DWR Responses to Comments Related to Climate Change, Policy Recommendations, and No-action context (DRAFT) – 7/11/17

This table includes draft comment responses related to Climate Change, Policy Recommendations, and No-action context.

Letter Code	Commenter	Affiliation	CVFPP Theme	Comment	Draft Response
G_CWR1-04	Deirdre Des Jardins	California Water Research	Climate Change	2.Sea Level Rise The climate change analysis for the Central Valley Flood Protection Plan has some significant flaws, which need to be remedied for adequate consideration of climate change impacts in flood planning. The first flaw is that the analysis does not consider higher sea level rise scenarios. Flood control projects manage catastrophic risks. It is essential to consider worst case scenarios, particular for high density urban areas where flooding could result in loss of life and major economic damages. Therefore using a mean projection of sea level rise for flood control planning for urban areas is inappropriate.	The CVFPP planning horizon is 30 years for investment planning purposes, and builds upon the directives and guidance of AB 2800, Executive Order B 30-15, Executive Order S-13-08 and the California Natural Resources Agency publication, "Safeguarding California: Reducing Climate Risk (2014)". The physical elements proposed in the BWFSs and the CVFPP are assessed over a longer horizon (50 years). This allows for an understanding the flood risk change and an assessment of the resiliency of elements over time. For these reasons, the modeling and technical analyses presented in this document assess the performance of the system in terms of flood risk over a 50-year period, to 2067. The CVFPP is updated with each 5-year cycle. The 5-year cycle of CVFPP updates means that the impacts can be reassessed over the 30-year investment and implementation of the SSIA. DWR used NRC's projections for San Francisco to interpolate a year 2062 projection of 1.27 feet as the projected SLR for use in the 2017 CVFPP Update (2062 was used for BWFS analysis and was considered close enough to 2067 to use for the 2017 CVFPP update). Comparing the sea level rise used in the CVFPP 2017 with the latest California Ocean Protection Council (OPC) study called: Rising Seas in California: An Update on Sea Level Rise Science (April 2017), the 1.27ft of sea level rise falls above the 2050 projection "likely range" (67% probability SLR is between 0.6 and 1.1ft). And the 1.27ft of sea level rise falls in the likely range of the 2100 projection too (2100 RCP 4.5: 67% probability SLR is between 1.2 and 2.7ft). Therefore, sea-level rise projections used in the 2017 CVFPP is an upper-end estimate, especially over a 30-year planning horizon.
G_CWR1-05	Deirdre Des Jardins	California Water Research	Climate Change	Consideration of potential impacts from higher levels of sea level rise is also appropriate and necessary, given the recent dramatic warming of the arctic and acceleration of melting of polar ice sheets. Recent satellite observations show that the rate of melting in the ice sheets in West Antarctica and Greenland is increasing exponentially. In December 2014, the American Geophysical Union accepted a paper by Tyler Sutterly and colleagues at University of California, Irvine and NASA's Jet Propulsion Laboratory which examined satellite data estimating the annual mass loss in the Amundsen Sea Embayment. Sutterly's study showed that the acceleration of mass loss (net melting) had tripled in the last decade.4 Sutterley's analysis was comprehensive and authoritative as it evaluated and reconciled data using four different measurement techniques over 21 years. Similar accelerations are being seen in Greenland and the Arctic. The graph and map on the following page show Arctic sea ice and temperature anomalies.	Please see response to Comment G_CWR1-04

				[See G_CWR1.pdf for graph titled "Arctic Sea Ice Extent (Area of ocean with at least 15% sea ice)] [See G_CWR1.pdf for graphic titled "GFS 2m T Anomaly (degrees Celsius)[1979-200 base]	
