**DELTA PROTECTION COMMISSION**
*Diane Burgis, Chair (Contra Costa County Board of Supervisors)*
2101 Stone Blvd., Suite 200, West Sacramento, CA 95691
(916) 375-4800 | delta.ca.gov

October 13, 2025

Katherine Marquez, Program Manager III
California Department of Water Resources
1600 9th Street Bateson, 2nd Floor
Sacramento, CA 95814

TRANSMITTED VIA EMAIL: dcp_consistency@water.ca.gov

Re: Draft Certification of Consistency for the Delta Conveyance Project (DCP)

Dear Ms. Marquez,

This letter responds to the Department of Water Resources (DWR) posting of a Draft Certification of Consistency for the DCP on October 3, 2025. Commission staff appreciate the opportunity to review the Draft Certification of Consistency for the DCP. As DWR prepares to submit a Final Certification of Consistency to the Delta Stewardship Council, Commission staff request that the following documents, appended to this letter, be considered by DWR and included in the record for the Final Certification. Although these documents were previously submitted to DWR, we did not see them in a review of the Draft Certification of Consistency reference list.

The following document was submitted to DWR by the Executive Director under his delegated authority to comment on land use matters:

- Comment letter dated 4/15/2020 on the Delta Conveyance Project Notice of Preparation, with attachment.

The following document was approved by the Delta Protection Commission and submitted to DWR:

- Comment letter dated 12/14/2022, DWR Draft Delta Conveyance Project Environmental Impact Report, with attachment.

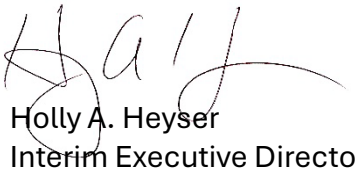
The following documents were approved by the Delta Protection Commission and sent to the US Army Corps of Engineers, and also sent to DWR:

- Comment letter dated 3/15/2023, US Army Corps of Engineers Draft Environmental Impact Statement, with attachment, and *Draft Survey of Cultural Resources of the Sacramento-San Joaquin Delta in the Delta Conveyance Project Area*.

Should you have any questions, please contact Virginia Gardiner, Program Manager, at (530) 650-6471 or virginia.gardiner@delta.ca.gov.

Thank you.

Sincerely,



Holly A. Heyser
Interim Executive Director

Attachments:

1. Comment Letter on DCP NOP
2. Comment Letter on DCP DEIR
3. Comment Letter on DCP DEIS

CC: Members, Delta Protection Commission

# 1. Comment Letter on DCP NOP

**DELTA PROTECTION COMMISSION**
2101 Stone Blvd., Suite 240
West Sacramento, CA 95691
(916) 375-4800
www.delta.ca.gov



April 15, 2020

Via U.S. Mail:
Delta Conveyance Scoping Comments
Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236
Attn: Renee Rodriguez

Via email: DeltaConveyanceScoping@water.ca.gov

Subject: Delta Conveyance Notice of Preparation (NOP) Scoping Comments

Dear Ms. Rodriquez,

The Delta Protection Commission (Commission) is a California State agency created by the Delta Protection Act of 1992, which declared "the Delta is a natural resource of statewide, national, and international significance, containing irreplaceable resources, and that it is the policy of the state to recognize, preserve and protect those resources of the Delta for the use and enjoyment of current and future generations" (California Public Resources Code (PRC) section 29701).

The Act directed the Commission to regulate land use in the Delta to ensure that the populous metropolitan areas surrounding the Delta did not overrun this natural resource and forever alter those irreplaceable resources, including the agricultural, recreational, natural and cultural features that make the Delta the unique place that it is.

In response to the NOP, this letter sets forth the broad principles that serve as the foundation for the attached document detailing issue-by-issue comments. As with the predecessor conveyance proposals, a tunnel through the Delta will irreversibly damage Delta agriculture, recreation, cultural and natural resources. This letter presents our assessment of the potential impacts, offers promising alternatives and effective and feasible mitigation measures for consideration, and reaffirms our position that previously ill-defined impacts – or those not defined at all in previous environmental review – must now receive the attention they require.

## Additional Authorities

In addition to the Delta Protection Act of 1992, the Commission's authority with respect to the Delta conveyance proposal presented in the NOP stems from the following legislation and agreements.

Delta Reform Act: The Delta Reform Act of 2009 (Chapter 5, Statutes of 2009), as well as 2009 amendments to the Delta Protection Act of 1992, declared that the State's basic goals for the Delta are to provide a more reliable water supply for California and protect, restore and enhance the Delta ecosystem "in a manner that protects and enhances the unique cultural, recreational, natural resource and agricultural values of the Delta as an evolving place" (PRC section 29702(a) and Water Code section 85054). In addition, the law identifies the Commission as a "forum for Delta residents to engage in decisions regarding actions to recognize and enhance the unique cultural, recreational, and agricultural resources of the Delta" (PRC section 29703.5(a)). It directs the Commission to recommend ways to protect and enhance the Delta's unique values to the Delta Stewardship Council.

Sacramento-San Joaquin Delta National Heritage Area. The John D. Dingell, Jr. Conservation, Management, and Recreation Act, enacted in March 2019, created the Sacramento-San Joaquin Delta National Heritage Area (NHA). The law designates the Delta Protection Commission as the NHA's local coordinating entity, and charges it with preparing and submitting to the Secretary of the Interior a NHA management plan. Pursuant to the Act, the plan will emphasize the importance of agricultural resources and activities, flood protection facilities, and other public infrastructure, incorporating an integrated and cooperative approach for addressing them, and provide comprehensive policies, strategies and recommendations for conservation, management, development, and funding of the NHA. We are already at work on that plan, which is due to the Secretary of the Interior by March 2022. Federal agencies (such as the U.S. Army Corps of Engineers or U.S. Bureau of Reclamation) that are planning to conduct activities that may impact the NHA are to coordinate their actions with the Commission to the maximum extent practicable.

Staten Island Memorandum of Understanding

The Commission has a role in reviewing any land-use changes on Staten Island, which is subject to a 2001 conservation easement and a 2002 Memorandum of Understanding between the Commission and the Department of Water Resources (DWR). The stated intent of the conservation easement is that Staten Island be protected from "any actions that would result in the conversion of any material portion ... away from agricultural use." DWR holds the conservation easement and is legally responsible for its enforcement.

## Principles

The Commission's comments are based on foundational principles that underlie our response to the Notice of Preparation, derived from what matters to those who live, work and recreate in the Delta. Since none of the stated project objectives specifically benefit the Delta region, we believe these principles should be given equal weight to the project objectives.

The Delta Reform Act of 2009 articulated the State's recognition that the Delta is a special place. Congress recognized its singular qualities when designating it a National Heritage Area. Its assets attracted people from around the world, whose hard work and creativity fashioned the unique landscape that is our home. These special attributes

include its productive farmlands, with its drainage and irrigation infrastructure; the waterways navigated by recreational and commercial vessels and attracting boaters, anglers and other recreationists; and its rich cultural history stretching from Native California Indians through waves of immigrants to today's legacy communities and multi-generational family farms. It enjoys quiet, dark night skies, and close-knit communities. It is a place of surprising diversity and continuity. Protecting the Delta as a unique place means adhering to the following basic principles.

**Protect Delta Water**

The reliability of water supplies for in-Delta users and the Delta ecosystem must be fully protected. Our local water utilities, farms, resorts, and industries benefit from abundant fresh water. Our fish and wildlife are attuned to the pulses of this water as it interacts with the Delta's tides. Complex infrastructure built to manage this water, including siphons, diversions, drains, other discharges, and levees, is also carefully adapted to current conditions. This water is protected by our rights as an area where these waters originate, by other water rights, and by federal and State law. Any Environmental Impact Report (EIR) for Delta isolated conveyance must carefully evaluate any harm to the region's water and fully protect all its uses, including its water management infrastructure.

**Improve Levees and Reduce Reliance on Exports**

The EIR should consider an alternative that reduces risks to Delta water supplies from earthquakes and sea level rise by improving Delta levees, as recommended in the Commission's Economic Sustainability Plan for the Sacramento-San Joaquin Delta (ESP). This alternative should consider a reduction of other region's reliance on water from the Delta by investing in water use efficiency, water recycling, and other advanced technologies. EIR alternatives and mitigation measures should also be consistent with regulations implementing the Delta Reform Act, the Clean Water Act, and the Davis-Dolwig Act's (Water Code sections 11910-11911) requirements about protecting Delta wildlife and fish, providing recreation opportunities, and consulting with local agencies.

**Listen to Delta People**

The Delta is a complex place. No one knows it better than those who live, work, and recreate there and the local governments who represent them. Involving these Delta people will be essential to understanding the project's effects and how to avoid or reduce them. The Bay-Delta Conservation Plan (BDCP) began by excluding many local stakeholders from discussions about it. Many Delta people felt excluded from substantive involvement in the BDCP EIR as well. The sense of skepticism that resulted will be difficult to overcome. But DWR has gained valuable experience developing constructive working relationships with wildlife and fish agencies that can be applied to working with people in the Delta. The Delta Conveyance Design and Construction Authority (DCA) outreach effort with its Stakeholder Engagement Committee (SEC) is a start, but should supplement, not substitute for consultation. DWR's outreach and listening effort should extend beyond pro forma California Environmental Quality Act (CEQA) notifications. The alternative is further decades of gridlock and impasse.

**Protect People as Well as Wildlife**

Delta residents and recreationists must be protected as effectively as its fish and wildlife. Like the fish and wildlife that receive so much attention, our multiracial population is also at risk. Too many residents and workers have low incomes, and others' jobs rely on water-dependent farms or tourism. The communities where they live and work, the waterways that attract our recreationists, and the highways traveled to jobs and shopping, to ship our produce, and to draw visitors are as critical as the river channels and other habitats where wildlife and fish live and migrate. Impacts to the Delta's residents and visitors should be assessed using current data, not outdated information or guesswork. Alternative points of diversion that avoid damaging our communities deserve the same consideration as locations that minimize harm to fish. Specific actions to reduce damaging effects should be spelled out whenever feasible, not deferred to be worked out later. Performance standards should be clearly stated. When harm is unavoidable, compensation to offset damage must be provided, just as it is for damage to waterfowl or salmon.

**Treat Us as Well as Other Californians**

Measures to mitigate impacts in the Delta must be at least equivalent to those used in other large public works projects in southern California, Santa Clara County, and the San Joaquin Valley that would receive water through the proposed tunnel. These regions have employed both practical and innovative ways to reduce and offset the damaging effects of public works projects. Homes have been insulated to quiet excess noise. State-of-the-art equipment has been used to reduce disruption during construction. Homes that must be purchased are subsequently replaced and made available at affordable prices. Historic structures have been carefully mothballed and then rehabilitated after project completion. Funds have been provided to help adversely-affected businesses persist despite the disruptions caused by project construction. The application of such measures elsewhere in California demonstrates that they can typically be accomplished successfully, considering economic, environmental, social and technological factors. The EIR must evaluate such measures applicability in the Delta and adopt them whenever feasible.

**Use the Best Science**

The EIR must be based on the best available science and employ adaptive management where impacts within the Delta are uncertain. Data about the Delta must be carefully collected and shared for review. Evaluations of impacts to agriculture, tourism, transportation, housing, cultural assets, and other Delta resources must be peer-reviewed, as should economic studies used to consider mitigation measures' feasibility. Where effects are uncertain, actual effects during the construction period should be monitored so that mitigation can be adjusted based on actual conditions rather than inexact forecasts.

**Be Readable**

As noted by the Delta Independent Science Board, the circumstances surrounding impact assessment of a conveyance project demand that the environmental review "go beyond legal compliance," that it have "extraordinary completeness and clarity," that it be "exceptionally clear about the scientific and comparative aspects of both environmental impacts and project performance." The EIR should include summaries of impacts, by chapter, written plainly and with explanatory graphics, so that it is easily understood by Delta residents and agencies. The EIR's purpose should be to inform public discussion and agency decisions about alternative ways to achieve the project's objective, rather than just to compile an exhaustive and encyclopedic narrative about the project and its effects. Innovative communications, such as video clips, should supplement the written report.

**Don't Make the Delta Pay**

DWR's water contractors must agree to reimburse affected Delta local governments and special districts for the lost property taxes or assessments for land used in the project's construction, location, mitigation, and operation, as required by the Delta Reform Act (Water Code section 85089). DWR should also anticipate reimbursing local agencies, many of whom operate on very modest budgets, when it calls on them for data or consultation during the preparation of the EIR.

**Conclusion**

The Delta Protection Commission offers these scoping comments in the spirit of constructive dialogue. We believe considering alternatives in light of these principles and giving them equal weight to the project objectives will change the perspective of a preferred alternative and mitigation measures significantly. We hope they will aid DWR in bringing together and resolving the concerns of our affected local government constituents, responsible and trustee agencies, and other interested parties, including those who may not be entirely in accord with the action on environmental grounds, as provided in CEQA Guidelines Section 15083.

Thank you for the opportunity to provide input. We are available to engage in multi-lateral discussion of how to protect and enhance the unique values of the Sacramento-San Joaquin Delta.

Sincerely,

Erik Vink
Executive Director

Attachment: "Attachment to NOP Comment Letter Dated April 15, 2020"

CC: Chairman Villegas and Commissioners, Delta Protection Commission

**Attachment to Delta Protection Commission**

**NOP Comment Letter (April 15, 2020) – Delta Conveyance**

The following comments provide the Commission's specific suggestions and recommendations regarding preparation of the Delta Conveyance Draft EIR.

**Alternatives**

The EIR should examine these alternatives, which we believe may avoid or reduce the adverse effects to Delta resources enumerated in the subsequent sections.

Improve through-Delta conveyance and reduce reliance on exports. The Delta Protection Commission advocates improved through-Delta conveyance, rather than the isolated facility proposed by DWR. In recognition of our recommendation and because the project proposed by DWR addresses only some of the factors that contribute to the unreliability of Delta water exports, the EIR should also include an alternative that promotes water reliability by strengthening Delta levees and dredging key Delta channels, rather than tunneling under the Delta, while also reducing other region's reliance on water from the Delta by investing in water use efficiency, water recycling, and other advanced technologies. The through-Delta conveyance components of this alternative should include all the features recommended in the Delta Plan (Delta Plan recommendation WR R1 2(a)(4) and (c)).

This alternative's provisions to reduce reliance on the Delta should be informed by an analysis of water demand and promising alternative supplies in areas to be served by the project. The analysis should comply with the Delta Plan's regulatory policy WR P1. The alternative should also be informed by analyses highlighting southern California's increasingly diverse water supplies and further opportunities to reduce imports there (https://www.nrdc.org/experts/doug-obegi/mwd-suggests-southern-california-has-too-much-water; https://www.nrdc.org/experts/ben-chou/new-report-finds-big-mismatches-socal-water-plans) and in the San Joaquin Valley (https://www.ppic.org/wp-content/uploads/water-and-the-future-of-the-san-joaquin-valley-february-2019.pdf).

Far eastern alignment. A tunnel alternative deserving evaluation is the far eastern alignment recommended in the January 20, 2020 report of the Independent Technical Review (ITR) Panel to the Delta Conveyance Design and Construction Authority (DCA). We understand that a similar alignment was proposed in 2010 by an ITR Panel for the WaterFix tunnels. In addition to the cost and logistical

advantages identified by the panel, such an alignment would seem to avoid or reduce impacts to land use, recreation (including boating), and Highway 160 corridor cultural resources from noise, traffic, and construction disruption. Mitigation of remaining impacts would appear to be less complex and thus perhaps less expensive as well. However, the potential impacts of the far eastern alignment have not been as thoroughly studied as the central corridor alignment in terms of agriculture, natural resources and land use conflicts. For example, the far eastern alignment could have potential significant adverse impacts to the Port of Stockton and adjacent neighborhoods.

Alternative points of diversion. Because construction of diversion facilities causes such significant impacts to nearby Delta communities and natural and cultural resources in the Sacramento River/Highway 160 corridor, alternative diversion locations that avoid or reduce damage to Delta communities and recreational boating as well as protect fish should be considered. In addition, the analysis of potential diversion points undertaken in the BDCP/WaterFix EIR's Appendix 3F should be revisited with impacts to Delta communities weighted equally with impacts to fish and wildlife. Experts in Delta land use should be represented on the ranking panel equally with fish agency representatives. Relying on fish biologists, who are not trained in land use, cultural resources, or other relevant topics to weigh impacts on Delta communities does not employ the best available science. Use of a single point of diversion with a total project capacity of 3000 cfs should also be considered, thereby reducing the extent of damage from multiple points of diversion.

Alternative intermediate forebay locations. To avoid or reduce impacts from noise and construction disruption near Locke and the Cosumnes River Preserve and damage that dredging and barge facilities would inflict on recreational boating, aesthetics, and Snodgrass Slough's natural areas, an alternative location for the intermediate forebay and associated facilities should be evaluated south of Walnut Grove Road and adjacent to I-5 along the far eastern alignment. Such a site would still involve painful damage, but perhaps less harm than the site currently under consideration.

**Hydrology and Water Resources**

Protect in-Delta water resources. The project's effects on in-Delta water uses should be carefully assessed. This should include modeling that forecasts the effects of the project's operations, together with ongoing State Water Project (SWP) and Central Valley Project (CVP) operations using existing south Delta facilities, on water quality parameters that affect in-Delta uses. Key parameters that should be assessed include salinity, organic carbon, temperature, in-Delta and through-Delta flows, and outflows to

the Bay. The EIR should describe the implications of changes in these parameters on agriculture, municipal water suppliers that rely on Delta water, Delta industrial uses, such as food processors and petrochemical plants, Delta sport fisheries, and recreation, including the spread of aquatic invasive species and harmful algal blooms. The Department of Parks and Recreation's Division of Boating and Waterways (DBW) and other agencies such as the CA Department of Fish and Wildlife (DFW) and State Water Resources Control Board (SWRCB) should be consulted for current data. This modeling should report outcomes for key parameters over time, through at least 2050, so that readers can understand the project's longer-term effects as climate change affects sea levels and makes runoff to the Delta less predictable. Implications of the project for wastewater agencies discharging to the Delta should also be explored.

If the project will adversely affect Delta water quality, as the BDCP/WaterFix EIR concluded, then vague pledges to provide alternative water supplies or offset increased local water treatment costs should be replaced with a mitigation program that spells out the processes used to identify mitigation actions, sources of alternative water supplies, action triggers, time frame, means of payment, fund sources, an objective third-party governance system, and other pertinent details. Delta water agencies should be involved as this mitigation program is developed.

Protect groundwater. The BDCP/WaterFix EIR acknowledged groundwater losses due to construction dewatering and implementing its environmental commitments but did not identify specific measures to meet preexisting or future water demands of affected parties. These impacts to groundwater should be assessed and specific measures to avoid or mitigate them should be proposed.

Anticipate export interruptions. The EIR should assess the probable Impacts to south-of-Delta water users due to interruption or reduction of exports of Delta water conveyed through the proposed project due to drought, growing demand by north-of-Delta water users with superior water rights, alterations in runoff because of climate change, potential regulatory changes, or legal challenges. These and other threats make Delta water exports inherently unreliable. Contingency measures that could be employed in SWP and CVP service areas as well as in the Delta to mitigate this unreliability or restore water exports following these types of disruptions should be described.

Outline cumulative long-term effects. The complexity and potential connections among the many potential actions affecting Delta water resources that are currently under study contributes to Delta residents' concerns about the project. To address these concerns, the EIR should describe how the tunnel could be operated under a scenario in which planned reservoirs, including Sites, expanded Los Vaqueros, expanded Pacheco Reservoir, and south of Delta groundwater banks are completed and operated, as proposed in funding proposals to the California Water Commission. The reservoirs and

groundwater banks are reasonably foreseeable: State and in some cases federal funds have been awarded, draft feasibility reports are sometimes complete, as is Sites Reservoir's draft EIR, and south-of-Delta water agencies have joined as sponsors supporting the projects. It is often stated that these projects' value depends on improved conveyance that can move water stored north of the Delta to those new storage areas proposed south of the Delta, but it is unclear how this would alter operations of the tunnel or its impacts on Delta water resources. This should be explained.

Improve through-Delta conveyance and reduce reliance on exports. The Delta Protection Commission advocates improved through-Delta conveyance, rather than the isolated facility proposed by DWR. In recognition of our recommendation and because the project proposed by DWR addresses only some of the factors that contribute to the unreliability of Delta water exports, the EIR should also include an alternative that promotes water reliability by dredging key Delta channels and strengthening Delta levees, rather than tunneling under the Delta, while also reducing other region's reliance on water from the Delta by investing in water use efficiency, water recycling, and other advanced technologies, as discussed above.

Assess flood risks and plan for post-flood recovery. Areas where key project facilities would be located are protected by levees where the risk of levee failure contributes to their ranking in the Delta Plan as very high priorities for State-funded levee improvements. In the north Delta these facilities, including the proposed diversion facilities, an electrical building, sedimentation basin and appurtenant structures, are protected by the levees of Maintenance Area No. 9 South. Similarly, the Byron Reclamation District's levees protect access to and operational facilities at Clifton Court Forebay, including presumably the new pumping facility. The EIR should describe how these project facilities would be protected from flooding in the event of levee failure, how SWP workers would access these facilities until floodwaters drain, how SWP operations would be maintained or restored after that flooding, and measures to reduce the risk of levee failure affecting project facilities.

**Land Use, Planning and Public Services**

Delta Land Use is Controlled Carefully to Foster Agriculture, Encourage Tourism and Recreation, and Maintain Legacy Communities. The Sacramento-San Joaquin Delta is vast, encompassing nearly three-quarters of a million acres of land and 700 linear miles of waterways. Its land uses generally reflect the settlement patterns of the past century and a half, closely associated with its rivers, sloughs, and waterways, and with the configuration of agricultural lands. Rural communities reflect the diverse heritage of the Delta, serving as social and service centers for the surrounding farms and historically served as shipping sites for products.

In response to rapidly encroaching urban growth the Legislature enacted the Delta Protection Act of 1992 (Public Resources Code 29760 et seq.), establishing the Delta Protection Commission and dividing the legal Delta into a primary zone and a secondary zone, with the Commission's principal land use authority over the primary zone. The Act requires the Commission to prepare and update a comprehensive Land Use and Resource Management Plan guiding land uses within the primary zone. The primary zone is largely rural and not intended for intense development. The secondary zone includes existing cities and areas that may be developed. The "legacy communities," eleven communities largely in the primary zone – Clarksburg, Courtland, Freeport, Hood, Locke, Walnut Grove, Ryde, Isleton, Rio Vista, Knightsen, and Bethel Island, -- are a focus of economic development activities and cultural heritage.

Key elements of the Commission's and counties' land use approach are to preserve the rural lands for agriculture and agricultural-related businesses, allow for rural, farm-friendly visitor-serving facilities such as wineries and event facilities, marinas and resorts in key locations to support tourism, and protect the legacy communities as retail and residential centers to support agriculture and tourism. This approach includes some flexibility by allowing unique uses, such as agricultural sales or childcare facilities, by special permits.

The proposed tunnel is incompatible with this fundamental strategy, both during the long construction period and during operation. Presentations at the Stakeholder Engagement Committee (SEC) meetings convened by the DCA showing the location and intensity of construction impacts on traffic, for example, have illustrated how the effect on the Delta as a whole – as a place – is analogous to an earthquake with a series of major aftershocks. Not all Delta communities will be affected in the same way, or perhaps with the same intensity, but all will be affected.

Intake facilities on the Sacramento River as described in the NOP, regardless of which are selected, and regardless which corridor alignment is selected, would irreparably damage the communities of Clarksburg in Yolo County, and Hood and Courtland in Sacramento County. In San Joaquin County, launch shafts, tunnel material handling, and maintenance and retrieval shafts will convert farmland and disrupt marinas and recreational boating. Contra Costa county communities such as Discovery Bay would suffer major recreation impacts. In Solano County, the economic and cultural impact of required project mitigations from agricultural lands being converted to restoration projects are a major concern, as are water quality impacts on municipal wells for Rio Vista and agricultural users in the Cache Slough region.

Every Element of the Project Disrupts Existing and Planned Land Use. Tunnel construction would fundamentally change the agricultural- and water-based character of Delta communities and landscape because of the duration and sheer number of

different locations that construction and staging would take place. The use of nearly 8,000 acres of land will be changed due to surface impacts, with another several thousand acres of agricultural lands likely converted for habitat mitigation. Construction of the tunnel launch, retrieval/reception and maintenance shafts, the intermediate and new southern forebays, pumping plant, and construction-support facilities along the alignment including access and haul roads, potential additional rail lines, barge unloading facilities, concrete batch plants, fuel stations, mitigation areas, and power transmission and/or distribution lines will alter the landscape for the better part of two decades, based on the construction methodology currently being presented by the DCA. Use of additional areas will be harmed by noise, traffic congestion, impaired recreation and tourism, damaged scenery, other disruption accompanying construction, degraded quality of life, lowered property values, and lost investment.

- Intake and Tunnel Construction. Construction of two intakes for either alignment shown in the NOP, each occupying at least 200 acres, would result in drastic changes to the communities of Clarksburg, Hood and Courtland, as well as neighboring areas and the Stone Lakes National Wildlife Refuge. Road construction and widening, bridge modifications and interchange improvements, and installation and operation of concrete batch plants would virtually all occur within the primary zone, in direct conflict with the most fundamental principles of the land use approach of the Delta Protection Act and the Commission's Land Use and Resource Management Plan. After construction is completed, pressure will grow for non-farm development at areas adjoining new offramps or sites that cannot be returned to agriculture.

- Tunnel Corridors. Extending beyond the intakes, construction and operation of the "Central Tunnel Corridor," which would also necessitate widening of narrow bridges and extension of existing or creation of new access and haul roads through much of the agricultural land of the primary zone, would literally pave the way for transformation of the regional landscape, setting a precedent of devalued baseline conditions.

  Two to three launch shafts for launching the tunnel boring machines (TBMs) would be required along either tunnel corridor alignment shown in the NOP. Likely launch shaft locations are at Granville Tract adjacent to Interstate 5 at Twin Cities Road, at Lower Roberts Island near the San Joaquin River channel, and at Byron near the Clifton Court Forebay and proposed new southern forebay. Another potential launch site for an "Eastern Tunnel Corridor" would be at Rough and Ready Island near the Port of Stockton. According to the SEC presentations, current thinking is that four TBMs would be used, and would potentially tunnel in both north-south directions.

Each launch shaft site would be 200-300 acres. The size and complexity of the launch shafts sites are significant: at these sites, the TBM is launched, followed by the tunnel liner sections, and the tunnel material is removed. Once removed, tunnel material must be dewatered, currently proposed to be onsite with large levees surrounding a tunnel material storage and consolidation center. Liner sections for the proposed 40-foot diameter tunnel would potentially be fabricated at existing nearby plants in Stockton, Lathrop, Antioch and Rio Vista. Transport of liner sections onsite and tunnel material offsite is being considered by barge, rail, and/or truck, although barge and/or rail are being prioritized. A range of operational conditions for the tunnel is possible, but among the examples given at the SEC meetings for a 6,000 cubic feet per second (cfs) tunnel capacity would be that 50 liner segments per day would require 25 days of truck hauling versus 3 to 5 days by rail or barge. Likewise, estimates for removal of tunnel material offsite range widely, but are staggering.

The launch sites would include construction offices, concrete batch plants, equipment storage and electrical substations.

In addition to the launch sites, potentially up to 10 maintenance and retrieval (or reception) shafts will be required for either alignment shown in the NOP. At 15 to 20 acres per shaft site, this represents another 200 acres minimum of converted farmland.

It would be disingenuous for the draft EIR to characterize any of the land conversion along the tunnel alignment as temporary, since even construction sites that are not permanently part of operations will be fallow so many years and will be affected by soil modifiers and other effects from the use of the property as to be of questionable agricultural value if they are ever decommissioned and reclaimed for agricultural use. However, most if not all facilities may well be left in place, according to presentations at the SEC, increasing pressure for non-farm use at sites that cannot be returned to agriculture.

- Habitat Mitigation. Further changes to existing land uses can be anticipated from habitat restoration likely to be proposed to mitigate damage to biological resources. For example, the BDCP/WaterFix EIR proposed converting thousands of acres of farmland to marsh or riparian woodland.

Recommended Significant Adverse Impacts Analysis and Method of Documentation: Given the foregoing brief description of just some of the potential land use impacts, it is clear that tunnel construction and operation in any alignment will irrevocably alter the rural character of the Delta, adversely impacting its economic pillars (agriculture and recreation), and its cultural heritage. The project seriously threatens the long-term

sustainability of the Delta regional economy, which the Commission is charged with enhancing and promoting. In addition to direct land use conflicts, in many areas the project would cause a substantial change in intensity of land use that would be incompatible with adjacent land and water uses.

