



Meeting Summary

Upper San Joaquin Regional Conditions Work Group Meeting #2

August 18, 2009, 9:00 am – 4:00 pm

**Location: Merced County Farm Bureau
646 South Highway 59
Merced, California 95340**

WORK GROUP ATTENDANCE:

Name	Organization	Status
Randall Anthony	Merced Irrigation District	Member
Margit Aramburu	University of Pacific, Natural Resources Institute	Member
Julia Berry	Madera County Farm Bureau	Member
Leo Capuchino	City of Mendota	Member
Dario Dominguez	County of Madera	Member
Sarge Green	CA Water Institute, CSU Fresno	Member
Richard Harmon	Landowner/Grower, Dos Palos, Calif.	Member
Reggie Hill	Lower San Joaquin Levee District	Member
Kellie Jacobs	County of Merced	Member
Dave Koehler	San Joaquin River Parkway and Cons. Trust	Member
Jerry Lakeman	Fresno Metropolitan Flood Control Dist.	Member
Bill Luce	Friant Water Authority	Member
Mari Martin	Resource Management Coalition	Member
Paul Romero	CA Department of Water Resources, Floodplain Management Division	Member
John Shelton	CA Department of Fish and Game	Member
Douglas Welch	Chowchilla Water District	Member
Diana Westmoreland Pedrozo	Merced County Farm Bureau	Member
Gary Hester	CA Department of Water Resources	CVFMP Program Manager
Merritt Rice	CA Department of Water Resources	CVFPO*
Roger Lee	CA Department of Water Resources	CVFPO*
Brian Smith	CA Department of Water Resources	DWR Lead
Eric Clyde	MWH Americas Inc.	Technical Lead
Alexa La Plante	MWH Americas Inc	Team
Craig Moyle	MWH Americas Inc	Team
Pam Jones	Kearns & West	Team, Facilitator

Ben Gettleman	Kearns & West	Team
---------------	---------------	------

*Central Valley Flood Planning Office

Absent:

Jose Ramirez	City of Firebaugh	Member
David van Rijn	U.S. Army Corps of Engineers	Member
John Slater	County of Madera, Resource Management Agency	Member
Monty Schmitt	Natural Resources Defense Council	Member
Joe Topia	CA Department of Water Resources, Floodplain Management Division	Alternate

Observers:

Pal Hegedus	RBF Inc.
-------------	----------

WORK GROUP HOMEWORK/ACTION ITEMS (requested by 8/25/09)

1. Review and comment on *Additional References* List (to be emailed)
2. Review and provide comments on the 68-page document (to be emailed) containing:
 - Chapter 1
 - Chapter 2
 - Section 2.0 (Introduction)
 - Section 2.1 (History)
 - Section 2.2 (General Descriptions of Regions)
3. Review, comment and add additional items to the *DRAFT – Summary of Community Success Factors* handout
4. Review and comment on *Section 2.3 (Resource Areas)*

Homework assignments should be sent to DWR lead Brian Smith, besmith@water.ca.gov with a copy to MWH lead Eric Clyde, Eric.S.Clyde@us.mwhglobal.com.

ACTION ITEMS: PROGRAM TEAM (Due: 8/25/09)

1. Merritt Rice to develop a one paragraph summary, with citation, of the U.S. Army Corps of Engineers studies referred to by the program (e.g. Central Valley Integrated Flood Management Study).
2. Eric Clyde to check with Roger Lee regarding comment sent by email from Randal Anthony.
3. Eric Clyde to evaluate revision of Upper San Joaquin Regional Descriptions “Land Use and Economy” in regards to agricultural production. Example: Dairy production is not a growing industry for 2009.
4. Merritt Rice to report back to the work group the meaning of “Limitation on Development” on detailed Chapter 2 outline, Section 2.2.3 Social and Economic Conditions.

