



# Delta Conveyance Project: Summary of the Preliminary Assessment of a Western Corridor

March 30, 2020

# Agenda

- Introductions
- CEQA Process Overview and Current Status
- Objectives of Delta Conveyance Project
- Review of Representative Garamendi “Little Sip, Big Gulp Plan”
- Issues of Plan as Proposed
- Comparison of Plan Against NOP Project Objectives
- Q&A

# CEQA Alternative Formulation

1. Identify project objectives
2. Develop concepts for alternatives
3. Identify proposed project based on ability to meet project objectives and minimize environmental effects
4. Obtain ideas for additional alternatives during public scoping
5. Screen proposed alternatives for ability to meet project objectives and reduce environmental effects
6. Select range of reasonable alternatives

# CEQA Alternative Formulation

1. Identify project objectives
2. Develop concepts for alternatives
3. Identify proposed project based on ability to meet project objectives and minimize environmental effects

These are the three steps that we have completed so far. This presentation focuses on the reasons that the western corridor was not selected to be part of the proposed project. It will be considered during the process to select alternatives for the EIR, but the issues raised in this presentation will still be applicable.

# Delta Conveyance Purpose and Objectives

**Fundamental Purpose:** Develop new diversion and conveyance facilities in the Delta necessary to restore and protect the reliability of water deliveries in a cost-effective manner, consistent with the State's Water Resilience Portfolio.

## **Project Objectives:**

- » Address sea level rise and climate change
- » Minimize water supply disruption due to seismic risk
- » Protect water supply reliability
- » Provide operational flexibility to improve aquatic conditions

# Design Considerations Inform Alternatives

- 200 year return period flood level + sea level rise
- Proposed Capacity = 6,000 cfs
- NOP identified potential capacity alternatives, but decisions have not yet been made on alternatives that will move forward for more detailed analysis in the EIR
  - » Potential Capacity Alternatives = 3,000, 4,500, and 7,500 cfs

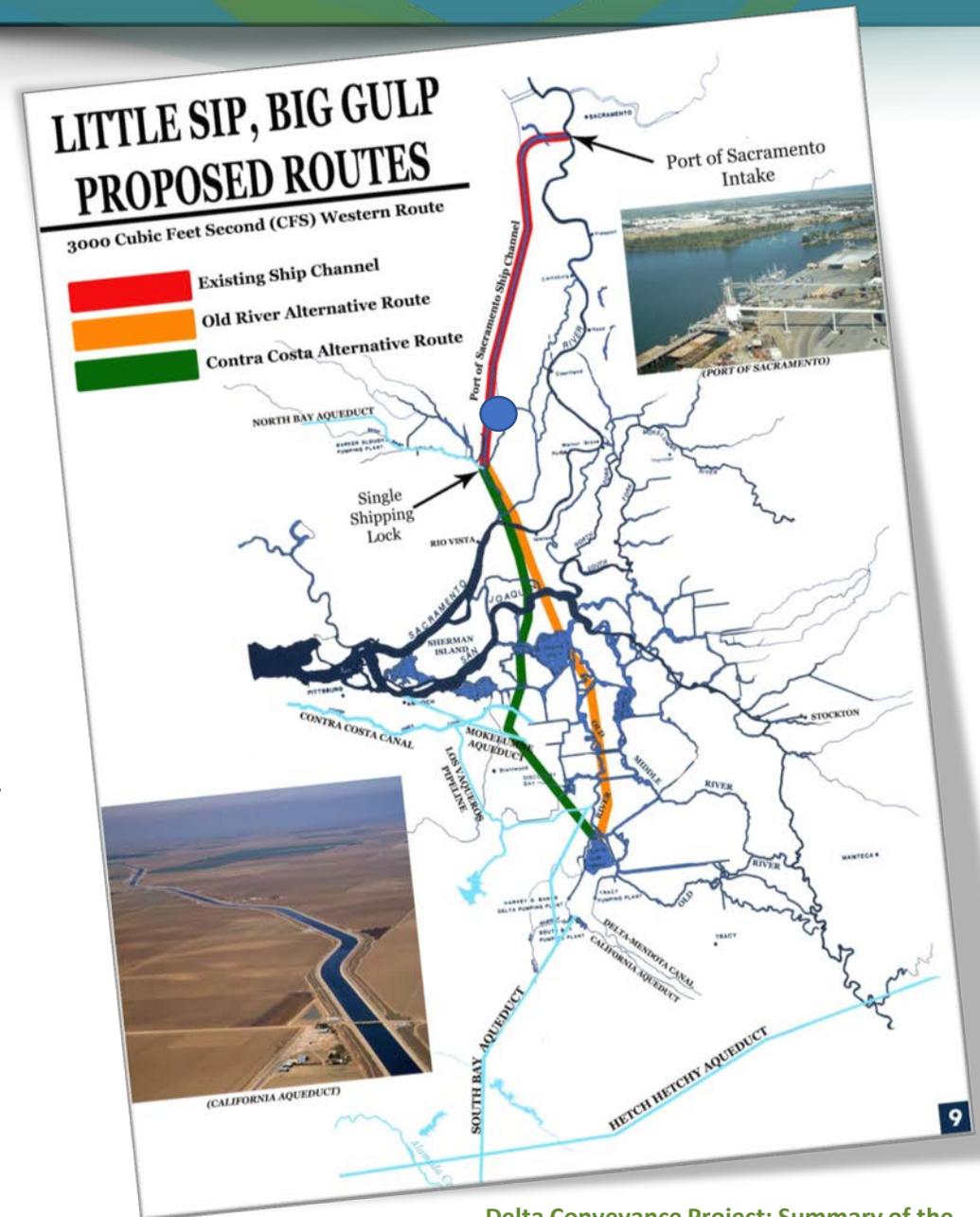
# “Little Sip, Big Gulp Plan”

