FLOOD MANAGEMENT ASSOCIATION

SACRAMENTO CHAPTER

JUNE 20, 2019
Overview

SJAFCA’s Mission
- Who We Are
- How We Are Governed
- What We Do

Recent Flood Protection Projects
- Stockton Metropolitan Area
- Lower San Joaquin River
- Smith Canal

Challenges & Opportunities
- Lessons Learned
- Next Steps
Who We Are

SJAFCA is a Joint Powers Authority that was created in May 1995 by the City of Stockton, San Joaquin County and the San Joaquin County Flood Control and Water Conservation District for the purpose of addressing flood protection for the City of Stockton and surrounding County area. The Cities of Lathrop and Manteca joined SJAFCA in January 2018.
SJAFCA BOUNDARY
RDs within SJFACA Boundary

June 2019
Mission

To reduce flood risk for the Cities of Stockton, Lathrop and Manteca and some adjacent unincorporated County areas
Governance

Nine member Board of Directors

- One member of the San Joaquin County Flood Control & Water Conservation District
- One member of the County Board of Supervisors
- Two members from Stockton City Council
- Two members from Lathrop City Council
- Two members from Manteca City Council
- One member of the public
SJAFCA PROJECTS

RECENT FLOOD PROTECTION PROJECTIONS
### PARTIES INVOLVED

<table>
<thead>
<tr>
<th><strong>FEMA</strong></th>
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<tbody>
<tr>
<td>• NFIP (Floodplain Maps &amp; Flood Insurance Rates)</td>
</tr>
<tr>
<td>• FEMA’s concurrence on the final design of Smith Canal project</td>
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<table>
<thead>
<tr>
<th><strong>STATE OF CALIFORNIA (DWR)</strong></th>
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<tbody>
<tr>
<td>• State is funding 63% of the estimated design and construction costs through an EIP grants</td>
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<tr>
<td>• State/CVFPP Standards (ULDC, ULOP)</td>
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<thead>
<tr>
<th><strong>U.S ARMY CORP OF ENGINEERS</strong></th>
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<tr>
<td>• Seeking Federal funding through LSJRFS</td>
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<td>• Spin off EIP projects which can utilize State bond funding</td>
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<td>• Provide nexus for Federal crediting (State requirement for bond funding)</td>
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<td>• Provide nexus for Federal Permitting (NEPA, 404, 106, etc.)</td>
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<thead>
<tr>
<th><strong>Local Agencies</strong></th>
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<tbody>
<tr>
<td>• SJAFCA, RD 1614, RD 828, City of Stockton, and County of San Joaquin</td>
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<thead>
<tr>
<th><strong>Other Regulatory Agencies</strong></th>
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<tr>
<td>• Permits, etc.</td>
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</table>
1985 - FEMA Came to Town

- FEMA identified erosion along the south bank of the Calaveras River near I-5 and placed the Smith Canal area into a 100-year floodplain in 1988.

- Erosion was fixed by County Flood Control.

- In 1991 FEMA issued a Letter of Map Revision removing the area from the 100-year floodplain.
1995 - FEMA Came Back

- FEMA issued preliminary FIRMs showing Stockton metro area in a 100-year floodplain because of freeboard deficiencies on federal project levees
- 1995 – SJAFCA was formed
- 1998 – SJAFCA completed a $70 million project restoring flood protection to the Stockton metro area
- 2002 - FEMA issued revised FIRMs showing restored flood protection
SMITH CANAL

OVERVIEW

OF

SMITH CANAL GATE
FEMA RETURNS TO TOWN!
POST KATRINA HURRICANE

- After “Katrina” FEMA used a Map Modernization Program as an accreditation vehicle requiring levee owners to submit documentation to show that their levees provided protection against the 100-year flood.

- In 2009 FEMA placed the Smith Canal levee protected areas in the floodplain.
Project Location Map
Project Vicinity Map
FEMA Special Flood Hazard Area

- 5,000 parcels “mapped” in 2009
- Additional 3,000 parcels to be mapped
- Requires mandatory flood insurance
- Building restrictions
- Elevation for new/replacement construction and significant repairs/remodels
Project Background

- Built by the State in mid 1800’s for sanitary and drainage purposes
- Navigable and Tidally influenced
- Conveys urban runoff
- Leveed to prevent flooding from the Delta
- Levees heavily encroached
- Cost – approx. $68M
Smith Canal Encroachments

