

2.0 Master Responses

2.1 Introduction

CEQA Section 21091(d) and CEQA Guidelines Section 15088 require that the lead agency evaluate comments received during the noticed comment period and prepare a written response for each comment relating to any significant environmental issues raised regarding the DPEIR. The written responses are to describe the disposition of any significant environmental issues raised (e.g., revisions to the proposed project to mitigate anticipated impacts or objections) and provide a good-faith, reasoned analysis in response. The range of responses includes providing clarification regarding the analysis in the DPEIR, making factual corrections, explaining why certain comments do not warrant further response, or simply acknowledging the comment for consideration by the decision-making bodies.

DWR is responding to the comments received on the DPEIR for the CVFPP in two ways: through master responses contained in this chapter, and through individual responses contained in Chapter 3.0, “Individual Comments and Responses.” Common concerns were repeated throughout many of the comment letters. The most common topic was related to the potential conversion of agricultural land as a result of the CVFPP. Other recurrent concerns included those relating to public participation and inclusion in the planning process, details regarding the proposed SSIA alternative, methods for acquiring land, and future planning processes. The recurrent themes are addressed below in a series of master responses.

Most of the comments received by DWR were related to the contents of the CVFPP, rather than to the analysis in the DPEIR. CEQA only requires responses to the significant environmental issues raised in a DEIR, rather than to the contents and merits of the proposed project; however, in its discretion DWR has responded to all of the comments received during the public comment period, regardless of whether they related to the CVFPP or to the DPEIR.

In addition, the CEQA Guidelines, including Sections 15064 and 15131, do not require that an EIR evaluate economic or social changes that may result from a project, except to the extent that they cause physical changes to the environment. Many of the comments, particularly those on the CVFPP,

were related to economic or social factors, but did not identify a connection to any resulting physical changes to the environment.

The following master responses address comments that were received from numerous commenters. They provide a means of providing a broader context to the response than may be possible when making individual responses. In some cases, an individual comment may be answered by one or more of the master responses. The following topics are addressed by the master responses, numbered in order of discussion in this chapter:

- Master Response 1, “Bypass Expansion and New Bypasses”
- Master Response 2, “Agricultural Land Conversion and Effects”
- Master Response 3, “Sustainability of Rural-Agricultural Economies”
- Master Response 4, “Rural Versus Urban Flood Protection”
- Master Response 5, “Urban Compliance with Senate Bill 5 (Central Valley Flood Protection Act of 2008)”
- Master Response 6, “Existing System Maintenance”
- Master Response 7, “Multi-Benefit Projects”
- Master Response 8, “CVFPP Vision/Formulation”
- Master Response 9, “Issues Specific to the State Systemwide Investment Approach”
- Master Response 10, “Reservoir Storage and Operations”
- Master Response 11, “Sacramento–San Joaquin Delta Considerations”
- Master Response 12, “Flood Hydrology and Hydraulics”
- Master Response 13, “Outreach and Engagement”
- Master Response 14, “CVFPP Post-Adoption Activities”
- Master Response 15, “Funding”
- Master Response 16, “Vegetation Management”
- Master Response 17, “Climate Change”

- Master Response 18, “How the CVFPP Integrates into Other Large Plans”
- Master Response 19, “How the CVFPP and PEIR Objectives (Primary, Secondary, and Statutory) Were Developed and Determined”
- Master Response 20, “Appendix A, Attachment 8J Map”
- Master Response 21, “National Wildlife Federal Action Fund Comment Letters”
- Master Response 22, “Time Extension to the 45-day Public Review Process of the PEIR”
- Master Response 23, “Compliance with Requirements for PEIRs”
- Master Response 24, “Adequacy of the Alternatives Analysis”

Each of these master responses provides some background regarding the issue, identifies how the issue was addressed in the DPEIR, and provides an additional explanation to address the commenters’ concerns. In some cases, these master responses have also been prepared to address specific planning concerns (i.e., specific elements of the SSIA) related to the proposed program. Comments that present opinions about the program unrelated to environmental issues, or that raise issues unrelated either to the substance of the DPEIR or to environmental issues, are generally noted without a response.

In addition to the master responses, each comment is also responded to individually. Individual responses to each of the comment letters received on the DPEIR are included in Chapter 3.0, “Individual Comments and Responses.”

No comments were received on the DPEIR that resulted in any new impact or in a change in the significance level of impacts disclosed in the DPEIR, or that required new mitigation, consideration of new alternatives, or any other substantial change to the DPEIR. Changes made to the DPEIR in response to comments are limited to minor corrections of errors and omissions. Recirculation of the PEIR is not required where the new information added to the PEIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR (CEQA Guidelines Section 15088.5). This response to comments document meets CEQA requirements for responding to comments, and recirculation of the DPEIR is not required.

2.2 Master Response 1. Bypass Expansion and New Bypasses

Multiple comments were received during the public review processes for the draft Central Valley Flood Protection Plan (CVFPP) and draft program environmental impact report (DPEIR) regarding the proposed bypass expansions and new bypasses included in the State Systemwide Investment Approach (SSIA). The comments typically relate to the process and rationale for identifying these elements; the lack of site-specific details in the plan regarding the footprint and alignments of these elements; and potential impacts of bypass elements on land uses and private property generally, and on specific properties of concern to particular commenters.

This master response is organized into the following topics:

- a) Background and Legislative Direction
 - b) Rationale/Justification for Including Bypass and Weir System Expansion
 - c) Formulation/Identification of Bypass Elements
 - d) Details on Footprints/Capacities and Process for Refinement
 - e) Impacts of New and Expanded Bypass Development
- a) Background and Legislative Direction (see Section 3.5 in Appendix A, “Central Valley Flood Protection Plan”)

The existing bypass system in the Sacramento River Basin (including the Sutter and Yolo bypasses and associated inflow weirs) forms the central backbone of the Sacramento River Flood Control Project and redirects damaging floodflows away from the main channels of the Sacramento and Feather rivers. The considerable capacity of the bypass system (up to 490,000 cubic feet per second (cfs)) also slows the movement of floods, effectively attenuating flood peaks and flows into the Sacramento–San Joaquin Delta (Delta). The existing bypass system also supports a vibrant seasonal agricultural economy and provides important habitat for multiple terrestrial and aquatic species. In the San Joaquin River Basin, the bypass system includes the Chowchilla, Eastside, and Mariposa bypasses.

The Central Valley Flood Protection Act of 2008 requires the California Department of Water Resources (DWR) to evaluate ways to “...expand the capacity of the flood protection system in the Sacramento–San Joaquin Valley to either reduce floodflows or convey flood waters away from urban

areas” (California Water Code (CWC), Section 9616(a)(2)). Bypasses have served an essential role in providing these functions.

b) Rationale/Justification for Including Bypass and Weir System Expansion (see Section 3.5 in Appendix A, “Central Valley Flood Protection Plan”)

The CVFPP’s recommended approach—the SSIA—includes proposals for new bypasses and expansions as a potentially cost-effective, systemwide approach to (1) provide flood protection benefits to large areas throughout the State Plan of Flood Control (SPFC) planning area (including rural-agricultural areas, small communities, and urban areas); (2) provide opportunities to improve ecosystem functions and continuity and contribute to mitigation for proposed structural improvements, as well as mitigation for operations and maintenance of flood management facilities; and (3) provide flexibility to adapt to future change in climate and improved system resiliency.

c) Formulation/Identification of Bypass Elements (see Section 3.5 in Appendix A, “Central Valley Flood Protection Plan”)

Expansion of the Sutter, Yolo, and Sacramento bypasses were identified as examples of increasing the overall capacity of the flood management system to convey and attenuate large flood events. Peak flood stages could be reduced along the Sacramento River, and to a lesser extent, along its tributaries. Lowering flood stages throughout much of the system would benefit urban, small-community, and rural-agricultural areas alike. Constructing new bypasses, such as constructing a bypass from the upper Feather River to the Butte Basin and expanding Paradise Cut from the San Joaquin River into the south Delta, would further contribute to reducing peak flood stage along reaches of the Feather River and lower San Joaquin River.

Several factors would be considered in the design and operation of bypass improvement elements: existing land uses, hydraulic considerations, ecosystem restoration features and benefits (including conservation and restoration of aquatic and floodplain habitats), and continued compatible agricultural land uses within the bypass.

d) Details on Footprints/Capacities and Process for Refinement (see Section 4.4 in Appendix A, “Central Valley Flood Protection Plan”)

The CVFPP is a high-level document that describes the State’s vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The

CVFPP and its program environmental impact report (PEIR) do not permit any specific actions to move forward that would be subject to further evaluation under the California Environmental Quality Act (CEQA). The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to flood management goals.

Specific dimensions, capacities, and alignments for expanded and new bypasses have not been determined as part of the preliminary analyses conducted for the 2012 CVFPP. The analyses contained in the 2012 CVFPP are intended to be conceptual only; they were included as a basis for a program-level analysis that would allow broad comparisons of various flood management options. Potential locations and preliminary sizes described in the plan were identified using information obtained from previous studies and through discussions with local agencies and stakeholders.

Considerable additional work will be required before the bypass projects proposed in the plan are approved and implemented. Details about the dimensions, capacities, and alignments of expanded and new bypasses will be refined during post-adoption implementation activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Central Valley Flood System Conservation Strategy (Conservation Strategy), and State and U.S. Army Corps of Engineers (USACE) permitting. As these activities are conducted, the feasibility of proposed bypass elements will be evaluated and opportunities for public engagement and input will become available.

e) Impacts of New and Expanded Bypass Development (see Section 3.15 in Appendix A, “Central Valley Flood Protection Plan”)

The PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMAs and LTMAs). Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Central Valley Flood Protection Board (Board) respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial

topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments.

Several commenters expressed concern regarding the potential for particular properties to be included in a bypass proposal. Concerns were also expressed that preliminary identification of conceptual bypass designs might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future bypass project is entirely speculative at this time. Potential agricultural land conversions and the resulting effects are discussed further in Master Responses 2 and 3 below.

2.3 Master Response 2. Agricultural Land Conversion and Effects

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding land use effects and potential land acquisitions associated with implementation of the CVFPP. These comments included concerns about conversion of agricultural land for flood management or other purposes, the process for identifying and acquiring lands needed to improve the flood management system, and landowner compensation.

This master response is organized into the following topics:

- a) Rationale/Justification
 - b) Elements Included in the CVFPP
 - c) Process for Refining the SSIA and Identifying Specific Lands/Easements
 - d) Agricultural Conservation Easements from Willing Sellers
 - e) Impacts of Agricultural Land Conversions
- a) Rationale/Justification (see Section 4.4 in Appendix A, “Central Valley Flood Protection Plan”)

The CVFPP is a high-level document that describes the State’s vision for a sustainable flood management system in the Central Valley. The SSIA is a

responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals.

The 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

b) Elements Included in the CVFPP (see Sections 3.5.1 and 3.15 in Appendix A, "Central Valley Flood Protection Plan")

A portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements.

c) Process for Refining the SSIA and Identifying Specific Lands/Easements (see Section 3.4.1 in Appendix A, "Central Valley Flood Protection Plan")

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

- d) Agricultural Conservation Easements from Willing Sellers (see Sections 3.4.1 and 3.5.1 in Appendix A, “Central Valley Flood Protection Plan”)

In addition to expansion of the bypass system, levee reconstruction, and other elements, the SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR’s Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

- e) Impacts of Agricultural Land Conversions (see Section 3.15 in Appendix A, “Central Valley Flood Protection Plan”; and DPEIR Section 3.3, “Agriculture and Forestry Resources”)

The PEIR recognizes that converting lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that

particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments. Master Response 3. Sustainability of Rural-Agricultural Economies

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding flood protection for rural-agricultural areas under the CVFPP, effects of CVFPP elements on the sustainability of rural-agricultural economies, and flood insurance reform in rural areas.

This master response is organized into the following topics:

- a) Rural-Agricultural Protection Strategy and Investments
- b) Flood Protection for Small Communities
- c) Rural-Agricultural Areas Outside Small Communities
- d) Residual Risk Management
- e) Reform of the National Flood Insurance Program
- f) Local Capacity to Pay

As discussed in the introduction to these master responses in Section 2.1, these impacts generally are social and economic in nature, and CEQA does not require addressing them except to the extent that they relate to potentially significant adverse effects on the physical environment. Nonetheless, the responses shown below have been prepared to maximize responsiveness to public participation in the CVFPP.

- a) Rural-Agricultural Protection Strategy and Investments (see Sections 3.12 and 3.13 in Appendix A, “Central Valley Flood Protection Plan”)

The SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. Implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The

remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

b) Flood Protection for Small Communities (see Section 3.3 in Appendix A, “Central Valley Flood Protection Plan”)

The State supports the continued viability of small communities to preserve cultural and historical continuity and provide important social, economic, and public services to rural populations and agricultural enterprises. The SSIA describes State investment priorities in small community flood protection while avoiding the inducement of imprudent growth within SPFC floodplains. Under the SSIA, many small communities would receive increased flood protection benefits as a result of system improvements focused on protecting nearby urban areas. For example, levee improvements may be constructed upstream from an urban area to prevent a scenario in which floodwaters from an upstream levee breach would flow down gradient into the urban area. The upstream levee improvement that may extend into rural locations would therefore also reduce flood risks for the rural area immediately adjacent to the improved levee segment. Conditions in small communities would also be evaluated on a case-by-case basis to identify appropriate State investments in additional structural and/or nonstructural actions (e.g., levees, flood walls, floodproofing, or relocations).

c) Rural-Agricultural Areas Outside Small Communities (see Section 3.4 in Appendix A, “Central Valley Flood Protection Plan”)

The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas outside small communities. These actions are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development or increasing flood risks within lands protected by the SPFC. No target minimum level of flood protection has been established for prioritizing State investments in rural-agricultural areas (see CWC Section 9603). However, the SSIA proposes (1) projects that maintain levee crown elevations for rural SPFC levees and provide all-weather access roads for inspection and floodfighting; (2) economically feasible projects that resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs; (3) system elements (e.g., bypass expansion) that lower peak flood stages within some rural channels; and (4) actions to manage residual flood risks.

d) Residual Risk Management (see Section 3.11 in Appendix A, “Central Valley Flood Protection Plan”)

All areas protected by the SPFC would benefit from State investments included in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery. The SSIA also proposes State investments to preserve agriculture and discourage urban development in rural floodplains (e.g., purchasing agricultural easements from willing landowners, when consistent with local land use planning). In addition, the SSIA proposes Federal Emergency Management Agency (FEMA) flood insurance reforms to support the sustainability of rural-agricultural enterprises.

e) Reform of the National Flood Insurance Program (see Section 4.5 in Appendix A, “Central Valley Flood Protection Plan”)

The State supports efforts to reform FEMA’s National Flood Insurance Program (NFIP) to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.

f) Local Capacity to Pay (see Section 4.7 in Appendix A, “Central Valley Flood Protection Plan”)

The State recognizes potential regional differences in the capacity to pay for flood system improvements and operations and maintenance (O&M). The CVFPP proposes working with rural interests to develop appropriate criteria for rural levee repairs to cost-effectively address known problems (see CVFPP Sections 3.4.1 and 4.1.4). Further, the plan proposes reviewing O&M roles and responsibilities for SPFC facilities and forming regional maintenance authorities, as appropriate, in the interest of improving maintenance efficiency and more equitably distributing system maintenance costs to beneficiaries. For example, DWR has developed cost-sharing guidelines to promote multiobjective projects and to provide additional financial support for economically disadvantaged areas (http://www.water.ca.gov/floodsafe/docs/Cost_Sharing_Formula_12-29-10_Final.pdf).

2.4 Master Response 3. Sustainability of Rural-Agricultural Economies

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding flood protection for rural-agricultural areas under the CVFPP, effects of CVFPP elements on the sustainability of rural-agricultural economies, and flood insurance reform in rural areas.

This master response is organized into the following topics:

- a) Rural-Agricultural Protection Strategy and Investments
- b) Flood Protection for Small Communities
- c) Rural-Agricultural Areas Outside Small Communities
- d) Residual Risk Management
- e) Reform of the National Flood Insurance Program
- f) Local Capacity to Pay

As discussed in the introduction to these master responses in Section 2.1, these impacts generally are social and economic in nature, and CEQA does not require addressing them except to the extent that they relate to potentially significant adverse effects on the physical environment.

Nonetheless, the responses shown below have been prepared to maximize responsiveness to public participation in the CVFPP.

a) Rural-Agricultural Protection Strategy and Investments (see Sections 3.12 and 3.13 in Appendix A, “Central Valley Flood Protection Plan”)

The SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. Implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

b) Flood Protection for Small Communities (see Section 3.3 in Appendix A, “Central Valley Flood Protection Plan”)

The State supports the continued viability of small communities to preserve cultural and historical continuity and provide important social, economic, and public services to rural populations and agricultural enterprises. The SSIA describes State investment priorities in small community flood protection while avoiding the inducement of imprudent growth within SPFC floodplains. Under the SSIA, many small communities would

receive increased flood protection benefits as a result of system improvements focused on protecting nearby urban areas. For example, levee improvements may be constructed upstream from an urban area to prevent a scenario in which floodwaters from an upstream levee breach would flow down gradient into the urban area. The upstream levee improvement that may extend into rural locations would therefore also reduce flood risks for the rural area immediately adjacent to the improved levee segment. Conditions in small communities would also be evaluated on a case-by-case basis to identify appropriate State investments in additional structural and/or nonstructural actions (e.g., levees, flood walls, floodproofing, or relocations).

c) Rural-Agricultural Areas Outside Small Communities (see Section 3.4 in Appendix A, “Central Valley Flood Protection Plan”)

The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas outside small communities. These actions are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development or increasing flood risks within lands protected by the SPFC. No target minimum level of flood protection has been established for prioritizing State investments in rural-agricultural areas (see CWC Section 9603). However, the SSIA proposes (1) projects that maintain levee crown elevations for rural SPFC levees and provide all-weather access roads for inspection and floodfighting; (2) economically feasible projects that resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs; (3) system elements (e.g., bypass expansion) that lower peak flood stages within some rural channels; and (4) actions to manage residual flood risks.

d) Residual Risk Management (see Section 3.11 in Appendix A, “Central Valley Flood Protection Plan”)

All areas protected by the SPFC would benefit from State investments included in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery. The SSIA also proposes State investments to preserve agriculture and discourage urban development in rural floodplains (e.g., purchasing agricultural easements from willing landowners, when consistent with local land use planning). In addition, the SSIA proposes Federal Emergency Management Agency (FEMA) flood insurance reforms to support the sustainability of rural-agricultural enterprises.

e) Reform of the National Flood Insurance Program (see Section 4.5 in Appendix A, “Central Valley Flood Protection Plan”)

The State supports efforts to reform FEMA’s National Flood Insurance Program (NFIP) to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.

f) Local Capacity to Pay (see Section 4.7 in Appendix A, “Central Valley Flood Protection Plan”)

The State recognizes potential regional differences in the capacity to pay for flood system improvements and operations and maintenance (O&M). The CVFPP proposes working with rural interests to develop appropriate criteria for rural levee repairs to cost-effectively address known problems (see CVFPP Sections 3.4.1 and 4.1.4). Further, the plan proposes reviewing O&M roles and responsibilities for SPFC facilities and forming regional maintenance authorities, as appropriate, in the interest of improving maintenance efficiency and more equitably distributing system maintenance costs to beneficiaries. For example, DWR has developed cost-sharing guidelines to promote multiobjective projects and to provide additional financial support for economically disadvantaged areas (http://www.water.ca.gov/floodsafe/docs/Cost_Sharing_Formula_12-29-10_Final.pdf).