## Little Sip Facility:

- Proposed maximum capacity of 3,000 cfs
- Fish screen and low head pump at existing opening on Sacramento River (Port of West Sacramento intake)
- Convey water 25 miles from Port of West Sacramento to intakes and shipping lock at south end of Sacramento Deep Water Ship Channel (DWSC)
- Pumps at shipping lock intakes deliver water into dual 10-foot diameter pressurized pipes that convey water 12 miles to Old River channel leading to pumps near Tracy (alternate route could deliver water from pressurized pipe to aqueduct at Brentwood and then on to Tracy)

## Big Gulp:

- Drawing approximately 2.5 million acre feet using the existing south Delta facilities at Tracy Pumps



# Intake Fish Screens

## Proposal:

- » Construct fish screen at entrance to DWSC in Sacramento

## Issues:

- » Option 1: On-bank vertical plate screen structure
  - Achieving adequate length would require screen to be in main channel of River which is far more disruptive construction than “in bank” design in current proposed project.
  - River protrusion would affect flood levels in area
- » Option 2: In-channel (chevron configuration) vertical plate screen structure
  - Requires fish capture and handling – not a preferred protection measure for endangered aquatic species
  - Regulatory approval limited to locations with no other alternatives – not the case here.



Approximate length of 3,000 cfs flat plate fish screen at confluence of Ship Channel and Sacramento River using actual river bathymetry data.



