



# Delta Conveyance Project Engineering Update

Water Planning and Stewardship Committee | Agenda Item 1a

Graham Bradner, DCA Executive Director

*May 9<sup>th</sup>, 2022*

[WWW.WATER.CA.GOV/DELTA CONVEYANCE](http://WWW.WATER.CA.GOV/DELTA CONVEYANCE) | [DCDCA.ORG](http://DCDCA.ORG)



# Delta Conveyance – Engineering Summary

## Three Alignments

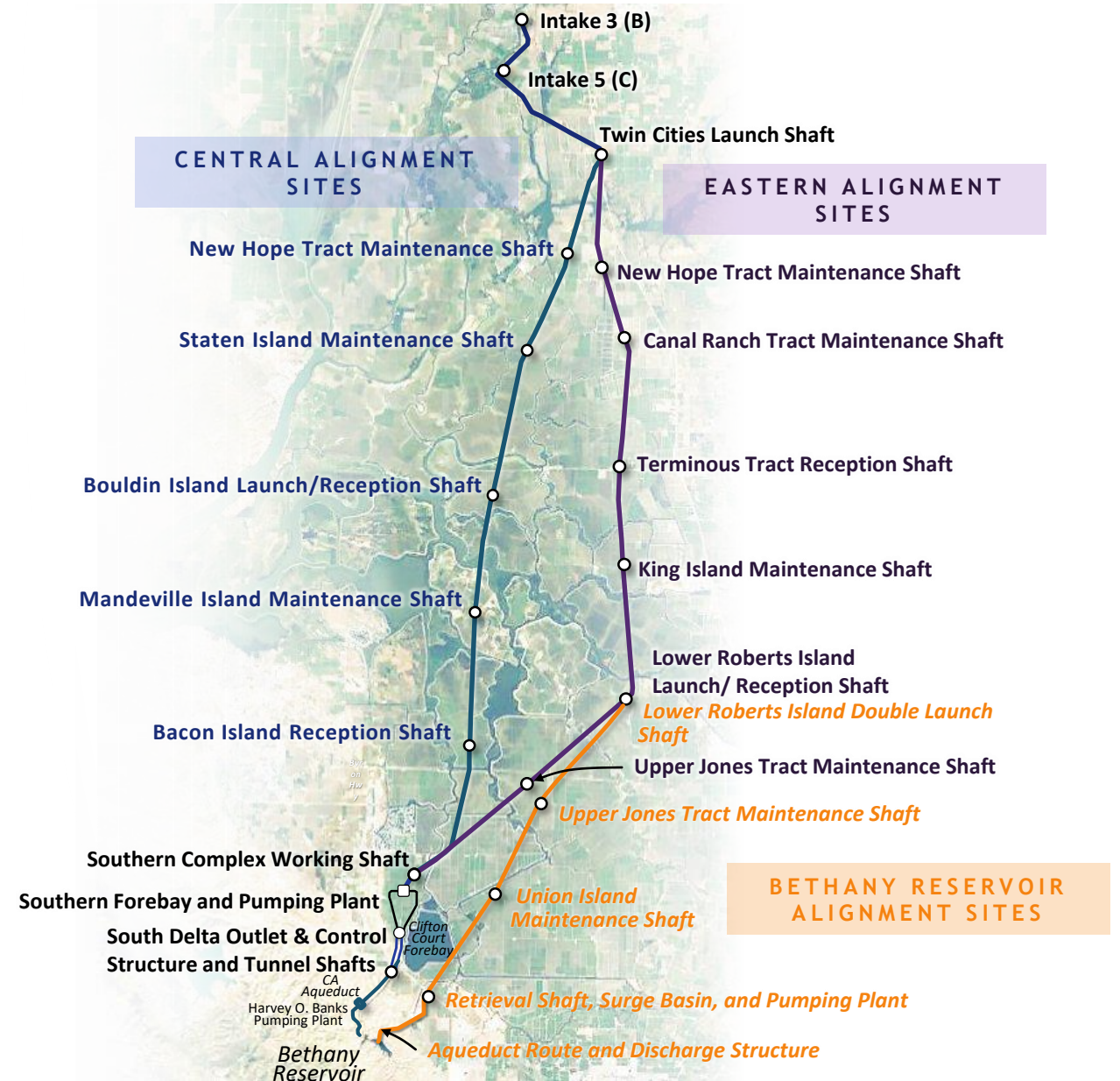
- Central
- Eastern
- Bethany

## Two Engineering Project Reports

- Central/Eastern Alternatives
- Bethany Reservoir Alternative

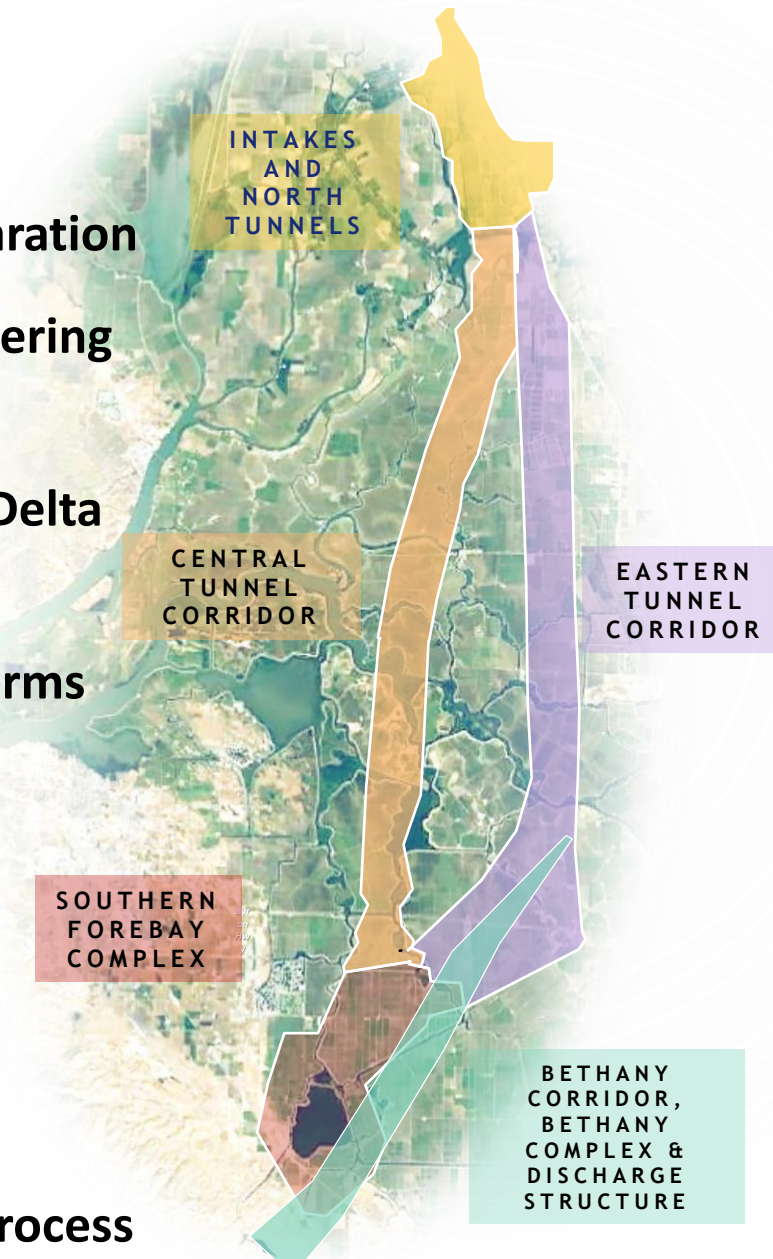
## Four Capacity Options

- 3,000 cfs
- 4,500 cfs
- 6,000 cfs – Proposed Project
- 7,500 cfs



# Conceptual Design Objectives

- Work started with the proposed corridors included in the Notice of Preparation
- At DWR's request, DCA set out to develop conceptual designs and engineering information for CEQA analyses
- Conceptual designs would attempt to minimize effects of the project on Delta communities and terrestrial and aquatic habitats
- Develop conceptual designs that reflect community input, through platforms such as the SEC and community meetings, with emphasis placed on:
  - Siting of facilities
  - Better understanding potential traffic and waterway effects
  - Reducing construction-related effects
  - Minimize disturbance to existing lands used for farming, wildlife habitats, communities, etc.
- Focus on engagement and transparency through the conceptual design process