2.5 Master Response 4. Rural Versus Urban Flood Protection

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding levels of flood protection targeted by the CVFPP for urban areas, small communities, and rural-agricultural areas, and the equity of flood protection and shifting flood risk from one area to another. Multiple comments were also received regarding how the CVFPP would affect local maintaining agencies’ O&M responsibilities and requirements, eligibility for emergency repair funding, and the need for rural repair standards/criteria; and regarding the availability of federal funding (given the potentially low benefit-cost ratios for some proposed CVFPP elements) and issues of local affordability and capacity to pay.

This master response is organized into the following topics:

- a) No New Requirements or Standards for Levels of Flood Protection Established by the CVFPP
- b) Consistency with Legislative Direction
- c) SSIA Flood Protection Targets
- d) Prioritization of State Investments
- e) Rural Levee Repair Criteria
- f) Cost-Sharing
- g) Revisions to 1955/1957 Profiles and Effects on Maintenance Requirements

As discussed in the introduction to these master responses in Section 2.1, these impacts generally are social and economic in nature, and CEQA does not require addressing them except to the extent that they relate to potentially significant adverse effects on the physical environment. Nonetheless, the responses shown below have been prepared to maximize responsiveness to public participation in the CVFPP.

- a) No New Requirements or Standards for Levels of Flood Protection Established by the CVFPP (see Section 2.8 in Appendix A, “Central Valley Flood Protection Plan”)

State law (Senate Bill (SB) 5) requires an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley so that these areas will withstand a 1-in-200-year flood event (CGC Sections 65865.5, 65962, and 66474.5). Under the terms of SB 5, adoption of the 2012 CVFPP by the Board would trigger the schedule of compliance actions required for cities and counties to make findings related to an urban level of flood protection.

However, the CVFPP does not create any new requirements or assurances for levels of flood protection in the Central Valley; the local findings requirements regarding the required levels of protection were established by the State Legislature with the passage of SB 5. Similarly, the plan does not change existing State requirements related to new development in nonurbanized areas, including small communities, which must continue to meet the national FEMA standard of flood protection (per CGC Sections 65865.5, 65962, and 66474.5). This national standard corresponds to the minimum level of flood protection (100-year flood) required for

participation in the NFIP, and is consistent with the existing California Building Standards Code (Building Code). The Central Valley Flood Protection Act of 2008 further clarifies that the CVFPP is a descriptive document, and neither the development nor the adoption of the CVFPP constitutes a commitment by the State to provide any particular level of flood protection (CWC Sections 9603(a) and 9603(b)).

b) Consistency with Legislative Direction (see Attachment 1, “Legislative Reference,” in Appendix A, “Central Valley Flood Protection Plan”)

The Central Valley Flood Protection Act of 2008 establishes legislative requirements for the CVFPP. For example, the legislation directs DWR to consider structural and nonstructural methods for providing an urban level of flood protection (200-year or 0.5 percent chance) to current urban areas (CWC Sections 9614(i) and 9616(a)(6)), and encourages wise use of floodplains through a better connection between State flood protection decisions and local land use decisions (CWC Section 9616(a)(5)). The SSIA proposes flood protection investments for rural-agricultural areas, small communities, and urban areas consistent with legislative direction and commensurate with flood risk to people and property.

c) SSIA Flood Protection Targets (see Sections 3.2, 3.3, and 3.4 in Appendix A, “Central Valley Flood Protection Plan”)

The SSIA identifies minimum flood protection targets when State investments are made to protect public safety in urban areas and small communities (protection from 200- and 100-year flood events, respectively). However, the plan acknowledges that State investments alone cannot achieve these targets in all communities without leveraging federal and local funds, and encourages higher levels of flood protection whenever feasible. The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas, and that are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development in floodplains. The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. However, the SSIA includes various options for addressing flood risks in rural-agricultural areas, including the following:

- Projects to maintain levee crown elevations for existing rural SPFC levees and provide all-weather access roads for inspection and floodfighting

- Economically feasible projects to resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs
- System elements (such as new and expanded bypasses) that would lower water surface elevations within some rural and urban channels

All areas would benefit from State investments in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery.

d) Prioritization of State Investments (see Sections 2.8 and 4.7.1 in Appendix A, “Central Valley Flood Protection Plan”)

In recognition of current funding limitations, State investments under the SSIA would be prioritized commensurate with risks to people and property and opportunities to achieve multiple benefits. Consequently, State investments would vary from region to region depending on the assets at risk (people, property, and infrastructure) and severity of flood risk (frequency and depth). However, all areas protected by the SPFC would receive flood risk management benefits from fully implementing the SSIA. Further, the State places a priority on flood management improvement projects that provide multiple benefits to support broad State interests and expand cost-sharing opportunities.

e) Rural Levee Repair Criteria (see Sections 3.4.1, 4.1.4, and 4.5.1 in Appendix A, “Central Valley Flood Protection Plan”)

The CVFPP does not include levee design criteria for rural areas, but recognizes that the urban levee design criteria are not always practical or affordable for protecting rural areas. DWR supports future development and implementation of rural levee repair criteria in coordination with local and regional flood management agencies.

f) Cost-Sharing (see Section 4.7.1 in Appendix A, “Central Valley Flood Protection Plan”)

Cost-sharing rules are governed by federal and State laws, regulations, and policies, which have continued to evolve over time. CWC Section 12585.7 identifies the State cost-share of nonfederal capital costs for flood management projects. The State normally pays 50 percent of the nonfederal cost-share, but will pay up to 20 percent more (for a maximum of 70 percent of the nonfederal cost-share) if the project makes significant contributions to other State interests and objectives (e.g., the ecosystem, recreation, open space, protection for disadvantaged communities, and protection for transportation and water supply facilities).

The 2012 CVFPP includes an estimate of potential cost-sharing by State, federal, and local entities for the SSIA, developed to assist with CVFPP development and analysis. However, cost-sharing for implementation of the SSIA will be refined during feasibility studies and project implementation as additional project-level information is gathered and the interests of the partnering agencies in elements of the SSIA are identified. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP) will address cost-sharing and local capacity to pay.

The CVFPP does not provide funding assurances for any specific project or improvement element, and current bond funding is not sufficient to fully implement the SSIA. A financing plan will be prepared as part of the post-adoption activities (CWC Section 9620(c)).

g) Revisions to 1955/1957 Profiles and Effects on Maintenance Requirements (see Sections 1.4 and 1.5 in SPFC Descriptive Document and Sections 3.10 and 4.3 in Appendix A, “Central Valley Flood Protection Plan”)

For SPFC facilities, the Board (as the nonfederal sponsor) made assurances to operate and maintain levees at the design water surface elevation for these project units. For most of these units, the responsibility for operations and maintenance has been further transferred from the Board to local maintaining agencies, or by the Legislature to DWR (CWC Sections 8361 and 12878 et seq.). Design water surface elevations are commonly referred to as the “55/57 profiles,” a shorthand term to describe the 1955 water surface profile for the San Joaquin River flood control system and the 1957 water surface profile for the Sacramento River flood control system. It should be noted that although the 1955 and 1957 profiles are the primary design profiles, some segments of SPFC levees are covered by other design profiles.

The CVFPP does not revise or alter the design water surface elevations described in the various State assurances of cooperation to the federal government or local assurances of cooperation to the Board. Therefore, the CVFPP does not affect or alter maintaining agencies’ O&M responsibilities.

The SSIA includes recommended actions to improve or modify some SPFC facilities. As these improvements move forward through post-adoption activities (regional flood management planning, development of basin-wide feasibility studies, development of a financing plan for the CVFPP, and completion of project-level proposals and CEQA compliance), it is

anticipated that the improvements may be incorporated into the SPFC after construction. USACE would prepare an O&M manual for the project unit that would reflect the revised design water surface elevation. After that, USACE and the State would execute an agreement for operation, maintenance, repair, and rehabilitation, and the Board or DWR would execute an agreement further transferring these responsibilities to the corresponding local maintaining agency or agencies. It is at such a time that the proposed improvement from the CVFPP may alter a project-specific design water surface elevation and maintenance responsibilities.

2.6 Master Response 5. Urban Compliance with Senate Bill 5 (Central Valley Flood Protection Act of 2008)

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding how local cities and counties can use the CVFPP and information presented in the plan to meet requirements related to the urban level of flood protection and other local planning requirements triggered by CVFPP adoption. Multiple comments also were received regarding the availability of design criteria for urban levees and the lack of specific information and details about on-the-ground projects.

This master response is organized into the following topics:

- a) Requirements for Urban Level of Flood Protection
 - b) Requirements for General Plan Updates after CVFPP Adoption
 - c) DWR Technical Assistance to Local Jurisdictions
 - d) 200-Year Floodplain Maps
 - e) Review Authority
- a) Requirements for Urban Level of Flood Protection (see Section 2.8 in Appendix A, “Central Valley Flood Protection Plan,” and the *Urban Level of Flood Protection Criteria* (DWR, May 2012))

The flood legislation passed in 2007, including the Central Valley Flood Protection Act of 2008 (part of SB 5) and Assembly Bills (ABs) 162, 70, 2140, and 156, strengthened the link between local land use decisions and regional flood management. The land use planning and related requirements specified in the 2007 flood legislation vary depending on location (State of California, Sacramento and San Joaquin Drainage

District, and Sacramento–San Joaquin Valley). Some requirements apply to all areas within a flood hazard zone, whether or not they are protected by SPFC facilities or connected to the CVFPP.

The requirement for an urban (200-year) level of flood protection is included in SB 5, and through that law is triggered by adoption of the CVFPP. State law (SB 5) requires an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley (as defined in California Government Code (CGC) Section 65007(g)) within a flood hazard zone. CGC Sections 65865.5, 65962, and 66474.5 require all cities and counties within the Sacramento–San Joaquin Valley to make findings related to an urban level of flood protection before they may take any of the following actions:

- Enter into a development agreement for a property
- Approve a discretionary permit or entitlement for any property development or use, or approve a ministerial permit that would result in construction of a new residence
- Approve a tentative map/parcel map for a subdivision

Existing developments or remodels are not affected by these requirements unless they require one or more of the covered land use decisions listed above.

DWR developed the *Draft Urban Level of Flood Protection Criteria* (April 2012) to assist cities and counties in making findings related to the urban level of flood protection. DWR also developed the *Urban Levee Design Criteria* (May 2012), which contains the engineering criteria that apply when cities and counties use levees and floodwalls to provide an urban level of flood protection. Those criteria are incorporated by reference into the *Draft Urban Level of Flood Protection Criteria*.

- b) Requirements for General Plan Updates after CVFPP Adoption (see Section 4.4.2 in Appendix A, “Central Valley Flood Protection Plan”)

State law (SB 5) requires each city and county in the Sacramento–San Joaquin Valley to amend its general plan within 24 months of the Board’s adoption of the CVFPP (see CGC Sections 65302.9 and 65860.1) to include consistent information. These cities and counties must also amend their zoning ordinances accordingly within 36 months of the Board’s adoption of the CVFPP. Cities and counties could consider incorporating the following information from the CVFPP into their general plan amendments:

- Data and analyses contained in the CVFPP, such as the locations of the SPFC and other flood management facilities, locations of property protected by those facilities, and locations of flood hazard zones
- Goals, policies, and objectives based on the CVFPP's data and analyses, for the protection of lives and property and reduction of the risks of flood damage
- Feasible implementation measures designed to carry out the goals, policies, and objectives

The 2012 CVFPP was prepared at a conceptual level. Consequently, the plan does not include detailed floodplain mapping, data on local flood stages, or specifics about future on-the-ground projects. This information will be developed during post-adoption implementation activities. However, a great deal of information and data on Central Valley flood risks and vulnerabilities were collected as part of 2012 CVFPP development. DWR has provided much of this information in the attachments to the CVFPP and will make further information available to assist local agencies.

The CVFPP focuses on SPFC facilities (including consideration of pertinent non-SPFC levee improvements in urban areas), which relate primarily to flooding of the mainstem Sacramento and San Joaquin rivers. DWR recognizes that in some circumstances, the information and planned improvements included in the SSIA may not be sufficient for cities and counties to make findings regarding an urban level of flood protection without additional analysis. Cities and counties should consider the criteria in the *Draft Urban Level of Flood Protection Criteria* for more detail. Further, cities and counties outside the SPFC Planning Area may not find pertinent geographic information in the CVFPP for their land use planning purposes, but could consider the goals, policies, and objectives for their actions.

- c) DWR Technical Assistance to Local Jurisdictions (see Section 4.4.2 in Appendix A, "Central Valley Flood Protection Plan"; *Draft Urban Level of Flood Protection Criteria* (April 2012); and *Urban Levee Design Criteria* (May 2012))

DWR has made the following efforts to provide technical assistance to local jurisdictions related to implementation of the CVFPP:

- DWR completed its legislative responsibility by developing urban level of flood protection criteria consistent with current legislation, and in collaboration with cities and counties.
- DWR completed the draft CVFPP for the Board's adoption:

**2012 Central Valley Flood Protection Plan
Final Program Environmental Impact Report**

- The CVFPP describes the State's investment approach and interests in SPFC facilities and the associated protected areas.
- The *Draft Urban Level of Flood Protection Criteria* is incorporated by reference.
- The *Urban Levee Design Criteria*, which describes the engineering criteria for levees and floodwalls, is incorporated by reference in the *Draft Urban Level of Flood Protection Criteria* and the CVFPP.
- DWR has shared and will continue to share available data, tools, and other relevant information with cities and counties, including the following details:
 - Central Valley Floodplain Evaluation and Delineation (CVFED) Program (anticipated 2013)
 - Mapping of the 200-year floodplain for the mainstem Sacramento and San Joaquin rivers and major tributaries
 - Fine-scale topographic (LiDAR) data
 - System hydraulic models and data
 - Central Valley Hydrology Study (anticipated 2013)
 - System hydrology (including climate change considerations)
 - System hydrologic models and data
 - Levee Evaluation Program (ongoing, with currently available preliminary data)
 - Inspection and geotechnical data
 - Levee integrity assessments and data
 - Existing data and tools used to develop the 2012 CVFPP
- With potential legislative support and collaboration with other federal and State agencies (e.g., FEMA), DWR may consider providing additional assistance to cities and counties as they develop or acquire additional floodplain information to support their local planning and decision making.
- DWR has completed a guide titled *Implementing California Flood Legislation into Local Land Use Planning: A Handbook for Local*

Communities (2010)

(http://www.water.ca.gov/floodmgmt/lrafmo/fmb/docs/Oct2010_DWR_Handbook_web.pdf). This handbook covers more than the requirements of an urban level of flood protection. It describes how the 2007 flood risk management legislation affects cities' and counties' responsibilities to meet local planning requirements such as those for general plans, development agreements, zoning ordinances, and tentative maps.

- d) 200-Year Floodplain Maps (see Section 4.4.2 in Appendix A, “Central Valley Flood Protection Plan”; and Draft Urban Level of Flood Protection Criteria (2012))

State law (SB 5) requires cities and counties to make findings on certain land use decisions in relation to an urban level of flood protection (CGC Sections 65865.5, 65962, and 66474.5). Separately, the law required DWR to prepare preliminary 100-year and 200-year flood-frequency maps using available information and make them available to cities and counties in 2008 (CWC Sections 9610(a)(1), 9610(a)(2), and 9610(a)(3)). This requirement is not directly connected to the requirements for an urban level of flood protection or associated findings.

In August 2008, DWR provided preliminary maps (as map books in CDs) to 91 cities and 32 counties in the Sacramento–San Joaquin Valley for use as the “best available information” about current flood protection. DWR’s Floodplain Risk Management Branch extended the best-available-mapping project and developed “statewide” preliminary best-available maps for the 100-, 200-, and 500- year floodplains. These maps can be accessed by the public via a geographic information system (GIS)–based Web viewer at <http://gis.bam.water.ca.gov/bam>.

Pursuant to CWC Section 9121 (enacted through AB 156), DWR established the Flood Risk Notification Program to increase flood risk awareness by effectively communicating about flood risk to individual property owners, other members of the public, and local, State, and federal agencies.

DWR is attempting to provide as much useful information related to 200-year floodplains as possible given its current funding and authority to use available funding. DWR is developing 200-year floodplain maps through its CVFED Program for areas protected by the SPFC, based on potential flows in the Sacramento and San Joaquin rivers (mainstem and major tributaries). Depending on the source of flooding, these maps may or may not be sufficient to support cities and counties in making their findings related to an urban level of flood protection. The cities and counties are

encouraged to consult the *Draft Urban Level of Flood Protection Criteria* for additional detail at <http://www.water.ca.gov/floodsafe/leveedesign/>.