MEETING #2 GROUP RECAP *(Can be used in communications with constituents)*

Members of the Upper San Joaquin Regional Conditions Workgroup provided initial input into the development of the Regional Conditions Summary Report in the following areas:

- **Projects and Programs** -- Identification of regional projects and programs approved, funded, in progress or completed by or near 2015 that have the potential to impact the conditions of the region's resources (physical, institutional, socio-economic, etc.).
- **Challenges, Drivers and Influencers** -- Identification of conditions (e.g. population) likely to influence flood susceptibility or be susceptible themselves to flood damage as well as the trends and timeframes associated with those conditions, and the affects/impacts those conditions and their trends may have on communities in the region.
- **Problems and Opportunities** – Discussion to identify community assets at risk from flooding, why they are at risk and the consequences of lack of protection from flooding.
- **Community Success Factors** – Identification of what issues, risks, situations the Central Valley Flood Protection Plan (CVFPP) must address in order to be considered a “success” by communities/constituencies in the Upper San Joaquin Region.

The group continues to review references, studies and documents that might be included by the technical team in developing the CVFPP.

MEETINGS SCHEDULE:

Meeting #3

Time: 9 a.m. to 4 p.m.

Date: Tuesday, Sept. 1, 2009

Place: Madera County Farm Bureau
1102 South Pine Street, Madera, Calif.

Directions: From Highway 99 – Avenue 12, west, north on Road 26 (Pine Street), building is on left.

Future Meetings:

- September 15 & 29, 2009
- October 15 & 29, 2009
- November 10 & 20, 2009
- December 10, 2009

Potential Meeting Locations:

- Fresno Metropolitan Flood Control District
- Miller & Lux Building, Los Banos
- University of California Cooperative Extension, Merced
- Firebaugh Community Center
- Merced County Farm Bureau
- Madera County Farm Bureau

MEETING OVERVIEW:

The purpose of Meeting #2 was to continue developing content for the Regional Conditions Summary Report.

MEETING GOALS:

1. Respond to issues raised in Meeting #1 (including coordination among the regions)
2. Summarize input received on Reference List
3. Provide and discuss revised draft of General Descriptions
4. Summarize input received on Existing Resources Conditions outline and provide preliminary draft text
5. Initial discussion of Likely Future Challenges
6. Summarize input received on Community Success Factors
7. Initiate discussion of Problems and Opportunities

SUMMARY:

Welcome and Greetings

Brian Smith, DWR regional lead, and meeting facilitator Pam Jones, Kearns & West, welcomed the meeting participants. Pam Jones introduced the agenda and advised participants that their name and organization will be posted on the Program website. Each was asked to provide permission if they approved having their professional contact information (email) on Program website.

Opening Remarks, Review of Questions and Answers from Meeting #1

Gary Hester, DWR Program lead, provided opening remarks. He reviewed the handout "Response to Questions" from Meeting #1.

Q: How will the CVFPP address reduction in liability?

A: The intent of the CVFPP and supporting documents will be to identify and define existing facilities of the State Plan of Flood Control and to not increase the State's liability from that system.

Q: How is the CVFPP coordinated with the Corps and how have they participated up to this point?

A: DWR knows that for any modifications made to the SPFC the Corps' participation is needed. They are a key partner with a key role in flood protection.

Q: What about operations of dams?

A: The lower San Joaquin Feasibility Study will have to look at operations all the way through to Friant and the James Bypass. From that hydrologic models will help us look at system operations for this program and for the Corps. It is important not to duplicate efforts and have different hydrologic models being used.

Q: Have you included reservoir operations in the original studies?

A: The existing operating rules of major upstream reservoirs can't be ignored. DWR is planning to accomplish a system of operation evaluations. That effort will be closely coordinated with the Corps for the CVFPP. A separate Reservoir Reoperation Topic Work Group is planned for the CVFPP.

Partner comment: The operation of Exchequer Dam needs some flexibility to allow flood releases to be sent to southern Merced County and potentially to Madera for groundwater recharge during flooding events.

A: An assessment of the potential for using flood water to help recharge groundwater basins is included in the Water Code.

Partner comment: Irrigation districts need to start thinking like water managers and take advantage of those winter flows. It creates problems with Operations and Maintenance but running water in the winter will have benefits.