# Ship Channel Diversion

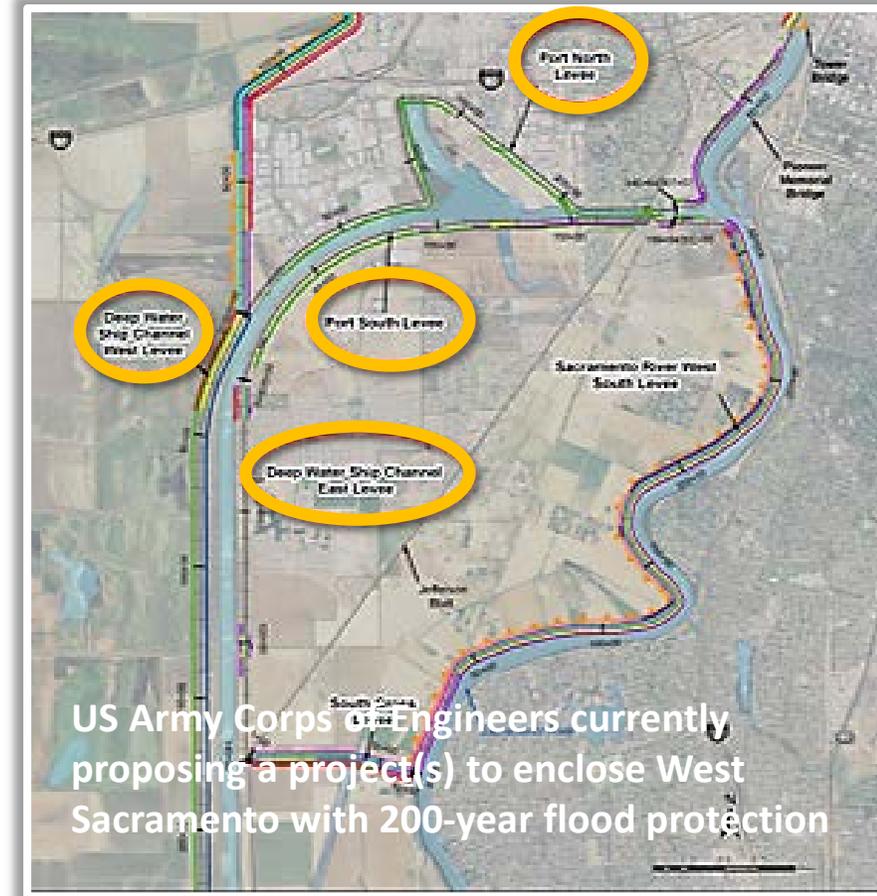
## Proposal

- » Use existing ship channel to divert water to southern end of and construct shipping lock on end to allow cargo transport.

## Issues

- » Levees along DWSC would need to be raised from proposed shipping Lock to proposed USACE project levees to meet Delta Conveyance design criteria of 200 year flood level + Sea Level Rise.
- » Levee modifications on west side of ship channel would require regulatory permission to transport construction equipment and perform construction activities in the Yolo Bypass Wildlife Area
- » USACE has determined sediment in DWSC is contaminated - would require dredging or capping to protect water supply
- » USACE proposes mitigations along the Federal project system but does not address seismic design requirements for Delta Conveyance or non-Federal levee south of West Sacramento.

Major additional upgrades would be required.