G_CWR1-06	Deirdre Des Jardins	California Water Research	Climate Change	The 2012 Central Valley Flood Protection Plan stated that an “initial, surrogate condition” was used for looking at potential flooding in the Sacramento Delta: “For the 2012 CVFPP, high tide conditions during the 1997 flood were used as the boundary conditions for hydraulic analysis and could be considered an initial, surrogate condition under climate change. This tide was about two feet higher than would normally be expected on the basis of solar and lunar gravitational forces that create tides. DWR will continue to coordinate with other DWR programs, 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.” The 2017 Central Valley Flood Protection Plan Update indicates that mean estimates from the National Research Council’s 2012 report are being used. While the NRC mean estimates may be acceptable for rural areas with low numbers of residents, they are inappropriate for the city of Stockton, which has an estimated $21 billion in damageable property and 264,000 people behind levees.	Please see response to Comment G_CWR1-04
G_CWR1-07	Deirdre Des Jardins	California Water Research	Climate Change	The USACE has had updated sea level rise projections available for years, as well as an online calculator which gives projections by both ACOE and NOAA for low, intermediate and high scenarios. The projections are available for gauges along the entire length of the east and west coasts of the United States.5 Port Chicago is the closest gauge in the calculator to the Sacramento Delta. The table below shows regionally corrected sea level rise values from 2030 to 2100. The regionally corrected estimates for Port Chicago show that USACE’s high estimate of sea level rise is 0.9 feet by 2030, 1.8 feet by 2050, and 5.3 feet by 2100. This is significantly higher than the NRC mean estimates. NRC’s high sea level rise estimate is even higher. [See G_CWR1.pdf for table and graphic titled "Relative Sea Level Change Projections - Gauge: 9415144, Port Chicago, CA (05/01/2014)] Failing to consider higher sea level rise scenarios could result in tens or hundreds of millions in investments in levees that will be inadequate by the latter half of the century. This risk is not adequately addressed or analyzed in the Central Valley Flood Protection Plan or the Draft EIR/EIS.	Please see response to Comment G_CWR1-04
G_CWR1-08	Deirdre Des Jardins	California Water Research	Climate Change	3.Increasing Frequency of Extreme EventsThe 2017 CVFPP Update climate change analysis also does not consider the possibility of increased frequencies of extreme events, which is likely under the highest greenhouse gas emissions scenarios. A recent study by Jin Ho Yoon, S.-Y. Simon Wang, et. al., at the University of Utah using CMIP5 models6 found that both extremely dry periods and extreme flooding increase by 50% toward the end of the 21st century. Yoon et. al. defined extreme events as at the 2nd percentile. Such an increase in extremely wet events could increase the frequency of 200 year and 500 year flood events. Given recent experiences with both the driest January on record in some locations in 2014, and the wettest January on record in some locations in 2017, these projections should be carefully considered.[See G_CWR1.pdf for graphic titled "Running Variance of Annual Precipitation" and "Running Variance of Top-1m soil moisture"]	A detailed account of the climate change analyses and summary of the findings is presented in the supporting document "2017 CVFPP Update – Climate Change Analysis Technical Memorandum". Specifically concerning this aspect, the findings of the analyses are that: - Extreme precipitation, the driver for most flood events, is likely to intensify, even with projections of overall drier conditions. - Changes in flood magnitudes and frequencies at the basin-wide scale vary spatially, so that the Sacramento and San Joaquin basins respond differently. Watershed characteristics strongly influence the hydrological response to climate change, with the high elevation San Joaquin watersheds showing the largest percentage increases in flood volumes due to a reduction in

					precipitation falling as snow (instead falling as rain) and the more rapid melt of snow packs. The 5-year cycle of CVFPP updates means that the impacts can be reassessed over the 30-year investment and implementation of the SSIA.Additionally, the recommendations of the climate change study undertaken to support the 2017 CVFPP Update recommends: - Addressing uncertainty by evaluating a broader set of future climate scenarios, or sensitivity analyses. - Incorporating new findings from research into atmospheric rivers, watershed controls on precipitation, and runoff processes (including research at Scripps Institution of Oceanography and at UC Davis).