Q: I don't see how you can change the Tulare Lake Basin. Fresno is in the Tulare Lake Basin. How can you say Fresno is in the San Joaquin watershed? Our water rights have always been on the Kings River. This seems contrary to the legislation.

A: What we were looking for is watersheds that drain into the Fresno Slough.

Partner comment: So does the Kings River. Why don't you include the Kings River? Clearly we're not going to resolve it here. We need to have more discussion with legal counsel.

Partner comment: We do have outfalls that come from the Fresno Metropolitan Flood Control District that go into the San Joaquin River.

Partner comment: I have no problem with the diversions of the flows, but if you're going to change the intent of the legislation to include Fresno based on the Kings River history, we object to that. If you include flows that dump into the San Joaquin River for that reason, then you could make the same connection with the Kings River.

A: The boundaries were redrawn based on the best available maps that look at the drainage; our intent was not to replace the legislation. We need to have good technical underpinnings to do this work.

Partner comment: Fresno's diversions to the San Joaquin River are much smaller than to the Kings River. I don't see why you wouldn't include the Kings River, but if you do that it is obviously contrary to the legislation.

References Evaluation Review (continued from Meeting #1)

Eric Clyde provided an overview of the comments from the Upper San Joaquin Regional Conditions Work Groups. He noted that an additional 30 references were provided by other work groups. These and the other references will be posted to a DWR administrated on-line database for work group participants to access.

Homework: MWH will email partners the additional 30 references and ask partners to comment on the references if they are familiar.

Comment Review, General Descriptions

Eric Clyde provided an overview of the comments received regarding the General Description of the Upper San Joaquin Region for the purpose of the Regional Conditions report. It was clarified that while regional comments are being captured separately, the comments will be integrated with the input from the other four regional work groups in the final report. DWR lead Brian Smith added that if partners didn't feel their comments were incorporated or there was misinterpretation, they should let the team know and they would work to address the issue.

Review Augmented Chapter 2 Outline

Eric Clyde presented Section 2.2 - Existing Resources Conditions -- and invited partners to suggest additions and revisions to existing list. Following are those suggestions:

2.2.1 Physical

- Add Groundwater as a subtopic under Hydrology, River Hydraulics and Flood Management. Water Quality should include Surface and Groundwater as subtopics.
- Add Alkaline Soil, Gypsum, and Trace Elements as subtopics under Geomorphology.

2.2.2 Biological Conditions

- Add Invasive Species as a topic and Invasive Wildlife Species as a subtopic.

- Under the Agriculture topic, Working Landscapes and Multi-purpose Lands should be separate subtopics.

Comments: A partner commented that not all agricultural tracts are multi-purpose or have a biological component. Another partner said they all actually do have a biological component - even when you discourage biology, you still have biological components since some of them are invasive species. The partner added that this could also include duck clubs and working games.

2.2.3 Social and Economic Conditions

- Land Use – add easements as subtopic.
- Add Ecotourism and Agritourism to Recreation topic.

2.2.4 Cultural Resources

- Indian Trust Assets should be a subtopic under Native American Groups.

Comment: A partner noted that the “significance of flood control system” topic was unclear. Another partner responded that it was an O&M issue as it related to the impact on cultural resources.

Comment: Suggestion to broaden the Community Character subtopic to include more than Asian Americans; there is a wide range of backgrounds that should be captured.

Comment: There are two historic bridges in Merced County (Oakdale and at the confluence of the San Joaquin and Merced Rivers).

- Parks and Recreation should be added as a topic under Cultural Resources.

2.2.5 Infrastructure

- Transportation: add Bridges and Ferries as separate subtopics. Move Designated Floodways and Flow Easements and Encroachments to Institutional.
- Add Temporary Flood Storage Areas as its own topic.

Comment: Is there any place for routine operation of flows and attraction flows? Does it need to be considered? Where? The Merced River can be operated for attraction flows, while Friant Dam is releasing flood operation.

