

Refinements to Physical and Operational Elements in the State Systemwide Investment Approach

2012 SSIA		Refined 2017 SSIA	
Flood Management Element	Project Location or Required Components	Management Action Categories	Summary of Refinements
Systemwide: Bypasses			
New Bypass Construction and Existing Bypass Expansion	<ul style="list-style-type: none"> ■ Yolo Bypass Expansion ■ Sacramento Bypass Expansion 	Yolo Bypass multi-benefit improvements	<ul style="list-style-type: none"> ■ Approximately 1,500-foot expansion of Sacramento Weir and Bypass, including incorporation of ecosystem and multi-benefit features ■ Approximately 1.5-mile expansion of Fremont Weir and expansion of Yolo Bypass in multiple locations with setback levees where feasible, including consideration of the use of Sacramento Deep Water Ship Channel to convey flood flows. Recommendations include incorporation of ecosystem and multi-benefit features, where feasible.
	<ul style="list-style-type: none"> ■ Lower San Joaquin River Bypass (Paradise Cut Expansion) 	Paradise Cut multi-benefit improvements	Approximately 1,000-foot-long weir and associated setback levee with incorporation of ecosystem and multi-benefit features
	<ul style="list-style-type: none"> ■ Feather River Bypass ■ Sutter Bypass Expansion 	Feather River–Sutter Bypass multi-benefit improvements	An array of multi-benefit actions to be determined through future study in close coordination with local and regional partners after Yolo Bypass improvements are implemented
Operational Changes	<ul style="list-style-type: none"> ■ Weir and bypass operational changes 	Yolo Bypass multi-benefit improvements, Paradise Cut multi-benefit improvements, Feather River–Sutter Bypass multi-benefit improvements	Potential operational changes have been developed for Yolo Bypass and Paradise Cut associated with bypass expansions
Systemwide: Reservoir Storage and Operations			
Forecast-Coordinated Operations/Forecast-Informed Operations	<ul style="list-style-type: none"> ■ Fifteen reservoirs within Sacramento River Basin and San Joaquin River Basin 	Reservoir Operations	Study of potential changes to Tuolumne River reservoir operations
New Reservoir Storage	<ul style="list-style-type: none"> ■ Folsom Dam Raise included in SSIA as an already authorized project 	Reservoir and Floodplain Storage	<ul style="list-style-type: none"> ■ Folsom Dam Raise continues to be supported by State ■ Further study and refinement of reservoir and floodplain-related storage actions in Calaveras and Tuolumne River watersheds
Transitory Storage	<ul style="list-style-type: none"> ■ No specific projects in SSIA but to be considered on a willing-seller basis, where new flood storage could be safely isolated from 	Reservoir and Floodplain Storage	Three sites identified by RFMPs at Dos Rios, Three Amigos, and Oroville Wildlife Area

Refinements to Physical and Operational Elements in the State Systemwide Investment Approach

2012 SSIA		Refined 2017 SSIA	
Flood Management Element	Project Location or Required Components	Management Action Categories	Summary of Refinements
	adjacent areas		
Conjunctive Use and Groundwater Recharge	<ul style="list-style-type: none"> Encourages exploring recharge opportunities in the San Joaquin River Basin 	Reservoir and Floodplain Storage	Opportunities identified at Madera Ranch and Western Madera County
Systemwide: Flood Structure Improvements			
Major structures	<ul style="list-style-type: none"> Intake structure for new Feather River Bypass Butte Basin small weir structures Upgrade and modification of Colusa and Tisdale Weirs 	Feather River–Sutter Bypass multi-benefit improvements	<ul style="list-style-type: none"> Future study of an array of multi-benefit options, in close coordination with local and regional partners after Yolo Bypass improvements are implemented. Butte Basin small weir structures Upgrade and modification of Colusa and Tisdale Weirs
	<ul style="list-style-type: none"> Sacramento Weir widening and automation Fremont Weir widening and improvement 	Yolo Bypass multi-benefit improvements	<ul style="list-style-type: none"> Approximately 1,500-foot expansion of Sacramento Weir (includes consideration of automation) Approximately 1.5-mile expansion of Fremont Weir that would also accommodate fish passage improvements being planned by other programs
	<ul style="list-style-type: none"> Gate structures and/or weir at Paradise Cut 	Paradise Cut multi-benefit improvements	Approximately 1,000-foot-long weir at Paradise Cut
	<ul style="list-style-type: none"> Upgrade of structures in Upper San Joaquin bypasses Other pumping plants and small weirs 	Levee and infrastructure (Rural)	Completion of upgrade of structures
	<ul style="list-style-type: none"> Low level reservoir outlets at New Bullards Bar Dam 	Reservoir and floodplain storage	Approximately 20,000 cfs lower level outlet at New Bullards Bar Dam
	<ul style="list-style-type: none"> Cache Creek Settling Basin sediment management Sacramento system sediment remediation downstream from weirs 	Yolo Bypass multi-benefit improvements	Multi-benefit improvements to Cache Creek Settling Basin sediment management and sediment remediation downstream from weirs associated with ecosystem improvements in Yolo and Sacramento bypasses
Urban: Capital Improvements			
Target 200-year Level of Protection	Selected projects developed by local agencies, State, federal partners	Levee improvements; other infrastructure improvements	Urban improvements updated considering implementation progress for State-federal projects during last 5 years and recommendations of RFMPs
Non-SPFC Urban Levee Improvements	Includes approximately 120 miles of non-SPFC levees that are closely associated with SPFC urban levees. Performance of these non-SPFC levees may affect the performance		