Levee Crown
Project Benefits

- Project will provide protection for about 8,000 properties.
- Once project is complete, 5,000 properties are expected to be removed from the FEMA 100-year floodplain and additional 3,000 properties will be granted relief from being added to Special Flood Hazard Area.
Hydraulic Update

SJAFCA prepared 5 documents:

1. Smith Canal 100-year Interior Drainage Analysis
2. Basis of Design SJAFCA - Smith Canal Gate Project
3. Smith Canal Gate Project: Gate Operation and Interior Drainage Analysis
4. Smith Canal Gate Structure Velocity Analysis
5. Smith Canal Gate Hydrodynamic Modeling Alignment and Gate Width Evaluation
Project Hydraulic Operation

Top of floodwall/gate elevation

- 9.5 ft 200-year Water Surface Elevation
- + 3.0 ft Freeboard Required
- + 1.1 ft Hydraulic Uncertainty
- + 1.4 ft Sea Level Rise through 2050 (median projection)
- 15.0 ft Top of Floodwall and Operable Gate Elevation
- Mean WSE = 4.9 ft

Trigger closure when predicted stage > 8.0 ft

Gate open on outgoing tide to release any accumulated storm water whenever the level in the outgoing tide is lower than the level in the Smith Canal side.
Geotechnical Review

SJAFCA Geotechnical Design document:

Analyses performed:

◦ Under-seepage Analysis
◦ Slope stability Analysis
◦ Liquefaction Analysis
◦ Lateral spread Analysis
◦ Internal and external stability of dual sheet pile wall
◦ Lateral and vertical soil capacities for pipe piles.

Foundation Recommendations
Consistency With SPFC

Closed when high water event is predicted, open all other times

Meet FEMA, ULDC standards

The project is included in:

- 2012 Central Valley Flood Protection Plan and the 2017 Update
- San Joaquin River Basin-Wide Feasibility Study
- Lower San Joaquin/Delta South Regional Flood Management Plan
- Corps of Engineers’ Lower San Joaquin River Project

No anticipated adverse impacts to the State Plan of Flood Control system due to the Project.

CVFPB Issued Encroachment Permit – 4/2019
Project Milestones

- Design Completed
- Encroachment Permit Issued
- Consistency with Delta Stewardship Council
- Right of Way Acquisition/State Lands/US/City
- CM Contract Signed
- Constructability Review Next Week
- UFFWS/NMFS BOs
- Project bid July 2019
- Construction kick-off Fall 2019
- State-SJAFCA Funding Plan In Place
Gate Operation Animation
LOWER SAN JOAQUIN RIVER

OVERVIEW

OF

LOWER SAN JOAQUIN RIVER PROJECT
Lower San Joaquin River Project

- Feasibility Cost Share Agreement
  Signed on February 19, 2009 by SJAFCA and USACE. CVFPB signed in 2010.

- USACE is NEPA lead, SJAFCA is CEQA lead

- Purpose – Flood Damage Reduction Study with Opportunities for Ecosystem Restoration

- Primary Sources of flooding - Delta Front & tributaries up to 10 ft.

- Study Cost approx. $9.4 Million
Study Area

- Re-scoped to focus on high risk, high consequence separable areas:
  - North Stockton Highly Urbanized
  - Central Stockton Highly Urbanized
  - RD-17 40% Urbanized

- Screened out ~15,000 acres.

- Deferred to Phase 2 Study for RD-17 urban, urbanizing and agricultural lands for alignment with EO 11988
Benefits Sought by Locals in Sponsoring USACE Study

- Develop a 200-yr plan for urban protection
- Spin off early implementation projects (EIPs) which could utilize state bond funding
- Provide nexus for Federal funding or crediting (requirement of State for bond funding)
- Provide nexus for Federal permitting (NEPA, 408, 404, 106, ESA, etc.)
### Project Description

<table>
<thead>
<tr>
<th>Project Type</th>
<th>Miles</th>
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<tbody>
<tr>
<td>Cutoff Walls</td>
<td>23.7</td>
</tr>
<tr>
<td>Seismic Fixes</td>
<td>1.1</td>
</tr>
<tr>
<td>Levee Raises (between 1.4’ - 4.0’)</td>
<td>3.4</td>
</tr>
<tr>
<td>New Setback Levee</td>
<td>1.3</td>
</tr>
<tr>
<td>Geometry Improvements</td>
<td>4.5</td>
</tr>
<tr>
<td>Erosion Protection</td>
<td>5.0</td>
</tr>
<tr>
<td>New Levee</td>
<td>0.8</td>
</tr>
<tr>
<td>Closure Structures (2 locations)</td>
<td>0.6</td>
</tr>
</tbody>
</table>