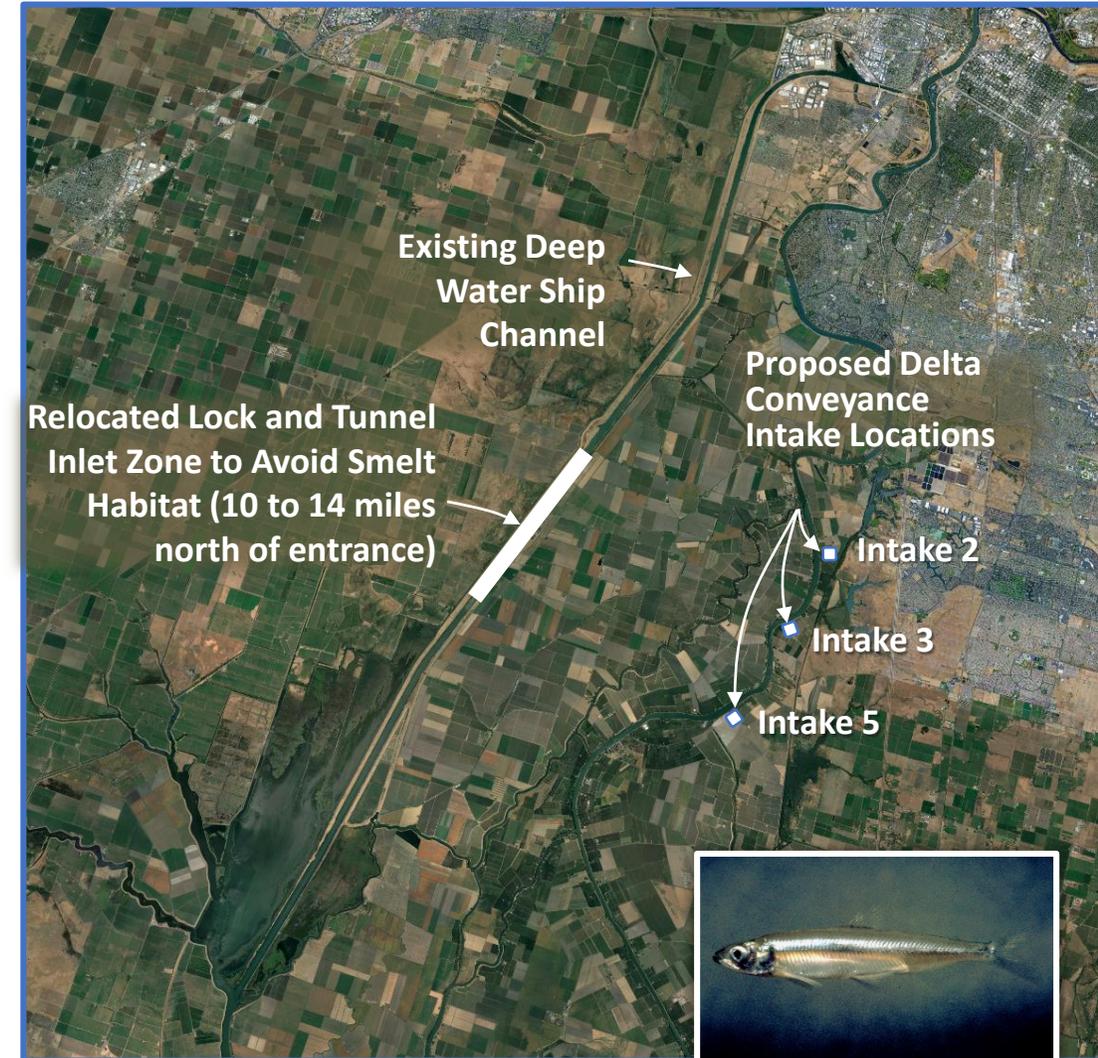
# Ship Lock and Delta Smelt Habitat

## Proposal

- » Construct shipping lock at southern end of Ship Channel to maximize reuse of existing Channel conveyance and allow continued cargo transport to West Sacramento.

## Issues

- » The lower reach of the DWSC is core spawning and rearing habitat for Delta Smelt and unique habitat within the Cache Slough Complex which supports some of the highest occurrence of native fish species in the Delta. A new lock at the southern end of the channel would block access to this unique feature for spawning and rearing Delta Smelt. It is doubtful that regulatory permits could be secured for a lock or tunnel inlet in this location.
- » The lock and tunnel inlet shaft would need to be relocated about 10 to 14 miles further north along the ship Channel to avoid habitat disturbance.
- » The new tunnel inlet shaft location is nearly lateral to the location of the proposed intakes in the Delta Conveyance NOP. This negates any substantive reduction in total tunnel length between these two proposals.



