CHAPTER III – RECOMMENDATIONS

Recommendations

Recommendations for Better Understanding of and Reducing Risks from Reasonably Foreseeable Flooding

Most residents generally expect that the government will protect their communities from reasonably foreseeable flood events. Reasonably foreseeable floods are floods that are realistically probable for a particular area; often, they may exceed a predicted 100-year flood. The determination of a reasonably foreseeable flood can vary depending on its use and application for any given area. The communities of Sacramento, West Sacramento, Yuba City, Marysville, Los Angeles, and Orange County are all working toward protection against floods that exceed the often discussed 100-year flood.

To provide protection from reasonably foreseeable floods, communities need information to predict those flood flows. Sources of relevant information may include historic flood and damage data, paleo-flood data, and the results of hydrologic, hydraulic, and meteorological models, including hydrologic modeling using transposition. Communities may find this information valuable in making land-use and flood management decisions. Once they identify reasonably foreseeable flood flows, they can consider a variety of flood management tools for protecting their residents. This will enable them to meet community priorities for flood protection, economic development, housing, agricultural conservation, ecosystem protection and restoration, open space, and recreation.

Summary of the Recommendations

Local, State and federal agencies should consider the risk to life and property from reasonably foreseeable floods when making their land use and floodplain management decisions. To accomplish this objective, decision makers need better information and improved tools. In addition, better tools are needed to comply with the federal National Flood Insurance Program.

Recommendations

1. Awareness Floodplain Mapping

Problem: In the coming decades, it is projected that millions of additional Californians will be living in flood-prone areas. Many communities do not have current information to use in identifying and characterizing areas subject to inundation by reasonably foreseeable floods. DWR has a small Awareness Floodplain Mapping Program, but its funding is expiring. Awareness floodplain mapping is a cost-effective solution to mapping areas that otherwise would not be mapped through the FEMA mapping program.

Recommendation: The State should continue DWR's current non-regulatory Awareness Floodplain Mapping Program to analyze all flood-prone developing areas in California, for optimal use by local government. DWR should expand its Awareness Floodplain Mapping Program to provide information on areas that are subject to inundation by reasonably foreseeable floods, for use by local communities. DWR should provide awareness floodplain maps and other flood hazard information for use by local governments and the public.

2. Future Build-Out Mapping

Problem: Future build-out is not always included on maps used to identify flood-prone areas. As future development occurs, runoff from that development can increase flows in flood-prone areas downstream. This is one of the reasons why levels of protection decrease; one year an area may have 100-year flood protection, and the next year the same area may have less than 100-year flood protection.

Recommendation: Local and State agencies preparing floodplain maps should incorporate consideration of current and future planned development, pursuant to the local General Plan. If new or additional floodwater management measures are implemented in the future, their impacts also should be reflected in updated floodplain maps.

3. WATERSHED-BASED MAPPING

Problem: Many floodplain maps are prepared based on political boundaries (e.g., city, county, or agency), not on watershed boundaries. Different jurisdictions frequently use different floodplain mapping data and methods. These different standards lead to inconsistencies in floodplain mapping and limit the ability to do comprehensive floodplain management.

Recommendation: Wherever practical and appropriate, floodplain maps should be prepared on a watershed basis.

4. GEOGRAPHICAL INFORMATION SYSTEM-BASED FLOOD MAPS

Problem: Insufficient, inadequate, and incompatible Geographical Information System (GIS) data make the integration of floodplain information more difficult for local jurisdictions engaged in comprehensive planning.

Recommendation: Local, State, and federal agencies should create, develop, produce, and disseminate compatible GIS-based flood maps.

5. ALLUVIAL FAN FLOODPLAINS

Problem: Unlike flows in riverine or coastal floodplains, flows in alluvial fan floodplains are unpredictable, making it more difficult to delineate flood hazard areas. In addition to water, flows in alluvial fan floods often contain mud, rocks, and boulders and cause scour. All of these conditions can be devastating in urban areas. Many of the alluvial fan floodplains in Southern California have experienced development and are projected for additional development.

The Task Force was able to develop several recommendations for alluvial fan flooding issues. As one of the following recommendations indicates, additional work is needed to more fully define the issues.

5.1 Recommendation: Priority for alluvial fan floodplain mapping should be given to those alluvial fan floodplains being considered for development.

5.2 Recommendation: Entities involved in land-use planning for alluvial fans, distinct from FEMA mapping, should address the following:

- Alluvial fan flood flows are generally unpredictable, and a site analysis should be performed to determine all reasonably foreseeable flood apex flow paths.
- Flood flow depths and velocities should be determined for these flow paths.
- Any debris and scour associated with reasonably foreseeable apex flood flow should be determined.
- Land-use agencies should be encouraged to ensure that new development will not be damaged by the special risks associated with alluvial floods. These risks include velocities, debris, and scour associated with reasonably foreseeable floods.

5.3 Recommendation: The State should convene a task force specifically for alluvial fans, with stakeholder participation, to review the state of knowledge regarding alluvial fan floodplains, to determine future research needs, and, if appropriate, to develop recommendations specific to alluvial fan floodplain management.