- e) Review Authority (see California Government Code, Section 65007; and *Implementing California Flood Legislation into Local Land Use Planning: A Handbook for Local Communities*)

State law (SB 5) did not provide any specific enforcement authority for requirements regarding the urban level of flood protection. The Board has review and comment authority in one situation related to the definition of “adequate progress”: CGC Section 65007(a)(2)(B) grants the Board the ability to make a finding that an agency is making adequate progress even when it is not meeting the time frame set in CGC Section 65007(a)(2)(A), if the requirements are not being met because of an insufficient State appropriation based on a prior agreement.

Other provisions enacted by the 2007 flood legislation package require cities and counties to consult with the Board when amending certain general plan elements. Please see *Implementing California Flood Legislation into Local Land Use Planning: A Handbook for Local Communities* for additional detail.

2.7 Master Response 6. Existing System Maintenance

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding improving maintenance and repair of the existing flood management system (e.g., channels, levees) versus constructing new facilities or system improvements. Specifically, many commenters urged that available funds be used to maintain the current system “in place,” generally asserting that this would be more cost-effective than funding new improvements and would reduce certain impacts, particularly impacts on agriculture.

This master response is organized into the following topics:

- a) Consideration of Repairing/Maintaining Existing Flood System “In Place” (No Construction of New Facilities)
- b) Enhanced Operations and Maintenance
- c) Specific Operations and Maintenance Policy Reforms

For a discussion of impacts on agriculture from system expansions, see Master Responses 1–3, above.

- a) Consideration of Repairing/Maintaining Existing Flood System “In Place” (No Construction of New Facilities) (see Sections 2.3, 2.8, and 3.1 in Appendix A, “Central Valley Flood Protection Plan”)

DWR recognizes the importance of proper maintenance to protect State, local, and federal investments in the flood management system. However, maintenance activities alone do not meet current needs or legislative requirements for the CVFPP (e.g., urban level of protection, systemwide approach, and providing multiple benefits). This is highlighted in the evaluation conducted for the preliminary approach called “Achieve SPFC Design Flow Capacity.”

The Achieve SPFC Design Flow Capacity preliminary approach focuses on reconstructing SPFC facilities to meet current engineering criteria without making major changes to facility footprints or operations. To achieve the design flow capacity, reconstruction is required because the original specifications focused primarily on levee prism geometry, and current evaluations have shown them to be insufficient in passing design flows if geotechnical and other engineering conditions (e.g., underseepage) are not improved. This approach was formulated to address legislation that required DWR to consider structural actions necessary to reconstruct SPFC facilities to their design standard (CWC Section 9614(g)). It also addresses requests from stakeholders to consider reconstructing the existing flood management system in place, or without major modification to facility locations.

Based on an initial assessment, this preliminary approach is estimated to cost approximately \$19 billion to \$23 billion and take 30–35 years to implement. This approach would improve the reliability of SPFC facilities compared to existing conditions. However, in many locations, upstream levee reconstruction would increase peak flows and stages downstream because upstream levee failures would be reduced compared to existing conditions. Further, the level of protection would be highly variable throughout the system and would not be linked to the current public safety needs and legislated requirements, and to assets at risk within the floodplain. Consequently, this approach would only partially address the primary CVFPP goal of improving flood risk management.

Investments in SPFC reconstruction would initially reduce SPFC O&M costs, but long-term costs to maintain the system would remain high. Thus, this approach would only partially contribute to the goal of improving O&M. Opportunities to integrate ecosystem restoration and enhancement

would be limited and would not contribute to improved ecosystem functions on a systemwide scale. There would also be few opportunities to promote multipurpose benefits including incorporating new groundwater recharge or other water-related benefits, and promoting ecosystem functions, recreation, or agricultural sustainability. Consequently, an approach focusing on maintenance, repair, and reconstruction of existing facilities would contribute in only a minor way to the supporting goals of multi-benefit projects.

b) Enhanced Operations and Maintenance (see Section 3.11 in Appendix A, “Central Valley Flood Protection Plan”)

Improving O&M is a supporting goal of the CVFPP. The SSIA includes elements to address and improve O&M at existing facilities as part of residual risk management. These elements include identifying and repairing after-event erosion, developing and implementing enhanced O&M programs and practices, and forming regional O&M organizations and sustained investments in flood system maintenance (management of the Sacramento River channel and levees, bank protection, and rehabilitation of flood structures).

c) Specific Operations and Maintenance Policy Reforms (see Section 4.1.2 in Appendix A, “Central Valley Flood Protection Plan”)

The SSIA promotes efficient and sustainable long-term O&M practices through the following:

- Reforming and consolidating State and local agencies’ roles and responsibilities for O&M
- Standardizing criteria by which maintenance practices, procedures, and inspections are performed and reported
- Implementing strategies to adequately and reliably fund routine activities and streamline permitting

Some of the proposed activities may involve legislative action, new institutional arrangements involving local maintaining agencies, modifications to existing State programs, and additional or redirected funding.

2.8 Master Response 7. Multi-Benefit Projects

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding a desire for the CVFPP to have a

greater focus on water supply benefits and recreational opportunities. Additional comments received were related to the integration of ecosystem restoration as part of flood system improvements, the methods of accomplishing and measuring ecosystem restoration (i.e., objectives), potential land use implications, and concerns that ecosystem restoration might decrease channel flood capacity.

This master response is organized into the following topics:

- a) Inclusion of Water Supply Benefits
 - b) Water Supply and Groundwater Recharge
 - c) Water Supply and Reservoir Operations
 - d) Integration of Ecosystem Improvements
 - e) Recreation
- a) Inclusion of Water Supply Benefits (see Sections 1.6.2, 2.8, 3.14.7, and 4.7.1 in Appendix A, “Central Valley Flood Protection Plan”)

The Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction for the CVFPP to “...include a description of both structural and nonstructural means for improving the performance and elimination of deficiencies of levees, weirs, bypasses, and facilities, including facilities of the State Plan of Flood Control, and, wherever feasible, meet multiple objectives...” (CWC Section 9616(a)). The legislation further identifies 14 objectives, two of which address water supply and groundwater recharge (CWC Sections 9616(a)(3) and 9616(a)(14)).

The CVFPP includes a high-level discussion on integrating water supply benefits with flood management improvements. The SSIA elements focus on public safety and improvement of flood management, consistent with the legislative direction and CVFPP primary goal; however, implementing these elements could improve water management because expanding floodways and the bypass system could improve the flexibility of reservoir operations and increase in-channel groundwater recharge. The SSIA describes potential opportunities for integrating water supply benefits with proposed flood management actions, but it does not include specific project recommendations related to water supply because of the need for future site-specific proposals and analyses. During post-adoption activities (regional flood management planning and development of basin-wide feasibility studies), additional details will be developed, including specific water management features as part of multi-benefit projects, in collaboration with interested local and regional agencies and organizations.

In addition, the DPEIR evaluates the potential effects of the proposed program on water supply; for example, see Section 3.11, “Groundwater Resources,” and Section 3.13, “Hydrology.” The impetus for including both the Southern California and coastal Central Valley Project (CVP) and State Water Project (SWP) service areas within the PEIR (i.e., as the “SoCal/coastal CVP/SWP service areas”) was to ensure that potential effects of the program on water deliveries outside the extended systemwide planning area (Extended SPA) and Sacramento and San Joaquin Valley Watersheds were evaluated in the PEIR.

The PEIR analysis did not find any significant adverse effects on water supply resulting from the proposed program.

DWR believes that the approach of focusing the CVFPP on flood management issues is consistent with the Legislature’s intent as expressed in the Central Valley Flood Protection Act of 2008, and that including elements that provide a greater focus on water supply is not necessary.

For a more detailed discussion of comments relating to potential future expansions of upstream reservoirs, please see Master Response 10, below.

b) Water Supply and Groundwater Recharge (see Sections 3.4.17 and 3.5.5 in Appendix A, “Central Valley Flood Protection Plan”)

Capturing and using floodflows for groundwater recharge is a component of integrated flood and water management in the CVFPP. The State supports programs that use floodflows for groundwater recharge to improve water management throughout California. However, the State also recognizes the limitations of direct groundwater recharge in lowering flood stage and reducing flood risks, especially in the Sacramento River Basin. Considering these limitations, the SSIA identifies opportunities for groundwater recharge within the flood management system (in-channel recharge and in expanded bypass areas). Although no specific recharge projects are recommended in the SSIA at this time, the State encourages further exploration of feasible recharge opportunities in the San Joaquin River Basin, in particular, to capture a portion of high flows from snowmelt.

DWR also recognizes that although expanding a floodway can assist in recharging groundwater by expanding the surface area of inundated ground during high-water events, a meaningful benefit cannot be assured. The inundated soils must be appropriate to allow groundwater infiltration. Depending on hydrologic conditions, an expanded floodway may be inundated only rarely, allowing only limited opportunities for increased groundwater infiltration. The local aquifer may be recharged from lands

away from the river, with groundwater flowing toward and draining into the river. In this circumstance, increasing floodway inundation would have little benefit to local groundwater recharge. Therefore, potential groundwater recharge benefits from increasing floodplains, flood bypasses, and setback levees are very dependent on site-specific conditions.

c) Water Supply and Reservoir Operations (see Sections 3.4.17 and 3.5.5 in Appendix A, “Central Valley Flood Protection Plan”)

The SSIA includes a Forecast-Coordinated Operations (F-CO) Program that seeks to coordinate flood releases from existing reservoirs located on tributaries to major Central Valley rivers. Considering the timing and magnitude of flood releases from reservoirs, the F-CO Program seeks to optimize the use of downstream channel capacity in balance with total available flood storage space in the system to reduce overall downstream peak floodflows. The F-CO Program also can modify operation of reservoirs in a way that will improve flood management and provide opportunities for more aggressive refilling of reservoirs during dry years. Such operations could increase water supplies within reservoirs, especially in dry years when the water supply system is most stressed.

Water supply benefits from the F-CO Program would vary depending on current reservoir operations rules, watershed hydrology, flexibility in reservoir operation and physical outlet facilities (i.e., adequate release capacity), quality of reservoir inflow forecasts, and other factors. Therefore, a case-by-case study of flood management and multipurpose reservoirs will be needed to adequately define and quantify the potential benefits.

d) Integration of Ecosystem Improvements (see Section 3.7 in Appendix A, “Central Valley Flood Protection Plan”)

The Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements,

including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important shaded riverine aquatic habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

e) Recreation (see Section 3.14.5 in Appendix A, “Central Valley Flood Protection Plan”)

The Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to include multiple objectives, where feasible, when proposing improvements to flood management facilities, including opportunities and incentives for expanding or increasing the use of floodway corridors (CWC Section 9616(a)(12)). The potential for recreational use of the flood control system has long been recognized. The SSIA involves floodplain reconnection and floodway expansion, which would improve ecosystem functions, fish passage, and the quantity, quality, and diversity of natural habitats, all of which would contribute to an increase in recreation opportunities and augment the aesthetic values of those areas. Expanding habitat areas would increase opportunities for fishing, hunting, and wildlife viewing. Recreation-related spending associated with increased use by visitors can be an important contributor to local and regional economies. During post-adoption activities (regional flood management planning and development of basin-wide feasibility studies), DWR will work with local

and regional implementing agencies and partners to refine CVFPP elements, including developing additional details on site-specific recreation features as part of multi-benefit projects.

2.9 Master Response 8. CVFPP Vision/Formulation

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding a desire for a vision statement for the CVFPP and/or SSIA.

This master response is based on the Foreword and Sections 1.6 and 2.8 in Appendix A, “Central Valley Flood Protection Plan.”

Flood risks in the Central Valley are among the highest in the nation, putting many people in California and their economic livelihoods at unacceptable risk.

Beginning in the 1850s, flood facilities were built in increments over many decades through the individual and combined efforts of local, State, and federal agencies. The facilities were constructed with the materials at hand over many decades, following evolving design standards and construction techniques. As a result, these flood facilities provide varying levels of protection, depending on when and how they were constructed and upgraded. Constructing these facilities has also resulted in the loss of natural floodplain habitats, including wetlands.

Construction of the Central Valley’s flood facilities was originally driven by the need to defend the developing valley floor against periodic floods while maintaining navigable channels for commerce. Over time, some facilities have become obsolete or have nearly exceeded their expected service lives, and they are in need of major modification or repair. Further, facilities originally constructed primarily for navigation, sediment transport, and flood management are now also recognized as important for water supply conveyance, ecosystem functions, recreation, and other beneficial uses.

Today, the SPFC must contend with a lack of stable funding and with concerns like deferred maintenance, changes to regulations and societal priorities, dated construction techniques, and imprudent development in deep floodplains, leaving almost a million people at risk.

In response to these realities, the State Legislature enacted comprehensive flood risk management legislation in 2007, including the Central Valley

Flood Protection Act of 2008). This law set a clear directive for an integrated systemwide approach to Central Valley flood management, and provided detailed guidance for DWR to follow in formulating the CVFPP. The Central Valley Flood Protection Act of 2008 specifically requires the CVFPP to provide significant systemwide benefits, evaluate both structural and nonstructural improvements, provide a description of the entire system and its current performance, promote multipurpose projects, and leverage other funding sources. These requirements for the CVFPP are embedded in SB 5 and codified in Sections 9600–9625 of the California Water Code.

DWR, in coordination with USACE, the Board, and multiple stakeholders, used this legislative direction to formulate the CVFPP’s primary and supporting goals, listed below.

2.9.1 CVFPP Primary Goal

- **Improve Flood Risk Management**—Reduce the chance of flooding and damages, once flooding occurs, and improve public safety, preparedness, and emergency response through the following:
 - Identifying, recommending, and implementing structural and nonstructural projects and actions that benefit lands currently receiving protection from facilities of the SPFC
 - Formulating standards, criteria, and guidelines to facilitate implementation of structural and nonstructural actions for protecting urban areas and other lands of the Sacramento and San Joaquin river basins and the Delta

2.9.2 CVFPP Supporting Goals

- **Improve Operations and Maintenance**—Reduce systemwide maintenance and repair requirements by modifying the flood management systems in ways that are compatible with natural processes, and adjust, coordinate, and streamline regulatory and institutional standards, funding, and practices for operations and maintenance, including significant repairs.
- **Promote Ecosystem Functions**—Integrate the recovery and restoration of key physical processes, self-sustaining ecological functions, native habitats, and species into flood management system improvements.
- **Improve Institutional Support**—Develop stable institutional structures, coordination protocols, and financial frameworks that enable effective and adaptive integrated flood management (designs,

operations and maintenance, permitting, preparedness, response, recovery, and land use and development planning).

- **Promote Multi-Benefit Projects**—Describe flood management projects and actions that also contribute to broader integrated water management objectives identified through other programs.

In addition, the DPEIR includes the following specific statutory objectives:

- **Maximize Flood Risk Reduction Benefits within the Practical Constraints of Available Funds**—Ensure that technically feasible and cost-effective solutions are implemented to maximize the flood-risk reduction benefits given the practical limitations of available funding, and provide a feasible, comprehensive, and long-term financing plan for implementing the plan.
- **Adopt the CVFPP by July 1, 2012**—Complete all steps necessary to develop and adopt the CVFPP by July 1, 2012, or such other date as may be provided by the Legislature.
- **Meet Multiple Objectives Established in Section 9616 of the California Water Code, as Feasible.**

In accordance with legislative direction and reflecting stakeholder input, DWR prepared the 2012 CVFPP to describe the State’s vision for flood management in the Central Valley. This vision for flood management in the Central Valley is for a sustainable flood management system that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems.

In the CVFPP, DWR describes the SSIA, which is a proposal for achieving the State’s vision for flood management. The SSIA helps achieve the State’s vision for flood management in a balanced manner by promoting responsible investment of public funds, commensurate with flood risks, in projects that integrate multiple benefits, in proactive maintenance of SFPC facilities and residual risk management, and in wise management of floodplains protected by the SPFC.

2.10 Master Response 9. Issues Specific to the State Systemwide Investment Approach

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding the rationale behind formulating the SSIA and the method of selecting elements for inclusion. Comments

questioned why the preliminary approach that appeared to have the highest benefit-cost ratio (the Protect High Risk Communities approach) was not selected. Comments also were received regarding the high cost of the SSIA, the need for additional funding to implement the SSIA, and the potential to scale back the SSIA.

This master response is organized into the following topics:

- a) Formulation of the State Systemwide Investment Approach
 - b) Cost Effectiveness of the State Systemwide Investment Approach
 - c) High Cost of the State Systemwide Investment Approach
- a) Formulation of the State Systemwide Investment Approach (see Section 2.8 in Appendix A, “Central Valley Flood Protection Plan”)

Three preliminary approaches were used to explore a range of potential physical changes to the existing flood management system and help highlight needed policies or other management actions: Achieve SPFC Design Flow Capacity, Protect High-Risk Communities, and Enhance Flood System Capacity. Evaluating these preliminary approaches provided information on their costs, benefits, and overall effectiveness. None of the three preliminary approaches were found to fully satisfy the legislative requirements and CVFPP goals in a cost-effective manner. However, the most promising elements of each were combined to formulate the State’s preferred approach—the SSIA. The CVFPP and accompanying attachments provide additional details about the formulation and screening of elements included in the SSIA.

- b) Cost Effectiveness of the State Systemwide Investment Approach (see Sections 2.8 and 3.1 in Appendix A, “Central Valley Flood Protection Plan”)

The SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects. The Central Valley Flood Protection Act of 2008 (SB 5) requires a systemwide approach for developing the CVFPP (CWC Section 9603) and requires inclusion of multiple benefits, where feasible (CWC Section 9616). Not all potential SSIA benefits have been detailed or quantified (e.g., avoided damage to infrastructure and/or life loss, ecosystem restoration), and the planning-level cost estimates remain

preliminary; therefore, it is inappropriate to analyze the benefit-cost ratio using information contained in the high-level 2012 CVFPP. During post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP), DWR will refine the physical elements of the CVFPP and confirm their feasibility, including the costs and benefits of site-specific improvements.

c) High Cost of the State Systemwide Investment Approach (see Sections 1.4, 3.12, and 4.7.1 in Appendix A, “Central Valley Flood Protection Plan”)

Beginning in the 1850s, flood facilities were built in increments over many decades through the individual and combined efforts of local, State, and federal agencies. The facilities were constructed with the materials at hand over many decades, following evolving design standards and construction techniques. As a result, these flood management facilities provide varying levels of protection, depending on when and how they were constructed and upgraded. Constructing these facilities has also resulted in the loss of natural floodplain habitats, including wetlands.