The basic livability of Delta legacy communities and Discovery Bay would be compromised by increased noise and congestion and reduced quality of life. Property values and affordable housing have already been severely impacted over the past decade, buffeted by the economic downturn, by high flood insurance costs and stringent construction requirements, and by the threat of construction of BDCP/CA WaterFix, the predecessors to the current single tunnel proposal. The challenges of housing project construction workers will likely mean competition for local housing resources, which will make it more challenging for major Delta businesses such as marinas and agricultural support to house their workers. The project would cause enormous disruption of the basic elements of daily life for Delta residents, including functional access to schools, libraries, churches, medical care, elder and childcare, and shopping.

Existing congestion on Highways 4, 12, and 160 already impairs Delta residents' commutes to jobs within the Delta and beyond to the metropolitan areas of the East Bay, Stockton-Tracy, and Sacramento, often literally grinding to a standstill. Accidents are frequent and too often fatal, especially on Highway 160 and Twin Cities Road. Delta farmers' ability to move slow or over-size equipment safely from one location to another is already challenged. At least two dozen bridges on the Sacramento, Mokelumne, and Middle rivers and multiple sloughs would be affected by increased barge, rail and truck transit. Either of the alignments of the proposed project shown in the NOP would exacerbate these existing transportation challenges. New rail spurs or access and haul roads could also interfere with access to farmland.

Damage to landside recreation and tourism would occur both directly and indirectly through noise and disruption of the aesthetic charm and character of key tourist destinations such as Hood, Courtland, Clarksburg, Locke, Walnut Grove and seasonal and permanent farm stands along the scenic Highway 160 as well as wildlife viewing destinations such as Stone Lakes National Wildlife Refuge (NWR), Cosumnes River Preserve, Staten Island, and numerous San Joaquin County sandhill crane and waterfowl roosting sites.

Recreational boating would be significantly impacted – and in some cases facilities eliminated – on the Sacramento, Mokelumne and San Joaquin Rivers and the south Delta and at marinas, launches, popular anchorages and hangouts such as Lost Slough and the Meadows; Wimpy's; Giusti's; Beaver, Hog and Sycamore Sloughs; Tower Park; King Island; Potato Slough; Mildred Island and Horseshoe Bend; Bullfrog Landing and Lazy M, to name just a few.

Effects could include partial property acquisitions, resulting in division of agricultural or residential parcels, which could create non-conforming lot sizes that are inconsistent with counties' land use and zoning designations.

To meaningfully convey these effects for Delta communities and decision-makers, the EIR should tabulate the acreage and map the areas affected by every adverse or incompatible feature of the project, including direct land use conversions, noise in excess of standards for existing or proposed land use, properties where road congestion to level D or worse impairs access, harm to landscapes surrounding visitor destinations, or other project-related damage. The acreage of lands harmed, by land use (e.g., agriculture, residential, etc.), should be tallied, as should the number of impacted homes and businesses. To adequately inform business owners, their employees, and residents, the EIR should list the names of businesses and the addresses of homes likely to be impacted, much as the EIR lists the species found in habitat areas affected by the project. Special uses that contribute to community cohesion should be highlighted, including groceries, post offices, schools, churches, libraries, and community centers.

To assess impacts on affordable housing, typical rents of homes adversely affected by the project should be estimated. In addition, given the tight housing markets in the affected areas, construction workers' demand for housing should be carefully forecast, considering the project's labor requirements, existing capacity of necessary skilled labor in the region, and the current and forecast utilization of construction workers residing in the region. A thorough analysis of housing impacts should replace the BDCP/WaterFix EIR's assumption that the preponderance of project workers will already reside in the region, particularly given the current state housing mandates that local governments are struggling to meet.

Recommended Approach to Developing and Evaluating Mitigation Measures: In preparing the draft EIR, DWR should provide mitigation that adequately addresses the nature of impacts on land use and communities. At a minimum, the EIR should incorporate the applicable land use policies, standards and Best Management Practices (BMPs) in the applicable local government's general plan and zoning ordinance and adopt the mitigations recommended in Delta Plan recommendation WR R1 2(b)(2)(I)) and the Delta Plan Mitigation, Monitoring and Reporting Program (MMRP).

Mitigation measures for land use and all other environmental aspects of the project should be structured to use careful phasing of project construction to minimize disruption, including cumulative disruptions simultaneously affecting multiple areas of the Delta. Because the duration of the project contributes to its damage to Delta land use, measures should be proposed that provide incentives for timely project completion

or penalties for deviations from agreed-upon schedules, without increasing short-term impacts.

To mitigate impacts to affordable housing, replacement housing for acquired or impaired homes should be provided as required by the Delta Plan MMRP. Any home that may be acquired should be carefully maintained and, at the end of the construction period, rehabilitated as needed and sold at affordable prices to prior or new occupants. Contributions to support development of new affordable and work-force housing, including farm labor housing, should also be considered, as were provided in the LAX (Los Angeles International Airport) master plan[1]. The text below identifies other measures that should be proposed to reduce harm to specific land uses, such as agriculture and tourism, or mitigate specific impacts that affect land use, such as noise or traffic congestion.

Wherever feasible, mitigation measures should support or enhance existing Delta land use. For example, could the project's greenhouse gas (GHG) emissions be offset by a fair-share contribution that covers the capital costs faced by Delta agricultural land owners who wish to grow rice or other crops that sequester carbon and reverse land subsidence, including costs for land preparation (e.g., land leveling and water management features such as checks and ditches)? The Sacramento-San Joaquin Delta Conservancy has identified these costs as a significant barrier to carbon-sequestering farming systems in the Delta.

Involve Local Agencies, Businesses and Residents. Delta agencies and affected residents should be consulted as these mitigation measures are developed, evaluated, and implemented. Now is the time for DWR to engage in serious conversations with Delta counties, other local agencies, the Commission, and the Sacramento-San Joaquin Delta Conservancy, as well as other state agencies such as Caltrans and the Department of Parks and Recreation about effective mitigation measures. For example, DWR should propose an adaptive strategy for monitoring project effects on Delta land use, residents, and businesses, monitoring outcomes and responding to unanticipated impacts. The mitigation strategy used by the High Speed Rail project to address traffic impacts on agricultural land use could be evaluated in consultation with affected Delta property owners to assess the effectiveness of providing crossings or alternate routes that can accommodate farm equipment, allowing continued use of agricultural lands and facilities.

The EIR should also propose mitigation measures to reduce economic blight and other cumulative impacts on Delta land use, as major public works projects throughout the

[1] (https://www.lawa.org/en/lawa-our-lax/studies-and-reports/mitigation-monitoring-reporting-program).

state or elsewhere have done. One example is the Business Interruption Fund used to mitigate effects of Los Angeles' Metro subway[2]. The fund should provide quickly accessible funds to offset the loss of business income or other damage to land uses due to construction impacts. It could also fund expansion and implementation of the Commission's Delta Community Action Planning effort, invest in public facilities that can compensate for damage to Delta communities and infrastructure through the Delta Investment Fund (PRC section 29778.5), or support agricultural, cultural, recreational, and tourism programs and projects through a Delta charitable entity such as the Delta Regional Foundation. The Commission's Economic Sustainability Plan (ESP) and the Delta Plan propose numerous recommendations in support of Delta as an evolving Place. DWR should consult with Sacramento Area Council of Governments (SACOG), San Joaquin Council of Governments (SJCOG), and Association of Bay Area Governments (ABAG) to assess whether the Mega-Region Economic Model they are developing could be helpful in understanding the project's population, housing, and employment impacts in the Delta and could contribute to developing a strategy to compensate for economic damage from the project.

**Agriculture**

Protect agriculture. Agriculture is the Delta's principal land use, the foundation of its rural economy, and a pillar of its culture. Every effort to protect it should be taken. Project actions, including wildlife, fish, and habitat mitigation measures, that will directly or indirectly affect agriculture should be described. These should be based on the most recent information about Delta farms, including information we have gathered to update the ESP. Estimates of farmland lost for project facilities, tunnel material management and storage, and wildlife, fish, and habitat mitigation should be reported by total acres, acres by crop type, acres by soil type, and acres under Williamson Act contract. Impacts to local irrigation, drainage, and flood control facilities should be considered, as should loss or impairments of crop processing facilities, such as packing sheds and wineries, project-related congestion on farm-to-market roads, and farm labor housing. Selection of tunnel material, management sites, habitat restoration areas, and other facilities should place a high priority on avoiding prime farmland.

Fully describe avoidance and mitigation actions now. Actions taken to avoid and mitigate impacts to farmland should be described in the EIR, rather than deferred to some future date after the project has been approved, as was proposed in the BDCP/WaterFix EIR. Affected farmers, Delta county Farm Bureaus, county

[2] https://www.metro.net/projects/westside/final-eis-eir/; https://media.metro.net/projects_studies/westside/images/final_seis/WPLE_Final_SEIS_and_Section_4f.pdf

agricultural commissioners, U. C. Cooperative Extension agents, the California Department of Food and Agriculture, and other agricultural interests and experts should be involved in discussions to develop these measures. The menu of potential actions outlined in the BDCP/WaterFix EIR's agricultural land stewardship plans is one good source of mitigation options, but the EIR needs to describe now how these would be applied to specific areas along the project right-of way. DWR should propose a model good neighbor agreement to farmers operating on or adjoining its proposed right-of-way, into which these measures could be incorporated as appropriate, including a process to resolve disputes and compensate for farm income losses.

Where specific impact areas cannot yet be described, such as some restoration areas to compensate for habitat damage, the EIR should include clear standards or triggers that explain the extent of mitigation, how its adequacy will be determined, and how those affected will be involved in its development. At a minimum, these measures must comply with or be equivalent to those of the Delta Plan's MMRP sections 7-1 to 7-4. These restoration projects should be subject to subsequent CEQA review.

Avoid and reduce tunnel material impacts. Much of the permanent impact to agriculture reported in the BDCP/WaterFix EIR was for management and storage of tunnel material. In addition to avoiding prime farmland when locating tunnel material facilities, further measures to reduce impacts of these facilities should be employed. Soil conditioners used in creating tunnel material management areas should be selected carefully so that disturbed areas can be returned to agricultural use after the project is completed. Measures to recover compacted soils at these sites should be proposed.

A specific plan for reusing tunnel material must be developed, beginning with review of the feasibility of reuse. A review of spoils disposed from navigation and flood control channel dredging throughout the Delta and Sacramento Valley shows that little has been reused even decades after it was disposed, either because it was unsuitable for other uses or because local users could not afford trucking and other costs required to reuse it. The results of DWR's soil boring investigations should enable classification of the potential uses of excavated material. If feasible, excavated tunnel material should be handled and stored in ways that segregate materials of different quality so they can more easily be reused. Material suitable for reuse to maintain or improve levees should be hauled to those reclamation districts that want it. Costs of hauling tunnel material to reuse sites should be borne by the project, rather than by those who may reuse it, as this mitigation measure is properly a cost of the project's contractors pursuant to Water Code section 85089.

Use conservation easements to compensate for cumulative farmland losses. DWR, through its habitat restoration actions, is the biggest source of farmland loss in the primary zone of the Delta. These actions include both habitat projects at Dutch Slough and McCormack-Williamson Tract and SWP mitigation projects, such as the Lookout Slough tidal marsh restoration project. Farmland lost to this project, even if project features are sited and operated to reduce impacts, will likely add thousands more acres to this accumulating toll. This continual re-purposing of the land underlying the Delta's core activity is unacceptable.

Site specific measures to avoid or reduce impacts on farmland can reduce local impacts, but the purchase of conservation easements over Delta farmland that would otherwise be threatened by development can compensate for unavoidable cumulative losses. Farmland conservation easements are part of the High Speed Rail project's agricultural mitigation program[3]. DWR has agreed to obtain them to partially mitigate the effects of the Lookout Slough tidal marsh restoration project. The Delta Plan's MMRP requires such compensatory mitigation at a ratio of 1 acre protected for each acre permanently damaged. Most Delta local governments require higher mitigation ratios. Rural farmland in the Delta's primary zone is already secure from development under the provisions of the Delta Protection Act, so the purchase of conservation easements should target areas as buffers in the Delta's secondary zone or areas immediately adjoining the Delta where long-term development pressure is higher. Areas proposed to be secured for sandhill crane habitat or other wildlife-friendly farming should not be considered as compensating for the project's contribution to cumulative farmland losses, since agricultural uses of those lands will be constrained, not unreservedly preserved, by those wildlife-friendly practices and because those lands will be protected in any case.

The assertion that securing such agricultural conservation easements may be infeasible is not supported by any evidence. Successful farmland conservancies operate in each Delta county and our own assessment shows that, during the decade before approval of the WaterFix project, they and other agencies secured conservation easements in and adjoining the Delta primary zone in excess of the acreage of conservation easements that would have been required to compensate for that project's permanent destruction of farmland. This indicates that acquiring a similar acreage during this project's construction period should also be feasible. It is understandable that Delta farmers directly affected by this project may be reluctant to cooperate with DWR, but a creative partnership with

[3] Final Project Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) for the Fresno to Bakersfield Section of the California High-Speed Rail (HSR) Project

the California Department of Conservation may make a program of purchasing conservation easements more feasible.

Finally, business losses by Delta farmers and agricultural businesses should be eligible for compensation through a business interruption fund, as described under the land use section above. A contribution to the Delta Investment Fund could help compensate for other economic losses to the Delta's agricultural economy.

**Levees and Drainage**

Protect levees and drainage facilities. The current Delta is a creation of its network of levees and drainage works. Any threat to them risks lives, property, agriculture, legacy communities, recreational destinations, important wildlife habitats, and the region's unique culture. The facilities already face threats to their stability and durability. This project should not add to those perils, but rather should reduce them where feasible. Such an outcome would further the project's objective of anticipating rising sea levels and reducing the risk of levee breaches that may degrade the water quality and threaten water supplies.

Assess and mitigate impacts to levees and drainage facilities using up-to-date information. Impacts to levees and drains cannot be assessed without up-to-date information about their locations and condition. This information should be gathered along the alternative project corridors now, including affected reclamation districts' five-year plans, background information from the Delta Plan's levee investment strategy, and conversations with levee engineers from affected districts. Pursuant to Water Code section 85089, DWR or the DCA should reimburse reclamation districts for any costs they incur assisting DWR in gathering this information. The Central Valley Flood Protection Board's (CVFPB) permit fee schedule may offer insights into appropriate rates of reimbursement for this consultation.

The EIR should assess impacts to levees for the full range of activities from project construction and operation. Construction activities that should be considered include levee encroachments, dewatering, grading, tunneling, tunnel material handling and storage, construction-related traffic on levee-top roads, project-related habitat restoration, and other activities. Operational impacts to consider include filling and draining project forebays, changes in Delta flows, especially those that could affect siphons, seepage, or drainage at affected reclamation districts, construction-related structures such as pilings and in-channel coffer dams, and the effect of project fills and embankments on flood flows in the event of a breach of nearby levees.

Mitigate adverse effects to levees and drainage networks. Recommendations from Delta reclamation district engineers should be a primary source of mitigation measures

to reduce or compensate for project-related risks to Delta levees or drains. At a minimum, these measures should conform with Delta Plan MMRP 5-1 through 5-5, 11-3, 11-7, and 11-9. Other potential mitigation measures may be outlined in the CVFPB's encroachment regulations concerning levees, retaining walls, miscellaneous encroachments, and pipelines, conduits, and utility lines, as they may apply.

Move tunnel material suitable for levee improvements to willing reclamation districts. As noted under the agriculture section above, DWR's soil boring investigations should allow classification of the potential reuses of excavated material. If feasible, excavated tunnel material should be handled and stored in ways that segregate materials of different quality so they can more easily be reused. Material suitable for reuse to maintain or improve levees should be hauled to those Delta reclamation districts that want it. This would further the project's objective of anticipating rising sea levels and reducing the risk of levee breaches that may interrupt or degrade the quality of exported water, while diminishing damage to farmland and possibly modestly reducing the imbalance between the project's damage in the Delta and the benefits it provides there. Costs of hauling tunnel material to reuse sites should be borne by the project, rather than by those who may reuse it, as this mitigation measure is properly a cost of the project's contractors pursuant to Water Code section 85089.

Make Delta reclamation districts whole. DWR and the DCA should be held to the same standard that DWR and the CVFPB apply when encroachments affect their levees and drainage works. For example, DWR/DCA should pay local reclamation districts an inspection fee to cover inspection costs, including staff and/or consultant time and expenses, for any inspections before, during, post-construction, and regularly thereafter as deemed necessary by the reclamation district. DWR/DCA should agree that, in the event that levee or bank erosion injurious to a reclamation district's facilities occurs at or adjacent to the project, it will repair the eroded area and propose measures, to be approved by the reclamation district, to prevent further erosion. DWR/DCA should be responsible for the repair of any damages to levees, channel, banks, drains, siphons, or other reclamation district facilities due to construction, operation, or maintenance of the proposed project. DWR/DCA should agree to defend, indemnify, and hold harmless affected reclamation districts against all claims, liabilities, charges, losses, expenses, and costs (including their attorneys' fees) that may arise from the project. If any claim of liability is made against a reclamation district, DWR/DCA should defend and hold them harmless from any claim.

**Recreation**

Recreation in the Delta must be protected and improved. The Delta is a "dreamland for boaters, birders, and outdoor enthusiasts", according to the Visit California, the State's tourism promotion organization. Its waterways, historic villages, nature areas, wineries,

and food draw millions of visitors annually, and support a recreation and tourism economy that provides 3,000 jobs and $275 million in economic activity in the Delta counties – second only to agriculture as the key economic sector in the Delta's primary zone. Its diversity of recreation is available at a wide range of price points, serving local anglers who slip down a levee trail to fish on the way home from work, boaters with dockside homes, or international travelers.

As an element of the SWP, the project has a responsibility to protect and improve these recreation assets, both in areas along the project's right-of-way suitable for multiple use and in habitat areas that may be restored to mitigate this project's adverse effects. State law authorizing the SWP, in its Davis-Dolwig Act, provides that recreation is to be among the purposes of state water projects and that facilities for recreation should be ready and available for public use when each state water project having a potential for such use is completed. Public facilities for outdoor recreation activities including picnicking, fishing, water sports, boating, and sightseeing, and the associated facilities such as picnic areas, parking areas, viewpoints, boat launching ramps, water and sanitary facilities, and any others necessary to make project areas available for use by the public are to be an element of any plan for SWP facilities. Plans for recreation are to be developed during DWR's project formulation activities through full and close consultation with local agencies, DFW, and the Department of Parks and Recreation (Water Code sections 1190-1191). When new recreation facilities would mitigate this conveyance project's adverse effects on the environment, their cost is the responsibility of the SWP's contractors (Water Code section 85089).

Previous conveyance proposals and associated environmental review neglected to address this responsibility. This project and its EIR should not. It is one way the project could provide some few benefits within the Delta that can begin to balance, if only partly, the harm it will do in the region.

Assess and mitigate recreation impacts using up-to-date information. The project as proposed, including its construction-related traffic, barge installations, noise, and cultural and aesthetic impacts would significantly damage key Delta visitor attractions. The magnitude of this damage cannot be estimated, nor adequate mitigation proposed in the absence of up-to-date and accurate Information about recreation use in those areas. The Commission has information as we update our ESP, especially about recreation facilities and Delta-wide recreation use, that can be made available. But new surveys are needed to gather up-to-date data on recreation in areas affected by the project, just as wildlife or fish would be surveyed in a critical habitat to be damaged by the project. These areas include:

- Legacy communities. In Hood, Clarksburg, Courtland, Locke and Walnut Grove, information about visitor use for food, wine, boating, and heritage tourism should be

gathered through surveys of visitors to restaurants, wineries, museums, and historic districts.

- Recreational boating and fishing. As proposed, the project would adversely affect very popular boating and angling areas, including the Lost Slough-Snodgrass Slough-Delta Meadows anchorages and marina complexes at Walnut Grove and New Hope Landing, the Mokelumne River south toward the confluence with the San Joaquin River, including the anchorages at Sycamore Slough and the nearby Tower Park Marina, and in the south Delta, Bullfrog Marina and anchorages at Mildred Island and Horseshoe Bend. These areas are critical to recreational boating and angling, just as other areas are for fish and wildlife, and deserve an equivalent level of attention as the EIR is developed.

  Delta-wide information on recreational boating has recently been gathered by DBW, but its report does not detail areas of special use by Delta boaters. The *Sacramento River Boating Guide* by Bill Corp, *Franko's Map of the California Delta*, Visit the Delta's *Heart of California* map, and Hal Schell's book, *Dawdling on the Delta* have useful information on popular local boating and fishing areas that are along the project route. We recommend that DWR augment these reports by gathering current information in two ways. First, we suggest that aerial photographic surveys of boater use be undertaken on both weekdays and weekends during each Delta boating and fishing season so that photointerpretation can be used to identify locations and quantity of these activities. Such approaches are common on other waterways and in waterfowl surveys. Second, we encourage you to meet directly with marina operators in and near the project area to obtain their information about levels of boating use and popular areas and activities among their customers. The SEC process has recently included comments from participants about areas rarely mentioned by outsiders but beloved by locals, such as the "bedrooms."

- Driving for pleasure. This is another popular recreation for Delta visitors that would be harmed by project-related disturbance and traffic congestion. The Commission's ESP identifies "right-of-way" activities as among the most popular in the Delta. Survey research could be used to quantify the level of this use as well as popular routes.

- Wildlife viewing. USFWS and The Nature Conservancy should be contacted for estimates of visitation at Stone Lakes NWR and Staten Island.

As with other topics we have discussed, we raise these issues at this early scoping stage because there is enough time to gather this information now as the EIR is drafted. To do otherwise would not be using the best available science to assess impacts on activities that are so important to the Delta's economy and culture.

Avoid or mitigate recreation impacts now. Avoiding or reducing noise, construction-related disturbance and traffic congestion, barge traffic that hinders recreational boating, and aesthetic disturbances around important recreation destinations and recreational travel routes is essential. Because recreation is such a vital element of the Delta's resources, measures to avoid or mitigate adverse effects should be described now, while the project is being formulated, as the Davis-Dolwig Act requires, rather than being deferred until after the project has been approved, as was proposed by the BDCP/WaterFix EIR. Recreational operators affected by the project, whether public agencies or private visitor-serving facilities, as well as organizations representing boaters, bicyclists, and other visitors, should be involved early in devising these measures. At a minimum, these measures should comply with the Delta Plan MMRP 18-1 through 18-3. Visitor-serving businesses adversely affected by the project should be eligible for assistance through a business interruption fund, as described under the land use section.

Special note should be taken of the Delta Plan MMRP's provision that where impacts to existing recreation facilities are unavoidable, lead agencies must compensate for impacts through *mitigation, restoration, or preservation off-site or creation of additional permanent new replacement facilities* (emphasis added). Such mitigation should be capable of fully offsetting the project's damage to recreational uses and areas, as would be expected of habitat restoration to offset lost wetlands, separate from and in addition to upgrades or repair of existing recreation areas, rather than unspecific assistance to unidentified future projects, as was proposed in the BDCP/WaterFix EIR.

The process of consultation recommended above should be employed to identify potential mitigation measures, but we suggest three potential actions as examples that could be considered to compensate for otherwise unavoidable damage:

(1) Develop a boating trail and boat-in recreation facilities, including angling, waterfowl hunting, and boat-in day and overnight facilities, at the Cache Slough-Lookout Slough-Liberty Island-Prospect Island habitat restoration complex, to be managed out of local marinas or resorts or new facilities to be developed in Rio Vista, to compensate for lost recreational boating routes and anchorages on the Mokelumne River and its tributaries.

(2) Cooperate with the East Bay Regional Park District to improve its property on Palm Tract adjoining Orwood Resort, linked to a boating trail extending north to Rock Slough, down Old River and its connecting sloughs to the Dutch Slough park and marsh restoration site, Big Break, and Antioch's marinas, to offset damage to south Delta recreation uses;

(3) Develop walking tours of Locke and Walnut Grove, including pedestrian improvements to link the communities across the old Sacramento Southern right-of-way

at the Delta Cross Channel, interpretive materials, fishing access at the Cross Channel, connected to a bicycle path along the old Sacramento Southern right-of-way extending north to Hood or beyond, to compensate for damage to recreation at Sacramento River legacy communities.

None of these measures may ultimately be sufficient, desirable or feasible. They are offered only to illustrate the scale of compensatory mitigation that may be needed to offset the project's adverse effects on Delta recreation.

**Cultural Resources**

The Delta is culturally significant. In designating the Delta as a national heritage area, Congress concluded that the area's historic, cultural, and natural resources combine to form a cohesive, nationally important landscape. In testimony endorsing the national heritage area's designation, the National Park Service's associate director for cultural resources called the Delta "a hidden gem located at a key geographic and historic crossroads of our country. It is a land of ethnic diversity, innovation, industry, enduring history, and both fragile and robust physical features". Our own exploration of the Delta's cultural significance emphasizes it as an exemplar of the American experience in nature and its multicultural immigrants' pursuit of the American dream, free from the restrictions of more traditional societies, where the good life is possible. These cultural values must be respected.

The Delta comprises a significant cultural landscape. The Delta cannot be reduced to a list of historic buildings and archaeological sites. As defined by the National Park Service, a cultural landscape is a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or that exhibits other cultural or aesthetic values. The Delta is a landscape that has evolved through use by the people whose activities or occupancy shaped that landscape, which the Park Service calls a "historic vernacular landscape". Examples provided by the National Park Service fit the Delta areas affected by the project: rural villages; agricultural landscapes such as farms and ranches, including landscapes with a total absence of buildings, and landscapes encompassing linear resources including transportation systems, such as the Sacramento River or the River Road. A district of historic farms along a river may be an example of a significant cultural landscape, the Park Service notes, but the presence of buildings is not required. Scenic highways such as Highway 160 are another example of a culturally significant landscape.

The Delta, including lands bordering the Sacramento River from Freeport through Sherman Island, adjoining legacy communities, neighboring islands and distributaries of the river, Highway 160, and the rural islands of the south Delta are all integral elements of this important cultural landscape. Its levees and drainage works are reminders of the

region's post-Gold Rush reclamation and the efforts of California Debris Commission, an early landmark in national flood control. Its vineyards and orchards today occupy much the same lands as they did 75 years ago. Many of its multi-generational farms are operated from century-old farmsteads. The packing sheds and remnant wharves lining the river developed to transport these farms' products to market. The legacy communities, from Freeport to Isleton, several of which are listed historic districts or contain listed historic buildings, grew to serve the region's commerce and became home to Asian and European immigrants who worked in Delta farms and agricultural businesses. Asian New Year celebrations, Portuguese *festas*, Juneteenth commemorations, and other ethnic festivals, as well as Courtland's Pear Fair and other celebrations of agriculture, demonstrate these cultures' continuing vitality. Railroads and later Highway 160 and other roads, with their assortment of historic swing and lift bridges, extended into the region with the advance of trains, cars and trucks, bringing anglers, boaters, and other recreationists.

The resulting Delta landscape, observed landscape architect Frederick Law Olmsted Jr. in his 1928 report to California's State Park Commission, "commanded delightful views of the river and its margins and of miles of beautiful orchards and farming lands outside of and below the levees….Along the course of this great system of waterways, levees, and roads there are numerous delightful spots…and the route as a whole is in effect, even at present, a river parkway on a vast scale, of great landscape beauty, and enjoyed by thousands of people". This is still an apt description nearly a century later. In recognition of these charms, Highway 160 and Sacramento County's River Road are designated as a State Scenic Highway. Local routes and corridor have been similarly recognized by Sacramento, San Joaquin, and Contra Costa counties.

Given these historic landscape resources, whose importance has been recognized by Congress, U.S. Department of Interior, National Park Service, State of California and local governments, the EIR should protect the Delta as the culturally significant landscape that it is, rather than limiting its impact assessment to only archaeological sites and individual historic structures and districts. Measures to avoid or reduce damage to these resources should be consistent with the Secretary of the Interior's Guidelines for Preserving Cultural Landscapes.