5.4 Recommendation: In making land-use decisions, local governments should have knowledge of the characteristics of alluvial fan floodplains.

5.5 Recommendation: As with other types of floodplains, local agencies should assess the risks of the reasonably foreseeable flood instead of relying solely on the 100-year flood.

5.6 Recommendation: Residents in alluvial fan floodplains should be informed of any increased risks that might result from changed conditions, including fire, seismic activity, or other physical changes, that could affect the risk of alluvial fan flooding.

5.7 Recommendation: Structural and/or non-structural measures should be explored to provide sufficient flow-through areas on alluvial fans.

6. STREAM GAGING AND MONITORING

Problem: Federal and State budget cuts have reduced the number of stream gages in California. This reduction means that historical flow data are not maintained and updated. Therefore, estimates of flow for mapping purposes are less extensive, especially given the potential for climate changes. In addition, real time information needed for flood fighting is less available.

Recommendation: DWR and other agencies should sponsor projects in cooperation with the United States Geological Survey (USGS) to install and maintain additional gages and, where appropriate, include real-time technology in priority locations throughout California.

7. REPETITIVE LOSSES

Problem: Some homes, businesses, and public infrastructure located in floodplains are flooded repeatedly. Repetitive loss causes major economic and social disruptions. Owners may be willing to have their residential structures and businesses floodproofed or relocated; when damages are substantial, NFIP communities must require either floodproofing or relocation. However, local agencies may not be aware of voluntary programs that are offered to their residential property owners, businesses, and public agencies by FEMA to assist in reducing repetitive flood losses. FEMA sponsors these programs through DWR and the Governor's Office of Emergency Services (OES). Other agencies may also have resources to reduce repetitive losses.

Recommendation: Local agencies should work with the OES and/or DWR to identify whether they have any residential properties or businesses that flood repeatedly. If so, they should work with OES and/or DWR and other agencies to make voluntary programs available for residences, businesses, and public infrastructure and to encourage owners to take advantage of these programs to reduce repetitive losses.

8. FLOOD WARNING AND LOCAL COMMUNITY FLOOD RESPONSE PROGRAMS

Problem: Flood warning programs, including real-time flood risk information, are not available for all areas. The absence of reliable flood warning programs can delay evacuation and flood fighting and lead to loss of life and property.

Recommendation: The State should increase assistance to local agencies to improve flood-warning programs. Those programs should promote and develop effective systems specific to each watershed and based on improved instrumentation, communication systems, and advanced remote sensing technology.

Flood-prone communities should (1) develop and publish potential evacuation routes for the whole community, specifically including those areas developed with flood protection levees, (2) provide real-time multi-lingual information

on flood risk to its population to minimize loss of life and property, (3) conduct periodic flood simulation exercises, and (4) include community input and involvement.

9. FLOOD INSURANCE RATE MAP (FIRM) ISSUES

Problems: Local communities misunderstand the purpose of FIRMs. Although FIRMs do not necessarily represent the full extent of a community's flood-prone area, they are required for participation in the NFIP and often form the exclusive basis of a community's flood management efforts. Many flood-prone areas have not been mapped. Where maps do exist, most are more than a decade old and do not account for future or current build-out.

9.1 Recommendation: Decision makers should use FIRMs conservatively, as a decision tool starting point, if they provide the best information available. However, decision makers should gather information and data beyond FIRMs, including historical flood damage records, to better predict and plan for reasonably foreseeable floods.

9.2 Recommendation: DWR should continue to participate collaboratively with local communities in FEMA's Mapping Needs Update Support System (MNUSS) program, which provides a priority-setting tool.

9.3 Recommendation: The State should affirm its support for FEMA's Map Modernization Program and update existing flood maps, pursuant to MNUSS priorities, as soon as possible.

9.4 Recommendation: Local agencies should request that FIRM maps from FEMA include build-out as well as current development. If new or additional floodwater management measures are implemented in the future, their impacts should be reflected in updated floodplain maps. If new or additional floodwater management projects alter the size of a floodplain, cities and counties should evaluate their objectives for areas removed from or added to that floodplain.

10. EXCEEDING NFIP MINIMUM FLOODPLAIN MANAGEMENT REQUIREMENTS

Problem: Currently, some communities allow the lowest floor of new buildings to be constructed at or above the base flood elevation, as shown on FEMA FIRMs. The mapping technology and methods used to map and define floodplains produce estimates that necessarily involve uncertainty about the precise size and depth of the 100-year floodplain. In addition, anticipated and unanticipated changes in the watershed, including new flow data, can change the level of flooding of the 100-year flood from that shown on issued FIRMs. Also, the impacts of global climate change may increase uncertainties related to the magnitude of both the base flood and reasonably foreseeable floods. Finally, since FEMA allows encroachment in its regulated floodway fringe, the predetermined base flood elevation is permitted to rise. Therefore, a building built to minimum standards in FEMA's floodway fringe could be subject to damage from the 100-year flood as encroachment occurs.