- Add Environmental Water as subtopic under Water Supply.
- Add Wind Farms to Solar Farms subtopic.

2.2.6 Institutional

- Add Flood and Other Routine Operations as subtopic under Coordination of Flood Operations.

2.3.3 Influencing Factors

- Add Technological Advancements (e.g. water treatment and water capture).

Introduction to Future Challenges (Period of Analysis)

Eric Clyde introduced the section, noting that the period of analysis/timeframe would be for the next 40 years (i.e., to 2050). He also clarified that any projects completed by 2015 would be included as “existing conditions” in the report. Eric provided the following criteria for projects that would be considered “existing conditions” for the purposes of the report. By 2015, the project would need to be:

- Authorized
- Approved through completion of NEPA, CEQA, and ESA compliance process
- Funded

- Permitted
- Or under construction

Following a group discussion on the use of 2015 as the existing conditions deadline, a partner suggested that time period of “current conditions” should coincide with the release of the 2012 Central Valley Flood Protection Program rather than an arbitrary date of 2015.

Comments:

- Each flood control agency could write a description of its own existing conditions
- It is feasible to include San Joaquin River Restoration Program’s “restoration flows” as part of “existing conditions,” but the construction of the San Joaquin River Restoration Plan Mendota Pool Bypass isn’t a certainty
- Patterson Irrigation District has a permit for a fish screen, but has lost half its state funding.
- There is an unprotected watershed in the region for which a dam had been “promised” since 1958, but the area has been deemed too environmentally sensitive by the Corps for construction of the dam.
- Investigate Hughson (Stanislaus County) waste water treatment plant for relevance of impacts to flood control system.

Projects and Programs Influencing Resource Conditions

The group was asked to identify **projects and programs** that could influence or affect resource conditions by 2015.

Q: Will the San Joaquin River Restoration Program be included as an existing condition?

A: Based on recent court decisions, at least a portion of the program will. Some parts we know will be there (restoration flows, Patterson Irrigation District fish screens); some may not.

A partner commented that the CVFPP should consider whether the projects are “shovel-ready.” That should be a test for the project’s inclusion in existing conditions.

The following additional projects were identified and suggested for inclusion as existing conditions:

- Highway 99 crossing at San Joaquin River
- San Joaquin River Parkway Master Plan, continued implementation
- Vernalis Adaptive Management Program (VAMP) for flow releases
- Flood storage projects in the Tulare Basin (“shovel ready” but no funding)
- Madera County Flood Control Agency – working on a project for Berenda and Ash Slough
- Forecast coordinating operations

Future Challenges (Drivers) and Influencers (Worksheet 4)

Eric Clyde introduced the exercise and the concept of charting/mapping the relationship of various “conditions” in their larger societal context. **Large Group discussion:** *After viewing the relationship “map,” what would you add, subtract or change to make the challenges displayed in this graphic more relevant to your region?*

- Application of consistent/uniform flood policies between and among agencies
- Lack of project prioritization
- Education of policy-makers and general public about flood management issues

- Competing interests impact unified flood management approach
- Property rights as they relate to development interests
- Lack of flood control/management interest in Merced County
 - Not all areas are controlled by a flood control agency
 - Municipalities are making decisions that impact others outside of their jurisdictions
- When others make decisions to build in a floodplain and something happens, they blame the irrigation districts
- Lack of integration of water management at local/state/federal levels
 - You can't integrate plans if there is a gap in jurisdiction
- Need to financially incentivize integration
 - Funding to local agencies should be contingent on being consistent with state flood plans.
- Need for a governance system that addresses the complexity of the issues; there is no political will to make this happen. Decision-making is thus susceptible to special interests
- Cities and counties are subject to the FEMA guidelines, but the developers have figured out how to comply with FEMA's FMIP to achieve a project approval even if the flood risks might be relatively high
- Planning problems
 - Lack of coordination between jurisdictions
 - Planning departments can issue building permits and are indemnified from liability – disconnect between authority and liability
- Under Policy, add a root of Integrated Implementation, with subsets for Federal, state and local implementation

Additional Comments:

- Many communities don't have planning criteria that meets the 100-year flood protection level, let alone the 200-year-flood protection level. Why not have all communities meet the 100-year-flood protection level before requiring the next step up to the 200-year-level of protection? (Merced as an example.)
 Response: For most urban areas the magnitude of project scope to get from 100-year protection levels to 200-year levels is often a relatively small increment. Therefore, it makes more sense for all communities to work toward the same goal.