G_FOR1-04	Ronald Stork	Friends of the River	Climate Change	(4) CLIMATE CHANGE IN THE SAN JOAQUIN RIVER BASIN DWR has estimated that climate change will increase unimpaired flows in the main San Joaquin tributaries by up to 70–80 percent. This increase in flows will overwhelm the flood management system in the valley — for both rural areas and some urban areas. A comprehensive assessment and approach is needed and should be included in the next update. The emphasis in the San Joaquin Basin will necessarily differ from what can be achieved in the Sacramento Valley. By way of explanation, DWR's Independent Review Panel on Flooding in the Central Valley attempted to characterize the contrasts of the San Joaquin Basin with the generally more capable Sacramento Basin floodwater management arrangements: *The San Joaquin Valley is also rimmed with dams, but floodway capacities in this system are small and designed for managing snow-melt flooding. Unregulated rain-flood flows from many dams are quite foreseeable (and occurred in 1997), in part because major reservoir-flood-space encroachments can occur from storms that may have happened days, weeks, or even months earlier.* There are no meaningful opportunities for new dams with flood reservations in this basin (and none are currently proposed). The panel noted that circumstance. *Risk management approaches in the San Joaquin basin are largely the official recognition of floodplain flooding and some relatively minor levee improvements and setbacks.* But these are, nevertheless, critical goals to be accomplished. And, as in the next subject, there are important interactions between the institutional arrangements under the jurisdiction or potential jurisdiction of the board and better reservoir management that can affect risk reduction in this basin.	Climate change is expected to have more significant impacts in the San Joaquin Basin than the Sacramento River Basin. Given the large differences between the Sacramento and San Joaquin River Basins, a different portfolio of management actions are proposed in each basin. The San Joaquin Basin SSIA portfolio emphasizes a wide range of actions including reservoir management, levee improvements, setback levees, transitory storage, bypasses and other actions. The 5-year cycle of CVFPP updates means that climate change impacts can be reassessed over the 30-year investment and implementation of the SSIA. Additionally, the recommendations of the climate change study undertaken to support the 2017 CVFPP Update recommends: - Addressing uncertainty by evaluating a broader set of future climate scenarios, or sensitivity analyses. - Additional study to gain insight about reservoir climate vulnerability and potential adaptation needs. - Incorporating new findings from research into atmospheric rivers, watershed controls on precipitation, and runoff processes (including research at Scripps Institution of Oceanography and at UC Davis)
G_MSJRR1-04	Elizabeth Andrews	ESA	Climate Change	Climate Change Climate change analysis conducted as part of the development of the CVFPP 2017 Update concluded that the anticipated change in flood conditions in the San Joaquin Valley will be especially dramatic. This	Concur. A 1-page sidebar was added to Section 3.1 of the 2017 CVFPP Update that describes the implications of climate change for the Sacramento and San Joaquin Basins and potential strategies for climate change resilience.

				circumstance will require that we make equally dramatic changes in our approach to managing and reducing flood risk to prepare for that future. We appreciate the attention to climate change given in the preparation of this document and its supporting studies, and the inclusion of a system-scale vulnerability assessment of the SPFC in the recommended actions under residual risk management. We recommend the addition of a discussion of the implications of climate change for the appropriate strategic flood management response in each of the Sacramento and San Joaquin Basins. While we recognize that climate change understanding has shaped the selection of management actions included, such a discussion would help to shape expectations and focus stakeholder thinking on the kinds of strategies that will build climate resilience.	
G_SRRFA1-06	Tom Fossum, Mike Inamine, Melinda Terry, Fritz Durst, Greg Fabun	Sac River Regions & Flood Association	Climate Change	B. Climate Change Issue Description: We do not believe we can make investment-level decisions based on the current climate change findings. The climate change findings can support the development of State policy and system scale planning; however, they are not appropriate to consider as part of project design and implementation. Before we layer on climate change, we need to better understand how the system will perform during a future infrequent flood event. This includes a more accurate estimation of upstream levee performance and fragility. In addition, the climate change findings are vastly different for the two river Basins (Sacramento and San Joaquin) and the same approach may not be suitable for both going forward. Talking Points/Supporting Statements: - We fully support the State's effort to better understand how climate change will affect the flood system, and while we believe the analysis has progressed significantly, concerns remain which we believe impact the ability make investment-level decisions based on the current findings. - The climate change findings can support the development of State policy and system scale planning; however, these findings are not appropriate for consideration as part of project design and implementation. - The ability to compare future-with and future-without climate change project conditions will be important for prioritizing investment decisions and will help to better understand how future updates to the CVFPP should consider the associated residual risk. - Levee fragility should be considered in the climate change vulnerability assessment to provide more realistic information on communities at risk in extreme flood events. - The projected increase for the Sacramento River Basin is modest, and it is not clear that additional investment will be needed beyond what is currently proposed in the 2017 Update. As the changes to the San Joaquin Basin are estimated to be substantial, it may be difficult to develop structural solutions to address the changes in hydrology unlessupstream storage is considered. Recommendations: Engage the Regions to actively participate in the State-sponsored Climate Change Task Force to continue the development of projections that inform how climate changemay change hydrology. Engage the Regions in the preparation of the climate change vulnerability assessment that will inform how the physical extent of the SPFC floodplains may change.	The 2017 CVFPP Update climate change analysis was used for system-scale planning and development of State policy in accordance with the directives and guidance of AB 2800, Executive Order B 30-15, Executive Order S-13-08 and the California Natural Resources Agency publication, "Safeguarding California: Reducing Climate Risk (2014)" at a programmatic level . It has not been used to make investment-level decisions, project design, and implementation. While the 2017 CVFPP Update refines the overall near and long-term investment needs established in the 2017 CVFPP, it is not a decision document. Given the current state of climate change science and its uncertainties, application of the climate change projections for design purposes would not be appropriate at this time. A more detailed programmatic account of the climate change analyses and summary of the findings is presented in the supporting document "2017 CVFPP Update – Climate Change Analysis Technical Memorandum". The document also recommends further study: - Addressing uncertainty by evaluating a broader set of future climate scenarios, or sensitivity analyses. - Additional study to gain insight about reservoir climate vulnerability and potential adaptation needs. The use of levee fragility and flood frequency curves is incorporated into the probabilistic methodology used for the CVFPP flood risk and potential life loss evaluations of the urban levee improvements and systemwide actions. Levee fragility data was developed based on the Nonurban/Urban Levee Evaluations program undertaken by the State. Further details on the methods and sources of data can be found in the "2017 CVFPP Update – Scenario Technical Analyses Summary Report" which supports the 2017 CVFPP Update. The State welcomes RFMP participation in the State-sponsored Climate Change Task Force and stakeholder input into the climate change vulnerability assessment.