Recommendation: Local communities should be encouraged to require new and substantially improved buildings to have their lowest floor elevations to be at least one foot above the NFIP's base flood elevation, factoring in the effect of full build out of the watershed. The effects of new or additional flood management measures should be reflected in an updated base flood elevation.

11. EXECUTIVE ORDER

Problem: Many State agencies do not adequately consider the use of current floodplain management knowledge and practices in their decision-making processes. The Governor's 1977 Executive Order for Floodplain Management, B-39-77, has not been updated to reflect more current

floodplain management knowledge and practices or changes in federal law. As a result, State agencies may contribute to further loss or degradation of floodplain resources and increased flood risks to State facilities.

FEMA has notified the State that its existing Executive Order for floodplain management issued in 1977 does not effectively bring the State and its political subdivisions into compliance with the NFIP. According to FEMA, continued noncompliance could endanger the State's ability to obtain federal financing from FEMA and other federal sources for State building construction and improvement projects located in floodplains and for disaster recovery.

Recommendation: The Governor should update the 1977 Floodplain Management Executive Order to meet or, where appropriate as allowed by existing law, to exceed current minimum floodplain management criteria. See Appendix C for proposed revisions to the Executive Order language.

For State agencies directly under the jurisdiction of the Executive Branch, the proposed Executive Order should include the following, to the extent allowed by State law:

- For State development in the floodplain, compliance with current minimum NFIP regulations, as stated in Title 44 of the Code of Federal Regulations or succeeding regulations, should be explicitly required.
- For State development in the floodplain State agencies should be encouraged to exceed minimum NFIP regulations, where appropriate.
- State agencies developing or assisting with the development of critical infrastructure should avoid approving such development within a floodplain unless it is clearly demonstrated that this siting is necessary to achieve the purposes of the critical infrastructure, and that the infrastructure will be operable and not create a hazard to public safety during a major flood event.
- State agencies should be directed to consider alternatives that avoid or minimize adverse effects and incompatible development in the floodplain, consistent with their legal authority.
- Consistent with its legal authority, if a State agency has determined to, or proposes to, conduct, support, or allow development, as defined by the State's Executive Order, Note 4, to be located in the floodplain and which is not subject to local floodplain management requirements, the State agency should be encouraged to consider alternatives that avoid or minimize adverse effects and incompatible development in the floodplain.
- Each State agency should be directed to prepare a written statement on how it will comply with the updated Executive Order, subject to review by DWR or OES, as appropriate.

State agencies and State constitutional entities not subject to the authority of the Executive Branch should be:

- Encouraged to comply with the new Executive Order and the provisions of the NFIP, consistent with their legal authority;
- Requested to develop their own Floodplain Management Procedures, consistent with the Executive Order; and
- Encouraged to consider alternatives that avoid or minimize adverse effects and incompatible development in the floodplain, consistent with their legal authority.

12. STATE MULTI- HAZARD MITIGATION PLAN

Problem: The Federal Disaster Mitigation Act of 2000 (DMA) requires California to prepare a Multi-Hazard Mitigation Plan by 2004 to continue to be eligible for federal disaster assistance funding.

Recommendation: DWR should partner with OES and other agencies to incorporate into the State Multi-Hazard Mitigation Plan floodplain management measures that will, at a minimum, meet FEMA's requirements.

13. MULTI-HAZARD MAPPING

Problem: The State does not have a specific permanent program for multiple-hazard (e.g., flood, fire, seismic, etc.) mapping. Therefore, decision makers and the public may not be fully aware of all of the threats to life and property from multiple hazards or of hazard mitigation needs in California.

Recommendation: OES should coordinate with other hazard mapping efforts and create a permanent program with the specific purpose of developing and distributing GIS-based multi-hazard advisory maps for use by local governments and the public.

14. STATE BUILDING CODES

Problem: Local community building departments authorized to issue building permits are governed by the California Building Standards law and other statutes, which regulate what code requirements apply to what types of buildings. The California Building Standards Code consists of several parts, some of which may apply statewide and some of which may apply to certain types of uses. In addition, local governments may adopt codes if State requirements do not apply and may modify certain State codes for limited reasons. NFIP requirements are not always adequately considered in the enactment and implementation of the codes.

Recommendation: Ensure that the California Building Standards Code meets, at a minimum, NFIP requirements. Ensure that other State codes applicable to public buildings meet, at a minimum, NFIP requirements. Ensure that any local code adoptions or amendments and any development approvals meet, at a minimum, NFIP requirements.

RECOMMENDATIONS FOR MULTI-OBJECTIVE-MANAGEMENT APPROACH FOR FLOODPLAINS

In the past, many projects within floodplains were developed and implemented to carry out single-purpose objectives, without considering the importance of flooding in maintaining a healthy environment. Conversely, some ecosystem restoration projects have been implemented without sufficient consideration of long-term floodway maintenance requirements. In addition to achieving single purpose objectives rather than multiple objectives, these approaches may have adversely impacted other beneficial uses of the floodplains.