Construction of the Central Valley’s flood management facilities was originally driven by the need to defend the developing valley floor against periodic floods while maintaining navigable channels for commerce. Over time, some facilities have become obsolete or have nearly exceeded their expected service lives, and they are in need of major modification or repair. Further, facilities originally constructed primarily for navigation, sediment transport, and flood management are now also recognized as important for water supply conveyance, ecosystem functions, recreation, and other beneficial uses.

Today, the SPFC must contend with a lack of stable funding and with concerns like deferred maintenance, changes to regulations and societal priorities, dated construction techniques, and imprudent development in deep floodplains, leaving almost a million people at risk. To address these challenges, and to meet legislative direction for a systemwide approach that focuses on public safety and promotes multi-benefit projects, DWR formulated the SSIA, with a preliminary cost estimated between \$14 billion and \$17 billion. The high cost of the SSIA reflects the costly nature of providing flood protection in the Central Valley’s deep floodplains and the current conditions of the SPFC facilities, as described in the *Flood Control System Status Report* (DWR 2011).

Specific project features ultimately implemented for the SSIA will depend on a host of factors. These factors include the results of detailed project

feasibility studies; designs and cost estimates; environmental benefits and impacts; interaction with other local projects and system improvements; participation by local, State, and federal agencies in project implementation; and changing physical, institutional, and economic conditions. Costs presented in the 2012 CVFPP are preliminary planning-level estimates. The actual costs of these elements will depend on the specific projects that are justified by feasibility studies, project scopes, implementation times, future economic and contractor-bidding conditions, and many other factors. Funding sources for SSIA projects will vary according to factors such as the type of project or program, beneficiaries, availability of funds, and project or program urgency. Cost-sharing among State, federal, and local agencies may also change depending on project objectives and agency interests. Post-adoption activities (regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP) will further develop and refine additional project-specific details on cost, feasibility, funding, cost sharing, and local capacity to pay.

Currently available bond funding is insufficient to fully implement the recommended SSIA as a whole. After adoption of the CVFPP in 2012, DWR will prepare a framework for financing projects at a regional level. DWR will use the information gathered during preparation of the framework to prepare the financing plan for the CVFPP that will guide investment in flood-risk management in the Central Valley during the next 20 years (CWC Section 9616(a)(13)). The financing plan will be available in 2013, after adoption of the 2012 CVFPP. The financing plan is critical to implementation, given the uncertainty regarding State, federal, and local agencies' budgets and cost-sharing capabilities. The financing plan may include legislative actions to establish reliable funding for continued implementation of the SSIA in its totality to benefit the entire Central Valley and state of California.

2.11 Master Response 10. Reservoir Storage and Operations

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding the absence of new reservoirs or increased reservoir storage in the SSIA. (The SSIA only includes coordinated and forecast-based operations and the Folsom Dam Raise project, currently authorized.) Specifically, many of those comments suggested that increases in upstream flood-storage capacity could reduce the need for or replace the increases in floodplain conveyance and storage capacity proposed in the SSIA. Many of these comments also suggested

that increasing upstream flood-storage capacity could provide water supply benefits and reduce potential adverse effects on agriculture.

This master response is organized into the following topics:

- a) Formulation—Inclusion of Flood Storage in the State Systemwide Investment Approach
 - b) Flood Storage to Avoid Other Actions/Improvements
 - c) Consideration of Upstream Flood Storage as an Alternative under the California Environmental Quality Act
- a) Formulation—Inclusion of Flood Storage in the State Systemwide Investment Approach (see Sections 2.5, 3.5.4, and 3.5.6 and Attachment 8B in Appendix A, “Central Valley Flood Protection Plan”)

In developing the CVFPP and formulating the SSIA, DWR considered various forms of storage for flood management, including operational changes to existing reservoirs with flood storage, new or expanded flood storage in reservoirs, and storage in floodplains. Specifically, one of the preliminary approaches— Enhance Flood System Capacity—included enlarging the flood storage allocation of several multipurpose reservoirs to improve management of flood risks on lands protected by the SPFC. This evaluation found potential benefits from and opportunities for reservoir flood storage and operational changes, such as improving flexibility in managing hydrologic changes (such as climate change) and potentially offsetting the hydraulic effects of certain system improvements on downstream reaches. At the same time, these analyses addressed both the physical limitations of these opportunities and the potential negative effects of increasing flood-storage allocations on water supply and other beneficial uses. The analyses of reservoir storage and flood operations that were conducted in support of the 2012 CVFPP are described in Attachment 8B in Appendix A, “Central Valley Flood Protection Plan.”

Storage elements ultimately retained in the SSIA are based on preliminary systemwide analyses conducted for the 2012 CVFPP, legislative direction for the CVFPP, and the findings of prior and ongoing studies. Among those studies are ongoing surface storage investigations and prior local, State, and federal studies such as the Shasta Lake Water Resources Investigation, North-of-the-Delta Offstream Storage (Sites Reservoir), In-Delta Storage Program, Los Vaqueros Reservoir Expansion, and Upper San Joaquin River Basin Storage Investigation (Temperance Flat Reservoir). However, no new site-specific investigations of surface storage were included in the systemwide analyses conducted to support the 2012 CVFPP.

In the 2012 CVFPP, the SSIA includes coordinated reservoir operations aimed at making the most efficient and effective use of current flood storage allocations in existing reservoirs, and implementation of the authorized Folsom Dam Raise (see Section 3.5.4 of the CVFPP). These SSIA storage elements appropriately reflect the conceptual level of detail and systemwide focus of the 2012 CVFPP, without precluding future consideration of new or expanded storage by the State or local agencies. At this time, the SSIA does not include new reservoirs or expansion of storage (other than at Folsom Dam) solely for the purpose of flood management; however, DWR will continue to consider flood management in the context of, and as an objective of, its ongoing multi-benefit surface storage investigations and systemwide reoperation studies. Should these State investigations or other related efforts by local or federal agencies identify flood management as a component of a feasible reservoir storage project, this may be reflected in future updates to the CVFPP.

2.11.1 Ongoing Surface Storage Investigations

Ongoing investigations are being conducted to determine the feasibility of surface storage and consider potential environmental effects. The analyses included in these surface-storage studies are more detailed than those conducted at a systemwide scale for the 2012 CVFPP. Consequently, these studies are developing more comprehensive information about the potential costs and benefits of site-specific increases in flood storage.

Some specific examples of ongoing multipurpose surface-storage investigations and related investigations that are examining the feasibility of adding new flood storage are listed below.

- **Upper San Joaquin River Basin Storage Investigation**—An evaluation of increasing storage in Millerton Reservoir or building a new multipurpose reservoir upstream, such as Temperance Flat Reservoir. The current formulation includes an additional storage allocation for flood management.
- **North-of-Delta Offstream Storage Investigation**—An evaluation of building a new offstream reservoir in the Sacramento River Basin west of the Sacramento River, also known as Sites Reservoir. Flood management benefits may be possible by coordinating storage operations with other multipurpose reservoirs, such as Shasta Dam and Reservoir.
- **Shasta Lake Water Resources Investigation**—An evaluation of raising Shasta Dam for multiple purposes. The formulation considered an additional allocation for flood storage as well as operational changes, but these options are not being carried forward.

- **DWR System Reoperation Program**—An evaluation of pursuing reservoir reoperation strategies at a systemwide scale to improve water supply reliability, reduce flood hazards, and protect and restore the ecosystem.

2.11.2 Shasta Dam and Reservoir

Analyses for the 2012 CVFPP and for previous and ongoing studies (such as the U.S. Department of the Interior, Bureau of Reclamation’s (Reclamation’s) Shasta Lake Water Resources Investigation), have found that increasing flood storage in Shasta Dam and Reservoir would not significantly reduce flood risks for lands protected by the SPFC, for several reasons. Shasta Reservoir has a sizeable flood-storage allocation capable of managing a 1 percent chance (100-year) flood from its tributary watershed; consequently, the dam and reservoir are already regulating floodflows adequately for all but the most severe and infrequent floods. More importantly, other uncontrolled tributaries (those not regulated by reservoirs) downstream from Shasta Dam, such as Cottonwood Creek, contribute peak flood flows along reaches of the Sacramento River with SPFC levees that exceed the flood releases from Shasta Dam. Additional storage in Shasta Dam and Reservoir would not address the significant flood flows produced by these unregulated tributaries. Previous studies by USACE and others have indicated that a new flood management reservoir on Cottonwood Creek would conflict with goals for watershed management and environmental restoration in the Cottonwood Creek watershed, and would have significant environmental effects. This example indicates that increased storage capacity may not always result in meaningful flood-management benefits, and that increased storage may not be feasible in locations where it is most needed.

- b) Flood Storage to Avoid Other Actions/Improvements (see Section 3.5.4 and Attachment 8B in Appendix A, “Central Valley Flood Protection Plan”)

During the early and mid-20th century, most of the major rivers and tributaries draining into the Central Valley were dammed, providing both intentional and incidental flood management benefits. The aggregate benefit of these reservoirs to flood management has been substantial, and has contributed to the success of the existing flood system in reducing or avoiding damage from major flood events during the past century. However, California’s topography and geology limit opportunities for reservoir construction, and most of the feasible locations have already been developed with the existing major dams (e.g., Shasta, Oroville, Folsom). The remaining opportunities are much more limited.

Specifically, unlike the situation that existed at the beginning of the 20th century, only a few remaining dam sites, spread throughout the Central Valley watersheds, offer the potential to provide large volumes of flood storage capacity. Other than for a few specifics, such as raising Shasta Dam or constructing Sites Reservoir, commenters on this topic did not provide a more detailed proposal or recommendation for implementing upstream storage projects. In particular, commenters provided no specific information regarding the feasibility of using an upstream-reservoir approach to meet the requirements of SB 5.

DWR recognizes the importance of developing additional water storage capacity in California to support an increasing population, to help compensate for the anticipated loss of snowpack storage as a result of climate change, and to maintain the important role of Central Valley agriculture for the nation and the world. For these reasons, multipurpose reservoir projects will likely continue to be proposed and, if successful, may help to meet needs for flood storage capacity.

However, these proposals face daunting challenges. Despite their benefits, new or expanded reservoirs generally face considerable opposition given their environmental effects, costs, perceived risks, and other factors. Also, environmental laws established mostly in the 1970s now apply to these proposals. Among these laws is the requirement under Section 404 of the Clean Water Act (CWA) that any project affecting waters of the United States can be approved only if it is demonstrated to be the least environmentally damaging practicable alternative. Many other laws also present permitting challenges.

It is significant that no new major onstream reservoir has been constructed in the Central Valley watershed since New Melones Dam was completed in 1978. The Auburn Dam project, which commenced construction in 1968, was never completed because of several factors, including its cost, geologic problems with the site, and potential harm to recreational and ecological values. Recently, successful projects have consisted largely of projects to provide offstream storage (such as Los Vaqueros Reservoir), which can provide only limited flood control benefits outside their watersheds given the need for pumping, and projects to increase the capacity of existing reservoirs (which by their nature are only incremental).

Moreover, to serve as a substitute for floodway conveyance and storage, upstream reservoir capacity would have to be developed throughout the Central Valley watershed. The extreme weather events (i.e., atmospheric rivers) that create the greatest risk of a severe flood are often localized. Floodplain storage protects against floodwaters originating from all upstream areas, but by definition, upstream reservoirs can store only the

floodwaters that originate from a particular area or tributary watershed. For example, an increase in the capacity of Shasta Lake would provide little or no benefit in the event of a major atmospheric rivers event focused on the central or southern Sierra Nevada. There is simply no reasonable scenario under which an array of new reservoir projects spread throughout the Central Valley watershed would be feasible and could serve as an effective substitute for floodplain storage. Suitable and feasible remaining sites do not exist, the costs would likely be prohibitive and the opposition substantial, and environmental permits would be difficult if not impossible to obtain. It would be both speculative and imprudent for the CVFPP to rely on such an approach. None of the comments on the topic have addressed, much less rebutted, the substantial evidence that such an alternative could not feasibly meet the objectives of the CVFPP as directed by SB 5.

Failing to reserve adequate floodway conveyance and storage capacity now would leave future generations with limited options for addressing their flood protection needs. The current generation has benefited from the existing bypass system, and expanding that system would benefit both current and future residents.

It is recognized that in certain cases and to some degree, upstream floodway conveyance and storage could reduce the need for (or scale of) some types of downstream flood management actions associated with the SPFC. However, opportunities to reduce flood risks on lands protected by the SPFC by increasing floodway conveyance and storage are limited, and depend on a variety of factors:

- The location of a reservoir (or multiple reservoirs) with respect to the downstream actions or target area is important. Multipurpose reservoirs are present along many major tributaries to the Sacramento and San Joaquin rivers, but the hydrology (magnitude of rainfall and timing of peak flows from a watershed) and the operations of these reservoirs are very complex. Flood flows in downstream reaches of mainstem rivers are often influenced by the operation of multiple reservoirs, and peak flood stages may result from a combination of hydrologic events on different tributaries. Consequently, increasing flood storage in one reservoir may not reduce peak flood stage along a mainstem river reach because of the operations of other reservoirs, contributions from unregulated streams, or hydrology of the various tributary watersheds.
- The volume of floodway conveyance and storage that could be achieved is related to the size of the watershed and flood flows it generates, which can limit the effectiveness of expanding reservoirs or constructing new reservoirs. Expanding a reservoir is typically most

effective when the existing reservoir has a small flood storage allocation compared with its tributary watershed. Similarly, it may not be effective to construct or expand a reservoir that controls a relatively small watershed.

- Opportunities to expand a reservoir are typically limited by the existing dam's location, size, and type of construction (concrete versus earthen, for example). A reservoir expansion sufficient to achieve the desired flood risk reduction benefits downstream may not be physically possible at all locations.
- The cost and potential impacts of enlarging a reservoir or constructing a new reservoir vary substantially from location to location. The CVFPP is a conceptual plan, and the PEIR is a program-level document; the site-specific analyses that would be needed to assess feasibility were not conducted as part of the CVFPP or PEIR, and will occur at the project level. See Master Response 24.
- Reservoir ownership varies, and studies of specific opportunities to expand reservoirs must be conducted in partnership with owners and operators.

The above factors indicate that a feasible and cost-effective surface-storage project could be developed only under specific circumstances, and that even if it is feasible, additional surface storage may not provide meaningful flood management benefits. These factors, combined with the conceptual systemwide focus of the 2012 CVFPP, precluded DWR from identifying specific reservoir storage elements to include in the SSIA at this time. These factors limited the ability to formulate an approach/alternative to include in the PEIR that focused primarily on increasing flood storage. Further, increasing storage alone would not achieve many of the CVFPP goals or fulfill legislative intent, such as improving ecosystem functions within the flood management system or achieving an urban level of flood protection for all urban areas.

Studies showed that combining bypass expansion, regional levee improvements, and coordinated operations in the SSIA did not result in systemwide hydraulic impacts that would be substantial enough to require including additional surface storage as a hydraulic mitigation measure. However, the plan does not preclude future consideration of new or additional flood storage by State, federal, or local agencies in the regional flood management planning or two basin feasibility studies, or as independent projects. (See Section 3.5.4 in Appendix A, "Central Valley Flood Protection Plan.")

c) Consideration of Upstream Flood Storage as an Alternative under the California Environmental Quality Act

As stated in Section 15126.1(a) of the CEQA Guidelines:

An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.

The DPEIR currently evaluates a reasonable range of alternatives (seven are considered and five receive full analysis) (see Chapter 5.0, “Alternatives”). The alternatives analysis is sufficient to “foster informed decision making and public participation.” As demonstrated by the discussion above, potential development of upstream storage facilities does not offer a feasible alternative to floodplain storage. As a result, CEQA does not require that such an alternative be included. See Master Response 24.

2.12 Master Response 11. Sacramento–San Joaquin Delta Considerations

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding consideration of Delta flood protection in the CVFPP, treatment of Delta areas not protected by the SPFC, and potential hydraulic impacts on the Delta resulting from CVFPP implementation.

This master response is organized into the following topics:

- a) Treatment of the Delta in the CVFPP
- b) Potential Hydraulic Effects on the Delta from Upstream Actions
- a) Treatment of the Delta in the CVFPP (see Section 3.9 in Appendix A, “Central Valley Flood Protection Plan”)

Consistent with the Central Valley Flood Protection Act of 2008 (SB 5, CWC Section 9603(b)), the 2012 CVFPP focuses on reducing flood risks on lands protected by the SPFC, including those in the Delta.

Approximately one-third of the Delta's levee system is part of the SPFC and thus is included in the CVFPP. Responsibilities for flood management in Delta areas outside the SPFC reside with a variety of local agencies and are supported by various State, federal, and local efforts (e.g., the State's Delta Special Flood Projects Program and Delta Levees Maintenance Subventions Program, Delta Plan development).

Additional information on the relationship of the CVFPP to other major programs in the Delta, such as the Delta Plan and Bay Delta Conservation Plan (BDCP), can be found in Master Response 14, below.

The CVFPP is one of many programs that could contribute to achievement of the management goals included in the Delta Stewardship Council's Delta Plan. The goals of the CVFPP support the Delta Plan's goals of improving water supply reliability and restoring the Delta ecosystem. The Delta Plan is a management plan that will include policies and recommendations, but no specific projects. The current draft Delta Plan (Delta Stewardship Council 2012) includes policies and recommendations related to reducing flood risks in the Delta, which appear to be consistent with or supportive of the major elements of the SSIA and associated State policies described in the 2012 CVFPP.