<u>Strengthen protection of historic and archaeological sites</u>. In addition to protecting cultural landscape resources consistent with the Secretary of the Interior's Guidelines, measures to avoid or reduce damage to historic building and archaeological sites should be strengthened from those proposed in the BDCP/WaterFix EIR. Representatives of California native Indian tribes should be consulted regarding protection of archaeological sites as should local Delta historical societies, museums, Locke Foundation, historians, and community groups when historic resources are affected. Dr. Robert Benedetti's testimony in Sacramento County's appeal of the CA

WaterFix Delta Plan consistency certification should also be reviewed to identify historic resources at risk from tunnel constriction. All measures included in the Delta Plan MMRP 10-1 through 10-4 should be used, as applicable.

If historic buildings must be acquired, they should be adequately protected, including stabilizing walls and windows, controlling mold and other damage throughout the construction period, and then rehabilitated consistent with the Secretary of the Interior's Standards for Rehabilitation for reuse upon the project's completion. A useful measure from the mitigation plan for San Francisco's central subway is monitoring vibration of historic structures adjacent to tunnels to ensure that historic properties do not sustain damage during construction. Contract documents should specify maximum peak vibration levels. If at any time the construction activity exceeds this level, that activity must immediately be halted until an alternative construction method can be identified that results in lower vibration levels.

Inadvertent damage to historic properties or historical resources must be repaired, consistent with a written general protocol for inadvertent damage to historic architectural resources and a listing of specific properties that should be the subject of an individual plan because of their immediate proximity to the project, as provided in the High Speed Rail Authority's mitigation plan. Inadvertent damage from the project to any of the historic properties or historical resources near construction activities should be repaired in accordance with the Secretary of the Interior's Standards for Rehabilitation. Another useful measure from the High Speed Rail Authority's EIR is providing interpretive information regarding specific historic properties or historical resources affected by the project, including brochures, videos, websites, study guides, teaching guides, articles or reports for general publication, commemorative plaques, or exhibits.

**Aesthetics**

The Delta's landscape is integral to its qualities as a place. The Delta is characterized by many diverse and often contradictory visual attributes: it is a vast flat sweep of land and water, yet with its willow and cottonwood-lined levees, farm buildings and historic communities, water towers and, on its horizons, wind turbines and Mount Diablo, it is not a featureless landscape. The aesthetic appeal of the Delta is as varied as the character of the farmed landscape, the waterways and marinas, the towns and communities surrounding favorite recreation areas.

County general plans identify especially prized scenic routes and corridors near the project's proposed footprint:

- Sacramento County: Highway 160, a State scenic highway; River Road, also a State scenic highway; Isleton Road; the Sacramento River, and other Delta roads atop levees bordering Delta sloughs.

- San Joaquin County: Interstate 5 north of Stockton; Eight Mile Road on Kings Island and Bishop Tract; West Lower Jones Road and Zuckerman Road surrounding McDonald Island; Bacon Island Road along Middle River; and Highway 4 west of Bacon Island Road.
- Contra Costa County: Highway 4 west of Old River; and the Byron Road.

In recent surveys of residents and visitors, a common theme volunteered was that coming to the region is like stepping back in time, and how extraordinary that such a place could exist within an hour or two of the Bay and Sacramento metropolitan areas. One of the last lowland areas of the state to be tamed and settled, the Delta continues to be relatively hidden and remote. Few roads traverse it, most of its bridges are historic structures, and a few crossings are still accomplished by ferry. A great quiet and a slow pace rule. These qualities provide a baseline that should be preserved by minimizing the project's alteration of Delta landforms.

The Delta's landscape ranks high among the qualities that make the Delta "home" to residents and frequent visitors. It is often observed that people come to the Delta to get away from city life. They can do so with relative ease because the Delta Protection Act and county general plans have ensured that urban-type development stays for the most part at the outer edges in the secondary zone. These aesthetic qualities should be protected as carefully as key attributes of wildlife and fish habitats. The visual resources of the Delta are literally the outward manifestation of the existing land uses. Thus, all adverse project impacts affecting land use will play out visually and with a compounding, profound effect.

The Project's Decade and a Half of Landscape Alteration Brings Radical, Not Evolving Change. The principal elements of the conveyance project are mainly constructed in the primary zone, which otherwise receives the highest level of protection from changes that would radically alter its landscape, as described in the Land Use section. These principal elements include the two Sacramento River intakes, three or more tunnel boring machine (TBM) launch shafts along the tunnel's route, and roughly ten reception and maintenance shafts at various locations along the 40-mile alignment. Below are described some of the concerns related to each of the principal elements.

- Project intakes. The project intakes, regardless of configuration (Intakes 2 and 3 or 3 and 5), would permanently damage scenic resources viewed by boaters on the Sacramento River or motorists on Highway 160 and the River Road, designated State scenic highways, that pass through the communities of Clarksburg, Hood and Courtland. The visual impacts of the facilities including the intakes themselves, new haul roads, road widening and bridge modifications of Hood-Franklin Road, and interchange improvements (in the Intake 2 and 3 configuration, potentially an entirely new interchange at Lambert Road and I-5) would be significant and unavoidable.

- Launch Shaft Sites. At the launch sites, construction support complexes would be necessary with high-voltage power supply to operate the TBMs, sufficient area to dewater and stockpile tunnel material until it is moved offsite, and where concrete batch plants would be co-located. The launch sites are also where the 40-foot diameter concrete tunnel liner sections would be delivered by truck, train or barge, necessarily surrounding the sites with a web of transportation corridors.

  Launch shaft sites would have a massive visual impact on the landscape. The visual blight would extend through the Stone Lakes NWR where widening Hood-Franklin Road is likely. Potential avoidance strategies to reduce traffic or other impacts to existing roads, such as constructing haul roads, would increase visual impacts. Mitigation measures, such as landscape and vegetation barriers, visitor centers or kiosks, interpretive signs, and viewpoints, could provide some relief but would not prevent the permanent alteration of this landscape by the project.

  Barge landings and related dredging would degrade scenic waterways, such as Snodgrass Slough, the Meadows, and Sycamore Slough.

  Some siting approaches that appear to be under consideration by the DCA such as the northerly launch shaft site at “Glanville” Tract (located in Granville Tract) push the impacts of the 290-acre “consolidation” facilities east towards and in that case beyond I-5, outside the boundary of the legal Delta. This would reduce local visual impact somewhat but construction of new haul roads and widening of Diersson Road would be required, as well as a conveyor system to carry tunnel material from the launch shaft across fields to the consolidation facilities between Diersson Road and Twin Cities Road.

  For the Eastern Corridor alignment, a Lower Roberts Island launch shaft concept presented at the SEC meetings shows the massive launch shaft complex straddling Black Slough near Holt. This site includes a potential barge landing immediately upstream of Windmill Cove and new haul and access roads and a rail spur on the San Joaquin River banks opposite Buckley Cove Park, near the River Point Landing Marina, Buckley Cove boat launch and home to the Stockton Sailing Club and Delta Sculling Center. Boaters accessing the San Joaquin River from these locations and from Whiskey Slough marinas such as Tiki Lagoon and kayakers to destinations such as Mandeville Tip would all experience a highly altered and industrialized landscape that would be inconsistent with San Joaquin County-designated scenic corridors and roadways.

  The Byron launch shaft site at Clifton Court Forebay pumping station would result in even greater impact on views from scenic Byron Road due to the landform alteration involved in constructing the proposed 750-acre surface area Southern Forebay. The walls of the proposed forebay would be constructed from some 5 million cubic yards of tunnel material. What cannot be used in immediate onsite construction at or near each of the launch sites would be stockpiled for eventual removal. The area required

for storage depends on several factors including the TBM speed, production of tunnel material, and height that the stockpile could be – or on how quickly it could be transported to other re-use locations such as in levee upgrades or subsidence remediation. Examples provided by the DCA in SEC presentations based on 10-foot high stockpiles would require 240 acres just for the stockpile at each launch shaft site. Clearly the visual impact and its effect on surrounding communities like Discovery Bay, Byron, Mountain House and Tracy will be massive and lasting.

- Reception and Maintenance Shafts. Based on presentations at the SEC meetings, the Sacramento River intakes would also be the site of reception shafts for the tunnel boring machines (TBMs), with maintenance shafts constructed at a range of intervals from two to five miles between the Launch Shaft and the reception shafts, depending on the final design. With construction and operation of the reception and maintenance shafts for either the central or eastern alignment, the visual impacts would mar the Delta legacy communities of Locke, Walnut Grove and potentially Thornton.

  While reception shafts could and should be removed and their sites restored after construction is complete, as reported at SEC meetings some maintenance shafts could remain. To meet projected sea level rise impacts, these shafts would be constructed with concrete walls 30 to 50 feet high, likely rising higher than existing levees. The shafts would have lasting impacts on the landscape, and without careful planning and design could end up looking like oversized gopher mounds. Maintenance shafts for the Central Corridor alignment driving to or from a Bouldin Island Launch shaft would potentially impact views enjoyed by recreational boaters and by visitors to Tower Park Marina. Tranquil Staten Island fields that provide opportunities for viewing sandhill cranes may also be affected.

- Transportation. Finally, transportation logistics is a key consideration in the siting of the launch shafts. According to materials presented at the SEC meetings, for a 6,000 cubic feet per second (cfs) tunnel, deliveries of tunnel liner segments by truck could require 25 trips per day every 25 minutes for ten hours per day over 25 days. By rail car that could be reduced to 20 rail cars or 2000 ton barge, every 3 to 5 days. Throughout the construction period, the commotion of this level of trucking or railroad traffic would degrade the tranquil, scenic attributes of affected Delta landscapes.

Recommended Visual Impact Analysis Approach: Lessons Learned. The BDCP/ WaterFix EIR utilized an approach to visual analysis that combined the three most-accepted visual assessment methodologies used by Federal agencies including the Federal Highway Administration, Bureau of Land Management, and USDA Forest Service that have overlapping assessment principles. A qualitative analysis combined with a quantitative analysis of simulations was used together with narrative descriptions of how the visual environment would be altered. However, simulations could have been more meaningfully used to convey the effects of change on the landscape.

To complement the EIR's narrative, impacts should also be portrayed though simulations of scenic conditions both during and after construction from a variety of Delta resident and visitor perspectives. Views from recreational waterways, including portions of the Sacramento, Mokelumne, San Joaquin, Middle, and Old Rivers affected by construction and from Whiskey Slough should be portrayed. This analysis should also portray drivers' views from affected portions of Highway 160, River Road, and locally designated scenic routes and corridors.

DWR should work closely with the affected Delta communities to map and characterize the baseline visual landscape, drawing on existing community planning priorities and elements of the natural, historical and cultural experience to establish threshold visual quality objectives for the communities and for the natural and farmed landscapes. Such objectives should then be used to develop measures to minimize outright visual damage as well as the potential for incremental physical deterioration over the course of the construction timeframe. For example, during EIR development and continuing through the design phase, DWR or the DCA should work with the communities on the design of project features that will remain on the landscape, such as the potentially 30 – 50-foot high tunnel shafts. Like the CA High Speed Rail project, DWR and/or DCA could work with communities to develop aesthetic guidelines for project elements, both temporary and permanent, that provide contextual design responses to site-specific or unique conditions, or "context-sensitive solutions". Context sensitive solutions mean structural aesthetics must respond to local settings with concern for the human scale, building scale, and the vantage points from which the structures will be viewed.

Design principles should include the requirement that the structures enhance local environments and community context to the maximum extent feasible. Especially along Highway 160, the River Road, and local scenic routes and corridors, landscaping could be used to visually integrate project structures into the local context with plantings that recreate the natural or agricultural setting into which they are placed. The aesthetic design of project structures, in combination with landscape and urban design that serve the local community can create a positive contribution to the surrounding visual context and minimize the potential for physical deterioration. If tunnel material is suitable for reuse on areas that will be returned to farming, then the EIR should assess the feasibility of using it to gradually contour slopes surrounding the maintenance shafts, especially when highly visible from heavily travelled roads or locally designated scenic routes and corridors, to minimize abrupt discontinuities in the landform. Using tall crops, such as orchards, to shield maintenance shafts from view should also be considered where soils are suitable. High voltage power lines, batch plants, and other intrusions should be removed when construction is complete. Local government general plan policies that protect scenic routes and corridors also include provisions that suggest potential mitigation measures: maintaining agricultural land in farming use, sign controls, limiting roadway improvements to protect scenic corridors, placing riprap on levees no higher than the average annual high water, and maintaining natural roadside vegetation.

Where unavoidable visual impacts remain, the Delta Plan MMRP requires "compensatory mitigation for visual or aesthetic resources by providing improvements to areas of existing diminished scenic quality". A potential example that should be examined with local communities could be a façade program to upgrade deteriorating storefronts or buildings in legacy communities or other visitor destinations affected by the project.

**Transportation / Traffic**

Transportation routes are lifelines. The key modes of transportation that move people and goods in the Delta are roads, water, and rail. Interstates 5, 80, and 580 provide major transportation and trucking routes skirting the Delta. The three major state highways in the Delta (State Routes 4, 12, and 160) are typically two lanes, sometimes built on top of levees. Originally meant for lower traffic volumes at moderate speeds, the state highways are now heavily used for regional trucking, recreational access, and commuting. More than 50 bridges, including approximately 30 drawbridges, span the navigable channels of the Delta. Regional rail traffic between the Bay Area and the Central Valley passes through the Delta, as do commuter rail services such as the Amtrak San Joaquin.

Two major ports lie in the Delta, the Ports of West Sacramento and Stockton, accessed by the Sacramento River and Stockton Deep Water Ship channels, respectively. The Sacramento channel is 30 feet in depth, and thus is a non-container port. The Stockton channel has a depth of 35 feet and can handle up to 55,000-ton ships fully loaded or up to 80,000 ton ships partially loaded. Several million tons of diversified products are shipped through the Delta each year. Primary cargos in the Port of West Sacramento are rice exports and cement imports. The port can also handle heavy machinery such as wind turbines, steel generators and transformers. The Port of Stockton handles raw and finished goods and has 7 million square feet of warehousing and facilities for handling liquid bulk and dry bulk commodities. According to the U.S. Army Corps of Engineers Waterborne Commerce Statistics Center (WCSC), a total of 898,044 tons of import/export cargo transited the Sacramento Deep Water Ship Channel in 2018. For the same period the Port of Stockton handled a total of 5.2 million tons of import/export cargo and reported a total of 252 ship calls. Both ports hope to expand in the future, which would result in an increase in ship and barge traffic through the Delta.

These transportation assets are essential to the region's economic pillars – agriculture and recreation – to the quality of life of Delta residents, and the enjoyment of Delta visitors.

Involve Stakeholders. The Delta is not only a water hub for the state but also a vast multi-dimensional transportation web of freeways, state highways, county and local levee roads, waterways, ports, railways, and the private and public logistics systems

that manage them. This web is so important to the larger regional economy that a multitude of stakeholders have a grip on one or more of the supporting threads – county, state and federal agencies, local reclamation districts on whose levees some roads travel, and constituents in many industries all have an interest in Delta transportation and depend on this system to support the function of business, commerce and daily life.

To name but a few of these stakeholders, three different Caltrans districts maintain and plan for the Delta's transportation future, in cooperation with three different Councils of Governments (COGs) who represent Delta counties and municipalities in developing Regional Transportation Plans (RTPs) to recommend funding and prioritization of transportation projects and more recently sustainable communities planning. Some counties have transportation planning authorities in addition. The California Highway Patrol (CHP) also has three different districts responsible for highway safety in the Delta. The Delta Officers Intelligence Team (DOIT) convened by the U.S. Coast Guard Station – Rio Vista meets monthly with federal, state and local marine law enforcement, search and rescue agencies such as fire protection districts, and other interested agencies such as State Lands Commission and DBW to coordinate information relative to Delta marine safety and operations. Citizen organizations such as the Highway 12 Association attempt to coordinate with some of these authorities and publicize their activities and projects – especially when it comes to roadway maintenance and improvements.

Account for Pre-Existing Conditions. Traffic congestion and safety is widely acknowledged by all these players to be an ongoing issue in the Delta. Existing congestion on Highways 4, 12, and 160 already impairs travel within the Delta and beyond to the metropolitan areas of the East Bay, Stockton-Tracy, and Sacramento. Accidents are frequent, often fatal, and lead to related hazards such as fires or vehicles in the water. Some safety improvements have been implemented such as installation of "K-rail" in the median of State Route 12, but many more safety projects are a challenge due to the high traffic volumes affected, lack of right-of-way for traffic management, and other unique Delta conditions such as peat soil. Seasonally, safe movement of slow or over-size farm equipment from one location to another is risky. Aging bridges are frequently fully or partially closed for repair and maintenance and ferries may be taken offline, causing significant re-routing or delays of travel.

Rely On the Experts. Successfully avoiding or mitigating transportation impacts to an already over-taxed transportation environment will be difficult. Some transportation and circulation impacts will likely be significant and unavoidable. Addressing transportation impacts will require a construction transportation management system with flexibility and creativity. We urge DWR and/or the DCA to acknowledge the severity of the baseline condition and marshal the knowledge and resources of the local and state

agencies that are the most familiar with Delta transportation challenges. Most if not all of these have spent considerable time developing plans and programs to improve conditions for their citizens but may lack the resources to carry them out.

Start With Best Available Data and Science. We again encourage gathering the best available data and science at this early stage to support the analysis in the draft EIR. The land suitability analysis presented at the SEC meetings appears to be assembling some of the data needed to adequately analyze the project impacts. Identifying roads, rails, and barge-worthy waterways is a start. But the EIR must evaluate more than just the factors considered in design and construction planning.

The Commission is encouraged that DWR and the DCA have initiated new traffic counts in the past several months. To avoid repeating the mistakes of the BDCP/WaterFix EIR, additional information will be needed about (1) the operational status of ferries and movable bridges affected by project traffic (percentage of time when operations are limited by repairs or maintenance), (2) bridge clearance above water levels and existing channel depths and configurations at proposed barge routes under a range of water conditions (to assess their suitability for barge traffic and impact of barge travel on bridge operations and related highway congestion), and (3) recreational boat traffic on proposed barge routes to aid in assessing impacts to marine safety. Data from traffic studies currently being completed should be shared with local transportation agencies or on the state's Data Portal.

It will also be essential for the EIR analysis to start with a through database of Delta-wide transportation and circulation policies, plans and programs at all levels. We highlight here a few of the important data sources, obvious perhaps, but nevertheless noteworthy in the consistency of cross-jurisdictional priorities.

The county general plans identify what they can live with, and a survey of all of them quickly shows the high priority for the Delta that each of them sets on:

- Linking communities externally to regional, state, international and virtual destinations through safe and efficient transportation networks and high-speed communications infrastructure.
- Connecting communities internally through an efficient and safe system of roadways, bridges, transit, bikeways, and pedestrian trails and sidewalks. Facilitating the movement of goods by preserving and improving transportation corridors including road and rail.
- Community residents and farm equipment move together safely on well managed and maintained roads.
- Including specific transportation and circulation policies to preserve roadway levels of service (LOS) and ensure existing and future operations of important economic hubs. An example of this: Yolo County's policies protecting the Port of Sacramento

and its integration with designated truck routes such as State Route (SR) 84 in the transportation of agricultural products to and from the Clarksburg and Delta regions. Clarksburg Road from SR 84 to South River Road is a targeted trucking corridor for improvements to support agricultural transport.
- Ensuring gateway entry points for visitors to the Delta region seeking agri-tourism, eco-tourism, cultural and recreational experience opportunities.
- Encouraging multi-modal access to alternate transportation to alleviate roadway congestion and enhance the visitor experience.
- Including pedestrian walkways and bikeways on bridges or overpasses that are new or modified.
- Preserving agriculture and the agricultural economy.
- Envisioning strong and vibrant Delta communities whose economies are diverse and serve as a source of food and agricultural commodities; a destination for tourists; and a supply of high-tech and manufactured products.

Additional sources should include the current RTPs and other program documents of Sacramento Area COG (SACOG), San Joaquin COG (SJCOG), and Association of Bay Area Governments (ABAG), which represent the Delta counties and municipalities. Thresholds for traffic impacts should be developed using not only the most up-to-date methodology from the most recent edition of the Highway Capacity Manual but in close consultation with all three Caltrans districts with responsibility for Delta roads, bridges and ferries – Districts 3, 4 and 10. With the traffic count data that DWR is collecting, operational analysis should be completed to help evaluate alternative designs. Recent climate vulnerability assessments completed by the three Caltrans districts should also provide source material.

Account for the Project's Cumulative and Interrelated Impacts. As implied by the foregoing baseline description, either of the project alignments shown in the NOP would exacerbate a multitude of existing transportation challenges. SR 160, 12, and 4 and many county roads would be adversely impacted by increases in any type of traffic. For example, Hood-Franklin Road from Interstate 5 to SR 160 and Lambert Road from Herzog Road to Franklin Blvd are already operating at "Deficient" levels. Increased traffic on the roadways potentially to be used during construction of intakes or construction and operation of the potential Granville Tract launch shaft site, including Hood-Franklin Road, Lambert Road, Twin Cities Road and River Road, would adversely impact public safety in transit to Locke, Walnut Grove, and the Stone Lakes NWR.

At least two dozen bridges on the Sacramento, Mokelumne, and Middle rivers, and multiple sloughs would be affected by increased barge, rail and truck transit. New rail spurs or access and haul roads could also interfere with access to farmland. An adequate assessment of the project's impacts on transportation should integrate information on all these interrelated factors affecting congestion and traffic flows.

As suggested in the Land Use section, the EIR should tabulate the acreage and map areas where congestion to LOS D or worse impairs access to properties, including residences, commercial properties, schools and other important community resources.

Engage Others to Mitigate Complex Impacts More Effectively. We recommend a comprehensive approach to transportation impact mitigation, with targeted local avoidance and mitigation wherever feasible. Mitigating transportation impacts will likely be complex, requiring extensive coordination with other entities, each of which has their own pre-existing obligations and responsibilities. These entities range from the school district transportation coordinator to Caltrans, from the CHP and other emergency responders to the residential trash pick-up contractors, from county public works departments to bridge operators.

To streamline coordination, DWR and the DCA should consult with SACOG, SJCOG, and ABAG, with the three Caltrans Delta districts (3,4 and 10) and with Caltrans headquarters. Collectively the COGs and Caltrans comprise the transportation managers of the "mega-region" and have the experience to provide practical input on avoidance and mitigation. Caltrans and some of the county agencies may also have encroachment or other permit authority for certain aspects of the project, so their early input would be particularly valuable. DWR should anticipate reimbursing COGs and local government public works agencies for their time spent on this coordination.

We suggest comprehensive programmatic mitigation as well as more specific localized mitigation.

- Work with county public works or transportation agencies, SACOG, SJCOG and ABAG, and Caltrans to:
  a. Prepare traffic mitigation plans with detour maps for road closures or where construction-related traffic is likely to congest key roads. Maps should be developed and available for public comment in the draft EIR, similar to those in the San Francisco Municipal Transportation Agency (SFMTA)'s EIR for its Central Subway project through Chinatown[4].
  b. For priority project transportation routes, consider upgrading unreliable transportation features, such as bridges and ferries, affected by project-related traffic prior to project initiation.
  c. Where water diversion structures are under construction, designate, sign, and improve as necessary an alternate route for recreational traffic that avoids Highway 160 sections by using parallel sections of River Road on the river's west bank.
  d. As in the LA Metro Westside Subway Extension Project, establish staging areas and truck haul headways to avoid platoons of trucks upon local roads and

[4] https://www.sfmta.com/reports/central-subway-final-seisseir

freeways. Establish a vehicle dispatching system at construction areas and offsite locations to monitor and address truck headway issues as they arise.

e. Restricting nighttime truck haul operations/times for each route, as was done for the LA Metro Westside Subway Extension Project. Truck haul operations should be avoided during peak morning and evening hours, during noise restriction hours, special events, and public holidays.
f. Consider transit alternatives for construction workers, including park and ride lots in Elk Grove, Stockton, Tracy, Fairfield, or other locations and dedicated bus service to project construction sites.

- To communicate about detours, highway congestion, barge operations, and other project-related traffic conditions, utilize all appropriate methods of communication including but not limited to roadway signs, 511-type notices and alerts, websites, and hotlines.

- Establish a transportation/construction coordination office for the life of the project, as in the LA Metro Westside Subway Extension Project, to oversee mitigation measures' implementation, coordinate deliveries and barge movements, monitor traffic conditions, advise motorists and those making deliveries about detours and congested areas, and monitor and enforce delivery times and routes. The office should coordinate its transportation actions with roadway projects of other agencies. It should also coordinate with police, sheriff, fire, and water safety personnel regarding emergency access and response times.

- To provide a mechanism for adaptive management of transportation impacts and mitigation measures, the coordination office should analyze traffic conditions throughout the construction period to determine the need for additional traffic controls. It should also work with neighbors to address concerns regarding construction traffic, including a mechanism for the public to report anomalies, changes, un-planned work, etc.

- When traffic impacts cause loss of business for local businesses, use the Local Business Interruption Fund proposed under the Land Use section. Such programs have been used for the LA Metro and other major public works projects.

- To mitigate the project's transportation or greenhouse gas emissions (GHG), consider helping local transportation agencies to implement local programs or projects in the Delta that reduce congestion and locally-generated vehicle miles traveled.

**Noise**

Reduce project-related noise. The Delta is quiet. Its loudest sounds are often a dog barking at a nearby home or farm machinery in a neighboring vineyard or farm. For this

reason, noise can be one of the most disruptive impacts of the proposed project. In addition to its direct effects, it also contributes to changes in land use, disturbs recreation, and has other secondary impacts. Every approach to reducing it should be employed.

Thresholds of significance used to assess noise impacts should reflect the Delta's existing conditions and the land use in areas where noise effects would occur. One threshold would be noise that exceeds the background sound level by at least ten (10) dBA during daytime hours (seven a.m. to ten p.m.) and by at least five dBA during nighttime hours (ten p.m. to seven a.m.). Noise standards of applicable local government general plans and ordinances should provide another set of thresholds, as these reflect local land use, residents' expectations and other local conditions. Where local standards are unavailable, or where there are special uses, such as parks, nature areas, recreation sites, schools, libraries, churches, or other especially sensitive uses, these federal guidelines should be considered.

| **Noise Level (decibels)** | **Example** |
|---|---|
| Ldn < 55 dB | Outdoor activity interference and annoyance |
| Leq (24) < 55 dB | Outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use. |
| Ldn < 45 dB | Outdoor areas where people spend limited amounts of time, such as schoolyards, playgrounds, etc. Indoor activity interference and annoyance |
| Leq(24) < 45 dB | Indoor residential areas. Other indoor areas with human activities such as schools, etc. |
| Leq(24) < 70 dB | Hearing loss All areas. |

*Source: U.S. EPA, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Section 4, Identified Levels of Environmental Noise In Defined Areas. March 1974. Leq(24) = the sound energy averaged over a 24-hour period. Ldn = the Leq with a 10 dB nighttime penalty*

Because these thresholds are, in part, derived from current noise levels, it is important that the EIR be based on recent monitoring of noise conditions in affected areas, rather than textbook estimates as were used in the BDCP/WaterFix EIR. The schedule for the EIR's preparation should provide time for this monitoring, as would be provided for monitoring wildlife and fish if recent data were unavailable. To do otherwise would not reflect the best available science.

Noise impacts should be calculated for all construction activities, including construction-related traffic, and for project operations. These calculations should be based on the equipment proposed to be used in project construction, such as types of piles and pile

drivers. To help public understanding of noise impacts, areas where cumulative project-related noise would exceed any of these thresholds, as applicable, should be identified as adversely affected. Individual structures adversely affected by this noise, as well as lands affected, characterized by land use, should be identified and mapped, so that the number of homes and businesses, and the acres of land harmed can be reported. When especially sensitive uses, such as nature areas, recreation sites, schools, day care facilities, libraries, or churches would be adversely affected, they should be named. Information about construction staging should be used to indicate the duration of these noise effects.

Do not defer noise mitigation. Plans to mitigate noise impacts should be proposed now, not deferred until after the project is approved, as was proposed in the BDCP/WaterFix EIR. To avoid noise that exceeds significance thresholds, these plans should deploy a full menu of measures, such as those cataloged by the Federal Highway Administration (https://www.fhwa.dot.gov/ENVIRONMENT/noise/construction_noise/handbook/handbook07.cfm). They should describe equipment that will be used to reduce noise and vibration, such as pressed in pile installations, vibratory pile drivers, or University of Washington quiet piles. Residences, businesses, and schools that will be exposed to excessive noise should be eligible for funding from DWR/DCA to install sound insulation by replacing doors and windows, as well as adding insulation and ventilation systems where necessary, so that the interior noise level is reduced to 45 dB and achieves at least a 5 dB reduction from previous noise thresholds, as Los Angeles residents are offered under the LAX Master Plan.