Floodplain ecosystems provide essential habitat for multiple species of plants and wildlife. About 55 percent of the animals and 25 percent of the plants designated by the State as threatened or endangered depend on wetland habitats. In the U.S., California ranks second in the number of endangered aquatic species (Pacific Marine Fisheries Council, 2000). California is the winter home of more than 60 percent of the migratory waterfowl in the Pacific Flyway. Over the years, approximately 95 percent of this wetland and riparian habitat, which serves wintering ducks, geese, swans, and millions of other birds that use the Pacific Flyway, has been lost (Wildlife Conservation Board, 2002).

In addition to the importance of floodplain habitats for native plants and wildlife, the associated freshwater ecosystems are essential for providing goods and services valued by society. These goods and services include soil replenishment, water quality, timber production, fishing, and cultural, recreational, and scenic benefits.

Agriculture provides a safe, healthy, reliable food supply, valuable wildlife habitat and open space, groundwater replenishment, cultural, recreational, and scenic benefits, all of which serve the objectives of the multi-objective management approach for floodplains. California has been the largest agriculture producing state in the U.S. since 1948; current gross production is $27 billion. Much of California's richest farmland is found in its floodplains. For example, according to the California Farm Bureau Federation, approximately 60 percent of farmland in the San Joaquin Valley is in the floodplains.

At the same time, California is challenged with ways to accommodate a rapidly increasing population. The State Department of Finance estimates that California's population will grow by at least 14 million in the next 25 years. All of these people will need homes, jobs, services, public facilities, and other types of development.

While single-purpose flood management projects were common in the past, they no longer are considered the preferable approach to floodplain management. Increasingly, floodplains are seen as valuable resources for our society. In addition, greater incentives are being provided for multi-objective-management (M-O-M) projects. AB 1147 of 2000 (Proposition 13) provided significant financial incentives for multi-purpose flood protection projects that also address ecosystem and recreational needs. The Safe Drinking Water, Watershed Protection, and Flood Protection Act of 2000 contains grant-funding for projects that combine flood protection with agricultural conservation and ecosystem restoration. The Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Proposition 50) contains additional incentives for watershed-based management approaches.

More local agencies are beginning to pursue multiple objective floodwater management programs. The Sacramento Area Flood Control Agency and the Santa Clara Valley Water District have found that including ecosystem restoration and recreation elements results in broader support for flood management projects. Stakeholders in the Santa Ana River watershed in San Bernardino, Riverside, and Orange Counties are achieving agricultural, groundwater recharge, ecosystem, and flood protection benefits with their M-O-M programs. Stakeholders along the Tuolumne River, a tributary to the San Joaquin River, are receiving grant funding for projects that combine flood protection with ecosystem restoration. In the Cosumnes River watershed, healthy agriculture is a major part of flood protection and ecosystem restoration. Similar successes are found throughout California.

Summary of Recommendations

Local, State, and federal agencies should implement multi-objective management for floodplains on a watershed basis. Where feasible, projects should provide adequate protection for natural, recreational, residential, business, economic, agricultural, and cultural resources and protect water quality and supply.

RECOMMENDATIONS

15. MULTI-OBJECTIVE MANAGEMENT

Problem: Many flood management programs and projects do not follow a M-O-M approach. Traditionally, programs and projects have emphasized

flood damage reduction, with little or no consideration of the potential benefits of floodplains.

Recommendation: Promote a M-O-M approach to flood management projects. State and local agencies should approach flood management as part of multi-objective watershed management. Where feasible, these projects should provide adequate protection for natural, recreational, residential, business, economic, agricultural, and cultural resources and protect water quality and supply.

16. FLOOD MANAGEMENT APPROACHES FOR ECOSYSTEM RESTORATION AND AGRICULTURAL CONSERVATION

Problem: Historically, flood management projects generally have not given adequate consideration to the restoration and protection of natural floodplains or the conservation of agriculture. Creative approaches that provide for these objectives exist and need to be used, where feasible, when designing or improving flood management projects.

Recommendation: While providing for public safety and flood damage reduction, flood management programs and projects should maximize opportunities for agricultural conservation and ecosystem protection and restoration, where feasible. When land is being considered for use in a flood management project or program, the following should be addressed equitably:

- Conserve productive agricultural land and natural habitat;
- Promote the recovery and stability of agriculture;
- Promote the recovery and stability of native species populations, and overall biotic community diversity;
- Provide for natural, dynamic hydrologic, and geomorphic processes;
- Increase and improve the quantity, diversity, and connectivity of native habitat;
- Eliminate or mitigate negative redirected impacts to neighboring landowners; and
- Evaluate and address economic impacts to local communities and regions.

17. NONSTRUCTURAL APPROACHES, RESTORATION, AND CONSERVATION OF AGRICULTURE AND NATURAL LANDS

Problem: Traditional structural approaches to floodwater management have provided significant protection from flooding. However, there can be disadvantages to using structural approaches, including:

- Increased risk of catastrophic flooding if structures fail or exceed capacity;
- Damage to natural resources and natural floodplain function; and
- Increased economic damages if catastrophic flooding occurs.