G_SRRFA1-08	Tom Fossum, Mike Inamine, Melinda Terry, Fritz Durst, Greg Fabun	Sac River Regions & Flood Association	Consequences of Inaction	D. State Liability Issue Description: The CVFPP 2017 Update is missing any discussion of the consequences and potential State liability associated with an "inaction/no-action" approach. Talking Points/Supporting Statements: - The State's liability concerns have driven the CVFPP and legislation mandating higher levels of flood protection for the Central Valley. - The 2017 Update should include a discussion on State liability associated with the federal flood control project to provide important context. The need to continue securing funding is a significant issue that the public, State Executive branch, and State Legislature should be kept aware of. - The 2017 Update should clearly summarize the consequences of inaction, both in terms of life safety and economic impacts. An update to Section 1.4.1 of the 2012 Plan would be a good way to keep the plan relevant. Recommendation: Prior to adoption of the 2017 Update, DWR should add a section that clearly emphasizes and summarizes the consequences of inaction to reinforce the importance of the 2017 Update. These consequences should be summarized in a manner consistent with Chapter 3 of California's Flood Future: Recommendations for Managing the State's Flood Risk Report, November 2013.	The following text is proposed to be added to Section 1.1 of the 2017 CVFPP Update: "More than 1 million people live or work in the Central Valley floodplains, which also hosts some of the most productive agricultural land in the nation. In some Central Valley regions, flood risk has been significantly reduced. However, in many parts of the Central Valley, people, property and sensitive ecosystems are still at unacceptably high risk from catastrophic flooding. Future floods are expected to cause more damage due to sea-level rise, climate change, subsidence, and future population growth and development within floodplains. Over time, these future drivers threaten to erode the reductions in flood risk achieved to date. Although significant progress has been made, much remains to be done. The costs of inaction if a major flood disaster were to occur could include loss of life, lost jobs, ruined infrastructure, including highways, businesses, hospitals, as well as homes, and closed businesses that could impact all Californians. Regional agriculture-based economies could be devastated, causing serious impacts to the State economy and disrupting national and international food supplies. When flooding occurs, businesses, homes, schools, and other important structures must be vacated for proper rehabilitation, causing economic and other impacts on families and communities. Communities and livelihoods could further suffer the long-term impacts of plummeting home values, higher flood insurance, and the huge costs of rebuilding. Sustainably investing in flood management now will be a small fraction of the cost of recovering from a major flood disaster later." Page 3-35 highlights the life loss estimates from the 2017 Without Project Scenario and 2067 Without Project Scenario. The figure highlights that without continued investment in the SPFC, climate change, sea-level rise, and population and land use changes over the next 50 years threaten to increase flood risk over the long-term future. A "Decreased Investment in Central Valley Flood Management" funding scenario was studied in the CVFPP Investment Strategy. It assumed that current funding levels would be frozen and the absence of any new GO bonds would result in only 10% of total capital needs being addressed. Rural and small community areas would be hardest hit by this reduction in State investment.