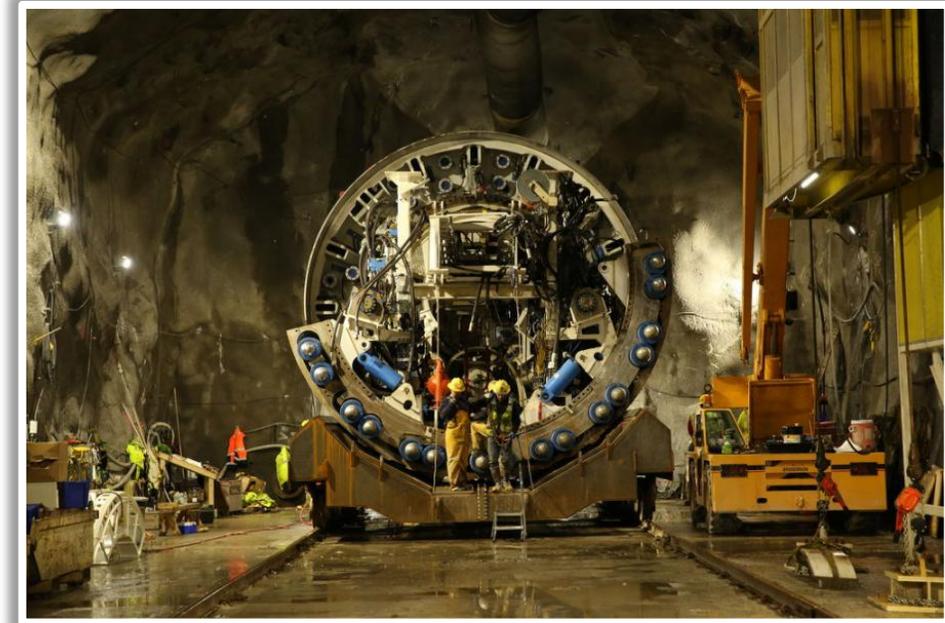
# Dual Pipelines

## Proposal

- » Construct two parallel 10-ft diameter pipelines from south end of ship channel to a new channel along the east side of the Old River channel leading to the Tracy Pumps

## Issues

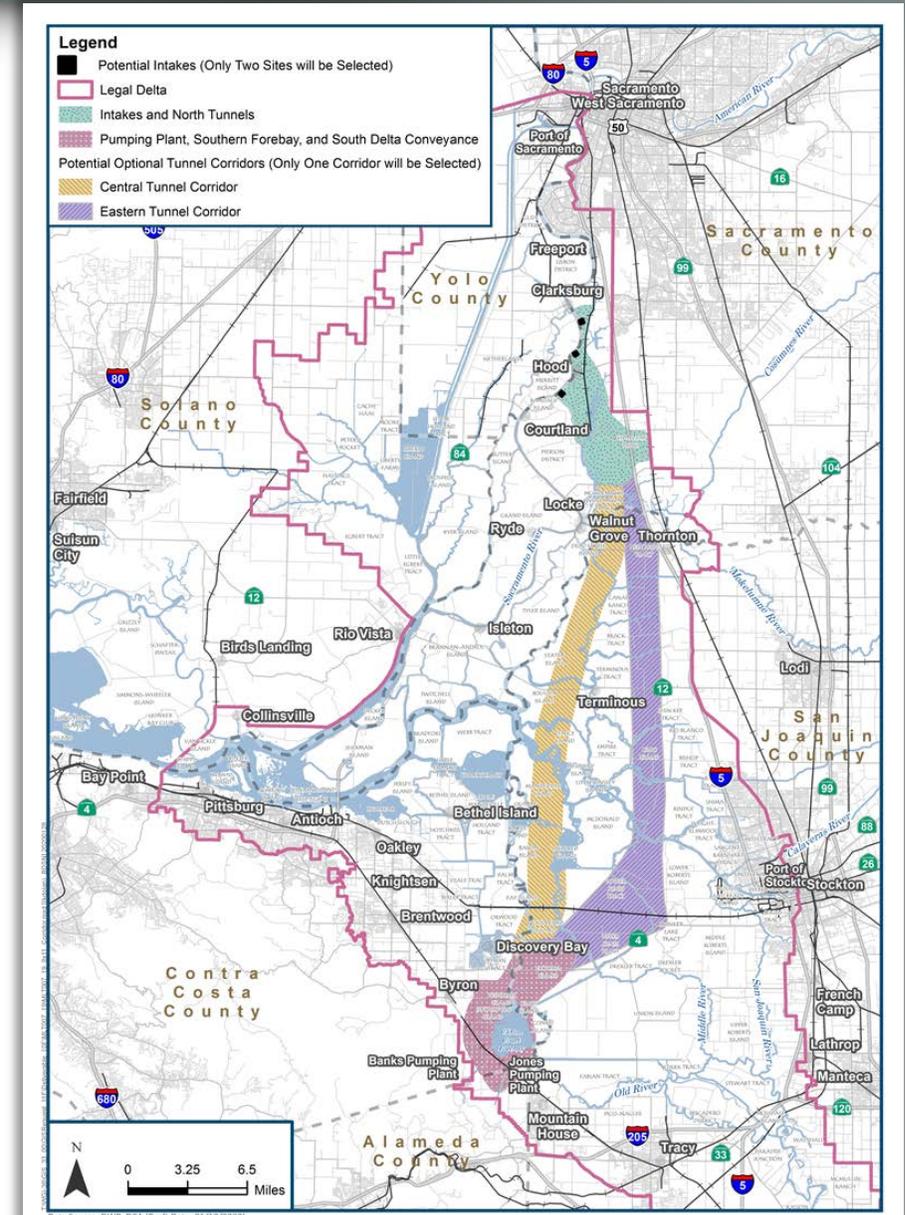
- » Two 10 ft diameter pipes would be woefully inadequate to transport 3,000 cfs; a single 26-ft diameter tunnel would be more cost effective.
- » Height of proposed channel levees to meet Delta Conveyance Design criteria of 200 yr flood protection and Sea Level rise would be in the range of approximately 28 ft in the South Delta Area – well above any existing levees in the area.
- » Tunneling, although more expensive than channel construction, is far more resilient and obviously has far less impact than constructing a several miles long channel to the Tracy Pumps.
- » Channel construction along Old River would require significant import of borrow material and is along areas of poor ground conditions requiring significant ground improvement.