# Implementation of the Stakeholder Engagement Committee

- The DCA Board unanimously approved Resolution No. 19-12 on September 19, 2019, which outlined the SEC's purpose, scope, and membership.
- Up to 20 Committee Members participated in the SEC
- Represent wide array of interests and geographies
- **DCA Board Representatives**
  - Chair Sarah Palmer
  - Vice Chair Barbara Keegan
- **19 SEC Committee Meetings**
- **November 2019 thru December 2021**
- **Over 65 agendized SEC presentations**

The SEC represented a wide array of interests and geographies in the following 18 areas:

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| • Agriculture                     | • Tribal Government Representative |
| • Recreation                      | • Delta Water District             |
| • Sports Fishing                  | • At Large – Yolo County           |
| • Environmental NGO - Terrestrial | • At Large – Solano County         |
| • Environmental NGO - Aquatic     | • At large – San Joaquin County    |
| • Environmental Justice           | • At Large – Sacramento County     |
| • North Delta Local Business      | • At Large – Contra Costa County   |
| • South Delta Local Business      | • Public Safety                    |
| • Delta History & Heritage        | • Ex-Officio                       |

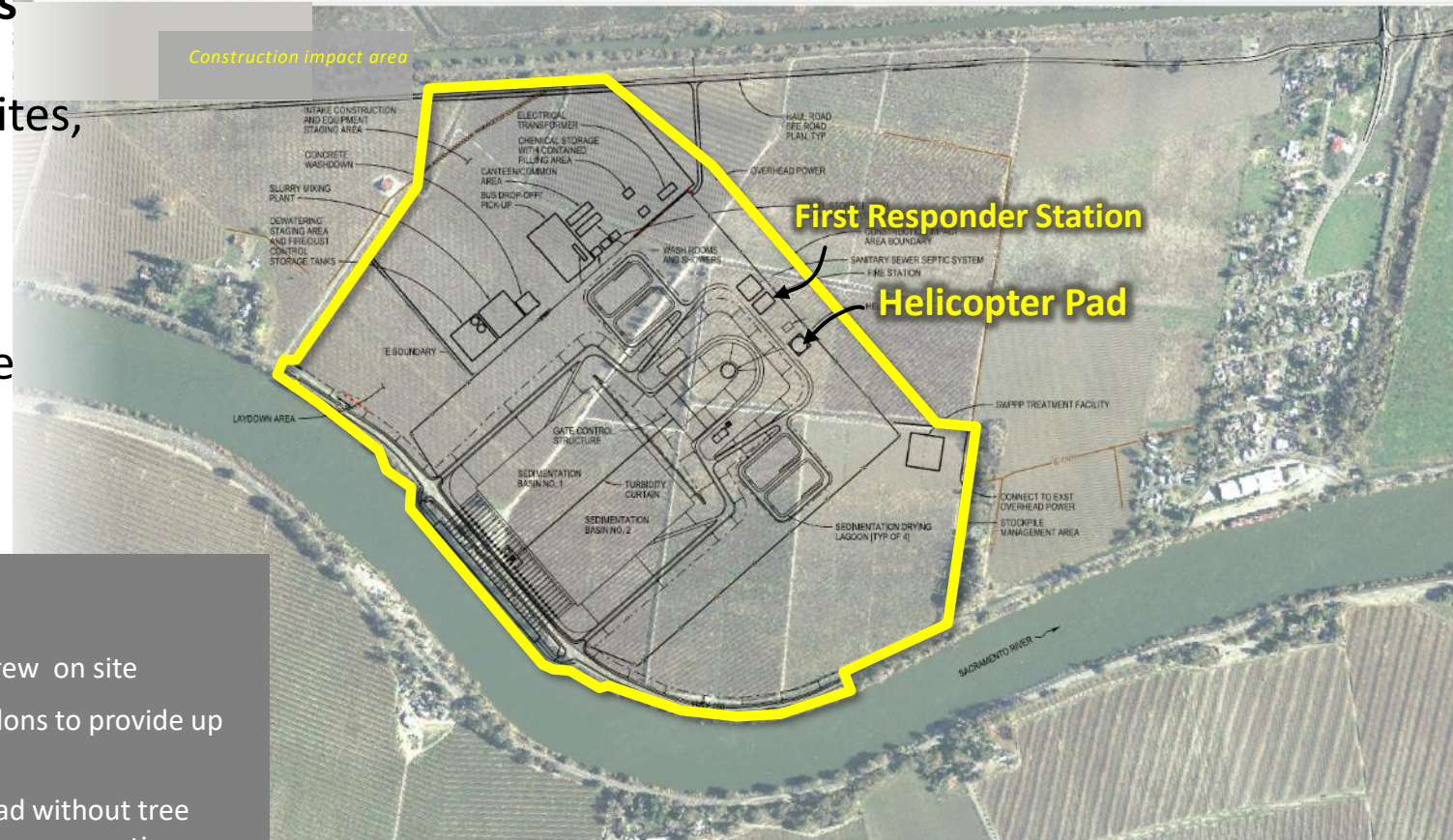
# Summary of Conceptual Design Efforts to Minimize Community Effects