L_COL2-42	Glenn Gebhardt	City of Lathrop	Policy Recommendations	P. 4-34, "Recommendations for Hydraulic and Ecosystem Baselines and Program Phasing": Last bullet should also call for tracking land subsidence over time.	Concur. The text page 4-34 has been revised to say: "Track and report changes in hydrologic and sea level rise conditions, and subsidence over time through updates to the Flood System Status Report".....If subsidence continues at current rates, it is expected to have major impacts on the flood system, especially in the San Joaquin Basin. The climate change and subsidence information collected will help support future updates of the CVFPP and land use and residual risk management recommendations."
L_COL2-43	Glenn Gebhardt	City of Lathrop	Policy Recommendations	P. 4-34, "Recommendations for Operations and Maintenance of the Flood System": This policy needs to also include a bullet for establishing responsibility for maintenance of the Paradise Cut channel and natural river channels of the SPFC so that hydraulic design performance (currently 1955 and 1957 profiles) can be maintained.	33 CFR 208.10 provides that the channels of the federal flood project will be maintained. Water Code 12642 states "[i]n all cases where the Federal Government does not maintain and operate projects, it is the responsibility and duty of the county, city, state agency, or public district affected to maintain and operate flood control and other works, constructed pursuant to Chapters 1 and 2 of this part, after their completion and hold and save the State and the United States free from damages." This provision applies to Paradise Cut and the rest of the San Joaquin system. In the area of Paradise Cut, Reclamations Districts 2058, 2062, 2107, 2095 and 2089 all signed assurances to the Reclamation Board to maintain the Lower San Joaquin River and Tributaries Project of flood control for the San Joaquin River, which includes the channel of Paradise Cut. Supplements to the Standard Operation and Maintenance Manual (Unit Numbers 8, 9 and 10) outline the channel responsibilities of Paradise Cut.
L_COL2-45	Glenn Gebhardt	City of Lathrop	Policy Recommendations	P. 4-35, "Recommendations for Development of Multi-Benefit Projects": Most of the bulleted recommended actions are written to address the goal of Promote Ecosystem Functions, which is a different supporting goal of the CVFPP, as described in Section 1.2. The action list should focus on integrated water management, which are highlighted in the final 2 bullets of in the list.	The Recommendations for Development of Multi-Benefit Projects include a wide range of recommendations. While some address the promote ecosystem functions goal, some do not. This is consistent with the multi-benefits definition described on Page 2-8.
L_RD171-10	Dante Nomellini	Reclamation District 17	Climate Change	CLIMATE HAS IN THE PAST AND WILL IN THE FUTURE CHANGE AND THE CHALLENGE FOR FLOOD CONTROL IS TO DETERMINE THE CONSEQUENCES BUT MORE IMPORTANTLY REALISTICALLY DETERMINE HOW PROTECTION OF LIVES AND PROPERTY CAN BE IMPROVED The Plan focus on less probable events has detracted from the real and immediate needs. In 1986 1-5 flooded at the Twin City road intersection. Nothing has been done to address this critical need. There is no new evacuation route or national defense replacement for 1-5, there is no plan to relocate existing populations or critical public and private facilities and population dependent upon evacuation by way of 1-5 including those in the Bay Area is increasing. The Plan reflects a distraction from how flood protection improvement can be achieved. There is no plan on how to fund flood protection improvements without local contributions to the improvements and maintenance. The consequence of disqualification of communities for funding and restrictions on development has not be adequately analyzed or considered in the Plan.	Comment noted. Planning for the relocation of the assets described in the comment is beyond the scope of the 2017 CVFPP Update to consider in detail. Because the climate is not static, prudent planning for the long term must consider plausible potential future conditions for actions yet to be taken, and to assess the resilience of those that have been or couldbe completed in the near-term after project level analysis has occurred. The analyses developed through the 2017 CVFPP Update provide an understanding of potential future conditions that the actions described in the comments may be founded on. No communities have been disqualified for funding nor have restrictions been placed on local development as part of the 2017 CVFPP Update. The CVFPP is a programmatic plan, not a decision document.