All areas protected by the SPFC are given the same consideration in the CVFPP. When making flood management investments within areas of the Delta protected by the SPFC, the State will consider structural and nonstructural actions to help achieve the following objectives:

- A 200-year level of flood protection, minimum, for urban areas (e.g., Stockton, Sacramento, and West Sacramento metropolitan areas)
 - A 100-year level of flood protection for small communities in the Delta that are not already protected by urban flood improvements (e.g., Clarksburg, Hood, Courtland, Walnut Grove, Isleton, and Rio Vista)
 - Improved flood management in rural-agricultural areas, through integrated projects that achieve multiple benefits and help preserve rural-agricultural land uses, including projects to restore levee crown elevations and provide all-weather access for inspection and floodfighting; economically feasible projects to resolve known levee performance problems; and agricultural conservation easements (when consistent with local land use plans and in cooperation with willing landowners)
- b) Potential Hydraulic Effects on the Delta from Upstream Actions (see Section 3.13.1 in Appendix A, "Central Valley Flood Protection Plan")

The State is sensitive to the potential effects that upstream actions may have on the Delta and is developing more detailed policies to minimize and mitigate potential redirected hydraulic impacts. The results of preliminary systemwide evaluations indicate that implementing the SSIA as a whole would not result in significant adverse hydraulic impacts on the Delta (see Attachment 8c in Appendix A, “Central Valley Flood Protection Plan”). However, post-adoption implementation actions and studies to refine the SSIA will involve conducting more detailed reach- and site-specific studies, evaluating any potential temporary downstream impacts caused by the sequencing of SSIA implementation, and providing mitigation.

The issue of potentially redirecting hydraulic impacts is also addressed in the DPEIR under Impact HYD-2 (NTMA), Impact HYD-4 (NTMA), Impact HYD-2 (LTMA), and Impact HYD-4 (LTMA) in Section 3.13, “Hydrology.” As indicated in these impact discussions, any project proponent implementing a project consistent with the SSIA that would affect flood stage elevations would need to obtain various applicable permits before project implementation (such as Section 408 and 208.10 authorizations from USACE and encroachment permits from the Board). The project proponent would need to analyze the potential for the project to locally impede flow or transfer flood risk by causing changes in river velocity, stage, or cross section. Projects would not be authorized if changes in water surface elevation, and thus flooding potential, would increase above the maximum allowable rise set by these agencies. If the design of a project would result in an unacceptable increase in flooding potential, a project redesign or other mitigation would be required to meet agency standards before the project could be authorized and implemented.

2.13 Master Response 12. Flood Hydrology and Hydraulics

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding hydraulic impact policy and hydraulic effects of SSIA elements.

This master response is organized into the following topics:

- a) Hydraulic Impact Policy (the development of a State policy or guidance to address the potential hydraulic impacts of repairing existing SPFC facilities)
- b) Hydraulic Effects of SSIA Elements (the potential hydraulic effects or impacts, either temporary or permanent, of SSIA elements and their implementation)

a) Hydraulic Impact Policy (see Section 4.8 in Appendix A, “Central Valley Flood Protection Plan”)

The 2012 CVFPP does not include new State policy or guidance for considering hydraulic effects of CVFPP actions such as repairing or reconstructing existing SPFC facilities; the Central Valley Flood Protection Act of 2008 (SB 5) did not require preparation of such a policy. However, the State will continue to develop policies and guidance to support SPFC repair and improvement projects through post-adoption activities, to complement existing State and federal permitting processes. The Board is authorized to review flood management improvement projects for compliance with policies on hydraulic impacts (CWC Sections 8710–8723; California Code of Regulations (CCR) Title 23, Chapter 1, Article 3(16)(o)). In addition, DWR and the Board review proposed State-federal flood management projects before they are authorized and determine whether the projects’ individual and cumulative hydraulic impacts are mitigated (CWC Section 12585.9). The Board, in collaboration with USACE and DWR, is continuing to develop guidelines related to project-specific hydraulic impacts.

b) Hydraulic Effects of SSIA Elements (see Sections 3.5.7 and 3.13 in Appendix A, “Central Valley Flood Protection Plan”)

The State is sensitive to the potential effects of repairs or improvements to SPFC facilities that may result in redirected hydraulic impacts upstream or downstream from these facilities, and is developing more detailed policies to minimize and mitigate potential impacts. Based on current evaluations (see Section 3.13; Attachment 8C, “Riverine Channel Evaluations”; and Attachment 8D, “Estuary Channel Evaluations,” in Appendix A, “Central Valley Flood Protection Plan”), implementing the SSIA as a whole would not result in adverse systemwide hydraulic effects, including any in the Delta. Peak floodflows may increase slightly (over current conditions) in certain reaches, but the expansion of conveyance capacity proposed in the SSIA would attenuate flood peaks and result generally in reduced peak flood stages throughout the system.

Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP. Only at that time will the State have project-specific modeling results that indicate the specific magnitude and extent of hydraulic impacts, if any, from planned improvements within the system. Cost estimates for the SSIA in the 2012 CVFPP include an allowance for features to mitigate potential significant hydraulic impacts caused by project implementation.

The issue of potentially redirecting hydraulic impacts is also addressed in Section 3.13, “Hydrology,” in the DPEIR under Impact HYD-2 (NTMA), Impact HYD-4 (NTMA), Impact HYD-2 (LTMA), and Impact HYD-4 (LTMA). As indicated in these impact discussions, any project proponent implementing a project consistent with the SSIA that would affect flood stage elevations would need to obtain various applicable permits before project implementation (such as Section 408 and 208.10 authorization from USACE and encroachment permits from the Board). The project proponent would need to analyze the potential for the project to locally impede flow or transfer flood risk by causing changes in river velocity, stage, or cross section. Projects would not be authorized if changes in water surface elevation, and thus flooding potential, would increase above the maximum allowable rise set by these agencies. If the design of a project would result in an unacceptable increase in flooding potential, a project redesign or other mitigation would be required to meet agency standards before the project could be authorized and implemented.

2.14 Master Response 13. Outreach and Engagement

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding the level of engagement of landowners, agricultural and other land use interests, and local governments during development of the CVFPP. Comments were also received on the revised focus of Phases 3 and 4 of 2012 CVFPP development on systemwide analyses and components, and subsequent outreach to participants; and on how stakeholders will be engaged moving forward (post-adoption).

This master response is organized into the following topics:

- a) Development of the 2012 CVFPP
- b) Post-Adoption Activities
- a) Development of the 2012 CVFPP (see Section 1.6 and Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan”)

A multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of partners and interested parties. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing

public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP.

2.14.1 Engagement Specifics

Phase 1 of the public engagement planning process focused on identifying problems and needs and crafting specific goals for the CVFPP. A variety of regional and topic-based work groups formed during this phase. Phase 2 focused on identifying individual actions that could be taken to achieve the CVFPP goals, and engaged stakeholders through continued regional and topic-based work groups and public workshops.

After Phase 2, stakeholders indicated that they preferred to review more developed materials and information before continuing with intense working meetings. With that understanding, DWR focused its efforts on content development (considering previously provided input and ongoing analyses) and developed a cohesive working draft document for stakeholder review in fall 2011. Outreach efforts included e-mail communications and updates, workshops, webinar briefings, and meetings with individuals and agencies. Work group members were also given an opportunity to review and comment on a working draft of the CVFPP. However, with a commitment to complete a public draft CVFPP within the legislated time frame, the degree of engagement provided in Phases 1 and 2 was not feasible for Phases 3 and 4.

The Board provided various opportunities for members of the public and agencies to comment on the public draft CVFPP, released in December 2011. Hearings were held in 2012 on April 5 (Sacramento), April 6 (Marysville), April 9 (Stockton), and April 11 (Woodland), and public comments were heard and discussed at both regular and special Board meetings. DWR also accepted comments on the DPEIR, which was released in early March 2012. More information on the Board’s process for public review and plan adoption can be found on its Web site, <http://www.cvpfb.ca.gov>.

- b) Post-Adoption Activities (see Section 4.4 in Appendix A, “Central Valley Flood Protection Plan”)

Anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

Two basin-wide feasibility studies will be prepared, one in the Sacramento River Basin and one in the San Joaquin River Basin, to refine the major system elements proposed in the 2012 CVFPP (such as bypass expansion and new bypasses) and assess their compatibility with prioritized local projects identified through regional flood management planning. These combinations of system element options and regional elements will form “alternatives” for further evaluation and comparison on a systemwide scale. Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. It is anticipated that work groups will form to help evaluate and refine physical options for system elements (e.g., bypass expansion and new bypasses), identify implementation challenges, and provide input into the planning process. The feasibility studies will be conducted in close coordination with USACE (and ongoing federal feasibility studies) and local implementing agencies.

The regional and basin-wide feasibility planning efforts will help identify specific improvement projects for design and environmental review. Stakeholders and the public will have additional opportunities to provide input. The draft feasibility reports and any accompanying environmental documentation will be made available to the public for review and comments.

These post-adoption activities are discussed in greater detail in Master Response 14, below.

2.15 Master Response 14. CVFPP Post-Adoption Activities

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding CVFPP post-adoption activities, including the regional planning process, basin-wide feasibility studies, the federal role, and future coordination with other planning efforts.

This master response is organized into the following topics:

- a) General Background on CVFPP Implementation (high-level, general description of post-adoption activities)
 - b) Regional Planning Process (the specifics related to the timing, format, and intended outcomes of the regional planning process as part of CVFPP implementation)
 - c) Basin-Wide Feasibility Studies (the specifics related to the timing, format, and intended outcomes of the basin-wide feasibility studies as part of CVFPP implementation)
 - d) Federal Role (USACE's role in CVFPP implementation and modifications to the SPFC)
 - e) Future Coordination with other Planning Efforts (coordination of CVFPP refinement and implementation with other resource management efforts in the Central Valley, such as the BDCP, and integration with other State and federal restoration efforts)
 - f) Other Post-Adoption Activities (the Conservation Strategy, CVFPP Financing Plan, and other post-adoption activities)
- a) General Background on CVFPP Implementation (see Foreword and Section 4.0 in Appendix A, "Central Valley Flood Protection Plan")

The 2012 CVFPP describes the State's vision for a sustainable flood management system in the Central Valley that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems. The SSIA prioritizes State investments and other activities to contribute to achieving this vision on a systemwide scale, recognizing current funding limitations.

The SSIA is a conceptual plan for flood system improvements, and additional post-adoption work is needed to refine its individual elements. Anticipated post-adoption activities include regional flood management planning, development of basin-wide feasibility studies and the CVFPP Financing Plan, completion of project-level proposals and environmental compliance, development of the Conservation Strategy, and State and USACE permitting.

Some elements of the SSIA have already been implemented (through the Early Implementation Projects Program since 2007, for example). Others may be accomplished before the first update of the CVFPP in 2017, and many will require additional time to fully develop and implement. Ongoing and new planning studies, engineering, feasibility studies, environmental review, designs, funding, and partnering are required to better define, and incrementally fund and implement, elements of the SSIA during the next 20–25 years.

DWR and the Board are the State lead agencies for implementing the CVFPP and preparing the 5-year CVFPP updates. CVFPP consistency is not a requirement of SB 5, and DWR and the Board retain flexibility in future activities; however, the State intends for all major flood management programs and projects in the Central Valley to be planned and implemented in a manner generally consistent with the vision, goals, and provisions of the CVFPP. DWR will also work closely with USACE and the Board to develop the federal *Central Valley Integrated Flood Management Study* and State basin-wide feasibility studies. In addition, the State is partnering with USACE on several regional feasibility investigations and post authorization change reports aimed at modifying the State-federal flood management system.

The Board has review and permitting authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board’s jurisdiction).

- b) Regional Planning Process (see Section 4.4 in Appendix A, “Central Valley Flood Protection Plan,” and *Implementing the Central Valley Flood Protection Plan Regional Flood Management Planning* (brochure, distributed at April 27, 2012, Central Valley Flood Protection Board meeting))

Regional flood management planning, to be conducted in each of nine regions identified in the 2012 CVFPP, is an important next step in

identifying specific improvements to rural-agricultural areas, small communities, and urban areas consistent with the SSIA. Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds.

Regional flood management plans are anticipated to:

- Assess regional flood risks and management actions (projects) to reduce these risks
- Discuss regional priorities, including criteria used to prioritize individual projects
- Describe specific projects, including their potential costs, regional and systemwide benefits, and beneficiaries
- Provide a financial plan describing how the proposed projects would be funded, including cost sharing and financing for local shares
- Describe regional governance of flood management

Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts. Information and outcomes from the regional planning process will inform the State-led basin-wide feasibility studies, preparation of a financing plan for the CVFPP, and the first update of the CVFPP (scheduled for completion by 2017). This regional effort is scheduled to be launched publicly in June 2012 and is anticipated to continue through 2013.

DWR will engage regional flood planning partners to develop and implement communication strategies with broad interest groups to brief them on flood management planning in their regions. Regional implementing and operating agencies, land use agencies, and interest groups will be invited to participate in the planning process. Each regional planning process will seek input, as appropriate, from agricultural interests, environmental interests, permitting agencies/resource agencies, local

emergency responders, tribes, and other stakeholders. DWR anticipates that a regional flood working group will be formed in each region.

c) Basin-Wide Feasibility Studies (see Section 4.4 in Appendix A, “Central Valley Flood Protection Plan”)

Post-adoption activities will include development of two State-led basin-wide feasibility studies—one in the Sacramento River Basin and one in the San Joaquin River Basin—that will refine the broad description of the SSIA contained in the 2012 CVFPP. The basin-wide feasibility studies will (1) identify State interest in and articulate refinements to system elements and regional elements, (2) inform development of the CVFPP Financing Plan and the 2017 CVFPP update, and (3) help define the State’s locally preferred plan for consideration in ongoing and planned USACE federal feasibility studies. The basin-wide feasibility studies will focus on system elements, which may take longer to study and implement than other regional plan elements because of their scale and complexity.

State-led feasibility studies are intended to support State decision making, regardless of the corresponding level of federal participation. They do not necessarily cover the scope of a federal feasibility study; however, these State-led studies will be conducted to minimize, to the extent possible, additional federal study needed to determine federal participation and facilitate subsequent authorization by Congress, if appropriate.

The basin-wide feasibility studies will be conducted in two primary phases. The first phase will be conducted concurrently with regional planning, and will focus on developing specific objectives and analyzing physical options for system elements (such as bypass expansion and new bypasses). The second phase will combine the most promising options for system elements with the prioritized list of regional elements identified in the regional flood management plans. These combinations of system element options and regional elements will form “alternatives” for further evaluation and comparison on a systemwide scale, representing refined alternatives for implementing the SSIA.

Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. The studies will be conducted in coordination with USACE (and ongoing cost-share feasibility studies) and local implementing agencies. It is anticipated that working groups will form to help evaluate and refine bypass expansion options, identify implementation challenges, and provide input in the planning process.

The State intends to complete both studies by mid-2015 to provide time to incorporate information and findings into the 2017 CVFPP Update.

Interactions with other key planning efforts, such as regional flood management planning, the CVFPP Financing Plan, and Central Valley Floodplain Evaluation and Delineation, are important to meeting the anticipated schedule.

d) Federal Role (see Section 4.8 in Appendix A, “Central Valley Flood Protection Plan”)

Both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. In addition to these continued roles, DWR will work closely with USACE and the Board in conducting post-adoption planning activities, including conducting the federal Central Valley Integrated Flood Management Study and State basin-wide feasibility studies to determine federal and State interests in implementation, respectively. The State will also partner with USACE on federal regional feasibility studies and post authorization scope-change investigations aimed at modifying the State-federal flood management system.

Various existing Federal programs, policies, and permitting processes administered by USACE will affect CVFPP implementation. One example is Section 14 of the Rivers and Harbors Act of 1899 (33 U.S. Code (USC) 408), which stipulates that modifications to a federal project must not be injurious to the public interest. Another example is Section 104 of the Water Resources Development Act (WRDA) of 1986, as amended (33 USC 2214), and Section 2003 of the WRDA of 2007, which amended Section 221 of the Flood Control Act of 1970 (33 USC 1962d–1965b) to provide guidance for obtaining federal funding credit for early implementation of projects.

e) Future Coordination with Other Planning Efforts (see Section 4.4.5 in Appendix A, “Central Valley Flood Protection Plan”)

As part of post-adoption activities, the Board and DWR will continue to work collaboratively with local, State, and federal agencies, environmental interests, and other parties to develop regional flood management plans and further refine the proposed elements of the SSIA.

The State has a strong interest in coordinating and implementing integrated projects that achieve multiple benefits. Effective integration across planning efforts means that all programs and projects, when implemented, work together to achieve key goals in a cost-effective manner; are sequenced and prioritized appropriately; and do not adversely affect or interfere with intended benefits. Although effectively integrating planning

across programs while considering multiple benefits can be challenging, doing so can also provide opportunities to share knowledge and identify mutually beneficial solutions that might not have been considered otherwise, thus minimizing duplication and reducing costs.

DWR will continue to coordinate with other flood management and ecosystem enhancement efforts during implementation of the CVFPP. A few key examples include the Delta Stewardship Council’s Delta Plan, the San Joaquin River Restoration Program, and the BDCP. These are described in more detail below.

2.15.1 Delta Plan (see “Central Valley Flood Protection Plan and the Delta Plan” (fact sheet dated March 23, 2012))

The Delta Stewardship Council is developing a comprehensive, long-term management plan for the Delta and the Suisun Marsh—the Delta Plan—to achieve the goals of improving water supply reliability and restoring the ecosystem, as described in CWC Section 85054. The CVFPP is one of many management plans that could contribute to achievement of the goals of the Delta Plan.

The primary goal of the CVFPP is to improve flood risk management, with a focus on lands protected by facilities of the SPFC, including those lands located in the Delta. However, SPFC facilities protect only portions of the Delta; other programs address flood management needs outside areas protected by the SPFC (outside the CVFPP study area). The major elements of the CVFPP’s recommended approach—the SSIA—are consistent with the policies and recommendations in the draft Delta Plan (Delta Stewardship Council 2012), which address the following topics:

- **Improve emergency preparedness and response**—Both plans discuss preparing for and responding to flood emergencies, including preparing emergency response plans and protocols.
- **Finance and implement flood management activities**—Both plans acknowledge the challenges associated with financing O&M and repairs, and contain similar recommendations to pursue formation of regional levee districts.
- **Prioritize flood management investment**—Both plans emphasize the need to prioritize future investments in flood management and leverage funding to achieve multiple objectives and benefits.
- **Improve residential flood protection**— Both plans acknowledge the need to associate levels of flood protection with assets at risk; the

CVFPP incorporates the Urban Levee Design Criteria document by reference and supports the development of criteria for repairing levees in rural areas (criteria appropriate to the lands and uses being protected).