Future Challenges/Drivers and Influencers -- Small Group discussion: *What are key challenges indicating a need for long-term changes in flood management strategies in your region?* The combined results of the two groups follow:

Challenge/Driver	Trend/Timeframe	Affect on region/local community
Population growth	Development in region has slowed/is slowing now, but will likely increase again within next 5 years. Mendota and Firebaugh will likely continue to grow. Merced has growth potential related to proximity to UC Merced	Panoche Creek flows from the west and needs to be controlled. Mendota is three miles from the San Joaquin River. There doesn't appear to be a projection of flood control risk compared to growth projections
Economically disadvantaged communities don't have the economic base to provide flood protection consistent with the CVFPP	No short-term improvements anticipated except that the city of Merced is growing due to the UC Merced	
Protection of City of Firebaugh from flooding due to operations of Friant Dam and flows from the James Bypass/Fresno Slough		
Flat topography means flood water spread out over large areas. Firebaugh is protected by the bypass system and raised assessments to boost protection. But that doesn't protect them from the Kings River	Unchanging	Generally, lands near rivers are vulnerable unless there is an effective bypass system.
Lack of Integrated Planning (local, regional, state, federal)		Lands will be flooded and there's no mitigation for the landowners (e.g., farming)
Projects can't be funded locally	This may change as the economy improves	
Multi-use flood protection projects		
Flood management solutions driven by short-term water supply situation rather than by integrated, long-term plans		
Disparity between perceived costs/benefits of flood control		
Disparity between liabilities and those affected/benefitted		
Lack of priorities for local flood control management	Cannot foresee when this will change. In order for this to happen, the State and Federal government will have to begin to make flood management a	

Challenge/Driver	Trend/Timeframe	Affect on region/local community
	funding priority, people will need to be educated to vote on the establishment of a local flood control district (in Merced County)	
Flood risks from both project- and non-project levees are not considered together		
Environmental regulations	Potential for increased regulations	Economic and funding impacts
Adapt Integrated Regional Water Management to meet multi-objectives (i.e., groundwater and floodplain benefits)		
Contradictory State and Federal regulations	Will continue unless regulations change to be more consistent, complimentary	
Challenge of meeting water supply needs while providing flood control management		

Community Success Factors

This exercise was carried over from Meeting #1. Pam Jones led a page-by-page review of the Community Success Factors identified by other Regional Conditions Work Groups and asked partners to confirm factors identified in other Regional Groups with factors they felt were important to the Upper San Joaquin region. They were also asked to add missing factors. Listed below are factors identified by other regional conditions work groups that the Upper San Joaquin group thought were important (confirmed), and some of the new areas (new).

Socio-Economic

- Agriculture (confirmed)
- “Unplanned” flooding of farmland is not acceptable (confirmed)
- Recreation (confirmed)
- Financial impacts (confirmed)
- Alignment of economic incentives (related to long-term cost of flood management) (confirmed)
- Communication/education (confirmed)
- Affordability of CVFPP and Projects (confirmed)
- Protection and valuation of human communities and habitat before protection of water supply (confirmed) – if “Deltas-specific” reference is removed
- Use of adopted/existing land use planning tools/blueprints (confirmed)
- Ag production and processing - base of the economy for Firebaugh, Huron and Mendota (new)
- Require open/transparent processes for buy-in of flood control plan (new)

Flood Flow Management

- Development of recreation area with water storage facility (confirmed) – add “and flood control facilities”