L_RD171-11	Dante Nomellini	Reclamation District 17	Climate Change	THE PROJECTION OF SEA LEVEL RISE IN THE DELTA BASED ON CONDITIONS AT THE GOLDEN GATE MERITS FURTHER ANALYSIS AND ALAMEDA MAY BE A BETTER INDICATOR The actual and more current NOAA reported sea level trend data should be considered and analyzed as a part of any determination. Generalized global predictions and trends don't appear to correctly reflect all regional and local conditions. With the curvature of the earth, the spinning on an axis with a variable relationship to the sun, moon and other planets, variation in currents, winds and weather and changes in the earth surface care should be taken not to expect the seas to act like a flat body of water. Attached are copies of data from the NOAA web site showing sea level trends. The data shows variability from site to site and numerous sites where sea level is declining. San Francisco shows a trend of 0.64 feet increase in 100 years, Alameda 0.24 feet increase in 100 years, Juneau, Alaska 4.31 feet decrease in 100 years and Pietarsaari, Finland 2.39 feet decrease in 100 years. Finland was added simply because of its proximity to Greenland. It appears that each site has its own set of bench marks and it doesn't appear to be correlation to a single reference point of assumed elevation. As to the Delta watershed the San Francisco (Golden Gate) and Alameda stations are most relevant but Alameda may be a better indicator. It is generally recognized that tidal effects are dampened with distance from the Golden Gate but short term surges are likely dissipated in the Bay and the dissipation should be considered. The differences between .24 feet at Alameda and .64 feet at the Golden Gate suggest more than just variation due to distance. Additionally there is evidence indicating that the more recent rate of actual sea level rise at the Golden Gate is declining and that the average levels may be stabilizing or even declining. See attached DWR "Why Climate Change in CVFPP" 33 year Gaussian average for San Francisco in the sea level graph at the lower right corner of the page. Also compare the reported rate of increase for San Francisco to rates of increase reported for prior years. Correlation to measured stage data at interior Delta stations should be analyzed if it hasn't already been done.	The Resource Management Associates (RMA) delta hydraulics model that was used for the SJR BWFS and 2017 Central Valley Flood Project (CVFPP) Update has been calibrated to accurately capture the dispersion of tides in the Delta. The RMA model extends through the Golden Gate Bridge past the tidal influence into the Delta, as shown in Figure 5-3 of the San Joaquin River BWFS Appendix 5, or Figure 3-9 of the 2017 CVFPP Update - Scenario Technical Analyses Summary Report. The San Francisco Golden Gate Bridge gage was used to gather tide data. This gage has been gathering data since 1897. Moreover, the sea level rise used in the SJR BWFS was used based on the National Research Council report specifically developed for this location. The data this study used was from the Delta. The information used to develop the sea level rise in the SJR BWFS comes from the National Research Council report, Sea Level Rise for the Coasts of California, Oregon, and Washington (2012). The California Department of Water Resources (DWR) applied their sea level rise projection to tidal conditions observed at the Golden Gate Bridge.
L_RD1081-06	Fritz Durst	Reclamation District 108	Consequences of Inaction	The State's liability for State Plan of Flood Control facilities, as determined by the courts, has driven the CVFPP and legislation mandating higher levels of flood protection for the Central Valley. The CVFPP 2017 Update should include a section that clearly emphasizes and summarizes the consequences of inaction to reinforce the importance of the investment in State Plan of Flood Control Facilities. Such a description is necessary to demonstrate to the public and the Legislature the consequences of the "no action alternative." A decision to not invest in flood system improvements may ultimately result in significant costs from a catastrophic flood that would pale in comparison to an ongoing sustainable investment strategy to improve the system.	The following text is proposed to be added to Section 1.1 of the 2017 CVFPP Update: “More than 1 million people live or work in the Central Valley floodplains, which also hosts some of the most productive agricultural land in the nation. In some Central Valley regions, flood risk has been significantly reduced. However, in many parts of the Central Valley, people, property and sensitive ecosystems are still at unacceptably high risk from catastrophic flooding. Future floods are expected to cause more damage due to sea-level rise, climate change, subsidence, and future population growth and development within floodplains. Over time, these future drivers threaten to erode the reductions in flood risk achieved to date. Although significant progress has been made, much remains to be done. The costs of inaction if a major flood disaster were to occur could include loss of life, lost jobs, ruined infrastructure, including highways, businesses, hospitals, as well as homes, and closed businesses that could impact all Californians. Regional agriculture-based economies could be devastated, causing serious impacts to the State economy and disrupting national and international food supplies. When flooding occurs, businesses, homes, schools, and other important structures must be vacated for proper

					rehabilitation, causing economic and other impacts on families and communities. Communities and livelihoods could further suffer the long-term impacts of plummeting home values, higher flood insurance, and the huge costs of rebuilding. Sustainably investing in flood management now will be a small fraction of the cost of recovering from a major flood disaster later." Page 3-35 highlights the life loss estimates from the 2017 Without Project Scenario and 2067 Without Project Scenario. The figure highlights that without continued investment in the SPFC, climate change, sea-level rise, and population and land use changes over the next 50 years threaten to increase flood risk over the long-term future. A "Decreased Investment in Central Valley Flood Management" funding scenario was studied in the CVFPP Investment Strategy. It assumed that current funding levels would be frozen and the absence of any new GO bonds would result in only 10% of total capital needs being addressed. Rural and small community areas would be hardest hit by this reduction in State investment.