- 1** Avoid increasing demand for existing emergency services in the Delta
- 2** Manage flood risks to the project facilities and existing land uses
- 3** Manage seismic risks to people and property
- 4** Minimize activities that produce noise, dust, greenhouse gas emissions, traffic, and land use disturbances
- 5** Minimize construction effects to existing infrastructure or other community resources
- 6** Minimize construction traffic and associated effects
- 7** Minimize disturbance to existing land uses, including agricultural land, residences, and wildlife habitat
- 8** Minimize disturbance to sensitive wildlife and protected habitat areas
- 9** Minimize effects on Delta water-based recreation and navigation
- 10** Minimize noise during construction and operations

## 1

# Avoid increasing demand for existing emergency services in the Delta

- **Emergency response facilities** would be constructed at the intakes, tunnel launch shaft sites, Southern Complex/Bethany Complex
- **Facilities could be developed with communities** to increase their long-term emergency response capabilities



## Intake 3 (B)

Ambulance, Rescue Boat, Fire Truck and crew on site

Fire Water On-site storage at 300,000 gallons to provide up to 2,500 gallons/minute for 2 hours

Space for a 60-foot diameter paved helipad without tree coverage would only be used for emergency evacuations



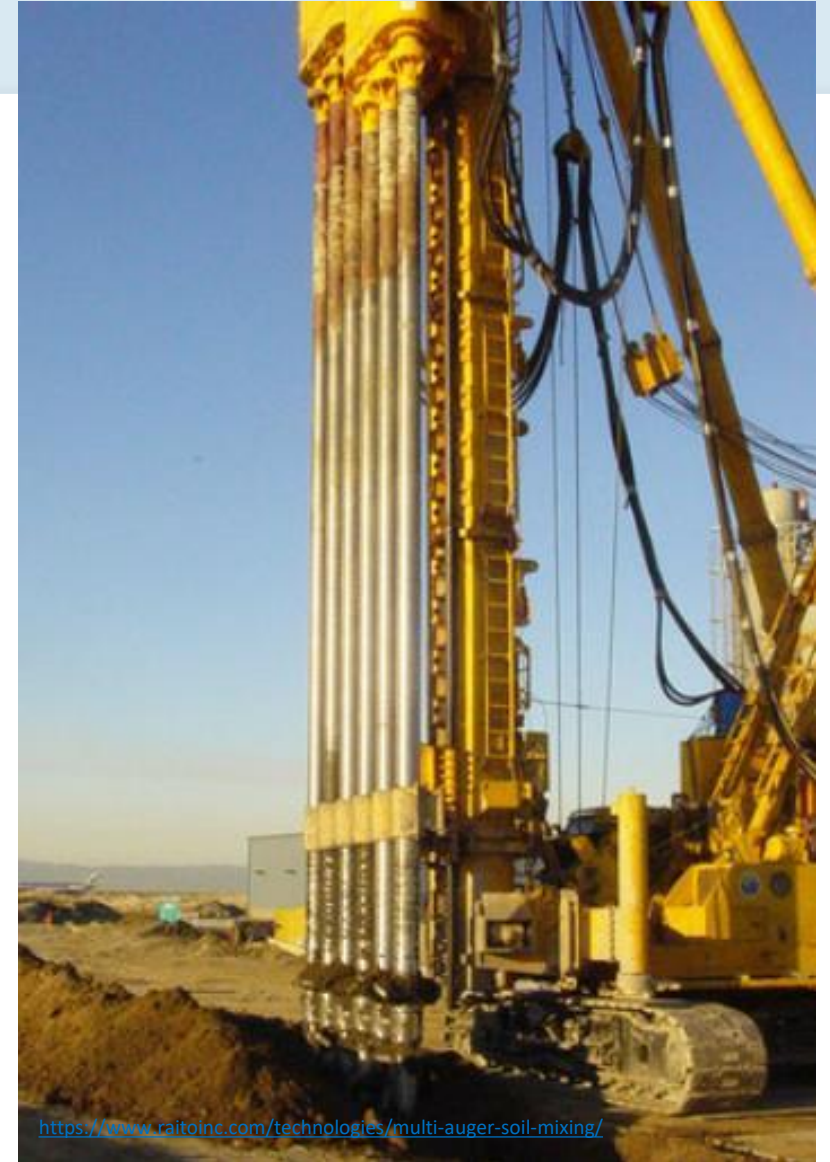
## Manage flood risks to the project facilities and existing land uses