- Restoration and maintenance of channel capacity (confirmed)
- Recreation should include San Joaquin River Parkway and the Grasslands areas
- Protection of life and property downstream of flood control regulation structures (e.g. unnecessary flood control releases) (new)
- Flexibility and judgment for flood management operators so that unnecessary flood control releases are minimized (new)
- Increase use of weather forecasting and increased snow pack sensors for flood control operations (new)

Physical Infrastructure

- Setback levees – add “provide viable multi-purpose use of land by landowners and protect the tax base” (confirmed)
- Maintenance responsibility and authority (confirmed)
- Construction of new flood storage (new)
- Sustainable flood systems (e.g. vegetation management, operations, design) to reduce maintenance needs (new)
- Flood management structures that provide fish passage opportunities during non-flood operations (new)
- Proposed improvements need to consider land subsidence - particular focus below Mendota Dam (new)
- Infrastructure that provides for a natural functioning floodplain as given a priority (e.g. provides for river meander, less channelization; provides for habitat.) (new)

Homework: Partners will be emailed the remaining categories (Natural Resources, Floodplain Management, Land Use, Other) and should review and comment.

Problems and Opportunities (Worksheet 5)

Eric Clyde provided an introduction of the section. Partners were then broken into two groups. Note takers reported back to the larger group to summarize their groups’ discussions.

Asset at risk from flooding	Because	Consequences
Lower San Joaquin Levee District System facilities	<ul style="list-style-type: none"> • Subsidence • Earthen levee built out of sand, on sand, proven signs of stress • Degradation of levee through use (looses fines, etc.) 	<ul style="list-style-type: none"> • Levee failure • Flooding of farmland, economic losses • Spreckles Sugar was flooded • Homes flooded
James Bypass/Fresno Slough	<ul style="list-style-type: none"> • Lack of channel capacity • Lack of flood control capacity 	<ul style="list-style-type: none"> • Flooding of Firebaugh, Mendota • Flooding of urban and agricultural assets • Economic losses • Deposits of sediments and debris • Health/Public Safety • Water quality degradation

Asset at risk from flooding	Because	Consequences
		including overflow of sewage treatment/fuel/chemicals/lago ons <ul style="list-style-type: none"> Emergency transportation (e.g., reduced ability to evacuate and receive help, food, water during a flood)
Endangered species preserves (Mendota Wildlife Preserve)	<ul style="list-style-type: none"> Lack of channel capacity Lack of flood control capacity 	<ul style="list-style-type: none"> Wipe out upland species (e.g., Fresno Kangaroo Rat)
City of Mendota (Westside communities)	<ul style="list-style-type: none"> Uncontrolled flows of Panoche, Silver, Arroyo, Cantu creeks Lack of flood control facilities 	<ul style="list-style-type: none"> Flood water entering irrigation canals Economic losses Deposits of sediments and debris Health/public safety Water quality impacts Overflow of sewage treatment/fuel/chemicals/lago ons Reduced transportation /emergency transport
Irrigation Facilities (damages to the CVP facilities)	<ul style="list-style-type: none"> Flood waters will get into the system Sediment transport Water quality degradation Structural failures 	<ul style="list-style-type: none"> Sedimentation Water quality degradation Structural damage
City of Madera, City of Chowchilla, Madera and Chowchilla Canals	<ul style="list-style-type: none"> Lack of maintenance of the facilities for Ash Slough, Berenda Slough, Fresno River 	<ul style="list-style-type: none"> Economic loss, particularly for the 100+ dairies in the floodplain
Ag lands east of the Chowchilla Bypass	<ul style="list-style-type: none"> Failure of project Levee/overtopping from the San Joaquin River upstream of the Chowchilla Bypass 	<ul style="list-style-type: none"> Economic losses
Fish hatchery on the San Joaquin and the Merced, including housing near Friant Dam	<ul style="list-style-type: none"> Too close to the channel Inundation from flood flows 	<ul style="list-style-type: none"> Loss of fish Loss of housing
Firebaugh and Mendota water supply	<ul style="list-style-type: none"> Located in floodplain Lack of flood channel capacity Protected by private levees 	<ul style="list-style-type: none"> Water quality degradation Supply interruption
Aggregate supply	<ul style="list-style-type: none"> Located in floodplain 	<ul style="list-style-type: none"> Economic losses Supply interruption
Foothill communities infrastructure (roads, recreation)	<ul style="list-style-type: none"> Subject to flooding 	<ul style="list-style-type: none"> Economic losses