Nonstructural approaches to floodwater and floodplain management, such as the conservation of agriculture and natural lands in floodplains, can complement or substitute for structural approaches, where appropriate.

Recommendation: In planning new or upgraded floodwater management programs and projects, including structural projects, local and State agencies should, where appropriate, encourage nonstructural approaches and the conservation of the beneficial uses and functions of floodplains. It is recognized that some structural approaches provide needed flood protection and opportunities for agricultural conservation and ecosystem protection and restoration.

18. TOOLS FOR PROTECTION OF FLOOD-COMPATIBLE LAND USES

Problem: Protection and promotion of flood-compatible land uses, such as agriculture, recreation, and native habitat, require a variety of incentive-based tools for private landowners and local governments. Different areas require various degrees and types of protection, and landowners have different needs and preferences for their property; the current array of tools fail to accommodate these differences. Support for these tools is necessary at the State level.

Recommendation: The State should identify, develop, and support a variety of tools for the protection of flood-compatible land uses. These tools should be developed in consultation with, and be made available to, private landowners, local governments, and non-governmental organizations. Examples of such tools can include:

- Easement/fee acquisition programs
- Management payments
- Land exchanges/bank
- Incentives for placing new development outside of the floodplain
- Safe harbor policy
- Adjacent landowner protections
- Stewardship incentive payments
- Voluntary agriculture wildlife habitats
- Habitat conservation plans
- Natural community conservation programs
- Special area management plans

19. PROTECTION OF FLOODPLAIN GROUNDWATER RECHARGE AREAS

Problem: Most floodplains, including alluvial fans, provide valuable groundwater recharge. Paving over such recharge areas reduces the groundwater recharge capacity, thus potentially affecting some surface flows and the groundwater supply. Some permitting agencies are making land-use decisions without full knowledge of the impacts on natural groundwater recharge.

Recommendation: Permitting agencies should consider the impacts of land-use decisions on the capacity of the floodplain to recharge groundwater.

20. VECTOR CONTROL

Problem: Ecosystem restoration projects within the floodplain have the potential to raise public health issues, particularly in regard to mosquito-transmitted diseases. In response to this potential risk, local communities may identify a need to increase their vector control efforts, which can impose a financial burden.

Recommendation: Planning and development of ecosystem restoration projects should consider costs and impacts with respect to vector control and monitoring related to mosquito-transmitted diseases.

21. MULTI-JURISDICTIONAL PARTNERSHIPS

Problem: Flood management projects often are approached on a jurisdictional basis, without consideration of the impacts to other communities in the watershed.

Recommendation: The State should encourage multi-jurisdictional partnerships when floodplain management projects are planned and implemented. Jurisdiction-based projects provide localized solutions, when a greater benefit might be achieved if the project adopted a watershed-wide approach. Communities and jurisdictions should work together to develop, implement, and monitor watershed-wide floodplain management programs.

22. WATERSHED MONITORING

Problem: Historically, floodwater management projects have been planned at a local level to solve localized problems; thus, projects do not always address regional problems. After projects are completed, the performance of each project is monitored only at the local level, at best; monitoring on a comprehensive basis is not done.

Recommendation: The State and others should financially support comprehensive monitoring of flood management projects, including impacts on natural resources and other intended multiple objectives, on a watershed level or other appropriate scale.

23. PROACTIVE AND ADAPTIVE MANAGEMENT OF FLOODPLAINS

Problem: All benefits of a floodplain are not realized if changing economic, hydraulic, environmental, and biological conditions are overlooked.

Recommendation: State and local agencies should manage floodplains proactively and adaptively by periodically adjusting to current environmental, economic, hydraulic, and biological conditions and in response to new scientific information and knowledge. If new or additional flood management projects alter the size of a floodplain, cities and counties should evaluate all of their objectives for the area removed from or added to that floodplain.

24. BEST MANAGEMENT PRACTICES

Problem: Although many agencies and organizations are carrying out effective floodplain management practices, mechanisms for identifying and disseminating best management practices (BMPs) to others are limited. That means that individual agencies and organizations are frequently left to "reinvent the wheel" rather than being able to benefit from the knowledge and experience of others. Examples of successful State and local jurisdiction floodplain management policies and programs are not commonly shared. These success stories are not readily available or used to the maximum extent possible for public benefits.

24.1 Recommendation: DWR should work with stakeholders to develop a process for identifying, monitoring, and updating voluntary BMPs for multi-objective floodplain management. This could be similar to the successful California Urban Water Conservation Council model that has been used for over a decade to identify BMPs for urban water conservation. Over 200 organizations voluntarily come together in the Council to share what they have learned.

24.2 Recommendation: Encourage floodplain proponents and professionals, such as the Floodplain Management Association, the National Association of Flood and Stormwater Management Agencies, and the Association of State Floodplain Managers, to identify and share successful State and local programs and policies.

24.3 Recommendation: DWR should review State and local floodplain management policies, projects, and programs, identify successes that have been achieved, and share those examples with other State and local entities and floodplain managers.