Where noise cannot be reduced to acceptable levels, a voluntary acquisition program, plus relocation assistance should be offered to both owners and tenants in compliance with the Uniform Relocation Act.

At a minimum, these measures must comply with the Delta Plan's MMRP measures 15-1 through 15-3. Local agencies, community members, and affected residents and businesses should be involved in developing these measures. Because construction-related traffic strongly influences noise impacts, these measures should be coordinated with plans to manage construction-related traffic.

**Environmental Justice**

Promote environmental justice in the Delta. The Delta's multiracial population is often at as much risk as the fish who swim past their communities. Too many residents and workers have low incomes. To reach jobs and conduct other daily activities, many rely on Delta roads that will be impacted by project-related congestion. Others rely on water-dependent farms and tourism that the project will harm. Those who live or work in Hood, Clarksburg, Courtland, Locke, or Walnut Grove may have their lives disrupted by noise, traffic, and other disturbances for years by a project that benefits only others far away.

All suffer the stress of decades of State water and ecosystem planning efforts that threaten to harm Delta resources and upend its way of life.

The ESP reported that the age and household composition of the Delta's population is younger and with larger families than is California as a whole. Over a quarter are children younger than 18 years old. In contrast, the population of the primary zone is composed primarily of older people without children, living in smaller households. Most Delta residents describe themselves as white or Hispanic, with the next largest ethnic groups being Asian, other races, and African American or black. About one-third describe themselves as Hispanic. Areas with concentrations of lower income residents include Stockton, Walnut Grove, Locke, Courtland, Clarksburg, and Hood.

Government Code section 11135(a) provides that no person in California shall, on the basis of race, national origin, ethnic group identification, religion, age, sex, sexual orientation, color, or disability, be unlawfully denied full and equal access to the benefits of, or be unlawfully subjected to discrimination under, any program or activity that is conducted, operated, or administered by any state agency, is funded directly by the state, or receives any financial assistance from the state. This provision requires agencies to consider fairness in the distribution of environmental benefits and burdens, so that they (a) foster equal access to a clean environment and public health benefits; and (b) do not cause unmitigated concentration of polluting activities near low income, minority, or other at-risk communities, such as those in the Delta affected by this project. Provisions of CEQA and its guidelines, including CEQA Guidelines § 15064(e), require that lead agencies consider how the environmental and public health burdens of a project might specially affect these communities.

The BDCP/WaterFix EIR did not include a section addressing how the project considers environmental justice in the Delta. This EIR should, including updated analysis of demographics, income levels, and other protected characteristics of communities that the project impacts. Disruptions in community character, lost housing, noise, lost recreation opportunities, traffic that impedes travel to employment, damage to cultural resources, or other impacts that cause disproportional impacts on children, the aged, racial minorities, lower-income or other protected populations, should be highlighted,

Mitigate environmental justice impacts. Measures should be proposed to avoid, reduce, or compensate for disproportionate impacts. The best way to do so would be to adopt the Commission's recommended alternative for continued through-Delta conveyance rather than building an isolated tunnel. Another way is to carefully mitigate community disruption, noise, traffic congestion, and damage to agriculture, housing, recreation, and cultural resources, as described in our comments on those issues. Other feasible measures could provide some project-related benefits for Delta residents. Some could

be adapted from those adopted to protect southern Californians harmed by the LAX Master Plan.

1. Create and utilize existing resource centers to assist historically under-represented and at-risk Delta residents to find construction and other substantive jobs with the project during both its construction and operation. Also, create a community database of project-related job opportunities by coordinating data gathering, outreach, and counseling through the following:
   - Research and assess existing specialties and current capabilities of existing workforce to assist with targeted training and outreach efforts.
   - Develop and maintain a complete data base of minority contractors
   - Produce a data base of potential jobs and specialties needed to assist in targeted training and outreach efforts.
   - Produce a data base of potential jobs and specialties needed and disseminate the information through the communities affected and to minority business enterprises
   - Commit to hiring Delta-area residents to ensure that there will be benefit to the local population.
2. Include community participation, including a diverse group of residents, stakeholders, environmental scientists, and community leaders, in monitoring the implementation of the project's MMRP, including regular meetings, to ensure agency compliance and accountability.
3. Work with local school districts to provide educational and trade training for project-related careers, targeting students in affected communities to provide them with increased career opportunities in water management, engineering, and environmental sciences.
4. Work with local school districts to offer curricula about water, engineering, agriculture, environmental sciences, and Delta history and culture at elementary schools, middle schools, and colleges of affected communities.

Finally, other local, project-related benefits could be provided by contributing funds to the Delta Investment Fund (PRC section 29778.5) to invest in public facilities, expand and implement the Commission's Delta Community Action Plan project, or support agricultural, cultural, recreational, or tourism programs and projects.

# 2. Comment Letter on DCP DEIR

**DELTA PROTECTION COMMISSION**
2101 Stone Blvd., Suite 200
West Sacramento, CA 95691
(916) 375-4800
www.delta.ca.gov



December 14, 2022

Department of Water Resources
Attn: Delta Conveyance Office
P.O. Box 942836
Sacramento, CA 94236-0001
VIA EMAIL deltaconveyancecomments@water.ca.gov

Re: Delta Conveyance Project Draft EIR (SCH # 20200115)

Delta Conveyance Office:

Thank you for providing the Delta Protection Commission (Commission) the opportunity to comment on the Delta Conveyance Project Draft Environmental Impact Report (Tunnel Project DEIR or Project). The proposed Project, known as Alternative 5, consists of a 6,000 cfs conveyance facility (tunnel) constructed through the Delta on an eastern alignment in a corridor roughly parallel to and west of Interstate 5 to a site south of the Byron Highway and Clifton Court Forebay adjacent to Bethany Reservoir. Project alternatives are distinguished by tunnel alignment (i.e., central or eastern), size (tunnel diameter and length), capacity (ranging from 3,000 cfs to 7,500 cfs), and method of delivery to the State Water Project and potentially Central Valley Project facilities (i.e., through Southern Forebay Complex or Bethany Reservoir Complex).

The following comments reflect the concerns of the Commission, except for members representing State agencies, which do not necessarily share these concerns. This letter in no way implies a recommendation or position of the Governor or his administration.

The Commission previously submitted comments on environmental review documents for predecessors to the current Tunnel Project DEIR in 2014, 2015, 2018 and most recently on the Notice of Preparation for this DEIR in 2020. As in these letters and elsewhere, we must once again point to the unacceptable significant, irreversible, and permanent environmental effects of the proposed Delta conveyance projects on Delta communities, the cultural qualities that define "Delta as Place," and the pillars of the Delta economy, agriculture, and recreation. The current proposed tunnel is fundamentally no different in key structural elements such as the intakes, alteration of the Delta landscape with double launch shaft and tunnel muck storage complexes, and overall disruption of much of the northeastern and southern Delta during at least a projected decade and a half of construction. The DEIR fails to adequately document, analyze and mitigate for impacts that will damage the unique character of the Delta that makes it the "Delta as Place" that is protected by the Delta Reform Act.

The Commission's legislative mandate, authorities and role in the Delta were detailed in our previous letters.

The project alternatives analyzed in the DEIR do not avoid or mitigate the most damaging impacts to Delta communities, economic well-being, and cohesiveness of the cultural landscape, despite some efforts to redesign certain project elements, improve public outreach, and improve the readability, graphics, and navigability of the document. The proposed Bethany Alternative (Alternative 5) generally focuses on reducing the impacts of the project by reducing footprint size and location in specific areas, with the overall effect of reducing activities in wetlands and other waters of the United States, rather than protecting Delta as Place values.

Reduction of the previous massive footprint in Hood by relocating the launch shafts and tunnel muck permanent storage to a 500-acre site at the Twin Cities complex will not reduce the effects of intake construction on Hood and the surrounding area. Tunnel muck cannot be referred to as "reusable" if it is not, in fact reused but instead become a permanent topographic feature. It is not acceptable to conclude that the loss of 71 structures including 15 homes is not a significant impact. Providing cursory analysis of recreation and cultural resource impacts by simply limiting the scope and time dedicated once again has resulted in inadequate assessment of human impacts.

The Commission continues to recommend that the Department of Water Resources (DWR) and the EIR should seriously analyze an alternative that promotes water reliability by strengthening Delta levees and dredging key Delta channels, rather than tunneling under the Delta, while also reducing other region's reliance on water from the Delta by investing in water use efficiency, water recycling, and other advanced technologies. The through-Delta conveyance components of this alternative should include all the features recommended in the Delta Plan (Delta Plan recommendation WR R1 2(a)(4) and (c)). This alternative's provisions to reduce reliance on the Delta should be informed by an analysis of water demand and promising alternative supplies in areas to be served by the project. The analysis should comply with the Delta Plan's regulatory policy WR P1.

In conclusion, despite some effort to address concerns that the Commission articulated most recently in our comments and suggestions to the NOP, the DEIR has fallen short of the Delta Protection Act's intent, and the Delta Reform Act's co-equal goals. Those goals are inseparable from, and unified by, the requirement that they shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.

The Commission voted to approve this letter at its meeting on November17, 2022 on a 6 - 0 vote with two abstentions.

We appreciate the opportunity to provide input and are open to continuing dialogue with

DWR on how the co-equal goals can be achieved without sacrificing the Delta. Please contact the Commission office at (916) 375-4800 with any questions regarding the comments provided.

Sincerely,

Don Nottoli
Chair

Attachment 1 – Delta Protection Commission Comments on Delta Conveyance Draft Environmental Impact Report

cc: Vice Chair Chuck Winn, and Commissioners
Executive Director Bruce Blodgett

# Attachment 1 - Delta Protection Commission Comments, Draft Environmental Impact Report (DEIR) Delta Conveyance Project (DCP)

## Chapter 3: Proposed Project and Alternatives

No project alternative**.** The Commission continues to recommend serious consideration of a no-project alternative consistent with the Commission's Economic Sustainability Plan (ESP), which at this time may be more feasible than the tunnel.

Proposed Project effects area. The area of project effects (APE) should be revised to incorporate the area of visual effects reported in Section 18.1.1 (page 18-4) and described on page 18-6 as up to 3 miles from potential viewers. The APE should also include areas adversely affected by project noise, measured against a more appropriate threshold of significance as recommended in our comments about noise impacts in Chapter 24, section 24.3.2.

## Chapter 4: Framework for the Environmental Analysis

The DEIR Improperly Limits Thresholds of Significance and Consideration of Impacts. The DEIR framework improperly and unreasonably narrows the threshold of significance such that many resource impacts are found to be less than significant. Chapters with unreasonably narrow thresholds include but are not limited to Chapter 7, Flood Protection; Chapter 8, Groundwater; Chapter 14, Land Use; Chapter 16, Recreation and Chapter 24, Noise.

As an example, the Land Use chapter (page 14-17, line 33), claims that California Environmental Quality Act (CEQA) "directs a lead agency to focus on the potential for the proposed project to cause significant impacts on the *physical environment*" quoting CEQA Guidelines § 15382. However, this is a selective interpretation of CEQA Guidelines § 15382, which states in full (with emphasis added):

> 15382. SIGNIFICANT EFFECT ON THE ENVIRONMENT "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.
>
> Note: Authority cited: Section 21083, Public Resources Code; Reference: Sections 21068, 21083, 21100, and 21151, Public Resources Code; Hecton v. People of the State of California, 58 Cal. App. 3d 653.

The Department of Water Resources (DWR) has the discretionary authority, in its impact assessment of the DCP land use impacts, to consider social and economic changes that relate to temporary and permanent physical changes resulting from the project. It is not CEQA that

directs this authority. DWR can and should consider the social and economic changes related to the physical land use changes as impacts.

Furthermore, the DEIR states (page 14-18, line 2), that "For the purpose of this analysis" the significance thresholds for land use consist of only two criteria –

> (1) if the project results in a conflict with any applicable land use plan, policy, or regulation that consequently has an adverse effect on the physical environment, this would be considered a significant effect on land use;
>
> (2) any activities lasting longer than 1 year that would cross a community or create physical structures and be considered an adverse effect on the physical environment would also be a significant effect on land use.

And at line 8, the DEIR states that "DWR, in preparing this assessment, has framed its conclusions …." These qualifiers clearly demonstrate that the DEIR could give more weight to land use and overall Delta as Place concerns in impact assessment and development of avoidance or mitigation. The Final EIR should correct this deficiency and those noted in other comment sections.

## Chapter 7: Flood Protection

Drainage. The Commission's 2020 EIR Notice of Preparation (NOP) Comments recommended that DWR review construction activities which could have an impact on levees and the drainage systems in the Delta. Drainage is critical to consider, as the foundations of the existing levees can become weak without adequate drainage. However, DEIR Section 7.3.2 has included only two Threshold of Significance limits, one for Water Surface Elevation (WSE) changes and second, for increases to the amount or rate of surface runoff that would result in localized flooding. Including only two limits is inadequate to establish significance of impact to levees, as other issues (such as drainage) could be impacted and compromised by the project's construction and permanent facilities. For example, there could an inability to siphon or remove flood waters at the toe of a levee because of an increased WSE from the proposed project.

Indemnification of Reclamation Districts (Levee Management Agencies). The DEIR demonstrates (Page 7-49, lines 5-7) that DWR understands the importance of levee maintenance and monitoring for quickly identifying vulnerabilities in or damage to levees during construction. However, the DEIR does not document any commitment by DWR and partner contractors agreeing to defend, indemnify, and hold harmless affected Reclamation Districts (RDs) against all claims, liabilities, charges, losses, expenses, and costs (including their attorneys' fees) that may arise from the project. This statement should be made part of the project description and the analysis in this chapter to confirm that state funding supports this work, rather than creating a new burden on the local RDs.

Reusable Tunnel Material (RTM). The Commission has recommended that excavated tunnel material should be handled and stored to segregate material of different quality so it can more easily be reused by RDs. Costs of hauling tunnel material to reuse sites should be borne by the project, rather than by those who may reuse it. We were unable to find this in the Project Description, nor as a mitigation measure. Instead, permanent RTM stockpiles are proposed to be left in stockpiles 15 feet high occupying over two hundred acres at the Twin Cities Complex and nearly two hundred acres at the Lower Roberts Island Complex, then planted with native grasses (page 7-51, lines 18-23). The cost of fill materials has sky-rocketed in recent years. Increasingly, bids received from RDs solicitations are consistently higher than the construction estimates. The Commission has heard directly that this impacts how much of a project can be completed and still stay on budget. With heavy competition for fill materials for the many haul roads needed by the project (or the alternatives) this will become a critical issue. All suitable fill materials should be sorted and available for use by local area for the required improvement and continual maintenance of levees.

Equitable Funding of Levee Improvement Operations and Maintenance. As highlighted in its 2012 Economic Sustainability Plan, the Commission supports the improvement and maintenance of all Delta levees to at least the federal PL 84-99 standard. Given the difficulties with PL 84-99 inspections, the Commission would now endorse the (similar) DWR Bulletin 192-82 standard (page 7-21) instead of PL 84-99. It is notable that two islands' levees would be brought to PL 84-99 standards (page 7-28 and 7-29) in support of protecting the launch sites and personnel during construction of the tunnels. While this is an improvement of protection over existing conditions, maintenance of a PL 84-99 Levee to the US Army Corps of Engineers exacting inspection standards is borne by the landowners (see page 7-22) and is known to be very costly. We would expect the Final EIR to cover the following:

- There needs to be a larger broad consensus-building process with local agency officials and on-island agricultural interests on how to implement a new fee structure. This EIR needs to evaluate the value and interests of "tunnel beneficiaries," and estimate the value of their assets and other interests at risk. Maintenance fees should not be based simply on a per-acre basis. In addition, the limited subventions funding for Delta levees should not be used for the two islands which will be brought to PL 84-99 standards.
- In the Commission's 2020 EIR NOP Comments, the Commission recommended DWR and the Delta Conveyance and Design Authority (DCA) should pay local RDs an inspection fee to cover inspection costs, including staff and/or consultant time and expenses, for any inspections before, during, post-construction, and regularly thereafter. This would include the time expected for new PL 84-99 standard inspections. However, DEIR Chapter 7 fails to account for the additional time or extra activities associated with inspections, nor are there mitigation measure(s) mentioning cost reimbursement.

## Chapter 10: Geology and Seismicity

Truck traffic on levee roads. Most travel by heavy equipment is proposed to be on rated highways and the DEIR found any use of heavy equipment on levee roads was not sufficient to cause liquefaction (page 10-62). Figure 10-8 shows locations where levees are near a transportation route and where access might be needed. All equipment travel on levee road will be "prohibited" except along State Routes 4 and 12, and 160 during construction of intakes. See Transportation comments regarding lack of enforceability.

## Chapter 14: Land Use

The Land Use analysis makes incorrect assumptions about the significance of impacts in a rural setting. Key elements of the Commission's and counties' land use approach are: 1) to preserve the rural lands for agriculture and agricultural-related businesses, 2) allow for rural, visitor-serving venues such as wineries and event facilities, marinas and resorts in optimal locations for fishing, pleasure travel and water sports to support recreation, and 3) protect and enhance the legacy communities as retail and residential centers to support agriculture and tourism. The proposed tunnel is incompatible with this fundamental strategy, both during the 13-year construction period and during project operation. Not all Delta communities will be affected in the same way by the project, or perhaps with the same intensity, but all will be affected.

For example, construction of intake facilities on the Sacramento River would result in adverse impacts on the communities along State Route 160 including Hood, Clarksburg, and Courtland. Hood would be permanently adversely affected by construction of the intakes. In San Joaquin County, launch shafts, tunnel material handling, and maintenance and retrieval shafts will convert farmland and disrupt marinas and recreational boating. Contra Costa county communities such as Discovery Bay would suffer major recreation impacts. In Solano County, the economic and cultural impact of required project mitigations from agricultural lands being converted to restoration projects are a major concern, as are water quality impacts on municipal wells for Rio Vista and agricultural users in the Cache Slough region.

Construction and operation of the Twin Cities and Lower Roberts Island Complexes and the two concrete batch plants would also alter and adversely affect the current and designated land uses, as well as neighboring areas and the Stone Lakes National Wildlife Refuge. Much of the road construction and widening, bridge modifications and interchange improvements occur within the primary zone, in direct conflict with the most fundamental principles of the land use approach of the Delta Protection Act and the Commission's Land Use and Resource Management Plan. After project construction is completed, pressure will grow for non-farm development at areas adjoining sites that cannot be returned to agriculture.

The proposed project will result in significant changes in land use, mainly conversion of agricultural uses to industrial uses related to:

- Tunnel intakes
- Twin Cities and Lower Roberts Island Double Launch Shaft Complexes and Lambert Road Concrete Batch Plants
- Maintenance shafts
- New or improved access roads

Construction of the tunnel intakes will also create significant noise impacts incompatible with the commercial, residential, and community park uses of Hood.

Other comparable large state public works projects have addressed land use impacts more appropriately, even at a program level. For example, the California High Speed Rail Authority Final EIR/S describes extensive potential land use incompatibilities and inconsistencies, despite a similar disclaimer that as a state agency they would not be subject to local plans and ordinances:

> The discussion of potential inconsistencies with planned land uses does not imply that the California High Speed Rail Authority (Authority), a state agency, would be subject to such plans or local ordinances, either directly or through the NEPA or CEQA process. The information is provided in order to indicate potential land use changes that could result in potential environmental impacts. (emphasis added)

The Land Use analysis incorrectly dismisses the project's potential to divide communities. The DEIR cannot help but acknowledge that construction of the conveyance project facilities will permanently convert land uses from residential, agricultural, commercial, recreational open space and other uses. However, it dismissively concludes that the project will not divide communities simply because, for example, "residential structures that would be removed are in areas of scattered residences in agricultural areas." This demonstrates a lack of understanding about what rural agricultural communities are, and a lack of recognition of what the Delta as a Place is. As noted in our comments on Chapters 18 and 19, the Delta itself is a community, a collection of existing and historical communities linked by its waterways and scenic highways, and united by both common and unique features of significance. In a rural landscape, land use changes on the scale of the proposed project are more noticeable and more significant because they are not lost in surrounding urbanization, but instead stand out starkly on the landscape.

## Chapter 15: Agricultural Resources

Water Quality: Page 15-52 clearly states the conveyance facilities will alter water quality but that such an impact will be managed by the State Water Resources Control Board proceedings and rulemaking. It is well established that delegating an action to other Boards and Commission is unacceptable as mitigation.

DEIR does not use available data. While the DEIR lists the commodities grown in the Delta, treatment of changes in Delta cropping are insufficient to allow appropriate analysis. The

significant conversion to high-value permanent crops is not even discussed in the document. More recent information is available in our recent update to the Commission's ESP (https://delta.ca.gov/wp-content/uploads/2020/07/Ag-ESP-update-agricultural-trends-FINAL-508.pdf).

This document was published and was provided to DWR's Delta Conveyance Office at their request. Specifically, the following sections deserve an update to reflect the most recent data compiled on Delta crop types:

- In several locations, crop conversions over the past 5 years need to be included in the impact analysis. The significant conversion to high-value permanent crops is not even discussed in the document.
- Section 15.1.1.2 references Delta agriculture but omits any discussion of the significant proportion of Delta lands that have been converted to high value crops including almonds, pistachios, cherries, wine grapes, and even corn for distilling purposes.
- Section 15.1.1.7 describes crop planting and harvesting times for "major commodities" but then fails to describe the fastest growing Delta commodities such as wine grapes, almonds, and walnuts. Without this data, the DEIR characterization of water needs and harvest times for these important commodities is incomplete and inaccurate.

The timing of the project's water quality impact from operations is critical to understanding the true longer-term impacts to Delta agriculture. The DEIR depends on a model and that model predicts poor water quality only after August 15 of any normal water year. Based on the assumption of late fall as the tipping point, DWR concluded the project operations "would not be expected to trigger a substantial conversion of Important Farmland to nonagricultural uses." Such analysis is predicated on the assumption that "many of the crops are harvested by early fall" and outlines a series of crop types that no longer exists in the Delta. The model and its output need to include and take into consideration:

- The fastest growing commodities including tree nuts and wine grapes are irrigated and harvested in the fall, with some harvest times as late as November.
- The DEIR model of impacts assumes normal water years to calculate the water quality impacts when it actually needs to study the worst (drought) years on record to fully show the impact of the project's operations.
- Finally, with climate change affecting the onset of seasonal changes, the use of terms like "early" or "late" fall is an increasingly impractical gauge.

The State and Federal governments clearly articulated the need to preserve the irreplaceable Delta. The Delta Protection Act of 1992 ensures that the Delta's agricultural resources do not face the threat of conversion to urban uses. More recently (2019) the Delta unique resources were recognized by Congress as well by creating the *Sacramento- San Joaquin Delta National*

*Heritage Area*. The Commission felt the DEIR greatly underestimates the impact to agricultural resources in several places including

- We have repeatedly asked for one table to show all the potential impacts to farmland from No Project in comparison to the Proposed Alternatives beyond just the construction footprint. This table should include everything from actual farmland converted due to the construction of the project, to farmland rendered useless due to construction impacts, to those acres lost due to the water quality impacts, and a clear description of the final acres lost permanently inside of the RTM areas.
- We are particularly concerned with the cumulative amount for habitat mitigation that will be part of this project's mitigation for construction impacts. In a rough calculation, staff found DWR would be converting thousands upon thousands of acres of agricultural land agriculture to habitat as mitigation for the construction and operational impacts of this project. On page 15-40, there are 1200 acres noted on Bouldin and other parcels, 18-76 acres for tidal habitat, 1100-1400 for smelt habitat, and another 110-140 for construction impacts. Again, the value ranges are large, and not well presented in the document.

Chapter 16: Recreation

Limiting surveys of recreational locations and access points to two days is inadequate to provide a proper baseline. During meetings in 2020 and 2021, Commission staff repeatedly encouraged DWR's Delta Conveyance Office and consultants to conduct surveys at key recreation locations such as marinas and boat ramps. Specific simple, non-contact observational survey techniques used on a multi-state Natural Resource Damage Assessment were recommended to allow data to be gathered safely despite the pandemic conditions. Contact information for the survey designer was provided. However, despite ample time to conduct almost a full year of surveys, only two days field reconnaissance of a handful of project sites were completed, in February 2021. (DEIR, pp. 16A.2-6-20.) Limiting surveys of chosen recreational locations and access points to two days is inadequate to provide a proper baseline. As with cultural resource surveys, this brief effort during winter does not accurately reflect activity levels and types at recreational access locations. Recreational activities vary seasonally and even daily based on weather conditions and other considerations. The known recreational locations that would be impacted by the project should have been properly evaluated over a longer period.

The recreation economy in the Delta is second only to the agricultural economy, yet the analysis failed to consult with the extensive pool of experts regarding recreational uses in the Delta. A handful of parks and recreation staff provided input, however none of the data that the Commission developed from interviews with focus groups for the recreation update to the Economic Sustainability Plan in 2020 appears to have been used in the DEIR's analysis of

impacts. The minimal effort to characterize the recreation baseline was inadequate to properly analyze the project's environmental impacts.

Chapter 18: Aesthetics and Visual Resources

Scenic Highways**.** Section 18.2 (page 18-15) of the DEIR should be expanded to state relevant provisions of the scenic highway corridor protection program submitted by Sacramento County and approved by Caltrans for Highway 160 and the River Road, especially provisions related to land use, site planning, design review, earthmoving, and landscaping. A similar review of relevant provisions of county scenic highway plans and ordinances affecting locally designated scenic routes should be undertaken. Conflicts with these state and local standards should be noted. The risk of Caltrans' revoking scenic highway designation of Highway 160 should be assessed in consultation with Caltrans and Sacramento County.

Select Key Observation Points (KOPs) in the Area of Visual Effects were incorrectly documented. The value of a Visual Resources section is highly dependent on the photo rendering of the landscape. It is unfortunate that photos taken in November, when agricultural vegetation has been removed or gone dormant, were used as the basis for the photo simulations used in the KOPs (page 18-28). These images are not representative of the landscape. New KOPs should be developed based on summer-time images and used as the basis for evaluating visual impacts. In addition:

- Additional renderings along Highway 160 should be developed to supplement those provided in Figure 18-10. Travelers on this scenic highway are as more likely to drawn to view towards the Sacramento River and the adjoining orchards.
- The screen of "native" trees depicted in Figure 18-10 does little to either visualize the extent of this damage or encourage confidence about the mitigation value of the proposed planting. A more useful visualization would depict the intakes as viewed from the river and from Highway 160 looking north to south.

The quality of the landscape with the project should be rated as "low" in contrast to the No Project alternative. The natural landscape with the project will be "very disrupted ", "very discordant", and will be perceived as an eyesore. Similarly, the cultural landscape with the project lacks design cohesion and any sense of place and will be perceived as blight. The RTM stockpiles remaining on site will substantially degrade significant portions of the landscape. Only a major redesign, such as relocating the RTM stockpiles outside the Delta, can rectify this incompatibility with surrounding environments.

Visual resource impacts are not correctly mitigated. A mitigation measure that should be considered is constructing smaller sediment basins that are set back sufficiently from Highway 160 to allow planting of a wide strip of trees, such as pears or walnuts, to screen the basins and associated facilities from views of travelers on the scenic highway. We are told there is no clear estimate of sediment the basins are likely to receive or how often sediment may need to be

removed. Reducing the size of the sediment basins, coupled with more frequent sediment removal if needed, would minimize both the visual and the land use impacts.

Rather than planting conifers or other "native" trees, as depicted in Figure 18-10, mitigation landscaping should consider palms, Lombardy poplars, or other shade trees typical of agricultural landscapes, mimicking the tree line that the project will remove. Nearby residents should be consulted about preferred options for tree screens and other landscaping.

## Chapter 19: Cultural Resources

The DEIR's assessment of impacts on cultural resources is deficient. Assessment of potential impact to cultural resources requires historical research, inventory, and documentation of existing conditions, site analysis and evaluation of integrity and significance, according to the National Park Service's Preservation Brief 36: *Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes.* As defined by the National Park Service, a cultural landscape is a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or that exhibits other cultural or aesthetic values.