Asset at risk from flooding	Because	Consequences
facilities, bridges, sewage treatment plants)		<ul style="list-style-type: none"> • Public safety/health threats • Emergency transportation disruption • Infrastructure damage • Water quality degradation • Environmental impacts • Personal inconveniences/costs
Floodplain communities: Firebaugh and Mendota	<ul style="list-style-type: none"> • Subject to flooding • The SJ River flows right through Firebaugh (east side is lower and more is subject to flooding; west side is more developed) • If Chowchilla Bypass fails, everything is inundated about 3-ft. deep and migrates north 	<ul style="list-style-type: none"> • Economic/crop losses • Loss of property • Public safety/health • Emergency transportation disruption • Infrastructure Damage • Water quality degradation • Environmental impacts
Unincorporated areas	<ul style="list-style-type: none"> • Don't have money for flood protection 	<ul style="list-style-type: none"> • Agriculture: crop loss; foot rot in cows/cattle • Loss of Property • Economic losses • Public safety/health threats • Emergency transportation • Damage to infrastructure • Water Quality • Environmental impacts
Transportation corridors	<ul style="list-style-type: none"> • Subject to flooding from Bear Creek to the confluence of Stevenson Creek because the channel capacity is so low • Sheet flow across roadways will affect evacuation routes, and close major highways 	<ul style="list-style-type: none"> • Roadways • Emergency transportation (e.g. reduced ability to evacuate and receive help, food, water during a flood)
Managed wetlands	<ul style="list-style-type: none"> • Uncontrolled flooding into wetlands 	<ul style="list-style-type: none"> • Excess flooding of wetlands can cause avian disease (cholera and botulism)
Water supply	<ul style="list-style-type: none"> • Faulty flood management operations and flood events. For example, San Joaquin River Restoration flows may improve flood management, but not water supply. 	<ul style="list-style-type: none"> • Water supply • Economic losses • Public safety/health
Groundwater aquifers in Dos Palos and domestic wells in Firebaugh and other communities	<ul style="list-style-type: none"> • Prolonged flows in the river can cause high water table and seepage 	<ul style="list-style-type: none"> • Water supply • Economic losses • Agriculture: losses of ag land

Asset at risk from flooding	Because	Consequences
Mobile home communities	<ul style="list-style-type: none"> • Mobile homes along Hwy 41 continue to flood because built underneath the overflow channel or in area of high flood risk. • Madera Country continues to allow building in the area 	<p>use and damage to crops</p> <ul style="list-style-type: none"> • Loss of homes, life • Downstream damage from dislodged mobile homes
Wastewater treatment plants in Mendota and Firebaugh	<ul style="list-style-type: none"> • Some of the WWTPs were built right at the toe of the levee or directly in a floodplain 	<ul style="list-style-type: none"> • Economic losses • Public safety/health • Loss of property • Loss of services • Loss of the ability to deliver water • Damage to infrastructure • Water quality • Environmental impacts
Processing plants (e.g. tomato) in Mendota, Firebaugh and Volta	<ul style="list-style-type: none"> • Some built on the wrong side of the San Joaquin River (the side more subject to flooding) 	<ul style="list-style-type: none"> • Economic losses • Public safety/health • Emergency transportation • Damage to infrastructure • Water quality • Environmental impacts
Railroad bridges, roads, other critical structures (i.e., hospitals, fire stations)	<ul style="list-style-type: none"> • Subject to flooding because built in a floodplain 	<ul style="list-style-type: none"> • Economic losses • Public safety/health • Transportation Corridors • Damage to infrastructure • Water Quality • Environmental impacts