- Design all project facilities to contain **Sacramento River 200-year flood elevation** with Sea Level Rise and Climate Change projected for year 2100
- Provide **structural and non-structural flood risk mitigations** throughout the project
- **Avoid use of levee roads** for heavy construction traffic and maintain setback from existing levees for fill placement
- **Maintain Sacramento River flood management criteria** at the intakes
  - Intake structure would be positioned to limit increase of maximum water surface elevation
  - Provide continuous flood protection during construction
- Early consideration of Southern Forebay/Bethany Discharge Structure as **CA Division of Safety of Dams jurisdictional structures**



## Manage seismic risks to people and property

- **Early consideration of seismic design criteria** specialized to relevant features of the project
- Consider the West Tracy Fault, Bethany Fault, and **soil conditions in facility siting**
- **Enhanced ground improvement** for intakes and Southern Forebay for soft/loose ground
- **Use tunnels to deliver water from Southern Forebay** to existing Banks Pumping Plant approach channel



<https://www.raitoine.com/technologies/multi-auger-soil-mixing/>



## Minimize activities that produce noise, dust, greenhouse gas emissions (GHG), traffic, and land use disturbances



### NOISE

- Minimize the use of impact pile driving at intakes
- Minimize nighttime construction
- ■ ■ Pave access roads, cover stockpiles, and use enclosures
- ■ ■ ■ No concrete batch plants at intakes

### DUST

- ■ ■ ■ Do not launch TBMs from intakes
- ■ ■ ■ Manufacture precast tunnel liner segments offsite
- ■ ■ ■ Consider access requirements as part of siting
- ■ ■ ■ Balance soil excavation and fill needs with onsite soil material sources and RTM

### GHG

### TRAFFIC

### LAND USE DISTURBANCES

- ■ ■ ■ ■ Reduce tunnel shaft pad area and height
- ■ ■ ■ ■ Facilitate RTM reuse
- ■ ■ ■ ■ Eliminate the Intermediate Forebay
- ■ ■ ■ ■ Reduce the number of shafts
- ■ ■ ■ ■ Consider soil conditions in siting to minimize ground improvement

## Minimize construction effects to existing infrastructure or other community resources



- **Consider existing infrastructure** as part of facility siting
- **Use cutoff walls** to minimize effects on groundwater during construction and operations
- **Treat and reuse water** generated during construction activities
- **Maintain irrigation and drainage systems** for areas surrounding project sites
- **Use tunnels to deliver water from Southern Forebay** to existing Banks Pumping Plant approach channel