**Total Miles of Improvements**

(∗ some features combine & overlap) 40.4 miles*

### Additional Information

- **Total Cost:** ~$1.3 billion
- **Reduce risks to:** ~162,000 people
- ~80,000 structures
- ~$28.7B in property

**B/C Ratio – 7.0 to 1**
Benefits Sought by Locals in Sponsoring USACE Study

- Develop a 200-yr plan for urban protection
- Improves conditions for 162,000 people and 486 critical infrastructure sites
- 83% reduction in expected annual damages
- Spin off early implementation projects (EIPs) which could utilize state bond funding
- Provide nexus for Federal funding or crediting (requirement of State for bond funding)
- Provide nexus for Federal permitting (NEPA, 408, 404, 106, ESA, etc.)
## History & Milestones

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Study Began</td>
</tr>
<tr>
<td>Jan 2010</td>
<td>Public Scoping</td>
</tr>
<tr>
<td>Jan 2013</td>
<td>Re-Scoping</td>
</tr>
<tr>
<td>Mar 2013</td>
<td>Alternatives Milestone</td>
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<tr>
<td>Aug 2014</td>
<td>Tentatively Selected Plan Milestone</td>
</tr>
<tr>
<td>Feb 2015</td>
<td>Draft FR/EIS/EIR Released for Public Review</td>
</tr>
<tr>
<td>Jan 2018</td>
<td>Final FR/EIS/EIR Public Released</td>
</tr>
<tr>
<td>July 2018</td>
<td>Chief’s Report Signed</td>
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<tr>
<td>Feb 2019</td>
<td>Record of Decision Issued</td>
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<tr>
<td>October 2018</td>
<td>Authorization in WRDA</td>
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<tr>
<td>2019-2021</td>
<td>Preconstruction Engineering and Design (PED)</td>
</tr>
<tr>
<td></td>
<td>• First planned reach to be designed in PED phase</td>
</tr>
<tr>
<td></td>
<td>• Remaining reaches are anticipated to be designed in Construction phase</td>
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<tr>
<td>2021-2033</td>
<td>Appropriation for Construction (Energy and Water Appropriations Bills)</td>
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</table>
Location & Description

- Cut-Off Wall
- Cut-Off Wall, Levee Reshaping
- Seismic Fix, Levee Reshaping
- Adjacent Seismic Fix
- New Levee with Cut-Off Wall
- Smith Canal Improvements
- Levee Raise
- Erosion Protection
Location & Description
Timeline Drivers

- **Estimated Completion 2030**
  - Aggressive yet realistic

- **Drivers** –
  - Fiscal Year Appropriations (Federal/State)
    - Total federal cost ~ $850M
    - Design Agreement
    - Pre-Construction Engineering & Design
    - Scheduled to initiate construction in 2021, pending New Start decision
  - Construction season
Timeline Drivers Con’t

- Drivers –
  - Possible contractor short supply
    - Other projects such as Natomas, Sacramento Bank, & Marysville Ring Levee will also be in construction
  - Qualified, competent contractors are necessary
  - **Real Estate (including utilities relocations)**
    - Uncertainties in timing of acquisitions
    - Uncertainties of willing sellers
Study Area

- Re-scoped to focus on high risk, high consequence separable areas:
  - North Stockton Highly Urbanized
  - Central Stockton Highly Urbanized
  - RD-17 40% Urbanized

- Screened out ~15,000 acres.

- Deferred to Phase 2 Study for RD-17 urban, urbanizing and agricultural lands for alignment with EO 11988
EO 11988 Issue Deferred

“As a result of the analysis required for compliance with EO 11988, RD 17 alternatives 7b, 8b and 9b were removed from further consideration. It is understood that RD 17, with funding assistance from the State, is pursuing a phased strategy of levee improvements to increase the resistance of RD 17’s levee system to under and through seepage to address residual flood risk. Upon completion of that work, RD 17 intends to request USACE participation in additional improvements to achieve 0.5 percent ACE FRM in order to meet SB 5 requirements. Consideration of future Federal participation would be subject to demonstration of a Federal interest in such improvements.”
END

?????
Lessons & Opportunities

- Multiple Land Owners and RDs
- Funding Base
- Partnership With State and Federal Partners
- Determined Project Opponents
- Fair & Balanced Regulatory Partnership
- Competent Staff and Consulting Team
- Partner in infrastructure investment to reduce flood risk and make our county more resilient to future events
Contact Info:

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