L_SJRFCPA1-04	Reggie Hill	San Joaquin River Flood Control Project Agency	Policy Recommendations	Recommended actions to address identified policy issues need to be formulated as actual concrete actions versus general terms such as "continue coordination" and "continue a dialogue."	The recommendations identified in Section 4.5.1 will be refined and clarified as part of DWR's work for the 2022 CVFPP Update. More specific actions will be identified as more detailed workplans are developed for each policy issue. As part of this refinement process, DWR will work closely with local and regional stakeholders to better understand all perspectives of the policy issues.
T_FOR1-05	Ronald Stork	Friends of the River	Climate Change	And I think my second point is that climate change is likely to make your job more difficult, more challenging, and more important. We're probably likely to see increased peak flows in the future, particularly in the San Joaquin Basin, which now has a lot of snowfall instead of rain, and as it, in very, very large rain floods, becomes more flashy. The San Joaquin Basin is also the basin that relies most heavily on often inadvertent, or at least unplanned, floodplain management for its success in protecting the Lower San Joaquin communities. And that's again this delicate balance between flood water management capabilities, as well as making sure that you have significant floodplain management understandings that indeed floodplain management will happen in the San Joaquin Basin, but that's -- that's really only the beginning of these San Joaquin Basin issues that I want to talk about. Joe raised the question today about the -- whether or not we're getting some good stage marks on the Tuolumne. I think it's -- the Board has -- and this plan have not focused on reservoir management issues much, and nor have they focused -- nor does this plan or the Board focus very much on the floodwater management systems of the tributaries to the main stem rivers. At this point, you know, you -- everybody has limited bandwidth, even a Board as talented as this one. So you've focused on main stem issues, and bypass issues, including a better bypass in the Lower San Joaquin Basin, which -- which is, I think, the beginning of some more hopefully successful attention to the San Joaquin River Basin. But reservoir management has a big effect on this, as does the fact that your Designated Floodways, if you add them all	The 2017 CVFPP Update included an updated climate change analysis that used the best-available science to estimate flood hydrology with inland climate change and sea-level rise. The climate change hydrology was used to study potential large-scale improvements in the Sacramento and San Joaquin Basin-wide Feasibility Studies. Regarding additional reservoir management opportunities, the San Joaquin Basin-wide Feasibility Study studied a wide variety of reservoir management improvements and recommended several reservoir management actions for further study, including: increasing the objective release on the Tuolumne River, and forecast-informed operations and/or conjunctive use on the Tuolumne River and Calaveras River. More detailed planning and analysis are expected for the 2022 CVFPP Update.

				up, don't -- don't reach the capacity that's in the San Joaquin River itself. And that's a -- that's a challenge that I think is still not really grappled with successfully in this plan. The reservoir management issues in these rivers are certainly highlighted by what's been happening on the Tuolumne this year, which might happen on the Merced this year, which is these reservoirs are really unable to maintain their required flood reservations, largely because they're limited by the downstream floodways limitations.	
L_RD171-10	Dante Nomellini	Reclamation District 17	Climate Change	CLIMATE HAS IN THE PAST AND WILL IN THE FUTURE CHANGE AND THE CHALLENGE FOR FLOOD CONTROL IS TO DETERMINE THE CONSEQUENCES BUT MORE IMPORTANTLY REALISTICALLY DETERMINE HOW PROTECTION OF LIVES AND PROPERTY CAN BE IMPROVED The Plan focus on less probable events has detracted from the real and immediate needs. In 1986 1-5 flooded at the Twin City road intersection. Nothing has been done to address this critical need. There is no new evacuation route or national defense replacement for 1-5, there is no plan to relocate existing populations or critical public and private facilities and population dependent upon evacuation by way of 1-5 including those in the Bay Area is increasing. The Plan reflects a distraction from how flood protection improvement can be achieved. There is no plan on how to fund flood protection improvements without local contributions to the improvements and maintenance. The consequence of disqualification of communities for funding and restrictions on development has not be adequately analyzed or considered in the Plan.	Comment noted. Planning for the relocation of the assets described in the comment is beyond the scope of the 2017 CVFPP Update to consider in detail. Because the climate is not static, prudent planning for the long term must consider plausible potential future conditions for actions yet to be taken, and to assess the resilience of those that have been or could be completed in the near-term after project level analysis has occurred. The analyses developed through the 2017 CVFPP Update provide an understanding of potential future conditions that the actions described in the comments may be founded on. No communities have been disqualified for funding nor have restrictions been placed on local development as part of the 2017 CVFPP Update. The CVFPP is a programmatic plan, not a decision document.