- **Protect and expand floodways floodplains and bypasses**—Both the Delta Plan and the CVFPP recommend further evaluation of Paradise Cut.
- **Integrate Delta levees and ecosystem function**—The Delta Plan recommends development of a criteria to define locations of future setback levees and the CVFPP recommends the use of setback levees to provide local and regional benefits.
- **Limit of liability**—Both plans acknowledge the need to address increasing exposure of the State and other public agencies to liability associated with failure of flood management facilities; both plans also include recommendations related to flood insurance reform.

Under the SSIA, when making flood management investments in areas of the Delta protected by the SPFC, the State will consider structural and nonstructural actions to help achieve the following objectives:

- 200-year level of flood protection, minimum, for urban areas (e.g., Stockton metropolitan area)
- 100-year level of flood protection for small communities in the Delta that are not already protected by urban improvements (e.g., Clarksburg, Hood, Courtland, Walnut Grove, Isleton, and Rio Vista)
- Improved flood management in rural-agricultural areas, through integrated projects that achieve multiple benefits and help preserve rural-agricultural land uses, including projects to restore levee crown elevations and provide all-weather access for inspection and floodfighting; economically feasible projects to resolve known levee performance problems; and agricultural conservation easements, when consistent with local land use plans and in cooperation with willing landowners)

In addition, the SSIA includes system elements, such as a potential expansion of the Yolo Bypass, to increase the capacity of the flood management system, attenuate peak floodflows, and increase opportunities for ecosystem restoration compatible with the BDCP (another major management plan contributing to the Delta Plan). The SSIA also includes a potential new Lower San Joaquin Bypass to alleviate flood risk to the

Stockton metropolitan area and to provide opportunities for environmental restoration and agricultural preservation.

As discussed in the draft Delta Plan, many upstream actions could affect the State's ability to meet the Delta Plan's coequal goals. The State is sensitive to the effects that upstream SPFC improvements may have on the Delta and is developing more detailed policies to minimize and mitigate potential redirected hydraulic impacts or other adverse impacts. The results of preliminary systemwide evaluations indicate that implementing the SSIA as a whole would not result in significant adverse effects on the Delta. However, post-adoption implementation actions and studies to refine the SSIA will involve evaluating any potential temporary downstream impacts caused by the sequencing of CVFPP implementation and providing mitigation.

2.15.2 San Joaquin River Restoration Program (see “Central Valley Flood Protection Plan and San Joaquin River Restoration Program” (fact sheet dated March 23, 2012))

The San Joaquin River Restoration Program (SJRRP) is a comprehensive long-term effort to restore flows to the San Joaquin River from Friant Dam to the confluence of the Merced River, restoring a self-sustaining Chinook salmon fishery in the river while reducing or avoiding adverse water supply impacts from restoration flows.

The CVFPP focuses on the areas currently receiving protection from SPFC facilities. The Restoration Area considered in the SJRRP encompasses the San Joaquin River and associated areas and structures from Friant Dam to the Merced River confluence; this area is largely rural-agricultural with some small communities. A portion of the Restoration Area receives flood protection from SPFC facilities.

Under the SSIA, the State will consider investments for improving management of flood risks for rural-agricultural areas and small communities as follows:

- Structural and nonstructural options for improving flood protection for small communities protected by the SPFC, targeting a 100-year (1 percent annual chance) flood
- Improved flood management in rural-agricultural areas, through integrated projects that achieve multiple benefits and help preserve rural-agricultural land uses, including projects to restore levee crown elevations and provide all-weather access for inspection and floodfighting; economically feasible projects to resolve known levee

performance problems; and agricultural conservation easements (when consistent with local land use plans and in cooperation with willing landowners)

To facilitate restoration, modifications to river channels, bypasses, and water diversion and flood management facilities in the Restoration Area are anticipated. Many of the SJRRP modifications would require additional detailed studies and regulatory permits, and some of those actions are associated with SPFC facilities. Where feasible and consistent with the CVFPP, some SJRRP actions could be considered in CVFPP implementation and may be included in future updates to the CVFPP.

2.15.3 Bay-Delta Conservation Plan (see “Central Valley Flood Protection Plan and Bay Delta Conservation Plan” (fact sheet dated March 23, 2012))

The BDCP is a long-term multipurpose plan, developed pursuant to the federal Endangered Species Act and the California Natural Community Conservation Planning Act, to help meet California’s goal for Delta management to restore and protect water supply, water quality, and ecosystem health. The public draft BDCP and its EIR/EIS are scheduled for release in mid-2012.

The BDCP Plan Area includes the legal Delta, the Suisun Marsh, and the Yolo Bypass. The CVFPP focuses on areas currently receiving protection from SPFC facilities. Portions of the Delta, as well as the Yolo Bypass (a major SPFC facility instrumental in managing flood risks in the Sacramento River Basin), are within both the BDCP Plan Area and the CVFPP’s SPFC Planning Area. The Suisun Marsh, part of the BDCP Plan Area, is included in the Extended SPA as described in the DPEIR.

Although flood management is not within the scope of the BDCP, at least two proposed conservation measures directly relate to flood management: (1) the Yolo Bypass Fisheries Enhancement seeks to improve upstream and downstream fish passage through the bypass, and (2) Seasonally Inundated Floodplain Restoration calls for greater duration of flows along the Yolo Bypass.

The CVFPP recommended approach—the SSIA—proposes expanding the Yolo Bypass to increase its ability to accommodate large floodflows. The proposed expansion also presents opportunities to improve fish passage at SPFC facilities, improve fish access to upstream aquatic habitat, and facilitate natural flow attenuation, consistent with BDCP conservation measures. Under the SSIA, the State will also consider a new bypass in the south Delta. This could be accomplished by expanding Paradise Cut or

other routes in the vicinity, and may include levee construction, gate structures and/or weirs, habitat components, and agricultural easements.

Implementation of the CVFPP, and of many management components of the BDCP, will require further studies to refine physical features. These studies provide additional opportunities for coordination and to help achieve mutual goals and objectives.

f) Other Post-Adoption Activities

2.15.4 DWR Flood Management Programs (see Section 4.1 in Appendix A, “Central Valley Flood Protection Plan”)

Implementing the SSIA requires a wide range of actions for planning, developing, analyzing, constructing, and managing improvements to the SPFC. This work will be organized into several programs, established and led by DWR and implemented in coordination with local, State, and federal partnering agencies. These programs are under DWR’s existing FloodSAFE California Program (FloodSAFE). Each program is responsible for specialized implementation of different portions of the SSIA; together, they cover all work required for implementation and management. DWR’s major flood management programs include the following elements:

- Flood Emergency Response Program
- Flood System Operations and Maintenance Program
- Floodplain Risk Management Program
- Flood System Assessment, Engineering, Feasibility, and Permitting Program
- Flood Risk Reduction Projects Program

The first three programs are responsible for residual risk management. The fourth program is responsible for conducting the feasibility evaluations and design, engineering, and other activities necessary for implementation. The last program is responsible for working with partnering agencies to implement on-the-ground projects that make up the SSIA.

2.15.5 CVFPP Financing Plan (see Section 4.7 in Appendix A, “Central Valley Flood Protection Plan”)

The Central Valley Flood Protection Act of 2008 (SB 5) requires DWR to prepare a financing plan for the CVFPP after plan adoption. DWR

recognizes that funding provided by Propositions 1E and 84 will not be sufficient to realize all of the improvements to flood management in the Central Valley envisioned in the CVFPP. As part of post-adoption regional planning, DWR, in collaboration with local and regional entities, will prepare a framework for financing projects at a regional level; State-led feasibility studies will further refine system elements of the CVFPP and confirm State interests in implementing local and regional projects. Both efforts will inform preparation of the CVFPP Financing Plan, which is scheduled for completion in 2013.

2.15.6 Central Valley Flood System Conservation Strategy (see Appendix E, “Conservation Framework”)

DWR is collaborating with an interagency advisory committee (DWR, the California Department of Fish and Game (DFG), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and USACE) on development of a long-term Conservation Strategy. The Conservation Strategy will build on the Conservation Framework developed for the 2012 CVFPP, and will provide a comprehensive approach for the State to (1) achieve the environmental goals and objectives of the Central Valley Flood Protection Act of 2008 (SB 5), FloodSAFE, and the CVFPP; and (2) implement DWR’s environmental stewardship policy within the flood management system. The Conservation Strategy will integrate measures to mitigate potential impacts on environmental resources resulting from improvements to the SPFC, along with other ecosystem restoration activities implemented within the SFPC footprint.

Development of the Conservation Strategy will continue in close coordination with, and will support development of, 5-year updates to the CVFPP. This collaborative development provides environmental planning, policy, and technical support to develop public outreach and engagement; to identify opportunities to solve flooding problems with environmental approaches; and to provide a solid scientific foundation for improving environmental conditions and trends. The Conservation Strategy will be developed through engagement with the Board, partnering agencies, and environmental, recreational, agricultural, and other interests.

2.15.7 Project-level Proposals and Environmental Compliance (see Section 4.4 in Appendix A, “Central Valley Flood Protection Plan”)

Elements of the CVFPP are expected to be refined and modified based on regional flood management planning efforts and the two basin-wide feasibility studies. This is especially true for larger system elements that

require more studies and feasibility evaluations to better understand their costs and benefits and to reduce the level of uncertainty. All applicable project-specific environmental review will be conducted before implementation of projects stemming from the CVFPP.

2.16 Master Response 15. Funding

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding the allocation and prioritization of current and future funding to achieve public safety goals in all areas (rural-agricultural areas, small communities, and urban areas); local agencies' capacity to pay; and the use of the phrase "economically feasible" in the CVFPP.

This master response covers the topics listed above (see Section 4.7 and Attachment 1, "Legislative Reference," in Appendix A, "Central Valley Flood Protection Plan").

The Central Valley Flood Protection Act of 2008 (SB 5) does not commit the State to any specific level of flood protection, action, prioritization, or funding (see CWC Section 9603). In recognition of current funding limitations, State investments under the SSIA would be prioritized commensurate with risks to people and property and opportunities to achieve multiple benefits. Consequently, State investments under the 2012 CVFPP would vary from region to region, depending on the assets at risk (people, property, and infrastructure) and severity of flood risk (frequency and depth). However, most areas protected by the SPFC would realize flood risk management benefits under the SSIA.

As part of CVFPP implementation, the regional planning process will gather DWR, the Board, and local interests (flood management agencies, land use agencies, flood emergency responders, permitting agencies, environmental and agricultural interests, and other stakeholders) to develop regional plans that will include lists of prioritized projects and funding strategies for each of the nine regions identified in the CVFPP. In a parallel effort, a systemwide planning process will refine the basin-specific objectives (Sacramento and San Joaquin Basins) identified in the 2012 CVFPP. The most promising system elements will be combined with the prioritized list of regional elements identified in the regional plans to form SSIA "alternatives" for further evaluation in two basin-wide feasibility studies, one in the Sacramento River Basin and one in the San Joaquin River Basin.

Propositions 1E and 84 approved \$4.9 billion for statewide flood management improvements. Up to \$3.3 billion is allocated to improvements in the Central Valley (i.e., flood protection for areas protected by SPFC facilities). DWR invested approximately \$1.6 billion of the bond funds between 2007 and 2011 (along with about \$490 million in local investments and \$780 million in federal investments), conducting emergency repairs, early-implementation projects, and other improvements. Up to \$1.7 billion of additional bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP).

The current available bond funding is insufficient to implement the entirety of the recommended SSIA. After the Board adopts the CVFPP, DWR will create a financing plan for potential legislative actions to fund the next increment of capital improvements, O&M, and residual risk management activities for the CVFPP. The CVFPP Financing Plan will be informed by other post-adoption activities, including regional and basin-wide planning.

Flood management projects are typically cost-shared among federal, State, and local government agencies. Under existing federal law, the federal cost-share for construction may be 50–65 percent of the total project cost, depending on the amount of lands, easements, rights-of-way, and relocations necessary for the project. In recent years, many federally authorized projects and studies have not been adequately funded by the federal government.

Under State law, the State cost-share for federal flood projects is currently between 50 and 70 percent of the nonfederal share of the project costs, depending on the project's contributions to multiple objectives. After the passage of Proposition 84 and Proposition 1E, DWR developed interim cost-sharing guidelines for flood projects where the federal government is not currently sharing in the project costs. The State cost-share under these guidelines may range from 50 to 90 percent, depending on the project's contribution to multiple objectives and the degree to which the local area may be economically disadvantaged. Although the State currently has bond funds available for some flood projects, funding at this level may be unsustainable. Insufficient State funds are available to implement all of the SSIA. The CVFPP Financing Plan will address these cost-share formulas and potential new sources of funds to pay the capital costs.

2.17 Master Response 16. Vegetation Management

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding the State’s vegetation management strategy. The comments generally focus on the need for, and possible effects of, the life-cycle management (LCM) approach.

This master response is organized into the following topics:

- a) Need for Levee Vegetation Management Strategy
 - b) State Levee Vegetation Management Strategy in the CVFPP
 - c) Life-Cycle Management Component of the Vegetation Management Strategy
 - d) Evaluation of the Vegetation Management Strategy and Life Cycle Management
- a) Need for Levee Vegetation Management Strategy (see Section 3.10.1 in Appendix A, “Central Valley Flood Protection Plan,” and Section 5.4 in Appendix E, “Conservation Framework”)

USACE Engineering Technical Letter (ETL) 1110-2-571, Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams and Appurtenant Structures (2009), treats vegetation as introducing unacceptable uncertainties into levee performance. USACE direction in ETL 1110-2-571 states that these uncertainties must be addressed through vegetation removal and/or engineering works. A preliminary assessment of USACE’s approach by DWR concluded that the complete removal of existing woody vegetation along the 1,600-mile legacy Central Valley levee system would be enormously expensive, would divert investments away from more critical threats to levee integrity, and would be environmentally devastating. State and federal resource agencies find that the ETL itself, and the potential impacts of widespread vegetation removal with strict enforcement of that regulation, pose a major threat to protected species and their recovery. Similarly, local agencies are concerned about negative impacts on public safety from rigid ETL compliance if limited financial resources were redirected to lower priority risks. The CVFPP proposes the State’s comprehensive, integrated vegetation management strategy (VMS) for levees to meet both public safety and environmental goals in the Central Valley.

USACE has proposed a policy for issuing variances from the strict vegetation removal requirements of the ETL. The State intends for the

VMS, including LCM, to serve as the basis for a regional variance application that would generally allow vegetation to remain on the waterside of Central Valley levees up to a line 20 feet below the waterside levee crown. The State considers this vegetation to be particularly important for providing habitat while also promoting levee integrity. Although the most recent version of USACE's draft variance policy casts considerable doubt on the viability of such a regional variance that would achieve the State's objective of retaining most waterside vegetation, the VMS has been retained in the CVFPP to support a continued dialogue with USACE, including a likely variance application.

- b) State Levee Vegetation Management Strategy in the CVFPP (see Section 3.10.1 in Appendix A, "Central Valley Flood Protection Plan," and Section 5.4 in Appendix E, "Conservation Framework")

The State will implement a comprehensive, integrated VMS in the Central Valley that both meets public safety goals and protects and enhances sensitive habitats in the Sacramento and San Joaquin valleys. The CVFPP's VMS represents the State's current approach to addressing levee vegetation in the context of USACE ETL 1110-2-571 governing vegetation on federal flood management facilities. However, DWR continues to advocate having USACE participate as a true partner in addressing legacy levee vegetation issues, jointly considering the environmental and risk-reduction implications of vegetation remediation within the context of prudent expenditure of limited public funds. DWR will continue a dialogue with USACE regarding plan formulation concepts that recognize the agencies' shared responsibility for addressing vegetation issues (along with traditional levee risk factors), within a systemwide risk-informed context intended to enable continued progress on critical cost-shared flood system improvements.

- c) Life-Cycle Management Component of the Vegetation Management Strategy (see Section 3.10.1 in Appendix A, "Central Valley Flood Protection Plan," and Section 5.4 in Appendix E, "Conservation Framework")

The VMS in the CVFPP includes a long-term adaptive vegetation LCM strategy. As explained in the CVFPP and DPEIR, the LCM strategy generally will not apply to waterside vegetation up to a line 20 feet below the levee crown, and that waterside vegetation will be retained. Although it is true that implementing the LCM strategy will result in the gradual loss of important terrestrial and upper waterside riparian habitat throughout the SPFC levee system, the CVFPP's VMS includes the early establishment of riparian forest corridors that are expected to result in a net gain of this habitat over time. These riparian forest corridors will be established

adjacent to existing and new levees such that riparian corridor functions and wildlife habitat will be maintained or improved for the system as a whole. This approach will allow replacement habitat to develop and mature over time, while existing trees within the vegetation management zone are allowed to live out their normal life cycles on the levee slopes.

Levee vegetation subject to removal through LCM will be quantified using the best available information. Specific rates and species types for replanting and other details of implementation of LCM will be determined through collaboration with the appropriate agencies as part of the long-term Conservation Strategy. Appropriate compensation and/or mitigation for the loss of habitat will also be addressed, in consultation with the resource agencies, as the Conservation Strategy is developed.

The CVFPP's VMS is an adaptive approach, and ongoing and future research will include evaluating effects on riparian ecosystem functions from eliminating natural recruitment under LCM. This research may include a monitoring program to determine whether LCM affects species composition and recruitment, and the survival of lower waterside vegetation.