DEIR Appendix 19A (page 16) states that "this level of analysis was outside the scope of this project, so these islands were evaluated only for the extent of their built resources only" which confirms the incomplete nature of the DEIR's investigation. To truly evaluate the Delta as a cultural landscape, the Final EIR must:

- Identify all the cultural resources at risk from the project not just buildings and structures.
- When describing places and features, also mention their role in the overall landscapes or the tracts' other character-defining features, such as orchards, vineyards, crops, and farm buildings.
- Provide spatial organization and cluster arrangements of these features.
- Provide cultural traditions of the tracts' settlers that influenced these landscapes.
- The historical context provided for Delta farmlands is also incomplete, describing the Delta's diverse agriculture in only four paragraphs about "industrial agriculture" in San Joaquin County from the 1910s to 1950s. Entirely ignored is 19th century agriculture, during which patterns of land tenure, farming systems, labor, and agricultural markets were established.
- The DEIR would be improved by following the approach of the Bay Delta Conservation Plan (BDCP) EIR, which in its Built Historical Resources Evaluation Report (page 87) identified Grand Island (RD 3) and Netherlands District (RD 99) as significant historic districts and recommended further research and obtaining access to the properties to establish the integrity of their features.
- National Register criteria are applied inconsistently in the DEIR's landscapes' evaluation. A useful guide is Caltrans' report Water Conveyance Systems in California, Historical Context Development and Evaluation Procedures.

- Most of the Delta's levees and ditches also retain their original designs, with only modest variations to adapt to modern safety standards. We contend they should be evaluated in more detail following the Caltrans "seven aspects."

The Delta's landscape also provides context for individual buildings or historic districts that are listed on the National Register of Historic Sites or eligible for listing. Degrading this surrounding landscape would diminish the integrity of specific sites, districts, or landmarks. The Commission contends that the Delta is a landscape that has evolved through use by the people whose activities or occupancy shaped that landscape, which the National Park service calls a "historic vernacular landscape". Examples in the National Park Service guidance documents correspond well to the areas affected by the Delta conveyance project: rural villages, agricultural landscapes such as farms and ranches, including landscapes with a total absence of buildings, and landscapes encompassing linear resources including transportation systems, such as the Sacramento River or the River Road. Appendix 19A fails to assess the degradation potentially brought on by the project to all of the Delta districts and properties eligible and potentially eligible for listing in the National Register.

The DEIR improperly restricts its assessment of cultural resources affected by the project to resources "in the project footprint" (page 19-16). It is well-recognized that effects such as noise, scenic degradation, and glare can significantly degrade the setting and integrity of historic properties. The DEIR acknowledges that these project impacts may extend well beyond the project footprint, or the quarter mile boundary proposed for the APE. The DEIR should assess an expanded area of potential effect as identified in our comments on noise and visual impacts, including glare. Temporary visual and auditory impacts of construction should not be excluded, as proposed in Appendix 19A (page 5). As acknowledged in the BDCP EIR, impacts over the 13-year duration of the project's construction period are effectively permanent and could lead to abandonment of some buildings and land uses, which would constitute fully permanent effects.

Inadequate consultative outreach. The Commission's 2020 EIR NOP Comments advised outreach to local groups and experts ranging from local transportation authorities to historical societies and representatives of local cultural groups. Despite these recommendations, the DEIR's Appendix 19A, for example, lists no local historical organizations, neighborhood groups, archaeological societies. Local expertise was undocumented, and DWR would be unable to assess the area's historic resources without this information. DWR's decision to not consult with local historical societies and museums (Appendix 19A, p. 10) is contrary to best practices. In addition, the Appendix did not document Traditional Cultural Properties. Such work is done partly through consultation with community representatives. Landowners, local businesses, local historians/preservationists, and local agencies are all helpful as informants, historians, architects, landscape architects, folklorists, sociologists, or anthropologists.

Appendix 19A asserts on page 10 that sufficient outreach to local groups for this project had been conducted during past projects. This approach is inadequate as well as inaccurate. Because this preferred alignment has not been the object of prior studies such as BDCP's historical resources reports, it is premature to conclude that additional outreach would not yield new results. Moreover, the methods section of the Built Historical Resources Evaluation Report for the BDCP Project mentions no outreach to important historical societies and cultural resource organizations in key areas directly affected by this project, including the Sacramento River Delta Historical Society, the Locke Foundation, the Rio Vista Museum, the Rio Vista's Dutra Museum of Dredging, Stockton's Filipino American National Historical Society, or the Portuguese Historical Society in Sacramento. All these groups could have information useful to analysis of historic and cultural resources affected by this project. New outreach about this project as described in this DEIR and other new features of this project is warranted.

Many districts and sites warrant evaluation and avoidance or impact mitigation. Because of the DEIR methodological errors, many districts and sites potentially eligible for the National Register are inadequately or improperly evaluated. Sections 19.1.3-19.1.4.2 (pages 19-10 to 19-27) and Appendix 19A should be revised to identify the following additional resources, at a minimum, as well as others identified by local agencies and local experts. We believe these RDs and historic sites or areas warrant evaluation as rural historic district or sites as appropriate. A narrative justification for the value of each can be provided upon request:

- Sacramento River
- Sacramento Southern Railroad
- Victory Highway
- Pierson District
- The 40-mile Orchard
- Hood
- Terminous Tract
- Roberts Island
- Jones Tract
- Bacon Island
- Union Island
- Byron Tract

**Impacts on historical resources resulting from project construction and operation**. After the identification of historical resources, including significant landscapes, is revised following consultation with local experts, then the Chapter 19 assessment of impacts should be revised accordingly. This should include consideration of impacts of noise, glare, and visual degradation on these settings of the project.

## Chapter 20: Transportation and Traffic

According to the Office of Planning and Research's (OPR) Technical Advisory on Evaluating Transportation Impacts, a proposed project exceeding a level of 15 percent below existing regional Vehicle Miles Travelled (VMT) per employee may indicate a significant transportation impact. The DEIR (page 20-23) should use this 15 percent reduction as the significance threshold for VMT.

While the proposed project includes improvements to various roads and bridges as well as new transportation facilities, the cost and responsibility for on-going maintenance and operation of these new facilities should be assessed in the DEIR.

## Chapter 24: Noise and Vibration

Thresholds of significance. The thresholds of significance for construction noise underestimate the harm of construction related noise and should be revised. Impacts reported in Section 24.3.3.2 and Appendix 24A should be revised to adhere to more appropriate noise standards. The DEIR's thresholds are lower than the standards of the US Environmental Protection Agency (US EPA). Noise consistent with the DEIR's thresholds would impair community life in affected Delta communities and affected recreation sites. Noise at the DEIR's thresholds could result in noise twice as loud as current ambient levels.

- Instead, thresholds of significance used to assess noise impacts should reflect the Delta's existing conditions and the land use in areas where noise effects would occur. One threshold could be noise that exceeds the background sound level by at least five (5) dBA during daytime or nighttime hours, as proposed.
- Noise standards of applicable local government general plans and ordinances should provide another set of thresholds, as these reflect local land use, residents' expectations, and other local conditions. Where local standards are unavailable, or where there are special uses, such as parks, nature areas, recreation sites, schools, libraries, churches, or other especially sensitive uses, the US EPA guidelines should be considered.
- Increased noise from the project that exceeds any of the US EPA standards should be considered significant.

Ambient noise. The measurements of ambient noise in San Joaquin and Alameda counties reported in the DEIR's Tables 24-3 (page 24-14) and 24-4 (page 24-15) are insufficient. None measure ambient noise along the preferred route or near the footprint of the preferred project alternative, such as near the Lower Roberts Island Double Launch/Reception shaft, the proposed haul route on Lower Roberts Island, or the Bethany complex. This additional information is essential to determine whether project-related noise exceeds the DEIR's proposed threshold of significance – an increase in noise exceeding 5 dB relative to existing noise levels. Additional monitoring at these additional sites should be conducted and reported in the Final EIR.

# 3. Comment Letter on DCP DEIS

**DELTA PROTECTION COMMISSION**
2101 Stone Blvd., Suite 200
West Sacramento, CA 95691
(916) 375-4800
www.delta.ca.gov



March 15, 2023

Zachary M. Simmons, Project Manager
US Army Corps of Engineers
Sacramento District Regulatory Branch
Sacramento, CA 95814 VIA EMAIL: DLL-DCP-EIS@usace.army.mil

Re: Draft Environmental Impact Statement SPK-2019-00899

Dear Mr. Simmons:

The Delta Protection Commission (Commission) is a California state agency created by the Delta Protection Act of 1992, which declared the Delta "a natural resource of statewide, national, and international significance, containing irreplaceable resources, and that it is the policy of the state to recognize, preserve and protect those resources of the Delta for the use and enjoyment of current and future generations" (Public Resources Code § 29701). The Act directed the Commission to regulate land use in the Delta to ensure that the populous metropolitan areas surrounding the Delta did not overrun this natural resource and forever alter the irreplaceable agricultural, recreational, natural, and cultural features that make the Delta the unique place that it is.

The following comments reflect the concerns of the majority local government and water agency members of the Commission, and not members representing State agencies which do not necessarily share these concerns. This letter in no way implies a recommendation or position of the Governor or his administration.

The proposed Delta Conveyance Project (DCP), known as Alternative 5, consists of a 6,000 cfs conveyance facility (tunnel) constructed through the Delta on an eastern alignment in a corridor roughly parallel to and west of Interstate 5 to a site south of the Byron Highway and Clifton Court Forebay adjacent to Bethany Reservoir. Project alternatives are distinguished by tunnel alignment (i.e., central or eastern), size (tunnel diameter and length), capacity (ranging from 3,000 cfs to 7,500 cfs), and method of delivery to the State Water Project and potentially Central Valley Project facilities (i.e., through Southern Forebay Complex or Bethany Reservoir Complex).

For reasons we will document in this letter and corresponding attachments, we recommend the Corps adopt the "No Action" alternative. Our comments are offered to ensure that the full scope of the adverse impacts of the proposed project is described accurately. Consideration of alternatives in light of these adverse impacts, as well as reassessing the appropriateness of the project objectives, leads to a No Action alternative.

Consideration of a No Action alternative set within a structured framework that would bring together and resolve the concerns of our affected local government constituents, responsible and trustee agencies, and other interested parties, including those who may not be entirely in accord with the action on environmental grounds, as well as those currently served by the State Water Project, would better satisfy the State's co-equal goals of a reliable water supply, a restored Delta ecosystem and a Delta that is protected maintained and enhanced as a unique place.

In addition to the Delta Protection Act of 1992, the Commission's authority with respect to the Delta conveyance proposal derives from the legislation and agreements enumerated below:

**Delta Reform Act**: The Delta Reform Act of 2009 (Chapter 5, Statutes of 2009), as well as 2009 amendments to the Delta Protection Act of 1992, declared that the State's basic goals for the Delta are to provide a more reliable water supply for California and protect, restore and enhance the Delta ecosystem "in a manner that protects and enhances the unique cultural, recreational, natural resource and agricultural values of the Delta as an evolving place" (PRC section 29702(a) and Water Code section 85054). In addition, the law identifies the Commission as a "forum for Delta residents to engage in decisions regarding actions to recognize and enhance the unique cultural, recreational, and agricultural resources of the Delta" (PRC section 29703.5(a)). It directs the Commission to recommend ways to protect and enhance the Delta's unique values to the Delta Stewardship Council as it implements the Delta Plan.

**Sacramento-San Joaquin Delta National Heritage Area:** The John D. Dingell, Jr. Conservation, Management, and Recreation Act, enacted in March 2019, created the Sacramento-San Joaquin Delta National Heritage Area (NHA). The law designates the Delta Protection Commission as the NHA's local coordinating entity, and charges it with preparing a management plan. The plan is in preparation, overseen by an advisory committee, and will be submitted to the Secretary of the Interior by March 2024. The management plan will highlight the Delta region's national significance, facilitate economic development, and promote heritage tourism, ecotourism, and agritourism compatibly with continued active agriculture through partnerships with public and private local and regional entities. Interpretive themes will include the historic reclamation of marshland to one of the most fertile agricultural regions in the world, the diverse cultures that have shaped the Delta's rural landscape, and the central role the Delta plays in California's water resource challenges. Federal agencies (such as the U.S. Army Corps of Engineers) that sponsor, permit or plan to conduct activities that may impact the NHA must coordinate their actions with the Commission to the maximum extent practicable. Toward that end, the

Commission is currently a consulting party to the National Historic Preservation Act (NHPA) Section 106 process.

**Staten Island Memorandum of Understanding:** The Commission has a role in reviewing any land-use changes on Staten Island, which is subject to a 2001 conservation easement and a 2002 Memorandum of Understanding between the Commission and the Department of Water Resources (DWR). The stated intent of the conservation easement is that Staten Island be protected from "any actions that would result in the conversion of any material portion ... away from agricultural use." DWR holds the conservation easement and is legally responsible for its enforcement.

**Global Comments:** It is encouraging that the Corps EIS appears to cover the same project footprint as the Environmental Impact Report (EIR), although this is difficult to fully understand due to many errors and omissions in the EIS. The project footprint to be analyzed in the DEIS should be clarified to confirm this. It is disappointing that the Corps NEPA review is expressly only for construction of the project **and not for project operation**. The Commission believes the entire project area and the operation of the project cannot reasonably be separated from construction of the project, and therefore should be included in the EIS.

The Commission has consistently made a significant effort over the years, together with our communities and partners, to document the adverse impacts of this project. Most recently we have compiled a draft Cultural Resources Survey (CRS) as part of the Section 106 consultation. A comprehensive inventory of Delta cultural resources will eventually be a product of the NHA process. In the interim, the draft CRS is intended to aid the Corps in identifying historical and cultural resources that could be impacted by the project, and to document the important of the Delta landscape in defining “Delta as Place.”

As summarized in the attachments, the DCP will impact all Delta communities, including those within the new NHA. Proposed launch shafts, tunnel material handling, and maintenance and retrieval shafts will convert farmland and disrupt marinas and recreational boating. Socio-economic impacts of required project mitigations from agricultural lands being converted to construction sites (whether temporary or permanent) and restoration projects are a major concern, as are water quality impacts on Delta agricultural and municipal uses.

The Commission previously submitted comments on environmental review documents for predecessors to the current Tunnel Project in 2014, 2015, 2018 and most recently on the NOI for this DEIS in 2020. As in these letters and elsewhere, we must once again point to the unacceptable significant, irreversible, and permanent environmental effects of the proposed

Delta conveyance projects on Delta communities, the cultural qualities that define "Delta as Place," and the pillars of the Delta economy, agriculture, and recreation.

The current proposed tunnel is fundamentally no different in key structural elements such as the intakes, alteration of the Delta landscape with double launch shaft and tunnel muck storage complexes, and overall disruption of much of the northeastern and southern Delta during at least a projected decade and a half of construction. The DEIS fails to adequately document, analyze and mitigate for impacts that will damage the unique character of the Delta that makes it the "Delta as Place" that is protected by the Delta Reform Act. Given these concerns, we must again urge the Corps to adopt the No Action alternative.

Sincerely,

Bruce Blodgett
Executive Director

cc: Members, Delta Protection Commission

Attachment 1 Detailed Comments
Appendix A to Attachment 1 - Draft Survey of Cultural Resources in the Conveyance Project Area

# DELTA PROTECTION COMMISSION DETAILED COMMENTS TO U.S. ARMY CORPS OF ENGINEERS (CORPS) DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

## Introduction:

Because the DEIS relies on much the same content as the DEIR, it carries forward the same errors and deficiencies. For this reason, in many instances errors and deficiencies in the DEIR are described in the following comments with suggested ways, where possible, to remedy the deficiencies in the EIS. Given the limits of the comment period the Commission has had to focus its review on core priority Delta Protection Act issues in the DEIS, but reserves the right to provide comment on additional topic areas of concern in future.

## Chapter 1: Purpose and Need

In the Purpose and Need discussion, the project objectives constrain the focus in the same fashion as the DEIR and improperly and unreasonably narrow the threshold of significance such that many resource impacts can be found less than significant. Chapters with unreasonably narrow thresholds include but are not limited to Chapter 9, Flood Protection; Chapter 11, Groundwater; Chapter 13, Land Use; Chapter 15, Noise and Chapter 16, Recreation. This is discussed further in several of these sections including under the Chapter 3 Affected Environment.

## Chapter 2: Project Description and Alternatives

**No action alternative** The Commission continues to recommend a no action alternative coupled with accelerated improvement of Delta levees, consistent with the Commission's Economic Sustainability Plan (ESP). This alternative is more feasible than the tunnel, with lower cost, reduced environmental impact, and less controversy.

**The DEIS analysis should include operations.** The DEIS analysis should include operations and maintenance activities. An example of this is provided in the Project Description, which illustrates the "but for" argument that should support the Corps including project operations in its permit review and consequently, the DEIS. Specifically, for example, the North Delta Intakes description (p. 2-19) of the massive intake structure, fish screens, electrical building, flow control structure and outlet shaft, sedimentation basin and drying lagoons:

> *Constructing the intakes along the riverbank would require relocating the jurisdictional levee and State Route (SR) 160 prior to building the intake structure and fish screens. The jurisdictional levee was constructed as part of the Sacramento River Flood Control Project Levee program established by USACE to provide flood management for surrounding lands. Altering a jurisdictional levee requires approval by USACE with a Section 408 permission, and the Central Valley Flood Protection Board prior to undertaking any modifications and requires that conformance with flood control criteria be maintained continuously during construction of any modifications. A temporary jurisdictional levee would be built at the intake sites east of the existing levee to reroute SR 160 and maintain continuous flood protection during construction of the new intake facilities (Figure 2-4). [emphasis added]*

But for the necessity of obtaining Corps permission to relocate the jurisdictional levee, the intakes could not be built and there would be no diversion of Sacramento River water from that location. The intakes thus could not operate without the Corps permission to accommodate their construction.

**The project description includes statements which are contradictory and confusing.** For example, the description of Reusable Tunnel Material (RTM) at DEIS Section 2.6.1.4 (p. 2-28) states:

> *After RTM is removed from the tunnel, it would be tested for hazardous materials, dried mechanically or allowed to dry naturally, then stockpiled and transported for reuse or permanently stored at tunnel launch shaft sites. Quantities of RTM generated would vary depending on tunnel diameter and length. [emphasis added]*

It then goes on to describe temporary storage and disposal of RTM:

> *The applicant would develop site-specific plans for the beneficial reuse of RTM to the greatest extent feasible for construction of the selected action alternative. Excavated RTM would be placed in temporary stockpile areas and tested (generally once or twice a day) in accordance with the requirements of the Central Valley Regional Water Quality Control Board and the Department of Toxic Substances Control for the presence of hazardous materials at concentrations above their regulatory threshold criteria.*

> *Several stockpiles would be developed. Each temporary area would be generally sized to accommodate up to 1 week of RTM production to allow for testing the RTM before stockpiling on-site or transporting off-site. [emphasis added] …*
>
> *For RTM not slated for reuse, wet RTM would be spread over a broad area in relatively thin lifts (e.g., 18 inches) and allowed to dry and drain naturally over a period of up to 1 year. Continuous spreading in thin lifts would allow RTM that is not mechanically dried to be dried naturally and compacted in place without excessive earthmoving requirements.*

It is unclear but seems likely that stockpiles described as temporary would become permanent stockpiles, or effectively permanent if they were to remain for the duration of the 13-year preferred alternative construction period. This concern is discussed further in comments on Aesthetics and Visual Resources, Agriculture, and Geology and Soils.

**The DEIS project description should include cross-referencing.** It is understood that the project description covers the range of alternatives and in some respects is necessarily general. But to the extent possible the DEIS should refer the reader to other sections of the document with more specific detail – for example, clearly describing the locations of temporary and permanent RTM (tunnel muck) placement. More importantly, the DEIS should include an outline of what the "specific plan for beneficial re-use" would include. If this is to be found somewhere in the document currently, it would be helpful for the reference to be provided in the project description.

## Chapter 3: Affected Environment

In general, we strongly concur with comments by the Delta Independent Science Board (ISB) on the DEIR. Throughout both the DEIR and DEIS many sections conclude that impacts are less than significant on weak, narrowly interpreted or seemingly subjective evidence.

> *The most relevant information for understanding potential benefits and impacts is often widely dispersed through multiple chapters and appendices, making a synthesis of impacts and an evaluation of scientific rigor difficult. Impacts identified in the Executive Summary and in specific chapters often fail to provide clear and concise answers to the most relevant scientific and social issues. (Delta Independent Science Board letter dated December 16, 2022)*

# Chapter 3.1: Aesthetics and Visual Resources

**Scenic Highways.** Section 3.1.1 of the DEIS should be expanded to reflect relevant provisions of the scenic highway corridor protection program submitted by Sacramento County and approved by Caltrans for State Route 160 and the River Road, especially provisions related to land use, site planning, design review, earthmoving, and landscaping. A similar review of relevant provisions of Sacramento, San Joaquin, and Contra Costa scenic highway plans and ordinances affecting locally designated scenic routes should be undertaken. Conflicts with these state and local standards should be addressed.

Driving for pleasure is among the most popular recreations in the Delta (Recreation and Tourism in the Delta, A Study of Preferences for Activities and Facilities, Information Sources, and Economic Contributions of Delta Events (pp 8-9) Delta Protection Commission. 2019). The scenic highway designation alerts motorists to the roads' pleasant vistas, expanding participation in this relaxing pastime. Recreational motorists drawn by the scenic highway designation support visitor-serving businesses, including cafes, resorts, gift shops, and other retailers in legacy communities along the road. State Park properties at Locke Boarding House, Delta Meadows, and Brannan Island also draw visitors traveling the scenic highway. All these uses would suffer by loss of the scenic highway designation.

That the project risks Caltrans' revoking scenic highway designation of State Route 160 as a state scenic highway is a potential significant adverse effect that deserves more careful consideration in consultation with Caltrans and Sacramento County. Losing state scenic highway status would also undermine the State's Delta Plan, which recommends that Caltrans should seek designation of State Route 160 as a National Scenic Byway and prepare and implement a scenic byway plan for it (see Delta Plan DP R2). Both recommended actions depend upon the continuation of the state scenic highway designation.

**Assessment of Visual Character of the Study Area**

**Key Observation Points (KOPs) in the Area of Visual Effects are incorrectly documented. By relying on the DEIR's Chapter 18, DEIS Section 3.1.2.1 repeats several of its errors.** Among these is the DEIR's assessment of the visual character of the study area. Our staff has driven Delta roads extensively over the past decades, attended exhibits of Delta landscape art, and viewed many hundreds of Delta photos in agency publications, on their websites, and on the

Facebook Delta News group. Based on this experience, the defining visual features of Delta landscapes should have been described as follows.

- Agricultural landscapes. Within agricultural landscapes, vineyards display close-spaced trellises and a variety of training systems of middle height, in contrast to orchards' height and greater uniformity. The landside of levees, dropping steeply toward the farmed Delta plain, add interest and provide a vantage point overlooking farmland, especially along the Sacramento and San Joaquin Rivers. These farmlands are more visible to highway travelers than levees' waterside and are not encumbered by rock revetments. Farmsteads add variety, with houses and outbuildings of differing historic styles and uses. Farmstead landscaping, including rows of palms, cedars, and shade trees, adds vertical interest and a domestic component to the working agricultural landscape. Windbreaks of Lombardy poplar, roadside arbors of shade trees, and other plantings in orchards and vineyards do the same. Farm laborers at work, agricultural machinery, livestock, wading birds, and waterfowl add movement and variety to agricultural lands when they are present.

- Mount Diablo. Mount Diablo is a welcome landmark on the horizon in views from both waterways and roads. Intrusions that degrade or interfere with views towards the mountain will be especially undesirable.

- Open space. In a lush agricultural landscape, abandoned land can be an unpleasant sight. Fallow land among productive vineyards, orchards, or farm fields may lead viewers to wonder why the land is unused. To some, it may be a reminder of a tragedy, such as a farm bankruptcy or a flood that has scoured the site or deposited sand there. Others may see a signal of a high-water table or dangerous seepage beneath a levee. Views toward the Montezuma Hills are notable for the wind turbines clustered there.

Because the DEIR failed to recognize too many of these defining visual features, it did not accurately assess aesthetic and visual resources affected by the project. The DEIS should not rely on it without modification.

**The DEIS also depends on inadequate photo renderings of the landscape from the DEIR's Appendix 18.** The renderings used as the basis for the photo simulations (KOPs) (DEIR page 18-28) are based on photographs taken in November, when agricultural vegetation has been removed or gone dormant. These images are not representative of the landscape. New KOPs should be developed based on summer-time images and used as the basis for evaluating visual impacts. Further recommendations to improve accuracy of the project's visual effects:

1. Additional KOPs presenting renderings along State Route 160 should be developed to supplement those provided in the DEIR's Figure 18-10. Travelers on this Scenic Highway are more likely to be drawn to view towards the Sacramento River and the adjoining orchards.

2. In considering effects on scenic vistas (Impact AES-3), the EIS should consider views towards Mount Diablo from San Joaquin County's locally designated scenic routes. Long-distance views across the Delta towards the mountain are among the Delta's signature landscapes. When those views are interrupted by piles of tunnel muck and other discordant project features, visual impacts are significant.

3. The screen of "native" trees depicted in the DEIR's Figure 18-10 neither accurately depicts the extent of visual impact nor effectively illustrates the mitigation value of the proposed planting. A more useful visual simulation would depict the intakes as viewed from the river and from State Route 160 looking north to south.

**The DEIR errs in not rating the quality of the landscape with the project as "low" in contrast to the No Project alternative**. Every significant feature of the project will degrade Delta scenery and harm the Delta's unique visual appeal. The DEIS correctly acknowledges the significant and unmitigable impact caused by construction of the project intakes but does not fully capture its magnitude. Impacts of the launch shaft complexes, however, fail to accurately reveal the extent of this damage.

The landscape with the project will be "very disrupted ", "very discordant", and will likely be perceived as an eyesore. Similarly, the cultural landscape as viewed with the project lacks the cohesion and sense of place that have evolved over time, and it will be perceived as blight. The RTM stockpiles remaining on site will substantially degrade significant portions of the landscape. Only a major redesign, such as relocating the RTM stockpiles outside the Delta, can rectify this incompatibility with surrounding environments.

Examples of these errors in the DEIR's description of impacts include:

- Intake Facilities. Few residents, recreationists, or motorists are likely to concur that the visual quality of the landscape remaining after the intakes' construction is "moderate", as the DEIR asserts. The project will replace this area's river views, naturalized riverside, orchards, wheat fields, an iconic corridor of palms, and several rural farmsteads with what the DEIR concedes is a "monotonous", "utility or industrial type facility" surrounded by a gray chain link fence. Views of these industrial facilities will instead greet recreationists on

the river and highway motorists after the removal of orchards and other vegetation. Views along Scenic Highway SR 160's winding tree line will be degraded. The intake construction site will be "visually discordant" with the surrounding landscape. The massive structures resulting from project construction will fit the "very low" criteria of the DEIR's Table 1.3-5: "natural landscape is in disarray and severely degraded", "cultural landscape is in disarray and severely degraded", and "project site is in disarray and severely degrades the natural or cultural landscape. Major redesign or relocation of the facilities would be required to approach compatibility with surrounding environments."

- Twin Cities complex, including the Lambert Road Concrete Batch Plant and Hood-Franklin Park-and-Ride lot. Construction at the Twin Cities complex will transform and degrade scenery at this rural ranchland setting. Existing historic ranch complexes at the site would be removed to make way for the launch shafts and pads, tunnel segment storage, two concrete batch plants, cranes and other construction equipment, and a helipad, surrounded by a chain link fence. Livestock will be absent. The project will leave behind a 15-foot-high pile of tunnel muck covering an area equivalent to up to 290 football fields. This area of tunnel muck should not be described as "native habitat" even if native grass is planted and survives on the pile.

  The quality of the landscape left behind by the project should be rated as "low". Its natural landscape will be "very disrupted ", "very discordant", and will be perceived as an eyesore. Its cultural landscape lacks design cohesion and any sense of place and will be perceived as blight. The piles of tunnel muck remaining on site will substantially degrade the landscape. Only the no action alternative would avoid this incompatibility with surrounding environments.

- Lower Roberts Island Launch and Reception Shaft and Tunnel Muck Storage (DEIR pages 18-70 to72). The current visual quality of the area should be rated high, as indicated by San Joaquin County's designation of scenic routes surrounding the area. Roberts Island's riverside levees provide an elevated perch from which motorists can view the meandering San Joaquin River and Whiskey Slough as well as the island's croplands and pastures, stamped with the pattern of its drainage and irrigation networks. The Turner Cut and Tiki Lagoon Resorts provide recreation destinations prized by boaters and other visitors. Farm workers and equipment can be seen planting, tending, and harvesting. Wading birds and waterfowl are visible while they use the area. Mount Diablo anchors the horizon, a landmark known to all. Travelers visiting the resorts along the San Joaquin River, families

and anglers who fish and recreate along the riverbanks, and residents value these views, which the DEIR text correctly states are emblematic of the Delta and its natural endowment of fertile fields, abundant water, and sunshine.