Refinements to Physical and Operational Elements in the State Systemwide Investment Approach

2012 SSIA		Refined 2017 SSIA	
Flood Management Element	Project Location or Required Components	Management Action Categories	Summary of Refinements
	of SPFC levees		
Rural: Capital Improvements			
Site-Specific Rural-Agricultural Repairs	Based on levee inspections and other identified critical levee integrity needs	Levee and infrastructure repairs	Needed repairs identified by RFMPs and DWR's flood project inspections
Rural: Ecosystem Restoration			
Fish Passage Improvements	<ul style="list-style-type: none"> Tisdale Bypass and Colusa Bypass fish passage Fremont Weir fish passage improvements Deer Creek 	Habitat restoration/reconnection	<ul style="list-style-type: none"> Fremont Weir fish passage improvements being completed by Bi-Ops Program (USBR/DWR) Fish passage improvements at Tisdale Bypass, Colusa Bypass, and Deer Creek
Ecosystem Restoration and Enhancement	<ul style="list-style-type: none"> For areas within new or expanded bypasses, contributing to or incorporated with flood risk reduction projects 	Habitat restoration/reconnection	<ul style="list-style-type: none"> Ecosystem restoration and enhancement opportunities studied and recommended by Sacramento River and San Joaquin River BWFS and RFMPs for areas within Yolo Bypass, Paradise Cut, and selected levee setback locations in the Sacramento and San Joaquin River basins.
River Meandering and Other Ecosystem Restoration Activities	<ul style="list-style-type: none"> At selected levee setback locations in Sacramento River and San Joaquin River basins 		
Small Communities: Capital Improvements			
Target 100-year Level of Protection	<ul style="list-style-type: none"> Small communities protected by the SPFC 	Levee and infrastructure improvements; land acquisitions, setbacks and floodplain storage	Small communities' improvements to be implemented through Small Communities Flood Risk Reduction program considering recommendations of RFMPs and San Joaquin River BWFS
Residual Risk Management			
Enhanced Flood Emergency Response	<ul style="list-style-type: none"> All-weather roads on levee crown Flood information collection and sharing Local flood emergency response planning Forecasting and notification Rural post-flood recovery assistance program 	Emergency management (systemwide)	Enhanced flood emergency response refined through RFMP and DWR study of improved flood warning and mitigation times
Enhanced Operations and Maintenance	<ul style="list-style-type: none"> Identify and repair after-event erosion Developing and implementing enhanced O&M programs and regional O&M organizations Sacramento channel and levee 	Routine maintenance (urban, rural and small communities)	Enhanced operations and maintenance refined by interagency O&M Work Group and Multi-Objective O&M case studies

Refinements to Physical and Operational Elements in the State Systemwide Investment Approach

2012 SSIA		Refined 2017 SSIA	
Flood Management Element	Project Location or Required Components	Management Action Categories	Summary of Refinements
	management, and bank protection		
Floodplain Management	<ul style="list-style-type: none"> ■ Raising and waterproofing structures and building berms ■ Purchasing and relocating homes in floodplains ■ Land use and floodplain management 	Risk awareness, floodproofing, and land use planning (urban, rural and small communities)	Enhanced floodplain management refined through RFMP and cost estimates for floodplain management
	<ul style="list-style-type: none"> ■ Agricultural and conservation easements and acquisitions 	Land acquisitions and easements (rural)	Agricultural and conservation easements refined through RFMP and DWR cost estimates for easements and acquisitions