# Construction Logistics

## Limited access to most of the alignment:

- » New bridge required in West Sacramento with new road extending south to reach east side channel levees
- » Access required in Yolo Bypass to raise west side channel levees
- » Poor access to east side of ship channel. Heavy construction traffic forced on Hwy 84 to access area. This Hwy cannot handle the capacity and loads.
- » Poor access to most islands along the alignment for heavy construction. Major logistics improvements would be required.



# Other Impacts

- Freeport Regional Water Authority Intake
  - » FRWA does not divert flows during certain reverse flow (tidal flows) conditions. Upstream diversion of 3,000 cfs would increase frequency of reverse flows that affect FRWA thus reducing their withdrawal quantity.
- SRCSD Impacts:
  - » Upstream withdrawal reduces dilution volume available for Sacramento Regional County Sanitation District (SRCSD) outfall – will reduce their discharge capacity



# Additional Physical Features of Proposed Garamendi Plan Compared to Project in NOP

- 3,000 cfs low lift pump station in West Sacramento
- New Ship Lock at South End of Ship Channel
- Assuming USACE completes their project, residual DCA work would include 5 miles of cutoff wall, 4 to 10 miles of crown raise, and minimum 7.5 to 12 miles of seismic remediation to meet Delta Conveyance Design Criteria for flood protection, sea level rise, and seismic resiliency.
- Dredge or cap existing ship channel to remove or contain contaminated sediment and protect water quality
- Significant logistics investment to access remote sites including along ship channel and the proposed pipe route.

