount of any direct losses. If only the first condition is met, the claim would be limited to the amount of direct loss in excess of the minimum coverage for any structure required to be insured under the legislation. Meeting the second condition alone would not support a claim.

III. FINANCIAL CONSIDERATIONS

The actions called for in the proposed legislation would require a significant increase in funding for technical studies; improvements to SRFCP facilities; more extensive levee maintenance, inspection and oversight activities; emergency preparedness; flood insurance and easement acquisition. The necessary funding should come from traditional sources, including the State’s general fund, the Corps’ civil works program, local cost-sharing contributions, and available State bond proceeds, as well as new sources created through new partnership arrangements among the various beneficiaries of the SRFCP as outlined below.

A. Support from State Water Project and Central Valley Project Beneficiaries

The channel and bank improvements needed to maintain the stability of non-urban SRFCP levees could be funded in part by the beneficiaries of the State Water Project (SWP) and the Central Valley Project (CVP) to address the adverse impacts of these projects on the integrity of Delta and SRFCP levees. These projects have helped to create a new flow regime in the main stem rivers that produces consistently lower spring and higher summer flows geared to the demands of urban and agricultural water customers. This altered flow regime in turn supports a growing use of the rivers for recreation, including boating activities that contribute to the destabilization of SRFCP levees by generating persistent wake driven waves that act as a chronic source of bank and levee erosion. The effort needed to address this chronic erosion is thus attributable in part to the SWP and CVP. The

legislation should direct DWR to pull the parties together to develop recommendations as to how the beneficiaries of these projects could develop new and creative partnerships to contribute to this effort.

B. Support from Boaters Using the Waterways of the Delta and the SRFCP

The use of SRFCP waterways for boating and related recreation is a benefit provided in part by the operation of the SWP and CVP and the Delta and SRFCP levee systems. Because of the detrimental impact of boat wakes on these systems, it is reasonable to expect boaters to contribute to the cost of the channel and bank improvements needed to maintain these systems. Accordingly, the legislation should direct DWR to consider developing a program under which users of the waterways of the Delta and the SRFCP help address boating impacts.

C. Support from New Urban Development Placed in SRFCP Protected Floodplains

The urbanization of SRFCP protected floodplains is part of a larger pattern of growth in the Sacramento Valley that is exerting substantial pressure on the Valley's agricultural and environmental resources and flood management infrastructure. In response to this pressure, the legislation should direct DWR and affected urban agencies to work with land owners and the land use and environmental resource management agencies in the region to create mutually beneficial partnership arrangements.

For example, flood protection needs to be improved for both urban and non-urban areas, but the level of protection required for urban areas needs to be far greater than for non-urban areas. Urban areas could contribute to the economic viability of non-urban regions, with the regional benefits of preserving agriculture, open space and habitat. In addition, urban areas could help compensate non-urban areas for the higher risk of inundation during extreme events, which in turn would help reduce the risk of failure in urban areas.

Potential concepts for such regional partnership arrangements include an impact fee on all new development in the urbanizing basins to mitigate the loss of important farmland and its habitat value and to off-set the potential for increased flood damage resulting from the development. These objectives would be achieved by using the proceeds of the fee to support operation and maintenance of the SRFCP and to acquire easements from willing landowners in the non-urbanizing basins that would obligate these owners to preserve the agricultural use of their land, initiate appropriate habitat friendly land management practices, and grant the State the right to flood the land in the event of a failure of one or more of the SRFCP levees protecting the land.

D. Increased Support from Local Property Owners Benefiting from the Protection of SRFCP Levees

Property owners occupying the floodplains protected by SRFCP levees currently provide substantial financial support for SRFCP maintenance and improvement activities that is raised through assessments on their property. The passage of Proposition 218 has made it difficult for responsible local flood control agencies to increase these assessments to meet the growing demands of the flood control system. Accordingly, the Legislature should consider amending the State Constitution through a ballot measure that would modify the list of fees and charges that are exempt from the current voting requirements of Proposition 218 to include local assessments used for storm drainage and SRFCP levee maintenance and improvement activities. If approved by the people, this amendment would substantially increase the authority of local districts to address their SRFCP levee maintenance and improvement needs and reduce the financial burden that these needs would otherwise impose on the State's general fund.