25. MULTI-OBJECTIVE FLOODPLAIN MANAGEMENT TRAINING, EDUCATION, AND PROFESSIONAL CERTIFICATION

Problem: Floodplain management calls for multi-disciplinary knowledge including hydrology, flood hazard reduction, ecosystem restoration, and other topics. Generally, colleges and universities do not offer floodplain management courses as part of their curricula. There are few certified State floodplain management professionals in California.

25.1 Recommendation: The State should encourage the inclusion of multi-objective floodplain management curricula in urban planning, civil engineering, hydrology, and other degree programs at colleges and universities.

25.2 Recommendation: The State should encourage the training, education, and professional certification of floodplain management professionals to provide local decision makers with the best professional support.

25.3 Recommendation: DWR, in coordination with the Association of State Floodplain Managers, the Floodplain Management Association, and other professional organizations, should provide training, education, and certifications of floodplain management professionals to ensure they have the multi-objective floodplain knowledge and tools necessary to perform their jobs efficiently and effectively.

25.4 Recommendation: The State should develop custom-designed short courses and offer them to local officials and leaders, such as Boards of Supervisors, planning commissioners, and other decision makers, to increase floodplain management awareness of issues and techniques.

25.5 Recommendation: The State should offer programs that include training specific to all types of floodplains, (alluvial, riverine, and coastal) and recognize the expertise of existing practitioners through certification.

26. COORDINATION AMONG AGENCIES AND GROUPS

Problem: Inadequate coordination among local, State, and federal agencies and non-governmental organizations regarding flood management policies, programs, and practices often limits the effectiveness of comprehensive flood management.

Recommendation: The State should encourage and create incentives for additional coordination among all stakeholders. Roles, responsibilities, and conflicts of local, State, federal, and non-governmental agencies should be identified and addressed.

27. STATE GENERAL PLAN GUIDELINES

Problem: The State's General Plan Guidelines are used by local land-use jurisdictions to update the State-required local General Plan. The Governor's Office of Planning and Research (OPR) is currently updating the 1998 General Plan Guidelines for completion in 2003 and is requesting comments by December 16, 2002. The Task Force should comment on the 2002 draft guidelines to assure incorporation of the latest issues on flood management.

Recommendation: DWR should provide the Task Force's recommended changes to the 2002 draft Guidelines for consideration by OPR during the public review period. The Task Force should support the incorporation of flood management in the State's 2002 draft General Plan Guidelines as indicated in Appendix B of this report. The recommended changes proposed in Appendix B address the following concepts:

- Integrate flood management advice into the Flood Management Section of the Safety Element;
- Link flood management advice with other General Plan elements;
- Expand the discussion of floodplain functions;
- Address flood management on a watershed basis with system-wide approaches;
- Update information regarding data sources;
- Update the discussion of the federal flood insurance program and its regulations;

- Incorporate a discussion of the requirements of the federal Disaster Mitigation Act of 2000, including requirements for a Multi-Hazard Mitigation Plan for future disaster relief funds;
- Expand the discussion of flood management to encourage multi-objective management and consideration of various local environmental, social, and fiscal issues;
- Expand the Safety Element Relevant Issues Section to include reasonably foreseeable flood areas, repetitive losses, and flood management mitigation measures;
- Expand the Safety Element's Ideas for Development Policies to include multi-jurisdictional planning for flood management and multi-hazard mitigation measures, including references to FEMA regulations pursuant to the federal Disaster Mitigation Act of 2000;
- Expand the Safety Element's Ideas for Implementation by including multi-hazard mitigation planning approaches and provide a discussion of alluvial fan flood management issues, if applicable; and
- Expand NFIP map discussion to indicate disadvantages of depending solely on FEMA Flood Insurance Rate Maps. Also provide appropriate references to FEMA and Task Force definitions for various issues related to flood management.

Recommendations for Local Assistance, Funding, and Legislation

Additional local technical assistance, funding, and legislation will be required for many of the suggested floodplain management recommendations by the Task Force to be implemented. Lack of adequate funding and some existing State policies have been major obstacles to the implementation of comprehensive statewide floodplain management. For example, FEMA funding has been virtually stagnant for the Community Assistance Program since 1990, and State baseline funding requests for technical assistance and education have been denied. Without funding, the recommendations provided in this report with the purpose of coordinating and improving current floodplain management practices in the State of California cannot be implemented.

Task Force members explored funding options to maximize existing funds and identify possible sources for new funding from local, State, and federal governments and nongovernmental sources. Technical assistance, funding, and education were recognized as critical components for local government implementation of any new or existing programs. Incentive-based programs were identified as a good means of increasing public and private participation in floodplain management projects. In addition, specific legislation was identified to ensure the full participation and cooperation of the State government.

SUMMARY OF THE RECOMMENDATIONS

DWR should identify and actively pursue funding opportunities, technical assistance to local governments and other organizations, and legislative proposals to implement Task Force recommendations and ensure successful floodplain management, recognizing that local governments have the primary responsibility and authority for land-use decisions.