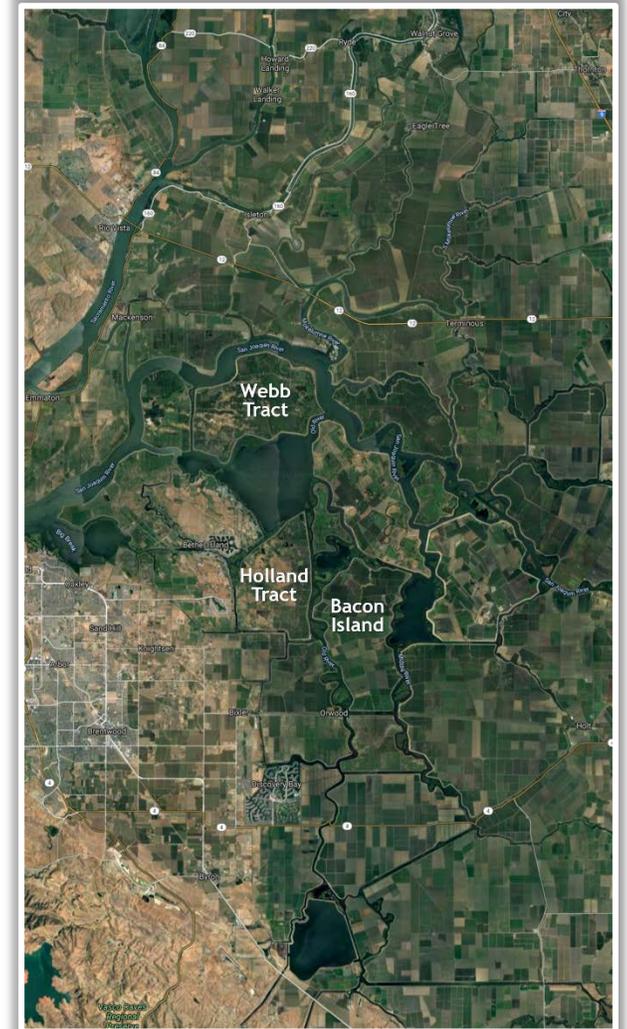
# Recent Addition to Garamendi Plan (2.7.20 Letter)

## Proposal

- » Divert flows in a pressurized pipeline from south lock on the Ship Channel to three new reservoirs on Bacon Island, Holland Tract, and Webb Tract.

## Issues

- » The islands in the inner Delta have a deep layer of peat soil at the surface that would severely contaminate the water supply with organic material. This organic material creates a wide range of carcinogenic compounds when treated with disinfectants. This is a completely unacceptable proposition from a public health perspective.
- » The levees on these islands would require significant upgrades to meet the design earthquake loads, 200-year flood levels and sea level rise.
- » This alternate proposal would add another 3,000 cfs pump station and flow control structures (1 per island) to divert flows to the existing SPW facilities. Each pump station requires approximately 50 acres of land (mostly zoned agricultural in these areas).
- » The amount of storage available on these islands may meet daily operational needs and eliminate the need for the Southern Forebay but is insufficient in size to provide any meaningful type of seasonal storage.



Delta Conveyance Project: Summary of the Preliminary Assessment of a Western Corridor  
March 30, 2020 | Subject to Change

# Comparison of Plan to Program Objectives

Program Objectives	Garamendi Plan
Water Supply Reliability	<ul style="list-style-type: none"> <li>Limited to 3,000 cfs</li> <li>Lower flow provides less redundancy resilience in the overall system</li> <li>Relies more heavily on upgrades of existing aging infrastructure with documented deficiencies rather than new structures designed to very stringent seismic, flood, and sea level criteria and a 100-year design life.</li> </ul>
Seismic Resilience	<ul style="list-style-type: none"> <li>Relies more heavily on channels, canals, and levees for conveyance. These conveyance structures provide less seismic resilience than a concrete lined tunnel.</li> </ul>
Sea Level Rise and Climate Change Resilience	<ul style="list-style-type: none"> <li>The channels, canals, and levees in this alternative are far more difficult to modify for sea level rise than underground tunnel facilities.</li> </ul>
Operational Flexibility to Improve Aquatic Conditions	<ul style="list-style-type: none"> <li>Lower flow provides less operational flexibility between the existing and new facilities for the protection of species and the capture of excess flows.</li> <li>Requires major construction in a delicate habitat area for Delta smelt.</li> </ul>



Questions?