Also, the vegetation loss under the LCM strategy generally will occur passively, over a period of decades. The State is assuming that LCM will be a necessary, and generally sufficient, condition for USACE to issue a regional vegetation variance that will allow most waterside vegetation to be retained. If this assumption proves incorrect and an adequate vegetation variance is not forthcoming from USACE, the appropriateness of the LCM strategy could be reevaluated. Generally, the effects of applying the LCM strategy in the near term, while a vegetation variance is being pursued, should be fully reversible if the strategy is modified or eliminated at a later date.

d) Evaluation of the Vegetation Management Strategy and Life-Cycle Management (see Sections 3.2, 3.3, 3.5, 3.6, and 3.18 in the PEIR)

Several sections of the CVFPP DPEIR include specific evaluations of the potential environmental effects of the VMS and LCM, while others, such as the discussions of air quality and climate change and greenhouse gas emissions, incorporate implementation of the VMS into their overall assessment of program effects. The following DPEIR sections and impact discussions within those sections directly relate to the VMS and LCM:

- Section 3.2, "Aesthetics"; Impact VIS-5 (NTMA & LTMA), "Effects of Other NTMAs/LTMAs on Aesthetic Resources"

- Section 3.3, “Agriculture and Forestry Resources”; Impact AG-6 (NTMA & LTMA), “Effects of Other NTMAs/LTMAs on Forest Land”
- Section 3.5, “Biological Resources—Aquatic”; Impact BIO-A-2 (NTMA & LTMA), “Effects on Special-Status Fish, Fish Movement, Nursery Ground Usage, Riparian Habitat, Designated Critical Habitat, and Essential Fish Habitat Caused by Loss of Overhead Cover and Instream Woody Material as Part of the Vegetation Management Strategy”
- Section 3.6, “Biological Resources—Terrestrial”; Impact BIO-T-7 (NTMA & LTMA), “Effects of the Vegetation Management Strategy on Sensitive Natural Communities and Habitats, Special-Status Plants and Wildlife, Wildlife Movement, and Local Plans and Policies”
- Section 3.18, “Recreation”; Impact REC-6 (NTMA & LTMA), “Decrease in Quality of Terrestrial and Water-Based Recreation as a Result of Removal of Woody Vegetation from Levees”

Potential impacts of the VMS and LCM on aesthetics and recreation were considered less than significant based on the thresholds of significance used for these resource categories. Consideration of the long-term gradual shift in vegetation conditions resulting from LCM and the fact that the VMS includes replacement plantings to compensate for riparian habitat losses both contributed to this significance conclusion.

However, the impacts of LCM on forestry resources (riparian forest), aquatic biological resources, and terrestrial biological resources were considered potentially significant because of the increased sensitivity of these resources to losses of riparian habitat and the thresholds of significance used to assess these impacts. These impacts were also considered potentially significant because it could not be assured that implementing the VMS would replace riparian habitat in sufficient quantities, at appropriate times, and/or in appropriate locations to fully replace the functions and values of the riparian vegetation removed. Two mitigation measures in the DPEIR address these potentially significant impacts:

- Mitigation Measure BIO-A-2a (NTMA), “Secure Applicable State and/or Federal Permits and Implement Permit Requirements”
- Mitigation Measure BIO-A-2b (NTMA), “Ensure Full Compensation for Losses of Riparian Habitat Functions and Values Caused by Implementing the Vegetation Management Strategy Along Levees”

These mitigation measures are described in detail in Section 3.5, “Biological Resources—Aquatic,” and then applied to LCM impacts on forestry and terrestrial biological resources in the respective sections.

Mitigation Measure BIO-A-2a (NTMA) requires that project proponents obtain any permits applicable to the activity of removing riparian vegetation and comply with all terms and conditions of these permits. Examples of permits would be a Section 1602 streambed alteration agreement from DFG, federal Endangered Species Act authorization from USFWS and/or NMFS, and authorization under the California Endangered Species Act from DFG. Any mitigation plantings in the floodway will not be permitted if they would result in substantial increases in flood stage elevations, or alter flows in a manner that would have a substantial adverse effect on the opposite bank.

Mitigation Measure BIO-A-2b (NTMA) requires DWR to coordinate with the Board and levee maintenance agencies that implement the VMS to develop and implement a plan to record data on riparian vegetation lost or removed because of implementation of the VMS, and to ensure adequate compensation for losses of riparian habitat functions and values. The mitigation measure is written as if a single plan is prepared; however, multiple plans addressing individual regions, watersheds, river corridors, or other geographic subdivisions are also acceptable. The plan will be completed and suitable for implementation before the start of riparian habitat removal under the VMS. The plan will include mechanisms to, at a minimum, record and track the acreage, type, and location of riparian habitat to be removed through implementation of the VMS or lost over time through LCM. The plan will also address compensation for the loss and degradation of riparian habitat through the enhancement, restoration, or creation of riparian habitat in other locations.

DWR will track habitat compensation efforts and authorize implementation of vegetation removal under the VMS only at a rate and in locations consistent with the volume and type of compensation habitat that has been established. The plan must, at a minimum, meet the basic performance standard of “Authorized losses of habitat do not exceed the function and value of available compensation habitat.” DWR will coordinate with USFWS and DFG as the plan is prepared and implemented to incorporate into the plan appropriate compensation for effects on special-status species from vegetation management along the levee system. Any mitigation plantings in the floodway would not be permitted if they would result in substantial increases in flood stage elevations, or alter flows in a manner that would have a substantial adverse effect on the opposite bank.

In many cases, implementing Mitigation Measures BIO-A-2a (NTMA) and BIO-A-2b (NTMA) related to implementation of the VMS would reduce impacts to an overall less-than-significant level, and even sometimes to a beneficial level. This is particularly true for forestry resources because the overall acreage of riparian forest habitat would not be reduced, and a net overall increase would likely occur. Therefore, impacts on forestry resources from implementing the VMS and LCM are considered less than significant after mitigation. However, removing riparian habitat in some locations and enhancing, restoring, or creating habitat elsewhere would result in overall relocation of riparian habitat within the Extended SPA. It is possible that although some stream or river reaches may benefit from compensatory habitat, habitat values in other stream or river reaches could be substantially reduced, adversely affecting special-status fish and wildlife species that benefit from, or are dependent on, waterside riparian vegetation in these river reaches. Potential adverse effects include increased predation risk, increased water temperatures for fish, and reduced food availability. In addition, planting vegetation in the floodway may not be authorized by the Board, USACE, or other agencies if the vegetation would impede floodflows sufficiently that a rise in water surface elevation would cause a significant increase in risk to public safety. Therefore, it cannot be assured that in all instances fisheries and wildlife impacts would be mitigated to a less-than-significant level. Therefore, impacts on these resources from implementing the VMS and LCM are considered potentially significant and unavoidable.

2.18 Master Response 17. Climate Change

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding the climate change strategy and analysis approach. The comments typically request a more quantitative climate change analysis, a more specific strategy for addressing climate change, and a more extensive analysis of sea-level rise.

This master response is organized into the following topics:

- a) Level of Quantitative Analysis
- b) CVFPP Climate Change Adaptation Strategy
- c) Sea Level Rise

Recent CEQA case law suggests that an EIR is not required to evaluate the effects of climate change on proposed projects. However, CWC Section 9614(f) requires the CVFPP to include a “description of the probable

impacts of projected climate change . . . on the ability of the system to provide adequate levels of flood protection.” To address this requirement and promote the informational and public participation purposes of CEQA, an analysis of the effects of climate change was included in Attachment 8K, “Climate Change Analysis,” in Appendix A, “Central Valley Flood Protection Plan.”

- a) Level of Quantitative Analysis (see Section 3.8 in Appendix A, “Central Valley Flood Protection Plan,” and Attachment 8K, “Climate Change Analysis,” in Appendix A, “Central Valley Flood Protection Plan”)

The current science and best available information do not properly support a complete, quantitative analysis for climate change impacts on flood management. Climate change impacts and considerations have been incorporated into many recent and ongoing California resources planning studies, using varying analytical approaches. The CVFPP is the first major policy-level study with broad applications that addresses climate change for flood management in California. Typical analyses of climate change impacts—that is, assessments for long-term water supply needs—consider likely changes in average temperature and precipitation. However, climate change impacts on extreme events, such as floods, will not result from changes in averages, but from changes in local extremes.

To that end, DWR also has invested resources in developing a unique approach for assessing the impacts of climate change on Central Valley flood management. DWR has worked with leading experts and practitioners in the field to develop a new methodology based on the intensity of “atmospheric rivers,” which are fast-moving, concentrated streams of water vapor that can release heavy rains. The commonly known “Pineapple Express” is a form of atmospheric river.

However, insufficient data are available to be able to predict the magnitude or frequency of climate change impacts on extreme storm events, and climate projections from global climate models have difficulty representing regional- and local-scale precipitation patterns and processes that drive extreme events. DWR is working instead on the concept of prudent decision making that focuses on investments that could accommodate a broader range of climate change scenarios, rather than optimizing investments within a few selected extreme scenarios. DWR recently applied the resulting Threshold Analysis Approach to the Yuba-Feather system in a proof-of-concept pilot study. The results of the pilot study suggest that under F-CO, the Yuba River system is more vulnerable to changing climate conditions because of the limited regulating capacity (outlet release capacity) of New Bullards Bar Dam. This information

provides guidance for the overall investment strategy for modifications such as enlarging outlets at New Bullards Bar Dam. DWR intends to fully develop the Threshold Analysis Approach for the 2017 CVFPP Update with new Central Valley hydrology and improved atmospheric river indices. This pilot study and the overview of potential climate change effects on the Central Valley flood management system are further detailed in Attachment 8K, “Climate Change Analysis,” in Appendix A, “Central Valley Flood Protection Plan.”

b) CVFPP Climate Change Adaptation Strategy (see Section 3.8 in Appendix A, “Central Valley Flood Protection Plan”)

Although the 2012 CVFPP does not include a complete, quantitative analysis for climate change impacts on flood management, the CVFPP does include various system elements in its climate change adaptation strategy. The system elements provide additional benefits to the regional elements, and improve the overall function and performance of the SPFC in managing large floods. They also provide greater flexibility in accommodating future hydrologic changes, including climate change, and provide greater system resiliency in the face of changing downstream conditions. An evaluation of climate change in Section 6.6 of the DPEIR, titled “Effects of Global Climate Change on Program Facilities and Operations,” comes to similar conclusions.

The SSIA includes these system elements that provide flexibility to accommodate higher flows resulting from climate change:

1. Wider bypasses to lower floodwater surface elevations would increase flow-carrying capacity and flexibility to deal with higher floodflows that may occur because of climate change.
2. Changes in reservoir operations from Forecast-Based Operations and F-CO can provide additional flexibility and adaptability to changes in extreme flood events.
3. The SSIA does not preclude State participation with others in reservoir expansion projects, and includes obtaining rights for floodplain transitory storage from willing landowners.

c) Sea Level Rise (see Section 3.8 in Appendix A, “Central Valley Flood Protection Plan”)

Sea level rise will affect peak water surface elevations within the Delta and some distance upstream along its tributaries. The estimated average sea-level rise is currently under review by the National Research Council. For the 2012 CVFPP, high-tide conditions during the 1997 flood were used as

the boundary conditions for hydraulic analysis; this tide was about 2 feet higher than would normally be expected on the basis of solar and lunar gravitational forces that create tides, and could be considered an initial, surrogate sea-level-rise condition resulting from climate change. DWR will continue to coordinate with other DWR programs, the Delta Stewardship Council's Delta Plan, and ongoing USACE feasibility studies to collectively address how sea-level rise could contribute to potential estuary flooding in the Delta. Improved information about sea-level rise will be used in the 2017 CVFPP Update. DWR will develop approaches to address sea-level rise that may vary depending on the expected range and rate of sea-level rise.

2.19 Master Response 18. How the CVFPP Integrates into Other Large Plans

The CVFPP's recommended approach—known as the SSIA—sets forth a strategy for responsibly meeting the State's objectives to improve public safety, ecosystem conditions, and economic sustainability, while recognizing the financial challenges facing local, State, and federal governments today. The SSIA also includes system elements such as potential expansion of the Yolo Bypass to increase system capacity, attenuate peak flow during flood events, and increase opportunities for ecosystem restoration that should be compatible with the BDCP (another major management plan contributing to the Delta Plan). Another system element included in the SSIA is a potential new Lower San Joaquin Bypass to alleviate flood risk to the Stockton metropolitan area and provide opportunities for environmental restoration and agricultural preservation. The CVFPP will be implemented in coordination with other FloodSAFE programs and projects that also address flood risk in the Delta, especially for tidal estuaries and for non-SPFC facilities. Among these programs and projects are the Delta Levee Maintenance Subventions Program, the Delta Levees Special Flood Control Projects, and the Delta Emergency Operations Plan.

The CVFPP will be integrated with other large plans within the context of its primary goal to improve flood management in the SPFC planning area by considering an urban level of flood protection against a 200-year (0.5 percent annual chance) flood for urban and urbanizing areas; structural and nonstructural options for protecting small communities from a 100-year (1 percent annual chance) flood; and flood protection options for rural-agricultural areas, with a focus on integrated projects that achieve multiple benefits and help preserve rural-agricultural lands from urban development. Additional project-level study and coordination with local, State, and

federal governments and agencies, and with local major programs and projects, is necessary to implement many of the elements proposed in the CVFPP. For example, the Yolo Bypass expansion would need to be implemented in coordination with the CVP and SWP Long-term Operations Criteria and Plan Biological Opinion and BDCP, in consultation with Yolo County's Natural Heritage Program and other programs that focus on the region.

2.19.1 Relationship of the Delta Plan to the Central Valley Flood Protection Plan

The primary goal of the CVFPP is to improve flood risk management. Accordingly, the CVFPP focuses on reducing the chance of flooding on lands protected by facilities of the SPFC, including those located in the Delta. However, such facilities do not protect the entire Delta. The CVFPP is one of many management plans that would contribute to the Delta Plan. The major SSIA elements are consistent with the policies and recommendations in the draft Delta Plan.

As discussed in the draft Delta Plan, many upstream actions could affect the State's ability to meet the Delta Plan's coequal goals. Similarly, the State is sensitive to the effects that upstream SPFC improvements may have on the Delta and is developing more detailed State policies to minimize and mitigate redirected hydraulic impacts and other adverse impacts. Based on the results of current evaluations, the SSIA as a whole would not adversely affect the Delta; however, as part of implementation actions, additional studies would be necessary to evaluate potential temporary impacts and mitigation strategies related to the sequence of implementation activities.

2.19.2 Relationship of the BDCP to the Central Valley Flood Protection Plan

The CVFPP focuses on the areas that currently receive protection from SPFC facilities. Although flood management is not the primary purpose of the BDCP, at least two proposed conservation measures directly relate to flood management:

1. Yolo Bypass Fisheries Enhancement seeks to improve upstream and downstream fish passage through the bypass.
2. Seasonally Inundated Floodplain Restoration calls for a greater duration of flows in the Yolo Bypass.

The Yolo Bypass is a major SPFC facility for alleviating potential flood risk in the Sacramento River Basin and is within the CVFPP's SPFC planning area.

The CVFPP's SSIA proposes expanding the Yolo Bypass to increase its ability to handle peak flows during large flood events. This proposed expansion could be accomplished by setting back bypass levees and widening the Fremont Weir. This expansion presents opportunities to improve fish passage at SPFC facilities, improve fish access to upstream aquatic habitat, and facilitate natural flow attenuation.

2.19.3 Relationship of the SJRRP to the Central Valley Flood Protection Plan

The CVFPP focuses on the areas that currently receive protection from SPFC facilities. The Restoration Area considered in the SJRRP (defined as the river and associated areas and structures from Friant Dam to the Merced River confluence) is largely rural-agricultural, with some small communities. A portion of the SJRRP Restoration Area currently receives flood protection from SPFC facilities.

To facilitate restoration, the SJRRP implements the two goals of the Stipulation of Settlement (Settlement) in *NRDC, et al., v. Kirk Rodgers, et al.* (Settlement), signed between settling parties in 2006 after more than 18 years of litigation on San Joaquin River instream flow requirements and fish populations. The Settlement goals call for modifications to river channels and flood management facilities that include levees, bypasses, and water diversion facilities in the Restoration Area. Many of the SJRRP modifications would require additional detailed studies and regulatory permits, and some of these modifications would likely be associated with SPFC facilities. Where feasible, and consistent with the CVFPP's SSIA, certain SJRRP actions could be considered for CVFPP implementation.

It is critical that implementation of the Settlement minimize or avoid an increase in flood risk in the Restoration Area (whether protected by SPFC facilities or not). Under the Settlement, the maximum downstream rate of Interim Flows (initial flow releases to study specific actions) and Restoration Flows (long-term flow releases) would be limited to then-existing channel capacity throughout the Restoration Area. Therefore, the SJRRP may include three integrated measures to collectively minimize or avoid an increase in flood risk in the Restoration Area:

- (1) *Establish a Channel Capacity Advisory Group and apply performance standards* to determine and update estimated then-existing channel capacities. This group will consist of one representative from each of

the following: Reclamation, DWR, USACE, the Lower San Joaquin Levee District, and the Board.

- (2) *Maintain Interim and Restoration flows at or below estimated then-existing channel capacities.*
- (3) *Closely monitor erosion and perform maintenance and/or reduce Interim and Restoration flows, as necessary, to avoid erosion-related impacts.*

2.20 Master Response 19. How the CVFPP and PEIR Objectives (Primary, Secondary, and Statutory) Were Developed and Determined

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding how the primary and supporting goals of the CVFPP were developed and how they informed development of PEIR program objectives. The PEIR incorporates the CVFPP goals but also includes the development of additional objectives to meet statutory and CEQA requirements.

The California Central Valley Flood Protection Act of 2008 (SB 5) defined multiple objectives for the CVFPP, codified in CWC Section 9616, to be achieved wherever feasible. Goals for the CVFPP were collaboratively drafted by DWR, its partners (the Board and USACE), and interested parties through an extensive communications and engagement process, capturing the guidance and objectives provided by CWC Section 9616. As a result of this process, one primary goal and four supporting CVFPP goals (described below) were established and provided guidance in forming specific CVFPP policies and physical elements.

The process used to develop CVFPP goals is described in Section 1.6 of the plan, titled “Formulation of the 2012 Central Valley Flood Protection Plan.” Much of this information is repeated and/or summarized in Section 2.1.2, “Purpose and Objectives of the Proposed Program,” and Section 2.2, “Development of the Proposed Program,” of the DPEIR. Relevant information from those sections is provided below.