Recommendations

28. NEW AND EXISTING FUNDING SOURCES

Problem: Currently, local, State, and federal funding for floodplain management is frag-

mented, inadequate, and unreliable. Without new or increased funding, programs and policies recommended by the Task Force could be delayed or not implemented.

28.1 Recommendation: State and local governments should increase and leverage federal programs, as appropriate, and encourage local, State, federal, public, nongovernmental, and other private cost sharing to achieve equitable and fair financing of multi-objective floodplain management actions and planning.

28.2 Recommendation: The State should identify potential sources of funding to support the implementation of Task Force recommendations. These sources should include water bonds, assessment fees, federal grants, or State General Fund appropriations.

28.3 Recommendation: The State should identify and disseminate information on existing funding sources, including funding reliability, variability, and authority to provide the support needed to implement Task Force recommendations. To accomplish this, the State should create and maintain a database of funding sources for local, State, and federal floodplain management-related activities and planning.

29. TASK FORCE RECOMMENDATION PRIORITIES

Problem: The State is limited in its ability to fund all of the Task Force recommendations, and it will require a method for prioritizing and ranking those recommendations, that have cost, based upon appropriate floodplain management criteria.

Recommendation: DWR and The Reclamation Board should take the cooperative lead in developing a consensus process, involving appropriate stakeholders, in identifying criteria for and carrying out prioritization of Task Force recommendations, based on expected expenditures, from existing and new funding sources.

30. DEPARTMENT OF WATER RESOURCES OUTREACH PROGRAMS

Problem: Many Californians living in flood-prone regions are unaware of flooding hazards and available mitigation measures. Therefore, existing public information and outreach are inadequate for public safety.

Recommendation: Expand and implement DWR's outreach programs by implementing the following actions.

- Provide public service announcements to increase public awareness of all of the values of floodplains, and of flooding hazards, public safety, and hazard mitigation measures. Provide information and supporting material.
- Use all media and electronic communication, including print, local television programs, public and commercial radio, and the Internet.
- Create an interactive Web site for public access to information about flooding.
- Produce multi-lingual and cross-generational educational materials.
- Coordinate public safety awareness efforts with State and federal agencies including OES.
- Support local flood management agency and county requests for technical assistance. DWR should offer to provide technical assistance to local communities, including in areas where new development is likely to occur.

31. DESIGNATED FLOODWAYS

Problem: The State's Designated Floodway Program, which is limited to the Central Valley, is not comprehensive statewide. As a result, non-flood-compatible development is occurring and may continue to occur within floodways. Non-flood-compatible development in these areas may

put people and structures at risk and may impact the operation of the floodwater management systems.

Some interests believe that The Reclamation Board regulations can be impediments to flood compatible uses, such as agriculture and habitat, within floodways.

RECOMMENDATION

31.1 Recommendation: Include in the Community Assistance Workshops, held in the Central Valley and provided by DWR and The Reclamation Board staff, an educational component on The Reclamation Board's current authority to adopt and update designated floodways in the Central Valley. The workshops should include the current status of existing designated floodways, and a comparison of the Reclamation Board's Designated Floodways Program to FEMA's NFIP. For areas within its jurisdiction, the Reclamation Board should meet with stakeholders to communicate existing policies and procedures for designating floodways and approving encroachments within the floodway. For areas outside the Reclamation Board's jurisdiction, DWR should expand its technical assistance to local agencies for their use as they designate floodways for their own or FEMA purposes.

31.2 Recommendation: The Reclamation Board should work with stakeholders to identify, if any, a list of Reclamation Board regulations that are impediments to flood-compatible uses within the floodway and recommend specific revisions.

32. STATE FLOODPLAIN MANAGEMENT ASSISTANCE TO LOCAL GOVERNMENTS

Problem: Technical assistance requests by local governments to the State for floodplain management assistance have increased because of greater awareness of flood hazards. Currently, the State's cost-sharing participation in FEMA's Community Assistance Program is limited by insufficient State funding. In addition, FEMA has eliminated the Community Assistance Contact portion of the Community Assistance Program in Region IX, which includes California. This has decreased coordination and communication with local communities.

Recommendation: The State should provide additional resources to continue and enhance the implementation of the State's floodplain management programs, including full support of the Community Assistance Contact program.

33. COMPLIANCE WITH NATIONAL FLOOD INSURANCE PROGRAM REQUIREMENTS

Problem: Some new and existing public facilities, such as schools, are and continue to be placed at risk from known flood hazards. Various public agencies in California either are not aware of, or believe they are not required to comply with, NFIP standards, local floodplain management ordinances, or the Governor's Executive Order on Floodplain Management. For example, in 2001 FEMA formally notified the State that some public schools are out of compliance with the NFIP, and that those school districts, governed by local school boards, believe that they are not subject to the requirements of local floodplain management ordinances under State law. FEMA requires that communities that participate in the NFIP and experience the benefits of the program adopt legally enforceable floodplain management standards. It is FEMA's view that unless public schools comply with NFIP requirements, States or participating NFIP communities may lose program eligibility. This means that State or local governments that do not adopt floodplain management regulations consistent with at least the minimum standards of the NFIP, cannot participate in the NFIP or be eligible for federal

financial assistance for buildings in the special flood hazard areas of their community.

