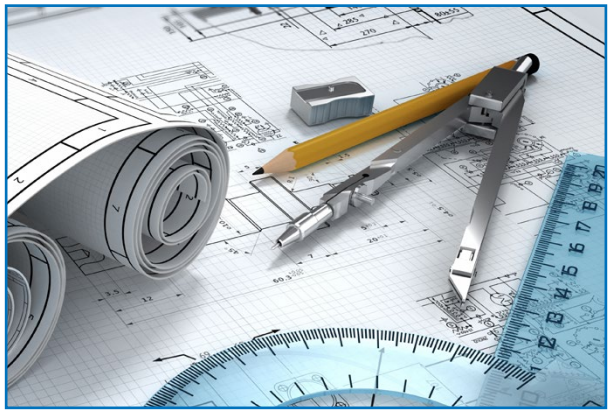
Preliminary Design and Engineering Objectives



The Department of Water Resources (DWR) is conducting environmental planning for the Delta Conveyance Project, a proposal to modernize State Water Project infrastructure to protect the reliability of future water supplies.

DWR established these **10 engineering and design objectives** at the outset of the environmental planning process to help avoid or minimize potential environmental effects.

1. Avoid increasing demand for existing emergency services in the Delta.
2. Manage flood risks to the project facilities and existing land use.
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.

The design and engineering work for the Delta Conveyance Project is being conducted by the Delta Conveyance Design and Construction Authority (DCA). This list describes how the DCA fulfilled the 10 objectives set by DWR.

- **Emergency** response facilities would be constructed at the intakes, tunnel launch shaft sites, and Southern/Bethany Complex.
- **Design** all project facilities to contain Sacramento River 200-year flood elevation with sea level rise and climate change projected for the year 2100.
- **Perform** program-wide flood mitigation study and 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 specialized design criteria relevant to features of the project.
- **Consider** relevant factors in updated facility siting (fault lineaments, soil conditions, access requirements, existing structures & infrastructure, parcels, nearby communities, wetlands, conservation easements, and sensitive/protected species).
- **Include** enhanced ground improvement for intakes and Southern Forebay for potential soft or loose ground.
- **Use** tunnels to deliver water from Southern Forebay to existing Banks Pumping Plant approach channel.
- **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.
- **Avoid** launching Tunnel Boring Machines from intakes.
- **Manufacture** precast tunnel liner segments offsite.
- **Balance** soil excavation and fill needs with onsite soil material sources and RTM; facilitate RTM reuse.
- **Reduce** tunnel shaft pad area and height.
- **Identify** solutions to address tunnel surge and operational requirements; eliminate the Intermediate Forebay.
- **Reduce** the number of shafts; increase tunnel drive distances and consolidate tunnel launch site operations to maximum practical extent.
- **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.
- **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).
- **Use** site-specific traffic studies at early design stage to assess roads potentially affected by project activities and develop logistics plan to include designated access routes and construct new dedicated haul roads; park and ride lots to facilitate employee carpools and truck staging areas; rail depots to transport bulk materials from select sites.
- **Use** cylindrical t-screens instead of vertical plate screens at the intakes.
- **Include** plans for post-construction reclamation of agricultural land disturbed during construction.
- **Implement** strategies to minimize effects on Stone Lakes National Wildlife Refuge, Woodbridge Ecological Reserve, and other protected areas.
- **Limit** barge use for project construction to Intakes only and elimination of barge landings.
- **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).