Project construction will redefine this landscape for years, potentially permanently. The Lower Roberts Island construction site would occupy an area the size of 407 football fields. At the shaft site, stored tunnel liners, construction equipment, a slurry/grout mixing plant, tunnel muck handling facility, offices, a helipad, and a 2-mile-long conveyor will replace the present farm landscape. After construction, permanent pads, access ramps and shafts will rise 30 feet above the plain. Nearby, the abandoned tunnel muck will sit in a 15-foot-high pile covering an area the size of 71 football fields. Both the shafts and the mound of tunnel muck will blemish views to Mount Diablo from Holt Road, a county-designated scenic route on the island, as shown in DEIR's Figure 18-15.

Adjacent to Whiskey Slough, vegetation will be removed from 67 acres of levees and adjoining areas, which after construction will be maintained to the Delta Specific PL 84-99 standard. This standard requires that levees be free of trees and shrubbery, rather than recolonized with "natural vegetation" over time, as the DEIR text suggests. Parts of Turner Cut Resort and adjoining structures will be removed, dramatically altering the recreational character of the Whiskey Slough shoreline and Neugebauer Road landscape.

The resulting landscape fits the "low" criteria of DEIR's Table 1.3-5: The loss of 407 acres of farmland will leave the site's agricultural landscape "in disarray and severely degraded". Damage to the Turner Cut Resort along Whiskey Slough will disrupt the visual cohesion of that area. At both locations, the resulting land uses will be "highly disjointed", with extensive and highly disruptive construction sites adjoining farms, resorts, and Whiskey Slough. After construction, the mound of abandoned tunnel muck will disrupt the naturally flat landscape in a way that local people and visitors will perceive as an eyesore and will detract from views toward Mount Diablo.

Neither plantings of native grass nor the screen of "native" trees depicted in DEIR's Figure 18-15 do much to reduce damage to views across the site done by the tunnel pad, shafts, and the 15-foot-high, 471-acre mound of tunnel muck left after construction. The rendered view after construction shows the trees will be an additional intrusion on the landscape, rather than softening the interruption of the level horizon and views of Mount Diablo.

The EIS should not rely on the DEIR's assessment of aesthetic impacts without modification to address these shortcomings.

**Visual resource impacts of action alternatives are not correctly mitigated**. A suggested measure to avoid the impact of leaving tunnel muck piles distributed across farmland visible from scenic routes designated in local general plans, would be to work upfront with Reclamation Districts and others to develop the system vaguely referred to in Section 2.6.1.4 for RTM disposal. A meaningful mitigation would match tunnel material to users and transport it to those users, if necessary, at DWR's expense. Material which cannot be reused should be removed from sites visible from these scenic routes and deposited elsewhere than the Delta, which must not become a disposal site for the project's waste.

Another mitigation measure that should be considered is to construct smaller intake sediment basins that are set back sufficiently from SR 160 to allow planting of a wide strip of trees, such as pears or walnuts, to screen the basins and associated facilities from views of travelers on the scenic highway. There appears to be no clear estimate of sediment the basins are likely to receive. Reducing the size of the sediment basins, coupled with appropriate vegetative screening and more frequent sediment removal (if needed), would minimize both the visual and the land use impacts.

Finally, rather than planting conifers or other "native" trees, as depicted in DEIR's Figure 18-10, mitigation landscaping should consider palms, Lombardy poplars, or other shade trees typical of agricultural landscapes, mimicking the tree line that the project will remove. Nearby residents and businesses should be consulted about preferred options for tree screens and other landscaping.

## Chapter 3.2: Agricultural Resources

**The DEIR does not use available data.** While the DEIS lists the commodities grown in the Delta, changes in Delta cropping are significant. The conversion of lands to high-value permanent crops is not even discussed. More recent information is available in our recent update to the Commission's ESP agriculture data, which we provided to DWR's Delta Conveyance Office at their request. In several locations, crop conversions over the past 5 years need to be considered in the impact analysis. The significant conversion to high-value permanent crops is not even discussed in the document. Section 3.2.1 references Delta agriculture but omits any discussion of the significant proportion of Delta lands that have been converted to high value crops including almonds, pistachios, cherries, wine grapes, and even corn for distilling purposes.

**Water Quality**: The DEIS, in omitting project operations, thereby overlooks impacts of the conveyance facilities on water quality that affect agriculture. Especially in the western and south Delta, agricultural resources already suffer from impaired Delta water quality caused in part by the State Water Project's and Central Valley Project's diversions, including increasing salinity due to reduced freshwater flows.

The water quality impacts the conveyance project will have on Delta agriculture should be addressed. The project's DEIR forecasts that it will cause declines in water quality that threaten farming after August 15 of any normal water year. Based on the assumption of late fall as the tipping point, DWR concluded the project operations "would not be expected to trigger a substantial conversion of Important Farmland to nonagricultural uses." Such analysis is predicated on the assumption that "many of the crops are harvested by early fall" and outlines a series of crop types that no longer exists in the Delta. The model and its output, however, need to consider:

1. The fastest growing commodities including tree nuts and wine grapes are irrigated and harvested in the fall, with some harvest times as late as November.

2. The DWR's model of impacts considers only normal water years to forecast the water quality impacts on agriculture. In addition, it also needs to study the worst drought years on record to fully show the impact of the project's operations.

3. With climate change affecting the onset of seasonal changes, the use of terms like "early" or "late" fall is an increasingly impractical gauge.

The claims on page 3.2-17 that impacts to agriculture from degraded water quality "would modestly increase salinity" fails to account for long term trends and provides little assurance that the project's water quality impacts on agriculture will be insignificant. The assertion that impacts in the west Delta are insignificant because agriculture there is primarily managed for pasture fails to take into account the area's historic farm production, which on Sherman Island for example, included crops of asparagus, barley, beans, field corn, milo, and wheat as recently as 1945, before the CVP and SWP operations began to degrade water quality (see The Settlement Geography of the Sacramento-San Joaquin Delta. John Thompson, Ph.D. Dissertation. Stanford University, 1957.). Consideration of the project's cumulative impacts on agriculture needs to account for this legacy of water quality effects.

**Acreage of converted farmland**. In multiple rounds of comments, the Commission has requested inclusion of a single table to show all the potential impacts to farmland from the No Action alternative in comparison to the Proposed Alternatives beyond just the construction footprint. This table should include everything from actual farmland converted due to the construction of the project including a clear description of the final acres lost permanently inside of the RTM areas, remnant parcels too small for commercial agriculture, farmland rendered useless due to construction impacts such soil compaction or impaired drainage, to those acres lost due to the water quality impacts. The loss of farmland to habitat restoration that will be part of this project's compensatory mitigation program is of particular concern.

**Mitigation should be improved**. The ratio of agricultural land protection to land conversion should be increased beyond 1:1 to reflect the cumulative effects DWR's Delta projects have on agriculture. Additional measures that should be required include buffer areas to protect farms from construction impacts including dust, seepage, impaired drainage, and depredations by wildlife drawn to compensatory mitigation areas. Provisions of the "Delta good neighbor checklist" should be fully adhered to.

**Cumulative Analysis**. Section 3.2.2.3 overlooks many habitat restoration projects that have converted Delta farmland. A recent report to the Delta Stewardship Council identifies not just three habitat restoration projects on Delta farmland, but 20,760 acres of projects planned, underway, or completed (https://deltacouncil.ca.gov/pdf/council-meeting/powerpoints/2022-11-17-item-11-ecosystem-restoration-progress-review-presentation.pdf). In addition to these restoration actions, limitations that DWR has imposed on other farmland through easements and lease restrictions add to this cumulative impact. It is the cumulative impact of activities of DWR and its SWP contractors that is driving the loss of Delta farmland and limitations on agricultural use of thousands more agricultural acres, rather than other development.

A presentation of DWR projects' cumulative effects on Delta agriculture is documented in Table 1 below. Acreage estimates are derived from the Natural Resources Agency EcoRestore website) and the Delta Conveyance DEIR. These data also account for tidal habitat compensatory mitigation for the Delta conveyance project, which Solano County's DEIR comments estimated at an additional 1228-1600 acres in the Delta priority restoration area, but they do not include several recently proposed private mitigation banks. Section 3.2.3.3 and Table 3.2-7 should be revised to reflect the true scale of cumulative effects to Delta farmland from DWR's actions.

The scale of DWR's conversions and restrictions on Delta agricultural land demands that mitigation by easement acquisitions at ratios greater than 1:1 should be required.

**Table 1 – Conversion Acres – Planned, Underway, and Completed**

| | Converted to habitat or Delta conveyance features | Farming restricted (including lease restrictions) | Total |
|---|---|---|---|
| **Dutch Slough** | 1187 | n/a | 1187 |
| **Lookout Slough** | 3000 | n/a | 3000 |
| **Yolo Ranch** | 1700 | n/a | 1700 |
| **Little Egbert Tract** | 3150 | n/a | 3150 |
| **Staten Island** | n/a | 8400 | 8400 |
| **McCormack-Williamson Tract** | 1400 | n/a | 1400 |
| **Grizzly Slough** | 400 | n/a | 400 |
| **Sherman Island** | 2377 | 11623 | 14000 |
| **Twitchell Island** | 2000 | 1000 | 3000 |
| **Delta Conveyance** | 3438 | unknown | 3438 |
| ***Total*** | *15502* | *21023* | *39,675* |

## Chapter 3.7: Cultural Resources

**The DEIR and Appendix 19a assessment of impacts on cultural resources is deficient**. Its fundamental shortcoming is its reliance on the DEIR's identification of cultural resources, and the project's impacts to them. The DEIS compounds those documents errors with some mistakes of its own.

**The DEIS overlooks the Delta's value as a cultural landscape.** Section 3.7.1 1 (Area of effect for Built-environment Resources) and subsequent sections overlook the Delta's status as a cultural landscape valued by native California Indian tribes and by current Delta residents and visitors. These values are documented in the appendix to this letter, Draft Survey of Cultural Resources of the Sacramento-San Joaquin Delta in the Delta Conveyance Area (attached). Previously in our comments on the NOI and again in a preliminary reconnaissance survey of those resources provided to the Corps in February 2021, the Commission has noted that the Delta is a nationally important cultural landscape comprised of layers of historic districts, sites and other cultural assets.

The Delta, including the Sacramento and San Joaquin Rivers, their distributaries, remnant marshes and streamside woodlands, neighboring islands and tracts, including lands bordering the Sacramento River communities, and State Route 160 and other scenic routes are all integral elements of this important cultural landscape. In many ways, the Delta is a collection of potential historic districts of vast scale, linked by its waterways and scenic highways. The Delta's cultural landscape also provides context for individual buildings or historic districts that are listed on the National Register of Historic Sites or are eligible for listing.

A key flaw in the DEIS - and the DEIR on which it relies - is its focus solely on built environment resources and archaeological sites, rather than the much larger cultural landscape within which the built resources and archaeological sites are located. This leads to a narrowly constrained area of impact (AI) that ignores cultural landscape components. Impacts to this surrounding landscape would diminish the integrity of specific sites, districts, or landmarks. For example, the orchards and farms surrounding the Locke National Historic Landmark, while outside the landmark's boundaries, were the sites where many of Locke's Chinese residents worked, including lands owned by George Locke, the community's proprietor. These orchards and farms grew much of the produce packed by Locke residents in Locke's packing shed and thus provide the landscape context of the landmark.

**The DEIR fails in its description of these resources.**

Properly assessing cultural resources requires historical research, inventory, and documentation of existing conditions, site analysis and evaluation of integrity and significance, according to the National Park Service's Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes. The DEIR's Appendix 19A reiterates these steps but fails to systematically apply them to the Delta districts and properties potentially eligible for listing in the National Register that the project will affect.

Rather, as section titles and contents of the DEIS' Chapter 3.7 and DEIR's Chapter 19 confirm, the DEIS and DEIR assess only buildings and structures, rather than the full range of historical landscape resources. Previously completed assessments of cultural landscapes at Bouldin and Staten Island are recognized, but equally thorough descriptions and evaluations are not provided for other similar features, such as Pearson District and Roberts Island. In these areas assessments are offered only for individual structures, such as levees or an individual pumphouse, with little mention of their role in these tracts' overall landscapes or the tracts' other character-defining features, such as orchards, vineyards, crops, and farm buildings. No assessment is provided of the spatial organization and cluster arrangements of these features, including the levees and drainage works noted in the DEIR's Appendix 19A. Cultural traditions of the tracts' settlers that influenced these landscapes are ignored. Viewsheds within and from the tracts are not considered.

The text regarding historical context of these resources in the DEIR's Appendix 19A is insufficient for assessing important landscapes affected by the project, as it portrays only a handful of communities (Brentwood, Byron, Stockton, Tracy, and Mountain House), some only lightly affected by the project, while omitting others, including Hood and Courtland, that will be at the center of damaging project impacts. The historical context provided for Delta farmlands is equally incomplete, describing the Delta's diverse agriculture in only four paragraphs about "industrial agriculture" in San Joaquin County from the 1910s to 1950s. Entirely ignored is ignored is 19$^{th}$ century agriculture, during which patterns of land tenure, farming systems, labor, and agricultural markets were established. Agricultural development in Sacramento County is entirely overlooked as is cattle ranching which occupies rangelands that the project affects. Appendix 19A's misleading statement that water supplied by the California Aqueduct underlies the region's diverse agriculture (page 31) reveals flaws in the report's research, as agricultural landscapes affected by the project are watered from the Delta's channels, not the SWP's exported supplies.

The DEIR acknowledges that islands and tracts affected by the project could be evaluated as rural cultural landscape districts (Appendix 19A page 15). Some descriptions, such as those of Staten and Bouldin Islands' landscapes, approach the level of identification and assessment warranted. Evaluation of other districts, including Pierson District, Terminous Tract, Roberts Island, Jones Tract, Bacon Island, and Byron Tract, is also necessary. The statement on Appendix 19A's page 16 that "this level of analysis was outside the scope of this project, so these islands were evaluated only for the extent of their built resources only" confirms the incomplete investigation of these resources. Indeed, assessment of these important cultural landscapes seems to have been reduced to several days of hasty windshield observations of some individual levees, siphons, and pump stations. The historical significance of these features cannot be determined without consideration of the larger water conveyance system, Appendix 19A acknowledges, which has evidently not been done. Readily available materials could support proper assessment, including the sources listed in the appendix to these comments and aerial photographs, even if access to properties is unavailable.

**Inadequate consultative outreach**. The Commission's 2020 EIR NOI Comments advised outreach to local groups and experts ranging from local transportation authorities to historical societies and representatives of local cultural groups. Despite these recommendations, the DEIR's Appendix 19A, for example, lists no local historical organizations, neighborhood groups, or archaeological societies. Local expertise was undocumented, and the Corps would be unable to assess the area's historic resources without this information. DWR's decision to not consult with local historical societies and museums (Appendix 19A, p. 10) is contrary to best practices. In addition, the Appendix did not document Traditional Cultural Properties. Such work is done partly through consultation with community representatives. Landowners, local businesses, local historians/preservationists, and local agencies are all helpful as informants, historians, architects, landscape architects, folklorists, sociologists, or anthropologists.

Appendix 19A asserts on page 10 that sufficient outreach to local groups for this project had been conducted during past projects. This approach is inadequate as well as inaccurate. Because this preferred alignment has not been the object of prior studies such as BDCP's historical resources reports, it is premature to conclude that additional outreach would not yield new results. Moreover, the methods section of the Built Historical Resources Evaluation Report for the BDCP Project mentions no outreach to important historical societies and cultural resource organizations in key areas directly affected by this project, including the Sacramento River Delta Historical Society, the Locke Foundation, the Rio Vista Museum, the Rio Vista's Dutra Museum of Dredging, Stockton's Filipino American National Historical Society, or the

Portuguese Historical Society in Sacramento. All these groups could have information useful to analysis of historic and cultural resources affected by this project. Historical organizations that had been contacted several years ago for the BDCP EIR may have gained new understanding or obtained additional records about cultural properties affected by the project, as the San Joaquin Historical society's comment letter on the DEIR points out. New outreach about this project is warranted.

**National Register criteria are not applied consistently**. National Register criteria are applied inconsistently in these landscapes' evaluation. A useful guide is Caltrans' report Water Conveyance Systems in California, Historical Context Development and Evaluation Procedures. As it advises, water conveyance features such as ditches, levees, or the Delta's sloughs can be eligible under the National Register's Criterion A because they are important to an important pattern of development, such as the development of irrigated farming. This is true of the islands affected by the project, given their importance in the reclamation of the Delta and the development of California agriculture. In fact, the islands' levees, ditches, and drains were directly associated with these developments and with the origins of California's system of special districts and California farm labor organizations. They are also eligible under the National Register's Criterion B, because of their association with important persons' lives.

Josiah Buckman Greene, a pioneer in Pierson District, was among early settlers responsible for building the Pierson District's first levees. Also important was John Roberts, a San Francisco speculator and the founder of the Tide Land Reclamation Company which at its height owned 250,000 acres in the Delta and Yolo Basin, including much of Pierson District, King Island, Union Island, and his namesake Roberts Island.

San Joaquin River Delta islands affected by the project are the site of farm labor organizing by Stockton-based Filipino American activist Larry Itliong, who led the Agricultural Workers Organizing Committee, a precursor of the United Farm Workers Union, which Mr. Itliong co-founded with Cesar Chavez and Delores Huerta. The levees and drainage features of islands the project will affect are also good examples of California's application 19$^{th}$ century engineering and construction technology to the drainage of wetlands for agriculture. These practices include the work of thousands of immigrant Chinese laborers and later development of the Stockton dredge, Caterpillar tractor, and LeTourneau earthmovers. Pierson Tract is also the site of the first 1960s demonstrations of machine harvested processing tomatoes, which contributed to California's dominance of global tomato production. All these features need to be considered in evaluations of properties' eligibility for the National Register.

The DEIR's Appendix 19A and the DPR 523A forms prepared for the project and the BDCP employ a haphazard and overly restrictive approach to evaluating the National Registry eligibility of these island's landscapes. The Caltrans report states that a water conveyance system "must possess several, and usually most, of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association." Notably, possessing all seven attributes is not required. All these islands and tracts and their reclamation works retain their original location. Most of their levees and ditches also retain their original designs, with only modest variations to adapt to modern safety standards. Their setting along the Delta's rivers and channels, and their agricultural crops often remain unchanged. Their earthen materials are also unchanged, except where revetments were added to their exteriors in a process that began in the 1950s. The DPR 523A forms contain speculation and presumptions. For example, for Lower Roberts Island levee maintenance and flood recovery activities are presumed to have damaged features' integrity with no evidence of substantial alteration. Appendix 19A and the DPR 523A forms prepared for the project document no changes to these features that eliminate the relationship between their current appearance and their appearance in the late 19th century and early 20th century. The DEIR's inadequate evaluation of the SR 160/River Road/Victory Highway landscape suffers from similar inconsistences.

Alternatively, the DEIR could have followed the approach of the BDCP EIR, which in its Built Historical Resources Evaluation Report identified Grand Island (Reclamation District 3) and Netherlands District (Reclamation District 99) as significant historic districts without more detailed inspection and recommended further research and obtaining access to the properties to establish the integrity of their features (page 87). It is notable that an attribute of Grand Island cited in this conclusion is the island's avoidance of flooding in the 20th century, a record compatible to Pierson Tract and Roberts Island, which last flooded in 1907 and 1906 respectively.

**The historic context of potential National Register properties has been insufficiently researched and hastily evaluated**. The limited time devoted to research, field surveys, and local consultation is evident in the unbalanced and incomplete narrative of the DEIR's Appendix 19A (pages 22-41). Those pages, apparently intended to provide the context for evaluation of historical properties throughout the affected area, are primarily about Contra Costa County and urban Stockton. No information is provided about the context for evaluating districts and properties in Sacramento or Yolo Counties or the rural San Joaquin River Delta. One supposes that either these area's importance was unrecognized or that insufficient time was provided to complete this research. It is unfortunate that the coronavirus epidemic curtailed the research

and consultation needed to properly evaluate historical resources at risk from the project. A proper approach would have been to deploy additional personnel when pandemic protocols allowed or to extend the DEIR's production schedule, rather than to rely upon a document with the many voids in Appendix 19A (p. 12).

**Many more districts and sites warrant evaluation and avoidance or impact mitigation**. Because of the errors, many districts and sites potentially eligible for the National Register are inadequately or improperly evaluated. The DEIS should be revised to identify these additional resources, at a minimum, as well as others identified by local agencies and local experts:

1. Sacramento River
2. Sacramento Southern Railroad
3. Victory Highway
4. Pierson District
5. The 40-mile Orchard
6. Hood
7. Terminous Tract
8. Roberts Island
9. Jones Tract
10. Bacon Island
11. Union Island
12. Byron Tract
13. Diersson Road ranches
14. Steamboat Acres

Information about these properties and their historical significance is summarized in the Appendix to this document, Draft Survey of Cultural Resources in the Delta Conveyance Project Area. Additional resources should be consulted, such as the California State Fair's California Agricultural Heritage Club that honors ranches and farms that have been continuously in business for 100 years or more. Steamboat Acres, established in 1848 and listed above, was honored in 2022 for continuous operation of over 150 years. With proper identification of these sites and districts, the EIS should report that the project will diminish the integrity of at least 44 historic properties, rather than the 31 reported on the DEIS' page 3.7-7.

**Impacts on historical resources resulting from project construction and operation.** After the identification of historical resources, including significant landscapes, is revised following consultation with local experts, then the Chapter 19 assessment of impacts should be revised accordingly. This should include consideration of impacts of noise, glare, and visual degradation on these settings of the project.

**Laws Protecting Cultural Resources Are Not Fully Reflected in Section 3.7.** Table 416 should be revised to more fully reflect laws protecting the Locke National Historic Landmark, including the

National Historic Preservation Act's Section 110(f). The Locke Foundation, in its comments on the draft EIR, expressed concern that the project will damage the Locke National Landmark as disrupted traffic leads to disuse of the town's buildings occupied by visitor-serving businesses.

## Chapter 3.8: Environmental Justice

**The framework and focus of the DEIS and DEIR result in minimization of adverse impacts on environmental justice communities, including Tribes.**

The Environmental Justice (EJ) resource topic sharply highlights the negative effect of the narrow project objectives and significance thresholds. The DEIR asserts that EJ is not required for CEQA and that it is structured to be consistent with the NEPA framework for the EJ analysis, yet CEQA screening is used to exclude impacts from EJ consideration. Where no significant impacts are identified, disproportionately high and adverse effects on environmental justice are assumed not to exist. The resource topics of water quality, geology and seismicity, land use, recreation, public services and utilities, energy, and mineral resources were identified in the DEIR as having no significant impacts, and therefore assumed to not have a disproportionately high and adverse effect on environmental justice. Yet water quality, land use, recreation, and public services are known areas for which underserved populations are often disproportionately affected, virtually by definition. For example, feedback from the underserved community focus group the Commission conducted during the 2020 ESP Recreation and Tourism update specifically focused on the need to improve water quality for swimming, the need for more public restrooms and for simple picnic facilities and recreation areas where they could bring families without spending a lot of money.

It is not clear how Tribal populations are considered in the EJ analysis, or how mitigations and levels of significance may differ among EJ communities and populations.

**This section highlights the difficulty of reviewing and understanding the differences between the DEIR and the DEIS**.

Understanding that CEQA and NEPA have differences in resource topics that are considered, the DEIS and DEIR should both provide clearer, more understandable crosswalk presentations of areas where they differ, and how. This is especially true given that the DEIS relies heavily on the DEIR. Resource topics in the DEIR in relation to environmental justice were separated by CEQA impact conclusion as noted above. This resulted in the determination that for the alternative 5 proposed project, Agriculture, Socioeconomics, Aesthetics and Visual, Cultural,

Transportation, Air Quality and Greenhouse Gases, and Noise resource impacts are significant after mitigation.

The DEIS finds Agriculture, Aesthetics and Visual Resources, Cultural Resources, AQ and GHG, Noise resources topics to be significant for all action alternatives. Transportation, Public Health and Climate Change found not to be significant by the DEIS. There is no clear explanation or justification for the differences, making it difficult to judge the accuracy of the determinations.

**This DEIS resource topic lacks transparency**.

Section 3.8.2.1 (Methods for Analysis), describes the guidance used (Council on Environmental Quality, etc), the study area, the importance of public outreach, the three factors to be considered when determining whether environmental effects are disproportionately high and adverse, and how the next Section 3.8.2.2 (Effects and Mitigation, incorrectly cited on p.3.8-11 as Section 3.8.3.1), would identify specific resources where analysis would determine disproportionate adverse environmental effects, in short everything except how the determinations of effects found not adverse were made. It closes with the following statement:

> *For effects that were determined not adverse, no additional evaluation is needed because those effects would not result in disproportionate high and adverse effects on minority and low-income populations. [p.3.8-12, line 15]*

**The DEIR and DEIS analyses minimize barriers and lack of flexibility for EJ communities and populations.**

As with the recreation analysis, the DEIR dismisses impacts on recreational fishing opportunities and subsistence fishing for very low-income households based on an assumption that fishers will have unspecified access to "numerous other locations." This neither addresses the loss of existing habitual fishing patterns and opportunities, nor does it consider that EJ populations in many if not most communities face transportation and mobility barriers that prevent them from accessing alternative locations. These very real impacts are in fact significant and must be listed as such.

## Chapter 3.9: Flood Protection

**Drainage**. The Commission's response to the 2020 Notice of Intent (NOI) recommended that construction activities could have an impact on levees and the drainage systems in the Delta.

Drainage is critical to consider, as the foundations of the existing levees can become weak without adequate drainage. However, DEIS' Section 3.9 focuses primarily on changes in water surface elevation (WSE) and increases to the amount or rate of surface runoff that would result in localized flooding. This approach is inadequate to establish full significance of impact to levees, as other issues (such as drainage) could be compromised by the project's construction and permanent facilities. For example, there could an inability to siphon or remove flood waters at the toe of a levee because of an increased WSE from the proposed project.

**Indemnification of Reclamation Districts and Other Levee Management Agencies.** The DEIS notes the importance of levee maintenance and monitoring for quickly identifying vulnerabilities in or damage to levees during project construction. However, the DEIS does not document any commitment by DWR and its contractors to defend, indemnify, and hold harmless affected Reclamation Districts (RDs) against all claims, liabilities, charges, losses, expenses, and costs (including their attorneys' fees) that may arise from the project. This statement should be made part of the project description and the analysis in this chapter to confirm that state funding supports this work, rather than creating a new burden on the local RDs. The State insists on these indemnifications when it permits encroachments on its State Plan of Flood Control levees. Local RDs deserve no less.

**Reusable Tunnel Material (RTM).** The Commission has recommended that excavated tunnel material should be handled and stored to segregate material of different quality so it can more easily be reused. Uses for which tunnel material is suitable, as should the agencies and others prepared to reuse it, should be identified. Costs of hauling tunnel material to reuse sites should be borne by the project, rather than by those who may reuse it. We were unable to find this in the Project Description, nor as a mitigation measure. Instead, permanent RTM stockpiles are proposed to be left in unsightly stockpiles 15 feet high occupying over two hundred acres at the Twin Cities Complex and nearly two hundred acres at the Lower Roberts Island Complex. Experience with excavated spoil in rural areas elsewhere in the Central Valley, such as material excavated at the Tisdale Bypass and Fremont Weir, demonstrates that local RDs are unable to bear the costs of reusing excavated material, which instead sits in stockpiles for decades.

The cost of fill materials has sky-rocketed in recent years. Increasingly, bids received from RDs solicitations are consistently higher than the construction estimates. The Commission has heard directly that this impacts how much of a project can be completed and still stay on budget. With heavy competition for fill materials for the many haul roads needed by the project (or the alternatives) this will become a critical issue. All suitable fill materials should be sorted and

available for use by local area for the required improvement and continual maintenance of levees.

**Equitable Funding of Improved Levee Operations and Maintenance.** As highlighted in its 2012 ESP (as amended), the Commission supports the improvement and maintenance of all Delta levees to at least the federal PL 84-99 standard. Given the difficulties with PL 84-99 inspections, the Commission would now endorse the (similar) DWR Bulletin 192- 82 standard instead of PL 84-99. It is notable that two islands' levees would be brought to PL 84-99 standards to protect the launch sites and personnel during construction of the tunnels. While this improves flood protection over existing conditions, maintenance of a PL 84-99 levee to the US Army Corps of Engineers' exacting inspection standards would be the local RD's and its landowners' responsibility and is known to be very costly. We would expect the Final EIS to address the following:

1. If the project proceeds, there needs to be a broad consensus-building process with local agency officials and on-island property owners on how to implement a new fee structure that better reflects the assets protected by these improved levees. This EIS needs to evaluate the value and interests of "tunnel beneficiaries" including the benefits of protection to SWP and its customers and estimate the value of their assets and the benefits they receive from the improved levees. Maintenance fees should not be based simply on a per-acre basis. In addition, the limited subventions funding for Delta levees should not be used for the two islands which will be brought to PL 84-99 standards.