## Minimize construction traffic and associated effects

- **Limit routes** used for construction traffic:
  - Limited construction traffic allowed on SR 160 and SR 4
  - Worker shuttle buses on Hood-Franklin Rd
  - Limited Construction traffic in Solano and Yolo County
- **Perform traffic studies** for roads potentially affected by project activities
- **Develop designated access routes** and construct new dedicated haul roads
- **Construct park and ride lots** to facilitate employee carpools and truck staging areas
- **Develop rail depots** to transport bulk materials from select sites





## 7

## Minimize disturbance to existing land uses, including agricultural land, residences, and wildlife habitat

- Consider existing structures, number of ag parcels, and nearby communities as part of **facility siting**
- **Use cylindrical tee screens** at the intakes
- **Minimize nighttime construction** disturbance
- Include plans for **post-construction reclamation of agricultural land** disturbed during construction
- **Maintain irrigation and drainage systems** for areas surrounding project sites
- **Use tunnels to deliver water from Southern Forebay** to existing Banks Pumping Plant approach channel





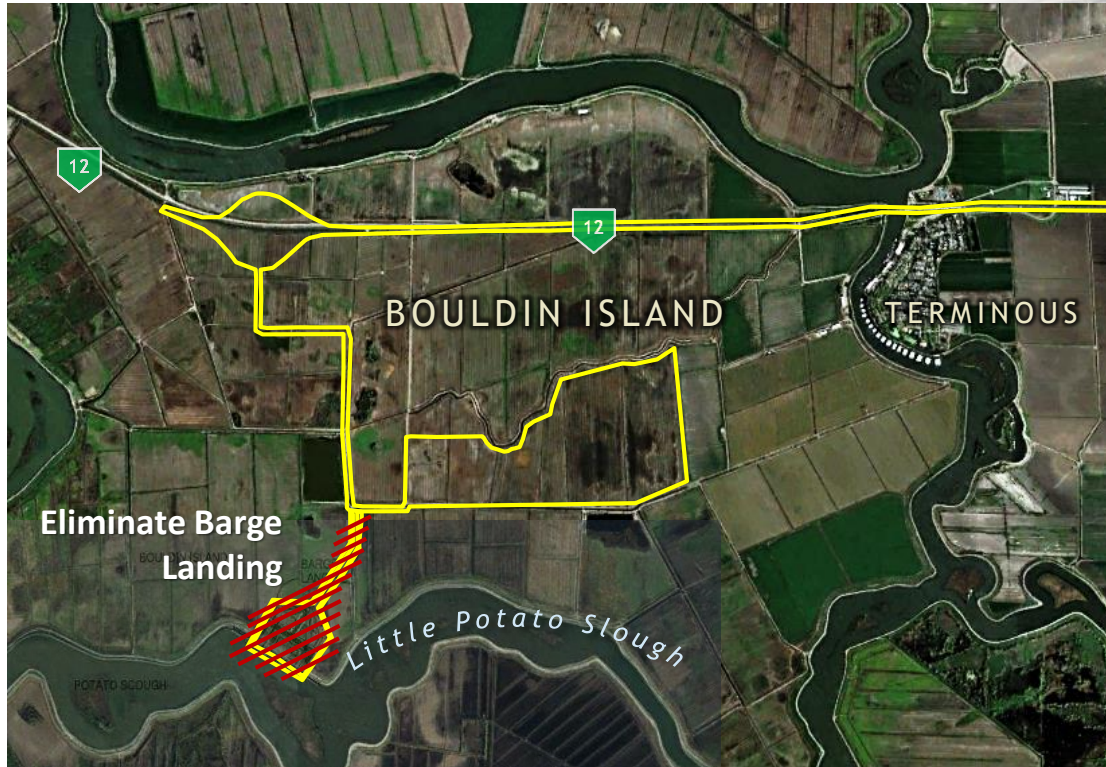
## Minimize disturbance to sensitive wildlife and protected habitat areas

- Implement strategies to **minimize effects on** Stone Lakes National Wildlife Refuge, Woodbridge Ecological Reserve, and other **protected areas**
- **Consider greater sandhill cranes** in facility siting and power line alignments
- **Reroute and realign facilities** to avoid wetlands
- **Avoid conservation easements** in siting of key features
- **Limit barge use** for project construction
- **Use tunnels to deliver water from Southern Forebay** to existing Banks Pumping Plant approach channel