L_SJRFCPA1-04	Reggie Hill	San Joaquin River Flood Control Project Agency	Policy Recommendations	Recommended actions to address identified policy issues need to be formulated as actual concrete actions versus general terms such as "continue coordination" and "continue a dialogue."	The recommendations identified in Section 4.5.1 will be refined and clarified as part of DWR's work for the 2022 CVFPP Update. More specific actions will be identified as more detailed workplans are developed for each policy issue. As part of this refinement process, DWR will work closely with local and regional stakeholders to better understand all perspectives of the policy issues.
L_SJRFCPA1-09	Reggie Hill	San Joaquin River Flood Control Project Agency	Policy Recommendations	Areas of Agreement regarding Perspectives on Funding: It is recognized that there is a "need for additional funding and increased cost share by the State for project planning and implementation in areas with disadvantaged communities," However, the last recommendation on page 4-37 under Recommendations for Effective Governance and institutional Support is focused only on facilitating the participation of disadvantaged communities in planning efforts. The recommendations should go beyond facilitation of participation in planning efforts and include steps toward establishing an increased cost share by the State.	Revised text on Page 4-37 to the following: Continue to support disadvantaged communities in participating in RFMPs and future updates of the CVFPP and project implementation (S/L). The State is committed to the continued support of disadvantaged communities consistent with the Governor's Water Action Plan. The State will facilitate the continued participation of disadvantaged communities in planning efforts at all planning scales and to the extent feasible based on available resources, will provide assistance to disadvantaged communities for project implementation."
T_FOR1-05	Ronald Stork	Friends of the River	Climate Change	And I think my second point is that climate change is likely to make your job more difficult, more challenging, and more important. We're probably likely to see increased peak flows in the future, particularly in the San Joaquin Basin, which now has a lot of snowfall instead of rain, and as it, in very, very large rain floods, becomes more flashy. The San Joaquin Basin is also the basin that relies most heavily on often inadvertent, or at least unplanned, floodplain management for its success in protecting the Lower San Joaquin communities. And that's again this delicate balance between flood water management capabilities, as well as making sure that you have significant floodplain management understandings that indeed floodplain management will happen in the San Joaquin Basin, but that's -- that's really only the beginning of these San Joaquin Basin issues that I want to talk about.	The 2017 CVFPP Update included an updated climate change analysis that used the best-available science to estimate flood hydrology with inland climate change and sea-level rise. The climate change hydrology was used to study potential large-scale improvements in the Sacramento and San Joaquin Basin-wide Feasibility Studies. Regarding additional reservoir management opportunities, the San Joaquin Basin-wide Feasibility Study studied a wide variety of reservoir management improvements and recommended several reservoir management actions for

				Joe raised the question today about the -- whether or not we're getting some good stage marks on the Tuolumne. I think it's -- the Board has -- and this plan have not focused on reservoir management issues much, and nor have they focused -- nor does this plan or the Board focus very much on the floodwater management systems of the tributaries to the main stem rivers. At this point, you know, you -- everybody has limited bandwidth, even a Board as talented as this one. So you've focused on main stem issues, and bypass issues, including a better bypass in the Lower San Joaquin Basin, which -- which is, I think, the beginning of some more hopefully successful attention to the San Joaquin River Basin. But reservoir management has a big effect on this, as does the fact that your Designated Floodways, if you add them all up, don't -- don't reach the capacity that's in the San Joaquin River itself. And that's a -- that's a challenge that I think is still not really grappled with successfully in this plan. The reservoir management issues in these rivers are certainly highlighted by what's been happening on the Tuolumne this year, which might happen on the Merced this year, which is these reservoirs are really unable to maintain their required flood reservations, largely because they're limited by the downstream floodways limitations.	further study, including: increasing the objective release on the Tuolumne River, and forecast-informed operations and/or conjunctive use on the Tuolumne River and Calaveras River. More detailed planning and analysis are expected for the 2022 CVFPP Update.