2. In the Commission's response to the 2020 NOI, the Commission recommended DWR and the Delta Conveyance and Design Authority (DCA) should pay local RDs an inspection fee to cover inspection costs, including staff and/or consultant time and expenses, for any inspections before, during, post-construction, and regularly thereafter. This would include the time expected for new PL 84-99 standard inspections. This is another condition that the State imposes upon encroachments on its SPFC levees, and should be extended to this project's encroachment on local RDs' levees. However, DEIS' Chapter 3.9 fails to account for the additional time or extra activities associated with inspections, nor are there mitigation measure(s) mentioning cost reimbursement.

**Twin Cities Road Complex flooding**. The DEIS properly addresses the risk that the ring levee and remnant RTM pile at the Twin Cities Road complex may impede drainage and risk deepening flooding and extending its duration at Glanville Tract (pages 3.9-27). The January

2023 flooding on the Cosumnes River highlights the risks to life, property, and transportation potentially associated with any elevation of flood elevations or impairment of drainage in this area. The DEIS seems to suggest flooding will be caused by the project, including overtopping local roads and the railroad that would serve the complex. The DEIS suggests this flooding is acceptable because it affects only 10 acres of grazing land and would last only 2-3 days (see lines 18-34 on p. 3.9-27). This loss may be mitigated if the long-delayed McCormack-Williamson Project is at last completed, the DEIS claims.

Assessment of this impact is incomplete. Flooding would recur for the full decade when the project is under construction. No assessment is provided of the aerial extent of flooding after the ring levee is removed. Does it remain 10 acres or does it diminish, and if so, how much? The flooding of this grazing land and its impact to agricultural operations should be reflected in Section 3.2.1 Agricultural Resources. Compensation to the landowner and mitigation for lost grazing opportunities should be proposed. Impacts on railroad operations and traffic on Franklin Boulevard should be described. If the McCormack-Williamson Tract is to provide mitigation for this flooding, DWR should address compliance with Water Code section 85089(a).

## Chapter 3.10: Geology, Soils and Seismicity

**The DEIS fails to assess empirical data on damage from the 1906 earthquake on Delta levees**. The dissertation "Levee Failures in the Sacramento-San Joaquin River Delta: Characteristics and Perspectives" (F. Hopf, Texas A&M University, December 2011) (Hopf) compiled and analyzed a database of levee failures and to the degree possible, near-misses (flood fights and emergency repairs) within the legal Delta, focusing on levee sections. This was compared to the Delta Risk Management Study (DRMS, Delta Risk Management Strategy. 2009. URS Corporation prepared for DWR), which recorded "flooded islands." Among numerous findings Hopf made the following observation:

> *I found a levee system that performed much better than the DRMS analysis implies. The historical review also uncovered evidence that indeed Delta levees in near-current configurations experienced liquefaction caused by the San Francisco Earthquake of 1906. However, no evidence exists of damage to any of the Delta levees from those forces. These 1906 reports require further investigation and confirmation. If appropriate, follow-up could include detailed soils and geotechnical analysis. It would seem prudent to do so before Californians commit to a Canal, costing an estimated $13 billion and justified*

> *largely because of the potential of earthquake damage and a faulty or exaggerated history of levee failures. [emphasis added]*

The analysis reveals the complexity of assessing the success of levee maintenance and improvement given the varying type and purpose of levees in the Delta. The EIS should include analysis of the existing and new data from the soils and geotechnical investigations that DWR has been conducting to address whether a 1906-magnitude earthquake did or would damage levees that have been supported by the subventions program.

**The DEIS overstates influence of faults outside the Delta study area and defers data collection on in-Delta fault.**

The DEIS, in relying on the DEIR analysis, refers to active faults outside the study area (in the greater San Francisco Bay Area) that have not been clearly shown to influence the Delta, yet defers data collection on the West Tracy blind thrust fault to "future field investigations." This would consist of trenching investigations on the West Tracy Fault. The section essentially describes disagreement among experts and overall uncertainty regarding the relative risk of an active in-Delta fault and the potential seismic risks posed to either Delta levees or a Delta tunnel. Yet earthquake and seismic hazard have been used to justify the need for the tunnel based on the claim of potential damage to or failure of Delta levees from earthquakes that would compromise the quality and reliability of the SWP. The DEIS mitigations should require the future field investigation of the West Tracy Fault at the very least, and potentially the Midland Fault, prior to Corps authorization of the necessary Corps permits.

The DEIS and DEIR conclude that with design and engineering that meet standards, seismic impacts on the tunnel project itself are not significant. If proper design and engineering that meet standards – as well as comparable funding - are applied to the Delta levees themselves over a period comparable to the projected tunnel construction of thirteen years, the risk of levee failure would appear equally insignificant. The EIS no-action alternative should include this consideration in its analysis.

See also our comments above on Chapter 3.9, Flood Protection.

## Chapter 3.14: Land Use

**The DEIS, in relying on the DEIR land use thresholds of significance, repeats the errors of the DEIR.**

The DEIR land use analysis makes numerous incorrect assumptions and uses inappropriate standards for assessing significance of impact as outlined below. In addition, the Commission notes that many land use compatibility impacts, that are governed by local general plans, ordinances, and other locally adopted regulatory plans, are categorized as impacts falling under other issue areas, such as agriculture, noise, transportation and traffic, visual resources and so on.

This is important from the perspective of the project's consistency with the Delta Plan policy DP P2 (Respect Local Land Use when Siting Water or Flood Facilities or Restoring Habitats). As noted in comments the Delta Stewardship Council provided on the DEIR, this policy:

> ***…****requires water management facilities, ecosystem restoration projects, and flood management infrastructure to be sited to avoid or reduce conflicts with existing uses or those uses described or depicted in city and county general plans for their jurisdictions or spheres of influence when feasible, considering comments from local agencies and the Delta Protection Commission.*
>
> *DP P2 is independent of other state law related to local land use authority and the requirements of CEQA. DP P2 requirements extend beyond CEQA requirements and thresholds of significance. While DWR is not required to analyze or provide mitigation measures for impacts beyond those required by CEQA in the DEIR, the certification of consistency for DP P2 will need be supported by substantial evidence in the record. We recommend that where possible, the FEIR include documentation describing how conflicts with uses under DP P2 will be avoided or reduced, when feasible, considering comments from local agencies and the Delta Protection Commission. Such information may be helpful in the record to support a future certification of consistency. [emphasis added] (Delta Stewardship Council letter dated December 16, 2022.)*

We believe that artificially limiting the land use impact thresholds and scope and further, determining them to be less than significant, creates an overall illusion that the project could be found consistent with policy DP P2.

**The Land Use analysis makes incorrect assumptions about the significance of impacts in a rural setting.**

Key elements of the Commission's and counties' land use approach are: 1) to preserve the rural lands for agriculture and agricultural-related businesses, 2) allow for rural, visitor-serving

venues such as wineries and event facilities, marinas, and resorts in optimal locations for fishing, pleasure travel and water sports to support recreation, and 3) protect and enhance the legacy communities as retail and residential centers to support agriculture and tourism. The proposed tunnel is incompatible with this fundamental strategy, both during the 13-year construction period and during project operation. Not all Delta communities will be affected in the same way by the project, or perhaps with the same intensity, but all will be affected.

For example, construction of intake facilities on the Sacramento River would result in adverse impacts on the communities along State Route 160 including Hood, Clarksburg, and Courtland. Hood would be permanently adversely affected by construction of the intakes. In San Joaquin County, launch shafts, tunnel material handling, and maintenance and retrieval shafts will convert farmland and disrupt marinas and recreational boating. Contra Costa county communities such as Discovery Bay would suffer major recreation impacts. In Solano County, the economic and cultural impact of required project mitigations from agricultural lands being converted to restoration projects are a major concern, as are water quality impacts on municipal wells for Rio Vista and agricultural users in the Cache Slough region.

Construction and operation of the Twin Cities and Lower Roberts Island Complexes and the two concrete batch plants would also alter and adversely affect the current and designated land uses, as well as neighboring areas and the Stone Lakes National Wildlife Refuge. Much of the road construction and widening, bridge modifications and interchange improvements occur within the primary zone, in direct conflict with the most fundamental principles of the land use approach of the Delta Protection Act and the Commission's Land Use and Resource Management Plan (LURMP). After project construction is completed, pressure will grow for non-farm development at areas adjoining sites that cannot be returned to agriculture.

The proposed project will result in significant changes in land use, mainly conversion of land at the following principal facility locations:

1. Tunnel intakes
2. Twin Cities and Lower Roberts Island Double Launch Shaft Complexes and Lambert Road Concrete Batch Plants
3. Maintenance shafts
4. New or improved access roads

Construction of the tunnel intakes will also create significant noise impacts incompatible with the commercial, residential, and community park uses of Hood and nearby communities.

**The project is not consistent with the stated goal of the Commission's Land Use and Resource Management Plan agriculture policies.**

The stated goal of the Commission's LURMP agriculture policies is to "support long-term viability of agriculture and to discourage inappropriate development of agricultural lands." (LURMP, 2010.) Agriculture impacts are discussed in more detail above under Chapter 3.2 (Agriculture). However, the DEIR and DEIS both fail to adequately analyze land use compatibility with LURMP policy or detail for how incompatibilities would be mitigated consistent with the LURMP and Delta Plan.

For example, both plans, as well as all general plans in the Delta, require the establishment of buffer areas between projects and adjacent agricultural land sufficient to protect and maintain land capability and agricultural operation flexibility. Many project features will be located on or adjacent to agricultural land, yet buffer areas that would protect adjacent agricultural land are not evident in the project design, environmental commitments and best management practices, or in the proposed mitigation measures. The EIS must include specific details about the acreage affected and how buffers and other mitigation will be implemented.

**The Land Use analysis incorrectly dismisses the project's potential to divide communities.** The DEIR cannot help but acknowledge that construction of the conveyance project facilities will permanently convert land uses from residential, agricultural, commercial, recreational open space and other uses. However, it dismissively concludes that the project will not divide communities simply because, for example, "residential structures that would be removed are in areas of scattered residences in agricultural areas." This demonstrates a lack of understanding about what rural agricultural communities are, and a lack of recognition of what the Delta as a Place is. As noted in our comments on Chapters 18 and 19, the Delta itself is a community, a collection of existing and historical communities linked by its waterways and scenic highways, and united by both common and unique features of significance. In a rural landscape, land use changes on the scale of the proposed project are more noticeable and more significant because they are not lost in surrounding urbanization, but instead stand out starkly on the landscape.

## Chapter 3.15: Noise

**Thresholds of significance.** The thresholds of significance for construction noise are inconsistent with established local and national standards and underestimate the harm of construction related noise. They should be revised.

The proposed thresholds are less protective than the standards of affected local governments' general plans and ordinances. For example, San Joaquin and Sacramento counties' noise ordinance limits noise from stationary sources to 50 (Leq, dB) in daytime and 45 (Leq dB) at night, rather than the 60 dbA on an hourly Leq during daytime and 50 (Leq dBA) at night proposed on page 3.15-3. The counties' standards also omit the additional criteria proposed on page 3.15-3 that noise must also increase by 5 dB relative to existing daytime noise to exceed the ordinance's standards. County's general plan limits noise to 50 dBA L50 in daytime and 45 dBA L50 at night. Local government ordinances and general plans reflect local land use, residents' expectations, and other local conditions. Noise that exceeds these levels can disrupt existing land uses and residents' activities. The DEIS' thresholds of significance should be revised in coordination with Delta local governments.

Where local standards are unavailable, or where there are special uses, such as parks, nature areas, recreation sites, schools, libraries, churches, or other especially sensitive uses, the federal guidelines in Table 2 below should be considered. Increased noise that exceeds any of these standards should be considered significant.

**Table 2 – EPA Recommended Identified Levels of Environmental Noise In Defined Areas**

| | |
|---|---|
| **Ldn < 55 dB** | Outdoor activity interference and annoyance |
| **Leq (24) < 55 dB** | Outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use. |
| **Ldn < 55 dB** | Outdoor areas where people spend limited amounts of time, such as schoolyards, playgrounds, etc. Indoor activity interference and annoyance |
| **Leq(24) < 45 dB** | Indoor residential areas. Other indoor areas with human activities such as schools, etc. |
| **Leq (24) $\leq$ 45 dB** | Other outdoor areas with human activities such as schools |

*Source: U.S. EPA, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Section 4, Identified Levels of Environmental Noise In Defined Areas. March 1974. Leq(24) = the sound energy averaged over a 24-hour period. Ldn = the Leq with a 10 dB nighttime penalty*

Noise consistent with the DEIR's thresholds would impair community life in affected Delta communities and recreation sites. Noise at the DEIR's thresholds could result in noise twice as loud as current ambient levels.

Instead, thresholds of significance used to assess noise impacts should reflect the Delta's existing conditions and the land use in areas where noise effects would occur. One threshold could be noise that exceeds the background sound level by at least five (5) dBA during daytime or nighttime hours, as proposed. Noise standards of applicable local government general plans and ordinances should provide another set of thresholds, as these reflect local land use, residents' expectations, and other local conditions. Where local standards are unavailable, or where there are special uses, such as parks, nature areas, recreation sites, schools, libraries, churches, or other especially sensitive uses, the US EPA guidelines should be considered. Increased noise from the project that exceeds any of the local or US EPA standards should be considered significant.

**Ambient noise.** Relying on the measurements of ambient noise in San Joaquin and Alameda counties reported in the DEIR's Tables 24-3 (page 24-14) and 24-4 (page 24-15) is insufficient. None measure ambient noise along the preferred route or near the footprint of the preferred project alternative, such as near the Lower Roberts Island Double Launch/Reception shaft, the proposed haul route on Lower Roberts Island, or the Bethany complex. This additional information is essential to determine whether project-related noise exceeds the DEIS's proposed threshold of significance – an increase in noise exceeding 5 dB relative to existing noise levels. Additional monitoring at these additional sites should be conducted and reported in the Final EIR.

**Noise impacts of the project.** Impacts reported in Section 3.15.2.2 should be revised to reflect the standards of significance suggested above. Judged against the EPA guidelines cited above, significant impacts would be much greater. Areas that will suffer noise in excess of applicable thresholds should be mapped. In addition to reporting and mapping affected residences, noise impacts to Hood Community Park should be noted, as it is used by many local families, as should impacts to noise sensitive businesses, such as the Hood Station café and the Willow Ballroom wedding venue. The narrative should also acknowledge that excessive noise will also impact recreation uses at the Stone Lakes National Wildlife Refuge, Cosumnes River Preserve, the Rivers End and Lazy M marinas, and the Sacramento and San Joaquin Rivers, impairing recreation there.

Work windows for impact pile driving should minimize excessive noise on weekends and afterschool hours. Nearby residents and Hood's children deserve as careful consideration as the fish for which wildlife and fish agencies expect to limit work periods.

**Verify mitigation measures.** It is unclear whether the insulation program proposed will adequately reduce noise levels. Outdoor noise levels will be unaffected by the insulation program. Rather, residents of Hood and other affected areas will find construction-related noise a near-constant annoyance over countless years, interfering with routine outdoor activities. Relations between family members and neighbors visiting in the close-knit community's yards will be disrupted if residents relocate.

Affected residents, business operators, and homeowners should be consulted about the acceptability of the proposed sound insulation program. The mitigation program should be expanded to include noise-sensitive businesses and institutional uses, such as Hood's post office. Special care should be made to consult with renters, who comprise most of Hood's residents. Under California law, tenants are entitled to the quiet enjoyment of their property, which landlords may not impair. For some residents, the sound insulation program may be just one more disruption added to other impacts of the project's construction. Even if the insulation program is widely accepted, it would still leave residents cooped up within their homes for several years to avoid damaging noise – an unwelcome echo of the past few years' COVID experience.

It is unclear why wall insulation is excluded from the program, which offers only improved window and doors. We note that Los Angeles residents were offered wall insulation under the LAX Master Plan. Delta residents who would want wall insulation should have this option readily available. To minimize noise disruption of residents and businesses, criteria for participation should be generous. LAX's program was delivered in partnership with well-recognized community organizations, which facilitated its acceptance. DWR should seek out similar opportunities.

Any sound barriers should be removed at the end of construction unless residents want them retained. Local agencies, community members, and affected residents and businesses should be involved in developing noise mitigation plans. At a minimum, these measures must comply with the Delta Plan's Mitigation, Monitoring and Reporting Program Measures 15 1-3.

## Chapter 3.16: Recreation

The sole reference cited for the Recreation chapter in the DEIS Appendix A is the DEIR. The same concerns raised regarding adequacy of the recreation analysis therefore extend to the DEIS, chiefly that the conduct of the research and data collection for the second largest sector of the Delta economy is insufficient to properly identify impacts.

**CEQA thresholds of significance are inappropriately narrow and are not appropriate for use in a NEPA document.**

DEIS Section 3.16.2.1 (page 3.16-1) describes the "Methods for Analysis," essentially repeating the methods used in the DEIR that were inadequate to determine baseline use. Contrary to what DEIR Section 16.3.2 states, the two listed thresholds of significance do not "build upon the CEQA Guidelines Environmental Checklist criteria," but simply stop at the two basic recommended questions, which are expressly a starting point, not comprehensive, as the Guidelines clearly state.

> *The sample questions in this form are intended to encourage thoughtful assessment of impacts and do not necessarily represent thresholds of significance. [Appendix G, page 341, 2023 CEQA Statute and Guidelines. Association of Environmental Professionals.]*

**Limiting surveys of recreational locations and access points and limited inadequate to provide a proper baseline.**

During meetings in 2020 and 2021, Commission staff repeatedly encouraged DWR's Delta Conveyance Office and consultants to conduct surveys at key recreation locations such as marinas and boat ramps. Specific simple, non-contact observational survey techniques used on a multi-state Natural Resource Damage Assessment were recommended to allow data to be gathered safely despite the pandemic conditions. Contact information for the survey designer was provided. However, despite ample time to conduct almost a full year of surveys, only two days field reconnaissance of a handful of project sites were completed, in February 2021. (DEIR, pp. 16A.2-6-20.) Limiting surveys of chosen recreational locations and access points to two days is inadequate to provide a proper baseline. As with cultural resource surveys, this brief effort during winter does not accurately reflect activity levels and types at recreational access locations. Recreational activities vary seasonally and even daily based on weather conditions

and other considerations. The known recreational locations that would be impacted by the project should have been properly evaluated over a longer period.

**The DEIR and DEIS analyses of the Delta's second-largest economic driver fail to utilize available data sources and experts.**

The recreation economy in the Delta is second only to the agricultural economy, yet the analysis failed to consult with the extensive pool of local tour operators, marinas and other expert sources regarding recreational uses in the Delta, specifically in the vicinity of impact.

A cursory effort was made to interview a handful of representatives of parks and recreation, law enforcement and one private marina on "existing recreation use patterns and management" of a representative individual location in each of the affected counties (Yolo, Sacramento, San Joaquin and Contra Costa). The DEIR Appendix 16A contains documentation of an attempt at a solid survey of recreation facilities in the path of the preferred project that was begun in February 2021 but inexplicably abandoned. Some of the interviews included recommended sources for additional information, such as the State Parks Chief Ranger recommendation to speak with the Brannan Island SRA concessionaire, that apparently was not followed up on.

Furthermore, based on follow-up investigation, it appears that those interviewed were not provided detailed information about the proposed facilities and construction in the area nor asked for their input about possible effects or potential ways to mitigate impacts based on specific knowledge of the potential impacts.

In addition, none of the data that the Commission developed from interviews with focus groups for the 2020 recreation update to the ESP appears to have been used in the DEIR's analysis of impacts. The minimal effort to characterize the recreation baseline was inadequate to properly analyze the project's environmental impacts.

**The DEIR and DEIS fail to identify project conflicts with recreational goals of the Commission's ESP.**

Among the Commission's ESP recreation enhancement goals is to promote recreation destinations as focal points in the Delta and highlight Delta values by showcasing Legacy Communities including Locke, Walnut Grove, Ryde, Courtland, and Hood. Each of these communities would be severely impacted by the tunnel project. As discussed in the Land Use

and Aesthetics and Visual Resources sections above, the construction, muck piles, and permanent infrastructure would not only create aesthetic and recreational impacts, but also confound achievement of the ESP economic strategies.

The Appendix list of references contains errors and omissions that could have been corrected in the DEIS – or even in the DEIR – but were not. Documents referenced in draft form were completed or nearly complete during the time the DEIR and DEIS were being prepared. These include the Delta Protection Commission's Economic Sustainability Plan for the Sacramento-San Joaquin Delta (ESP), Recreation and Tourism Chapter 2020 Update (adopted January 2021), The Great Delta Trail Master Plan (public draft November 2021, adopted January 2022). It appears that important final documents such as the ESP Recreation and Tourism Chapter 2020 update were reviewed and data referenced in some sections, but not others.

Authors of the report Recreation and Tourism in the Delta, a Study of Preferences for Activities and Facilities, Information Sources, and Economic Contributions of Delta Events (Delta Protection Commission, 2019) are incorrect; the correct authors are Dr. Amy Mickel, Dr. Stanley Taylor, Dr. David Rolloff, and Dr. Gregory Shaw, California State University, Sacramento.

See also our comments on Socioeconomics (Section 3.17) below.

## Chapter 17: Socioeconomics

**The conclusions of the DEIS regarding changes in agricultural and recreational economics are unsupported by the data presented.**

The data presented in this section are incomplete in part because the impacts on both the Agriculture (Chapter 3.2) and Recreation (Chapter 3.16) resource topics are inappropriately constrained, as discussed elsewhere. Impacts to agriculture are understated because the section only addresses loss of agricultural lands to project construction, whereas the project and other DWR projects as described above in Table 1 (Agriculture, Chapter 3.2) will or already have necessitated conversion of lands for restoration purposes. In addition, changes in crop prices are unaccounted for, and with climate change and other influences such as land values likely to increase, it is unclear what the conclusion of no significant impact is based upon.

An additional failure of the recreation economics analysis results from the flawed thresholds in establishment of impact. There is no analysis of the potential for failure of businesses such as marinas which depend on residents and visitors being able to reach their desired destinations,

usually favorite spots that they have enjoyed for years. As documented in the ESP Recreation and Tourism 2020 update, the business owners focus group indicated that even in the face of the pandemic, they had plans for incremental expansion. Although the ESP noted the slow recovery of the Delta recreation economy from the effects of the 2008 recession, there are indications that businesses are working to expand and grow, especially with the advent of the National Heritage Area designation in 2019. In discussions of the potential effects of the tunnel project by the Commission's Delta Protection Advisory Committee (DPAC) in September and November 2022 and February 2023, DPAC members expressed concern that where construction traffic and detours prevented or even slowed in-Delta or out of Delta boaters and other recreators, over the projected 12 to 14-year construction period they would abandon hard-to-reach destinations for different locations, potentially even outside the Delta.

The EIS should include improved analysis of these and other unanticipated socioeconomic effects on recreation, agriculture and livability conditions in communities resulting from construction, operations, and maintenance of the project.

## Chapter 19: Transportation

**The DEIS transportation analysis fails to properly consider the disruptive impact of traffic on rural, already impacted Delta roadways.**

The DEIS conclusions that the project would not result in unacceptable roadway and intersection level of service (LOS) conditions and create conflicts and hazard from incompatible uses such as farm equipment are simply wrong. This analysis is possibly the most reliant on successful mitigation in the entire document, depending on preparation of Transportation Demand Management Plans. The problems with roadways and traffic in the Delta are chronic and well-documented. Three Caltrans Districts converge in the Delta, Districts 3 (generally Yolo and Sacramento Counties), 10 (generally, San Joaquin County) and 4 (generally Contra Costa and Solano Counties). Traffic Demand Management Plans by Caltrans and extensive planning efforts by the respective County Associations of Governments have not been successful at preventing the unacceptable LOS and hazardous conditions along SR 4, 12, 160 and 84.

Among the most damaging impacts will be the extensive construction associated with the intakes along the Sacramento River and SR 160. Construction would require relocating the Corps levee and SR 160 prior to building the intake structure and fish screens. The levee was constructed as part of the Corps' Sacramento River Flood Control Project Levee program.

According to the project description, conformance with flood control criteria must be maintained continuously during construction. This would require a temporary jurisdictional levee to be built at the intake sites east of the existing levee to reroute SR 160 and maintain continuous flood protection during construction of the new intake facilities.

The impacts this construction alone will have on the community of Hood and surrounding communities during the 12 to 14-year construction period is significant with mitigation and the EIS should reflect that.

**The DEIS should ensure that local jurisdictions do not bear the burden of failing required transportation standards.**

According to the Office of Planning and Research's (OPR) Technical Advisory on Evaluating Transportation Impacts, a proposed project exceeding a level of 15 percent below existing regional Vehicle Miles Travelled (VMT) per employee may indicate a significant transportation impact. The DEIS should account for the fact local jurisdictions must meet the 15 percent reduction as the significance threshold for VMT and the project impacts must not add to the burden on local jurisdictions meeting state requirements.

While the proposed project includes improvements to various roads and bridges as well as new transportation facilities, the cost and responsibility for on-going maintenance and operation of these new facilities should be assessed in the DEIS.

# Appendix A to Delta Protection Commission Detailed Comments Attachment 1 DRAFT SURVEY OF CULTURAL RESOURCES OF THE SACRAMENTO-SAN JOAQUIN DELTA IN THE DELTA CONVEYANCE PROJECT AREA

Prepared by the Delta Protection Commission

# Table of Contents

1.0 Introduction and Purpose ..... 1
2.0 Cultural Significance of the Sacramento-San Joaquin Delta Landscape ..... 1
2.1 A Significant Cultural Landscape ..... 2
2.2 The Delta Landscape as Context ..... 4
3.0 Approach to Identifying Cultural Resources Potentially Affected by Delta Conveyance Project ..... 4
4.0 Delta Rivers, Sloughs, Marshes, and Riverside Woodlands ..... 5
5.0 Islands, Tracts, and Drainage and Flood Control Works ..... 9
5.1 Levees – Labor, Equity, Technology, and Innovation ..... 9
5.2 Islands and Tracts – Reshaping the Delta ..... 14
6.0 Orchards, Vineyards, and Farms ..... 17
6.1 Formation of California Delta Farming Culture ..... 18
6.2 Lasting Legacy - Orchards ..... 19
6.3 Delta Powerhouse - Vineyards ..... 20
6.4 The Foundations - Farms ..... 21
7.0 Delta People –Heritage, History, and Settlements ..... 24
8.0 Water Management ..... 36
References: ..... 39

# DRAFT SURVEY OF CULTURAL RESOURCES OF THE SACRAMENTO-SAN JOAQUIN DELTA IN THE DELTA CONVEYANCE PROJECT AREA

## 1.0 Introduction and Purpose

This report is a preliminary reconnaissance-level survey of cultural resources for the U.S. Army Corps of Engineers (Corps) review of the Department of Water Resources (DWR) Delta Conveyance Project (DCP). It has been prepared as background for assessing the impacts of the DCP as part of the Delta Protection Commission (Commission) comments on the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) reviews of the project. The research also informs the Commission's ongoing participation in the National Historic Preservation Act (NHPA) Section 106 review by the Corps.

The primary purpose is to inform potential impact assessment, protection, and further investigation of cultural resources as appropriate under CEQA, NEPA, and the NHPA Section 106. As a result, the survey focuses on historic and cultural resources at or near areas along the DWR preferred alignment, rather than more distant parts of the Delta. The report draws on previous Commission publications such as the *Delta Narratives* and other published resources. It is not intended to be definitive, but suggests a starting point for DWR, the permitting agencies, and interested parties to build and improve on during the permitting process.

The Delta's historic resources are significant assets. They contribute to the Delta's special character and cultural depth. Some contain information that can provide unique insights into its past, help answer broad questions about history and prehistory, and perhaps suggest ways to address the Delta's challenges in the future. In more practical terms, they reward residents, attract visitors; and continue to support important sectors of the Delta economy. Further study is needed to evaluate these resources, assess the integrity of historic properties, identify historic districts' boundaries, and determine their eligibility for the National Register of Historic Places (NRHP).