The five CVFPP goals were carried forward and became the program objectives of the PEIR, as follows:

2.20.1 Primary Objective

- **Improve Flood Risk Management**—Reduce the chance of flooding and damages, once flooding occurs, and improve public safety, preparedness, and emergency response through the following:
 1. Identifying, recommending, and implementing structural and nonstructural projects and actions that benefit lands currently receiving protection from facilities of the SPFC.
 2. Formulating standards, criteria, and guidelines to facilitate implementation of structural and nonstructural actions for protecting urban areas and other lands of the Sacramento and San Joaquin river basins and the Delta.

2.20.2 Supporting Objectives

- **Improve Operations and Maintenance**—Reduce systemwide maintenance and repair requirements by modifying the flood management systems in ways that are compatible with natural processes, and adjust, coordinate, and streamline regulatory and institutional standards, funding, and practices for operations and maintenance, including significant repairs.
- **Promote Ecosystem Functions**—Integrate the recovery and restoration of key physical processes, self-sustaining ecological functions, native habitats, and species into flood management system improvements.
- **Improve Institutional Support**—Develop stable institutional structures, coordination protocols, and financial frameworks that enable effective and adaptive integrated flood management (designs, operations and maintenance, permitting, preparedness, response, recovery, and land use and development planning).
- **Promote Multi-Benefit Projects**—Describe flood management projects and actions that also contribute to broader integrated water management objectives identified through other programs.

Three additional program objectives were developed for the PEIR and reflect specific direction provided in the authorizing legislation (summarized in Chapter 1.0, “Introduction,” of the DPEIR). These statutory objectives are as follows:

2.20.3 Statutory Objectives

- **Maximize Flood Risk Reduction Benefits within the Practical Constraints of Available Funds**—Ensure that technically feasible and cost-effective solutions are implemented to maximize the flood risk reduction benefits given the practical limitations of available funding, and provide a feasible, comprehensive, and long-term financing plan for implementing the plan.
- **Adopt the CVFPP by July 1, 2012**—Complete all steps necessary to develop and adopt the CVFPP by July 1, 2012, or such other date as may be provided by the Legislature.
- **Meet Multiple Objectives Established in Section 9616 of the California Water Code, Wherever Feasible:**
 - *Reduce the risk to human life, health, and safety from flooding, including protection of public safety infrastructure.*
 - *Expand the capacity of the flood management system in the Sacramento–San Joaquin Valley to either reduce flood flows or convey floodwaters away from urban areas.*
 - *Link the flood protection system with the water supply system.*
 - *Reduce flood risks in currently nonurbanized areas.*
 - *Increase the engagement of local agencies willing to participate in improving flood protection, ensuring a better connection between State flood protection decisions and local land use decisions.*
 - *Improve flood protection for urban areas to the urban level of flood protection.*
 - *Promote natural dynamic hydrologic and geomorphic processes.*
 - *Reduce damage from flooding.*
 - *Increase and improve the quantity, diversity, and connectivity of riparian, wetland, floodplain, and shaded riverine aquatic habitats, including the agricultural and ecological values of these lands.*
 - *Minimize flood management system operations and maintenance requirements.*
 - *Promote the recovery and stability of native species' populations and overall biotic community diversity.*

- *Identify opportunities and incentives for expanding or increasing use of floodway corridors.*
- *Provide a feasible, comprehensive, and long-term financing plan for implementing the CVFPP.*
- *Identify opportunities for reservoir reoperation in conjunction with groundwater flood storage.*

2.21 Master Response 20. Appendix A, Attachment 8J Map

Multiple comments were received during the public review processes for the draft CVFPP and DPEIR expressing concern about the conceptual levee setback element depicted on a map in DPEIR Appendix A, “Central Valley Flood Protection Plan,” Attachment 8J. The comments generally expressed concern that the conceptual setback would require conversion of the particular agricultural lands indicated on the map, among other issues.

These concerns reflect several apparent misunderstandings regarding the map and its intended purpose. First, the levee setback element of concern was included in the preliminary approach entitled “Enhance Flood System Capacity Approach,” but not in the recommended SSIA. The referenced map is from page E-12 in Appendix E to Attachment 8J, “Cost Estimates,” found in Volume IV of DPEIR Appendix A, “Central Valley Flood Protection Plan.” However, as explained in the DPEIR, development of the SSIA is the State’s proposal for balanced, sustainable flood management in the Central Valley. The Enhance Flood System Capacity approach is not being proposed by DWR.

Other documents support the conclusion that the levee setback element of concern to the commenters was not included in the recommended SSIA. For example, Figure 7-25 in Attachment 7, “Plan Formulation Report,” found in Volume II of DPEIR Appendix A, “Central Valley Flood Protection Plan,” illustrates all the elements included in the Enhance Flood System Capacity approach. It shows a setback levee area in the lower Feather River under this approach. However, this setback element is not carried forward in the SSIA, as depicted in Figure 8-1 in Attachment 7 and in Figure 3-1 of the public draft CVFPP (these are the same figure).

This particular conceptual setback was developed primarily for cost evaluation and comparison purposes. Specifically, Tables 6-11 and 6-15 in Attachment 8J, “Cost Estimates,” found in Volume IV of DPEIR Appendix A, “Central Valley Flood Protection Plan,” summarize the cost items

assumed for the Enhance Flood System Capacity approach and for the SSIA, respectively. The cost of any rural setback levees (including the conceptual setback of concern to the commenters) is reflected in Column 15, "Rural Setback Levees," of each table. When comparing these two tables (regarding the SSIA and Enhance Flood System Capacity approach, respectively), the costs of conceptual rural setback levees were included in the Enhance Flood System Capacity approach (Table 6-11), but the corresponding value in Table 6-15 is zero, further confirming that the conceptual levee of concern to the commenters is not included in the recommended SSIA.

In addition, all of the conceptual setback evaluations (even those evaluated under the SSIA) are conceptual only. As explained further in Master Responses 1 and 23, additional improvements would be evaluated on a case-by-case basis to address known performance problems and to incorporate additional environmental and other benefits. No specific alignments are being proposed at this time, and the development of more specific setback project proposals (if any) will involve substantial additional analysis and public participation.

2.22 Master Response 21. National Wildlife Federal Action Fund Comment Letters

The following comment was received via e-mail, verbatim, from more than 4,000 commenters via the National Wildlife Federation Action Fund. The "from" information in each e-mail followed the following format:

*"From: National Wildlife Federation Action Fund
[mailto:info@nwa.org] On Behalf Of commenter's name"*

The comment states:

California Department of Water Resources

In the Central Valley Flood Protection Plan, the Department of Water Resources and the Central Valley Flood Protection Board should adopt a robust and integrated approach that best positions California for the floods, water needs and healthy wildlife of today and tomorrow.

The best way to do that is to adopt a flood plan that increases the role of healthy floodplains, flood bypasses, and levee setbacks to give rivers room to spread out during high water flows. These are proven and cost-effective ways to safely manage large floods and have been successfully employed in communities across the county.

In addition to protecting communities, this approach to flood management provides land-use planning certainty for local governments, enhances our water supply by protecting the Delta and recharging groundwater, reduces uncontrolled flood risk for agriculture, and enormously benefits California's fish and wildlife.

Some commenters provided additional information, which is responded to separately as individual comments in Section 3.8, “Individual Comments and Responses.”

The comment above expresses a preference for an approach to achieving the CVFPP goals and objectives and is not a comment on the analysis, content, or conclusions in the PEIR. The commenters’ input, as well as input from other commenters on preferred CVFPP approaches, will be considered by the Board in evaluating the SSIA and other alternatives. The commenters’ suggestion that the Board and DWR “adopt a robust and integrated approach that best positions California for floods, water needs and healthy wildlife of today and tomorrow” is consistent with the primary, supporting, and statutory objectives of the CVFPP. As described in Chapter 5.0, “Alternatives,” of the DPEIR, and summarized in Table 5-1, the SSIA meets all these objectives, while other alternatives considered in the PEIR meet the objectives to varying degrees.

The actions suggested by the commenters to increase the role of floodplains, flood bypasses, and levee setbacks are included as options in the SSIA. One or more of these actions are also included to varying degrees in each action alternative (i.e., Modified SSIA Alternative, Achieve SPFC Design Flow Capacity Alternative, Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative, Protect High-Risk Communities Alternative, and Enhanced Flood System Capacity Alternative).

2.23 Master Response 22. Time Extension to the 45-day Public Review Process of the PEIR

The CVFPP State Systemwide Investment Approach (SSIA) is a complex integrated flood management plan that covers a large geographic area. The State Legislature required DWR to prepare the first public draft CVFPP by January 1, 2012, for adoption by the Board by July 1, 2012, or as such other date as may be provided by the Legislature. DWR believes that the CVFPP and DPEIR speak for themselves regarding the magnitude of the required effort in light of these statutory deadlines, and appreciates the compliments from a number of commenters in that regard.

The Public Draft CVFPP was released, on time, on December 30, 2011. Several of the attached supporting documents, specifically the State Plan of Flood Control Descriptive Document (November 2010) and the Draft Flood Control System Status Report (December 2011), were published before the Public Draft CVFPP and informed its development. Most CVFPP attachments were released with the public draft or in early February 2012; exceptions include the “Flood Damage Analysis,” “Riverine Channel Evaluations,” “Cost Estimates,” and “Reservoir Analysis” attachments, which were released between mid-February and the publication of the DPEIR.

CEQA Guidelines Section 15105(a) states that when a draft EIR is submitted to the State Clearinghouse for review by state agencies, the public review period shall not be less than 45 days. The DPEIR was made available for public comment on March 6, 2012; however, as described above, most attachments (the CFVPP and attachments) were publicly available several months before.

Four comments that were received on the last day of the noticed comment period requested an extension of the time to comment. No requests for extension were made before then. DWR decided not to extend the 45-day public comment period after considering several factors: (1) Many of the key documents had been available for more than 45 days; (2) the vast majority of commenters did not see a need to request an extension; (3) a number of commenters had already responded in a timely manner, many with very detailed comments; (4) the commenters requesting extensions were simultaneously filing comments reflecting a thoughtful review; (5) a highly publicized outreach and engagement program was initiated with stakeholders; and (6) it was necessary to ensure compliance with the rapidly approaching July 1 statutory deadline. DWR appreciates the diligent efforts made by all of those who have participated in the development of the CVFPP, including those who submitted timely comments on the DPEIR.

2.24 Master Response 23. Compliance with Requirements for PEIRs

As explained in the DPEIR, the environmental document for the CVFPP is a first-tier PEIR. A PEIR is “an EIR which may be prepared on a series of actions that can be characterized as one large project” and are related in specified ways (CEQA Guidelines Section 15168(a)). An advantage of using a PEIR is that it can “[a]llow the lead agency to consider broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or

cumulative impacts” (CEQA Guidelines Section 15168(b)(4)).

Accordingly, a PEIR is distinct from a project EIR, which is prepared for a specific project and must examine in detail site-specific considerations (CEQA Guidelines Section 15161).

Contrary to the assertions by several commenters, CEQA does not mandate that a first-tier PEIR identify with certainty the characteristics and impacts of second-tier projects that will be further analyzed before implementation during later stages of the program. Rather, identification of specific impacts is required only at the second-tier stage when specific projects are considered. Similarly, at the first-tier program stage, the environmental effects of potential future projects may be analyzed in general terms, without the level of detail appropriate for second-tier, site-specific review (CEQA Guidelines Sections 15146 and 15152). The CVFPP PEIR satisfies these requirements.

Certain commenters cited *In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008), 43 Cal.4th 1143, 1163 (*CALFED Proceedings*), in support of their argument that a greater level of project detail was required in the CVFPP PEIR. In fact, the California Supreme Court’s decision on *CALFED Proceedings* fully validated DWR’s PEIR in that case, stating:

In addressing the appropriate amount of detail required at different stages in the tiering process, the CEQA Guidelines state that “[w]here a lead agency is using the tiering process in connection with an EIR for a large-scale planning approval, such as a general plan or component thereof ..., the development of detailed, site-specific information may not be feasible but can be deferred, in many instances, until such time as the lead agency prepares a future environmental document in connection with a project of a more limited geographic scale, as long as deferral does not prevent adequate identification of significant effects of the planning approval at hand.” (Cal. Code Regs., tit. 14, § 15152, subd. (c).) This court has explained that “[t]iering is properly used to defer analysis of environmental impacts and mitigation measures to later phases when the impacts or mitigation measures are not determined by the first-tier approval decision but are specific to the later phases.” (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova, supra*, 40 Cal.4th at p. 431.)

Id. at 1170. A comparison of the EIR at issue in *CALFED Proceedings*, which is comparatively general, with the more detailed analysis contained in the CVFPP PEIR demonstrates that the standard articulated in *CALFED Proceedings* has been more than satisfied here.

Commenters also cited *Rio Vista Farm Bureau Center v. County of Solano* (1992) 5 Cal.App.4th 351 (*Rio Vista*); however, like *CALFED Proceedings*, that case upheld the adequacy of a program-level EIR that, like the CVFPP PEIR here, supported a program-level action that did not commit the agency to any future projects. Specifically, *Rio Vista* concerned the validity of a final EIR for a county's hazardous waste management plan. The plan did not select any specific sites for hazardous waste disposal facilities, but instead merely designated certain areas within the county as being potentially consistent with the stated criteria for such a facility. Much like the argument made by the commenters here, at issue was whether the EIR was defective for failing to provide a sufficient project description or to sufficiently analyze the environmental impacts of, possible mitigation measures for, and project alternatives to constructing hazardous waste disposal facilities at identified potential sites. Rejecting the claim, the Court of Appeal stated: "The flaw in appellant's argument is that the Plan makes no commitment to future facilities other than furnishing siting criteria and designating generally acceptable locations. While the Plan suggests that new facilities may be needed by the County, no siting decisions are made; the Plan does not even determine that future facilities will ever be built." (*Id.* at 371.) The Court of Appeal added: "Where, as here, an EIR cannot provide meaningful information about a speculative future project, deferral of an environmental assessment does not violate CEQA." (*Id.* at 373.)

Several commenters argued that DWR failed to disclose the full scope of the program, pointing to various analyses in the draft CVFPP and DPEIR of conceptual future projects, such as certain bypass expansions. However, these analyses simply implemented DWR's obligation under CEQA's "rule of reason" to make reasonable forecasts necessary to support informed decision making and public participation at the program level. As in *Rio Vista*, the draft CVFPP and DPEIR carefully explained that no commitments are presently being made to future facilities such as bypass expansions. Instead, extensive technical and other analyses as well as public participation will precede any specific project proposals. For a more detailed discussion of bypasses specifically, see Master Response 1.

Commenters also criticized the fact that several of the mitigation measures in the DPEIR contemplate flexible application at the project level, and that some of those measures are qualified by their future feasibility at the project level. However, given the broad range of actions that could occur under the CVFPP, this flexibility is not only appropriate, but necessary, because not all measures will be appropriate or feasible in all situations (CEQA Guidelines Section 15168(c)(3)). The CVFPP discusses implementation measures at a program level. Specific actions that may be implemented after adoption of the CVFPP will be evaluated to determine

the applicability and feasibility of specific measures in the particular project-level context.

2.25 Master Response 24. Adequacy of the Alternatives Analysis

CEQA requires that an EIR, in addition to analyzing the environmental effects of a proposed project, consider and analyze project alternatives that would reduce adverse environmental impacts (PRC Section 21061; *CALFED Proceedings* at 1143, 1163).

Section 15126.6 of the CEQA Guidelines indicates that an EIR must “describe a range of reasonable alternatives to the project ... which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. ...” An EIR need not consider every conceivable alternative to a project or alternatives that are infeasible. (*Id.*; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 574 (*Goleta*)). “In determining the nature and scope of alternatives to be examined in an EIR, the Legislature has decreed that local agencies shall be guided by the doctrine of ‘feasibility.’ ” *Id.* at 565. CEQA defines “feasible” as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.” (PRC Section 21061.1; see also CEQA Guidelines Section 15364.)

“There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.” CEQA Guidelines Section 15126.6(a). The rule of reason “requires the EIR to set forth only those alternatives necessary to permit a reasoned choice” and to “examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project.” CEQA Guidelines Section 15126.6(f). An EIR does not have to consider alternatives “whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.” CEQA Guidelines Section 15126.6(f)(3). Further, “an EIR need not study in detail an alternative that is infeasible or that the lead agency has reasonably determined cannot achieve the project's underlying fundamental purpose.” *CALFED Proceedings, supra*, at 1165 (citing and quoting *Goleta, supra*, at 574 (“a project alternative which cannot be feasibly accomplished need not be extensively considered”).) Further, “a lead agency may structure its EIR alternative analysis around a reasonable definition of underlying purpose and need not study alternatives that cannot achieve that basic goal.” *CALFED Proceedings, supra*, at 1166.

The DPEIR evaluated a reasonable range of alternatives (seven were considered and five received full analysis, and a sixth alternative is included in the FPEIR for the non-CEQA purpose of helping support a future vegetation variance application to USACE) (see Chapter 5.0, “Alternatives”). The DPEIR explained how additional alternatives were screened and the basis for eliminating some alternatives from more detailed consideration. The scope of the alternatives analysis in the DPEIR was sufficient to “foster informed decision making and public participation.” Attachment 7, “Plan Formulation Report,” in CVFPP Volume II provides additional information regarding the foundational development of alternatives presented in the DPEIR.

Several commenters specifically requested analysis of an alternative that includes the expansion or construction of new upstream reservoirs. As demonstrated in Master Response 10, above, potential development of upstream storage facilities does not offer a feasible alternative to floodplain conveyance and/or storage in relation to the CVFPP. As a result, CEQA does not require that such an alternative be included.

Commenters also broadly criticized the level of detail in the analysis of the alternatives, without identifying specific information considered to have been inappropriately omitted. A review of the 142-page alternatives analysis in the DPEIR demonstrates that the alternatives were adequately described and the potential environmental impacts comprehensively analyzed. The standard articulated in the CEQA Guidelines and case law has been more than satisfied.