## Minimize effects on Delta water-based recreation and navigation



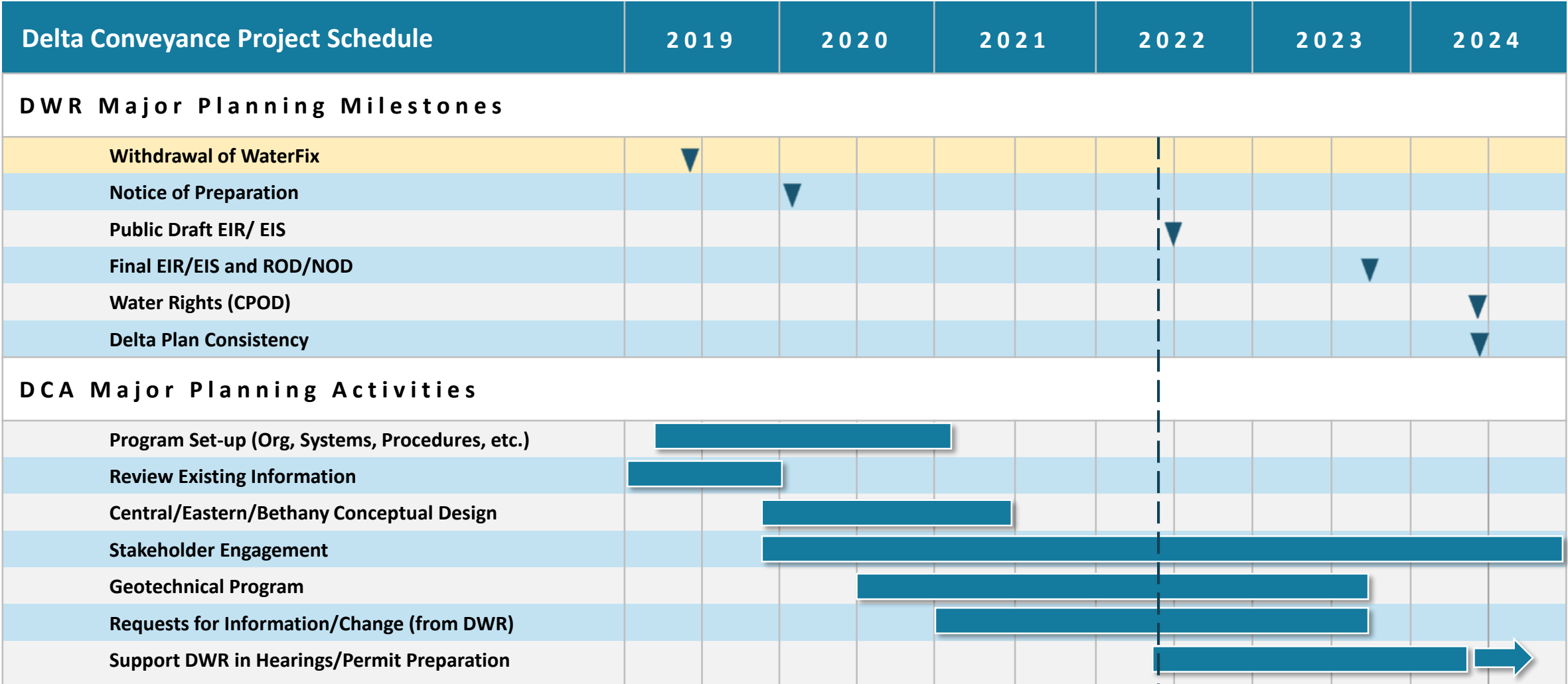
- **Limit barge use** for project construction to Intakes only
- **No barge landings**
- **Reconfigure the Lower Roberts Island shaft site access road** to be further away from Windmill Cove Marina



## Minimize noise during construction and operations

- **Include noise reduction methods**
  - use temporary sound barriers and shrouds during construction
  - locate fans/ductwork inside buildings rather than on exterior
  - enclose RTM dryers and portions of concrete batch plants
- **Use cylindrical tee screens at the intakes**
- **Minimize nighttime construction disturbance**





Current Date





GRAHAM BRADNER, DCA EXECUTIVE DIRECTOR

# Thank You!