In some cases, State agencies with discretionary permitting authority over floodplain development are not required to consider the project's compliance with NFIP. This circumstance may result in the State inadvertently superceding local floodplain management ordinances. Failure to enforce NFIP minimums could result in the loss of NFIP eligibility (including accompanying federal assistance for buildings in special flood hazard areas) for local California communities or perhaps the entire state of California. In these cases, the State misses the opportunity to demonstrate its desire to show leadership in ensuring that good floodplain management be accomplished statewide where the State plays a key decision-making role.

33.1 Recommendation: To assure compliance with NFIP requirements, legislation should be enacted, or other mechanisms implemented for public agencies not subject to local government floodplain management requirements or the provisions in the current or proposed Governor's Executive Order on Floodplain Management. This compliance is a requisite for participation in NFIP and to receive associated program benefits. This action includes public agencies in addition to the State, school districts, special districts, post-secondary education providers, housing authorities, and others.

In the interim, the State should identify the public agencies not covered by the current or proposed Executive Order and inform them of the benefits of participation in, and compliance with, NFIP requirements and/or the current or proposed Executive Order standards and the consequences of noncompliance with NFIP requirements and/or the current or proposed Executive Order standards.

33.2 Recommendation: DWR and OES should fully explore the problem and develop any necessary legislation to require appropriate State agencies with discretionary permitting authority over floodplain developments to take actions, such as the following, prior to issuing a permit:

- Assure the project's compliance with NFIP;
- Address other flood hazards; and
- Address adverse impacts to natural floodplain functions.

34. COMMUNITY RATING SYSTEM

Problem: NFIP flood insurance policy holders and communities may not be receiving the lowest available insurance rates or may not have access to other federal assistance programs because their community is not a Community Rating System (CRS) participating community. NFIP communities may not be participating because of the lack of understanding and training necessary to fully participate in and benefit from the CRS insurance rate-adjusting program for local communities.

Recommendation: DWR should encourage training in the CRS to educate local officials and the interested public about the elements and benefits of the program.

35. STATE COMMUNITY RATING SYSTEM PROGRAM COORDINATOR

Problem: In California, less than 10 percent of all NFIP communities (about 50) participate in the CRS, which is designed to encourage community floodplain management activities to exceed NFIP requirements. Without a designated State-level CRS Coordinator, many communities do not have the tools to take advantage of this program and receive the financial incentives available to reduce the potential loss of life and property from reasonably foreseeable flooding.

Recommendation: DWR should designate a CRS Coordinator at the State level who is familiar with the operation of State agencies and local governments that perform activities related to the CRS program. The CRS Coordinator should:

- Serve as a point of contact for FEMA and the Insurance Services Office (ISO);
- Provide support for cities and counties;
- Examine ways in which the State can apply for CRS activities on behalf of its communities;
- Encourage employees at the State and local levels to attend seminars to improve their knowledge of the CRS program and its benefits; and
- Examine ways to encourage increased participation in the CRS program by NFIP communities in California by State agencies not subject to the Governor's authority and by local government entities other than cities and counties.

36. INTERAGENCY BARRIERS

Problem Statement: There are some interagency barriers between State and federal agencies, such as those involving The Reclamation Board and the Corps of Engineers, in implementing multi-objective flood management projects.

Recommendation: The Reclamation Board should work with the Corps of Engineers, State agencies, local sponsors and interested parties to identify interagency barriers to efficient implementation of multi-objective flood management projects and to develop options to overcome those interagency barriers.

37. CALIFORNIA ENVIRONMENTAL QUALITY ACT LOCAL ANAYLSIS IMPROVEMENT

Problem: The California Environmental Quality Act (CEQA) Guidelines, Appendix G, provides a checklist for addressing flooding impacts under the Hydrology and Water Quality Section. The checklist should be improved to ensure that projects are evaluated for flooding impacts. In addition, some CEQA practitioners and local governments do not utilize the CEQA checklist adequately when evaluating flood impacts.

37.1 Recommendation: DWR should provide technical assistance to local agencies and practitioners with a practical step-by-step CEQA flood hazard and impacts assessment guide. DWR should develop definition and methodology for local jurisdiction determination of “reasonably foreseeable flood.”

37.2 Recommendation: The Resources Agency should update Appendix G of the CEQA Guidelines to include the changes indicated in Appendix D of this report.

38. ESTABLISHMENT OF A CALIFORNIA FLOODPLAIN MANAGEMENT ADVISORY COMMITTEE

Problem: The Task Force recommendations identify opportunities for effective floodplain management. During Task Force discussions, many issues emerged that require additional stakeholder discussion for improving floodplain management practices.

Recommendation: DWR should sponsor an ongoing floodplain management advisory committee composed of local and State governments, floodplain managers, and other stakeholders to develop additional recommendations to improve floodplain management practices.