## 2.0 Cultural Significance of the Sacramento-San Joaquin Delta Landscape

In designating the Sacramento-San Joaquin Delta (Delta) as a National Heritage Area (NHA), Congress concluded that the area's historic, cultural, and natural resources combine to form a cohesive, nationally important landscape. In its testimony endorsing the NHA designation, the National Park Service (NPS) associate director for cultural resources called the Delta "a hidden

gem located at a key geographic and historic crossroads of our country. It is a land of ethnic diversity, innovation, industry, enduring history, and fragile and robust physical features". Our examination of the Delta's cultural significance shows it to exemplify the American experience, founded in nature's bounty and its multicultural immigrants' pursuit of the American dream. The Delta's natural and built environment provides a unique, complex and multi-layered view of California's transformation over the past three centuries.

These cultural values will need to be protected from adverse effects if the proposed DCP is constructed. The Delta's features deserve careful documentation and assessment, consistent with the Secretary of the Interior's *Guidelines for Treatment of Cultural Landscapes* and its *Guidelines for Treatment of Rural Historic Landscapes,* and proper consideration pursuant to the NHPA and other statutes.

## 2.1 A Significant Cultural Landscape

The Delta's cultural resources represent far more than a simple list of historic buildings and archaeological sites, but rather inhabit hundreds of thousands of acres of river channels, sloughs, remnant marshes and riverside woodlands, islands and tracts, flood control and drainage works, orchards, vineyards, and other farms, historic villages of native California Indians and immigrants from around the world, waterside landings, scenic drives, developed and undeveloped recreation areas, and other significant features. The modern Delta is a human-created landscape, a new landscape, a transformation of the land. It has evolved through its use by many peoples – native California Indians, Mexican-era pioneers, 19th century immigrants from Europe and Asia, as well as emigrants from other parts of the country, family farmers, agricultural entrepreneurs, farm workers from the Pacific and Latin America, inventive engineers, and more recent residents and visitors drawn by its landscape, quiet, relaxation, and free spiritedness. These generations' pursuit of homes, sustenance, and reward for their labor and innovation transformed the Delta from a vast and complex wetland to today's region of agriculture, recreation, and history.

As defined by the NPS, a cultural landscape is a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or that exhibits other cultural or aesthetic values. The Delta is a landscape that has evolved through use by the people whose activities or occupancy shaped that landscape, which the NPS calls a "historic vernacular landscape." Example descriptions provided by the NPS match those of the Delta areas affected by the DCP including rural villages, agricultural landscapes such as farms and ranches, landscapes with a total absence of buildings, and landscapes with linear resources such as transportation systems like the Sacramento River or the River Road. A district of historic farms along a river may be an example of a significant cultural landscape. Scenic highways are also potential examples.

In many ways, the Delta is a collection of historic districts of vast scale, linked by its waterways and scenic highways, replete with significant features related to exploration, maritime history, engineering, commerce, conservation, invention, government, and transportation. For Native

California Indians, the Delta is a sacred landscape – their home and the heart of their cultures. It's significance also extends to both a national historic context, as an example of national land and water management from the 1850s through the 1950s, and a state historic context as an example of California's exploration, settlement, agricultural development, and ethnic diversity during that period.

The Delta is the largest, most diverse, and best protected of the California regions located on reclaimed tidelands. At San Francisco Bay, most reclaimed lands have either been urbanized or are being repurposed into wildlife and fish habitat. Humboldt County's reclaimed farmland in the Eel River Delta and around Humboldt Bay is smaller and lacks the diversity of both crops and ethnic settlements found in the Delta. Other reclaimed farmlands at minor estuaries on other coastal areas are much smaller than the Delta and lack its distinct culture.

The Delta's early 20th-century landscape is largely intact, with only scattered more recent development. It is, a recent New York Times travelogue observed, "70 years and 70 miles from San Francisco." Its levees and drainage works recall the region's post-Gold Rush reclamation and the efforts of the California Debris Commission, an early landmark in national flood control. The Delta's orchards today occupy much the same lands as they did 75 years ago, and many crops that made the Delta a 19th and 20th century agricultural hotspot are still grown. Its multi-generational farms often operate from century-old farmsteads. The packing sheds and remnant wharves along the rivers and sloughs were developed to transport these farms' products to market. The legacy communities, from Freeport to Isleton, several of which are listed national and state historic districts or contain listed historic buildings, sprang up to serve the region's commerce. They became home to Asian, European, and Mexican immigrants drawn to work in Delta farms and agricultural businesses. Asian New Year celebrations, Portuguese *festas*, Juneteenth commemorations, and other ethnic festivals, as well as Courtland's Pear Fair and other celebrations of agriculture, demonstrate these cultures' continuing vitality. Railroads and later auto routes, with their assortment of historic swing and lift bridges, extended into the region with the advance of trains, cars, and trucks, bringing anglers, boaters, and other recreationists.

The resulting Delta landscape observed fabled landscape architect Frederick Law Olmsted, Jr. in his 1928 report to California's State Park Commission, "commanded delightful views of the river and its margins and of miles of beautiful orchards and farming lands outside of and below the levees…. Along the course of this great system of waterways, levees, and roads there are numerous delightful spots…and the route as a whole is in effect, even at present, a river parkway on a vast scale, of great landscape beauty, and enjoyed by thousands of people." And indeed, today State Route 160 and Sacramento County's River Road are designated State Scenic Highways. Other local routes and corridors have been similarly recognized by Sacramento, San Joaquin, and Contra Costa counties.

The Delta landscape has inspired the artistic imagination, including great American writers from Bret Harte, John Muir, and Jack London to Earl Stanley Gardner, Joan Didion, Maxine Hong Kingston, and Maya Angelou. Well-known local authors include Richard Dillon, Hal Schell, Bob

Waters, Roger Minick, James Motlow, and Jeff Gillick. Renowned artists have depicted its scenery, including John Ross Key, William Marple, Gregory Kondos, Ning Hou, Marty Stanley, and Wayne Thiebaud.

## 2.2 The Delta Landscape as Context

The cultural landscape described above provides important context for individual buildings or historic districts there that have been listed on the National Register of Historic Sites or recognized as eligible for listing. Degrading this surrounding landscape would diminish the integrity of specific sites, districts, or landmarks. For example, the orchards and farms surrounding the Locke National Historic Landmark were the sites where many of Locke's Chinese residents worked, including lands owned by George Locke, the community's proprietor, and provided much of the products packed in Locke's packing shed. The value of the Alma, the national historic landmark schooner in the San Francisco Marine National Historic Park, is enhanced by the Delta sloughs that it was built to sail. Damage to significant parts of this cultural landscape can reduce the value of both individual properties and the larger area, impairing their integrity, their ability to inform residents and visitors about the region's history and culture, and Americans' appreciation of the Delta.

The Delta landscape retains a high degree of integrity in comparison to other areas of reclaimed tidelands in California. Once-similar areas bordering San Francisco and San Pedro Bays have been restored to wetland or urbanized. In Suisun Marsh, marshes originally reclaimed for farming are now managed as private hunt clubs. Reclaimed tidelands in Humboldt Bay and the Eel River Delta lack the diverse agriculture and communities that characterize the Delta. Other reclaimed coastal tidelands are typically small, often with either extensive urbanization or ongoing wetland restoration programs.

# 3.0 Approach to Identifying Cultural Resources Potentially Affected by Delta Conveyance Project

This report surveys culturally significant places, structures, and significant features, such as reclamation works and crops, that shaped and defined the character of the Delta landscape. The cultural resources listed below are potentially affected by the construction of a DCP using the diversion points and preferred tunnel alignment described in the project's Draft Environmental Impact Report (DEIR) and the corresponding Draft Environmental Impact Statement (DEIS). In addition, we have reviewed more detailed information about the potential features of those facilities presented in materials distributed by the Delta Conveyance and Design Authority at meetings of its Stakeholder Engagement Committee. We have also relied on information from the Bay-Delta Conservation Plan (BDCP) EIR about construction impacts, such as visual blight, land use changes, noise, and traffic. These may ultimately vary from those analyzed in the BDCP EIR if new measures to mitigate these impacts are incorporated into the project. Other resources that we have not included could be affected, should DWR choose to select other points of diversion or an alternative central alignment for its tunnel.

To describe these cultural resources, we have divided the narrative that follows into sections that correspond to the five themes of the Sacramento-San Joaquin Delta National Heritage Area Feasibility Study. Each section begins with an explanation of the historical context and significance of the cultural resources the section describes. Brief accounts of individual resources follow. The cultural resources described were identified by reviewing the references listed at the end of this survey. Peer review was provided both by academic experts on the Delta's history and landscape and by Delta residents.

This is an initial reconnaissance of key regional cultural resources that the project may affect. But further research, investigation, and documentation of affected resources, informed by more detailed information about the proposed project and its impacts, is needed. This is not a job for only landscape historians, architects, and other experts, but rather each step in the investigation and evaluation of these resources should involve residents familiar with the area's history and culture. Because these interviews may reveal further unnoticed cultural resources that should be protected, they should not be delayed or rely on the assumption that residents will make public comments but should proceed simultaneously with professional research and field investigation, in an iterative fashion.

References are listed at the end of this survey report. Some of the text in this survey was imported from these sources with only minimal editing.

## 4.0 Delta Rivers, Sloughs, Marshes, and Riverside Woodlands

The cultural resources of the Delta begin with its more than 1,000 miles of rivers and sloughs and the remnants of its primordial landscape of marshes and streamside woodlands. These features, together with settlements of native California Indians, defined the character of the pre-Gold Rush Delta.

The unique Delta landscape of sloughs and river channels, meandering through its horizontal plane, backed by Mount Diablo on the western horizon, is unrivaled. Investigations of the Delta's historic ecology confirm that the location of these physical features is little changed from before the Delta's settlement. The waterways pulse twice daily in response to tides flooding in from San Francisco Bay and seasonally, as snowmelt and rains pour into Delta tributaries from the Sierra Nevada and Coast Range. Tidal rivers, sloughs, and the former wetlands set the Delta apart from the surrounding uplands and foothills, underpinning the region's history of reclamation, settlement, farming, and water management.

Before the Gold Rush, this natural landscape provided a haven for native California Indians' settlements and then routes of exploration and colonization under Spanish and Mexican governments. During the Gold Rush, the rivers were travelled on journeys toward the Mother Lode mines from San Francisco. Later, they provided navigation routes to carry produce to markets. The *Alma*, an 1891 scow schooner and national historic landmark in the collection of the San Francisco Maritime National Historic Park, is the last of the flat-bottomed boats that sailed the Delta to riverside farms and communities. Some of the finest steamboats in America

plied Delta waters, including the Delta King, a National Register property now moored at Old Sacramento State Historic Park. Landings for these boats provided the origin for the Delta's historic legacy communities.

In addition, these waterways are migratory channels for commercially valuable anadromous fish and opportunities for recreation. Fishing, game bird hunting, speed boating, and family outings aboard houseboats became popular on these channels in the 1920s as motors replaced oars and sails. These relaxing pastimes remain popular today, providing hundreds of thousands of visitor recreation days annually.

Twice daily tides pulsing in and out from San Francisco Bay characterize the natural Delta. Summer evenings bring the cooling "Delta breeze" drawn inland from the coast. In winter, atmospheric rivers storm in from the Pacific, carrying drenching rain. In spring, floods of rain and snowmelt drains from the Sierra watershed. When rain and snow do not fall, runoff diminishes, and summer droughts sear the uplands. These annual patterns trigger the migrations of salmon, steelhead, and sturgeon. Waterfowl, cranes, and migratory birds of the Pacific Flyway arrive each autumn and depart in spring, while year-round resident songbirds and raptors shelter in riverside woodlands and shorebirds stalk prey in the shallows and from the docks of marinas.

Much of the Delta story is about how this natural bounty was transformed through reclamation and water management to create opportunities for agriculture and settlement. The rivers' periodic floods deposited fertile alluvial soils but also limited development and necessitated construction of the region's flood control facilities. The Delta's current condition reflects each successive era's judgments about how best to live with and utilize the waterways. Today's remaining natural areas are only remnants of the once extensive native habitats, but still reward visitors with skies filled with waterfowl and cranes calling in flight, runs of salmon and sturgeon beckoning anglers, or quiet evenings beneath starry skies. In recent decades, in response to changing attitudes about the natural environment, attempts to protect and even restore the Delta's wildlife and fish and their habitats have been prioritized at conservation sites such as Stone Lakes National Wildlife Refuge or the Cosumnes River Preserve. Aerial photos of the Delta's winding channels are signature images in agency publications, websites, and other media, including those of the DCP's sponsors. Understanding these waterways is important both to protecting their cultural value and avoiding damage to other historic features linked to them.

Key features of the cultural landscape in the project area include:

- Sacramento River. The broad river was a route for historic exploration and transportation. It was first reconnoitered by Spanish military expeditions, explored by fur traders, and traveled by John Sutter to establish and sustain Sutter's Fort. Sutter traveled in the schooner *Isabella,* a yacht that once belonged to Hawaiian King Kamehameha, a small pinnace, and a schooner acquired from the Russians at Fort Ross, which he renamed the *Sacramento*. During the Gold Rush, side-wheel steamboats, barges, and sailing craft carried miners and the tools they required as they journeyed toward the gold fields, as well as

staples and dry goods, from San Francisco to Sacramento and Stockton. Wood cut from riverside forests fueled the steamboats' boilers. In the 1860s, construction supplies for the transcontinental railroad, and then locomotives to run on it were important cargoes. As farms became established in the north Delta, the Sacramento River became an important route for transporting their produce to San Francisco.

For the 19th century river pilots, merchants sending freight, and passengers going both directions, the Sacramento was a floating hazard through which to pass, not a comfortable place to stop or to make a living. Even with better maps and nautical charts, the river claimed boats that hit snags and obstacles in the murky waters. To aid navigation, the Corps began removing snags from the river in 1875. The river remained an important transportation route until the 1920s, when autos and improved roads took over most transportation.

The Sacramento River's runs of anadromous fish were important foods for native California Indians. Sutter caught and preserved its salmon to feed his workers and export to Hawaii. Later, as early as 1864 and then continuously from the mid-1870s to 1616, riverside canneries, including a former national historic landmark in West Sacramento, supplied markets across the nation for decades. With the advent of small marine motors, recreational boaters began fishing for salmon, sturgeon, striped bass, and steelhead.

Today, the remnants of old wharves and landings, sometimes only thickets of pilings, an occasional excursion boat, and the Delta's heavy recreational boating traffic provide echoes of the Sacramento River's historic role. In Sacramento, the historic *Delta King* riverboat is preserved as a dockside restaurant and hotel. Vistas of the meandering river from State Route 160 and the River Road, designated Scenic Highways, offer pleasant views to residents and visitors.

- Snodgrass Slough. This channel between Pierson District and Glanville Tract, lined with marshes and streamside woodlands, is a remnant of the natural Delta that sustained native California Indians and greeted early settlers. It provided a natural area where residents of Locke and Walnut Grove could fish or hunt for waterfowl. Today, recreational boaters enjoy sportfishing and the anchorage at "The Meadows" amid this natural landscape. Delta Meadows, a California State Park property on the slough, is an example of the riparian habitat prevalent on the Delta's natural levees prior to reclamation.

- Stone Lakes National Wildlife Refuge (NWR). The refuge's marshes, vernal pools, and grasslands are remnants of the landscape that sustained native California Indians and greeted early settlers. The Beach-Stone Lakes Basin was a magnet for wildlife. Elk, pronghorn, and even grizzly bear inhabited the grasslands. During winter storms, the flooded basin could stretch for 10 miles from lower Morrison Creek south to the Mokelumne River, expanding lakes and seasonal wetlands that supported tens of thousands of migratory birds. Although much of the area has been altered for flood control, agriculture, and other development, Stone Lakes NWR was established in 1994 to preserve the open space that remained for wildlife.

- Cosumnes River Preserve. This 50,000-acre area, including the McCormack-Williamson Tract habitat restoration project, includes an 11,500-acre Bureau of Land Management National Natural Landmark. It includes a mix of remnant and restored wetlands, riparian woodlands, and habitat for waterfowl and cranes, mimicking the pre-drainage alluvial fan deposited at the confluence of the Cosumnes and Mokelumne rivers.

- Mokelumne River. The Mokelumne River enters the Delta as a broad alluvial fan that extends from the Cosumnes River Preserve and Grizzly Slough west toward New Hope Landing before turning south towards its confluence with the San Joaquin River. Spanish military explorers descended the river's north fork in 1817 returning from the Sacramento River. Sloughs draining to the Mokelumne River from the east, including Beaver, Hog, Sycamore (formerly called Otter Slough), and White Sloughs retain in-channel islands and remnants of farm landings and are popular with boaters.

- Woodbridge Ecological Reserve. This California Department of Fish and Wildlife property protects sandhill cranes and other waterfowl that greeted early residents of the Delta. The 353-acre reserve and nearby Delta wetlands provide one of the largest freshwater marsh habitats for wintering sandhill cranes and waterfowl in the state.

- San Joaquin River. The San Joaquin River enters the Delta near Mossdale and flows north before turning west near Twitchell Island to its confluence with the Sacramento in Suisun Bay. Its flows are lower than the Sacramento's, in part because of diversions upstream of the Delta. Spanish military expeditions began the river's exploration in the 1770's, followed by fur trappers in the 1830s. By the 1840s, sail boats, beginning with Charles Weber's sailing sloop, the *Maria*, passed periodically between Stockton and San Francisco, followed by steamboats beginning in 1849. Along its banks, camps of Chinese fishermen netted perch, steelhead, salmon, and other fish to salt for sale in the gold mines. To aid navigation, the Corps began removing snags from the river in 1876. To further stimulate maritime trade with Stockton's port, in 1913 the Corps began maintaining a 9-foot channel from Suisun Bay to Stockton, deepening it to 26 feet in 1933 and to 30 feet in 1950. Today the channel is 37 feet deep.

  The San Joaquin River also discharges to the Delta through a series of three shallow distributaries that deposited fertile alluvial soil across the south Delta's islands. Whiskey Slough is a shallow channel that separates Jones Tract from Roberts Island. It was a popular anchorage for houseboats in the past. To the west are the Middle and Old River channels. Much of these channels are lined with emergent freshwater wetlands that recall their pre-reclamation vegetation. Mid-channel islands also provide valuable habitat. Spanish military expeditions, under the command of José Joaquín Moraga, Comandante of Presidio San Francisco, accompanied by friars seeking potential mission sites, ascended the Old River in 1806-1811. Today both Old and Middle River are popular with recreational boaters.

# 5.0 Islands, Tracts, and Drainage and Flood Control Works

Over 1,100 miles of levees and associated drains were constructed to reclaim the Delta's 57 islands and tracts. Construction of the Delta's levees is among the most significant land reclamation projects in U.S. history. They reflect the integrated labor and knowledge of the region's American and Asian immigrants applied to reclamation of native wetlands and sloughs from 1850 through completion of the Sacramento River Flood Control Project in 1957. The pattern of sinuous levees, tracing the banks of rivers and sloughs, and the agricultural fields and drainage works they bound, are a character-defining feature of the Delta, connecting the native landscape through the history of reclamation and settlement to today's geography of agriculture, recreation, and legacy towns.

Building this vast network of levees and drainage channels played a critical role in the development of California's engineering and construction capacity, including the development of ground-breaking construction equipment. The levees along the Sacramento River are elements of the historic federal Sacramento River Flood Control Project, a landmark in national flood control policy. Through hard work and perseverance, Delta residents and landowners reclaimed more than 685 square miles of land, recovering from repeated floods, and improving local levee organizations and their levee maintenance and flood fighting practices. Fortunes won through Delta land reclamation contributed to development of foundational State institutions, including the University of California.

## 5.1 Levees – Labor, Equity, Technology, and Innovation

Today, these levees are not simply historical features, but more importantly critical to the safety of the Delta's residents, farms, businesses, cities, and legacy communities. They define the Delta's physical character, reduce flood risk for approximately 339,000 acres of land in the Delta, and influence the reliability of its water supply infrastructure and the health of its ecosystem. Because many Delta levees protect land that have subsided to elevations below sea level, they hold back water all day, year-round, rather than only during floods, and so are called "the hardest working levees" in America. The key aspects of how the landscape was molded to manage the flood regime are described below.

*Nature's flood management system.* Natural levees of alluvial deposits bordered the Delta's principal rivers but provided little protection from the region's periodic floods. Away from the rivers' banks, extensive tule marshes emerged on peaty tidal lowlands submerged at high tides and floods. Along the Sacramento River, backwater marshes, swamps and lakes also occupied flood basins spreading beyond the river's natural levees to surrounding uplands. Native California Indians adapted to this waterlogged landscape by settling on mounds elevated above the surrounding channels and wetlands.

*Delta reclamation and land use reflect historic federal and State policies.* In 1850, the Arkansas Act, also known as the Swampland Act, granted California and other new states with extensive wetlands the unpatented federal swamp and overflowed lands within their borders. Congress'

intent was to encourage settlement by authorizing sale of these wetlands to private owners for reclamation that would boost the new states' economies. About 500,000 acres of these swamp and overflowed lands, almost a quarter of the total granted to California, were in the Delta, where they now comprise the preponderance of the region's farmland.

Initially, to prevent monopolies, California limited each purchaser to 320 acres, with no more than one half mile of river frontage, and a requirement that the purchaser reside on the property. Riverside lands in Pierson District and across the river on Merritt Island near the proposed DCP points of diversion provide many examples of parcels acquired under these terms, which can be distinguished by their size, relatively short river frontage, and shape perpendicular to the riverbank and extending away from the river toward the former backswamp. But reclamation proceeded slowly, hindered by landowners' limited access to capital, weak organization, poor understanding of potential flood flows, and inadequate technology.

In 1868, these acreage limitations were removed by the Green Act, as was the requirement that the purchaser reside on the property. With removal of acreage limitations on land sales, large land development companies controlled by absentee investors began to play a leading role in organizing and financing reclamation. As a result, large tracts of tens of thousands of acres were sometimes acquired, often in anticipation of leasing them to sharecropping tenants once their reclamation was complete. Between 1868 and 1871, nearly 300,000 acres – virtually all the wetlands remaining in the five Delta counties -- were sold under these terms. Brack Tract, Roberts Island, and Jones Tract in San Joaquin County exemplify this pattern. Owners of reclaimed land had little interest in subdividing and selling their holdings, in part worrying about loss of control of the special districts that oversaw reclamation or because smaller farmers frequently lacked the resources to support reclamation district decisions and assessments. Owners of large holdings also avoided divisions that separated land from the river, which could impair riparian water rights. Between 1870 and 1920, the years of peak reclamation, some 402,000 acres were reclaimed in the Delta. Adding 15,000 acres of early reclamation between 1860 and 1870, and another 24,000 acres of late reclamation between 1920 and 1930, the cumulative total reaches 441,000 acres.

*The Delta levee network rests on foundations laid by American and Chinese immigrants.* To control the region's periodic floods, the Delta's new landowners, primarily Anglo settlers, and reclamation companies, began improving Delta rivers' natural levees, which were raised and widened to resist overtopping or failures. Following the region's first reported flood in 1850 and more flooding in 1852, landowners on Merritt Island and along the Sacramento River's east bank through the Pierson District began building simple, low levees, scraping riverside deposits of alluvial soil into place to improve the natural levees. Along backswamps and in the south Delta, early levees were often constructed of tule sod excavated with a peat spade from borrow ditches or an island's interior, carried by wheelbarrows over plank paths, and placed atop natural levees, where it was compacted by trampling by men or livestock. Sloughs draining an island were sometimes dammed or gated to create a larger area for reclamation or were integrated into internal drainage works.

The bulk of the manual labor was done by Chinese immigrants recruited from boarding houses in Stockton, Sacramento, and San Francisco. Some Hawaiians were also hired. Anglo Americans were managers, carpenters, teamsters operating scrapers and plows, or labor contractors. Many Chinese laborers had immigrated from the Pearl River Delta, a region with similar characteristics, and introduced levee-building techniques from there. These laborers also introduced the tule shoe, an oversized horseshoe fitted with wire over a horse's hoof to distribute weight on soft, marshy, or peaty soils.

The availability of Chinese labor, when combined with their expertise in delta environments, provided the perfect opportunity for land developers in the California Delta to launch large-scale reclamation projects. Between 1860 and 1880, Chinese laborers are estimated to have reclaimed at least 88,000 acres of Delta land. Over time, total Delta reclamation by the Chinese is estimated to be 538,000. acres. It is principally upon this foundation of Chinese labor and American capital and management that the Delta's levees were raised.

*Delta tides powered early irrigation and drainage.* At first, reclaimed Delta farmland was at the elevation of the tides that had shaped its wetlands and sloughs. Opening a tide gate at high tide would allow the Delta's abundant freshwater to flood over land in need of irrigation. Opening a tide gate at low tide would drain away excess water through sloughs and ditches. Working with the Delta's natural tidal cycle allowed landowners to create California's first extensive irrigated farming region. When other California regions suffered during droughts in the 1870-1880s, the Delta's irrigated farms remained green and productive.

*Adapting to subsidence, floods, and mine debris.* Over time, subsidence caused by oxidation of the Delta's peat soils lowered the natural elevations on many reclaimed islands and tracts, requiring further improvement of levees and drainage systems. Today, on the most subsided islands, surface elevations may be 9 to 26 feet below sea level, providing motorists on levee-top roads an unsettling view of water levels in the waterways on one side that are significantly above those of the farmland on the other side of the levee. Moreover, floods in 1871, 1873, 1874, 1875, 1877, 1878, 1879, 1880, 1886, 1889, and 1890 revealed the inadequacy of early levee building and drainage methods. Yet in response, innovative, locally developed machinery - much of it crafted by inventors in Stockton - was used to construct larger, more resilient levees. Innovation in governmental organizations and programs also fostered improved levees.

- *Dredges*. With the introduction of steam-powered dredges and ditchers in the 1870s, levees could be built with sands and clay dug from the channels of rivers and sloughs adjoining islands and tracts. The sediments were dumped in piles atop earlier natural or peat levees, leveled, harrowed, and planted with barley, then grazed by sheep to compact them. Repeated placement of dredged material built up levees gradually. The names bestowed on dredges, like *Samson* and *Goliath*, reflected their power to transform the natural landscape to meet reclamation and flood control goals.
  Local innovators and reclamation companies improved dredge designs and capabilities throughout the 1870s-1880s. Companies in Stockton, San Francisco, and elsewhere in the Delta deployed four main types of dredges in the region's reclamation through the

late nineteenth and early twentieth centuries: dipper dredges, hydraulic pipeline dredges, bucket-ladder or endless-chain dredges, and clamshell dredges. Most widely used was the clamshell dredge, with its hinged shells that closed around the material to be excavated, suspended from a movable boom supported by an A-frame. The machinery for a substantial number of the clamshell dredges was built by the Stockton Iron Works, which was established in 1868. Over the course of three decades beginning in 1885, the company produced more than 30 clamshell dredges and over 600 dredge and ditcher buckets. Its dredges were so ubiquitous and successful that they became synonymous with the California dredge and the Stockton bucket. By the early 1900s, locally made mechanical ditchers were also in wide use. These firms played an important part in Stockton's development as a center for equipment manufacturing and industry.

By the 1920s, the work required to reclaim the Delta was sufficiently complete that most of the dredges and other special machinery used were disposed of. Rio Vista's Dutra Museum helps preserve and tell the story of the Delta's reclamation, including the role of the Dutra family's dredging business.

- *Caterpillar tractors*. Another local innovation, the tracked bulldozer and its cousin, the backhoe, were also essential tools for Delta levee construction and maintenance, as well as clearing land and laying out ditches. In 1904 Benjamin Holt, president of Stockton's Holt Manufacturing, first added a caterpillar tread to a steam tractor, allowing it to travel more easily across peat soils. In 1906, after replacing the steam engine and boiler of earlier models with a gasoline engine, Holt sold his first Caterpillar tractor, which would soon revolutionize farming, not only throughout the Delta, but throughout the United States and the world.

- *LeTourneau earthmovers*. Improved earthmovers also helped further Delta reclamation. Beginning in 1922, Stockton mechanic and construction contractor Robert G. LeTourneau invented a series of innovative scrapers, earthmovers, and grading equipment to better level Delta and other Central Valley land for irrigation and drainage. By the 1940s, his company had grown so that LeTourneau machines represented nearly 70 percent of the earthmoving and engineering equipment used by the Allied forces during World War II.

- *Erosion protection*. Initially, to break waves that might erode levees, a fringe of willows or tule was often retained on the levees' waterside. At the turn of the 19$^{th}$ century, bundles of brush called fascines, cabled to concrete anchor blocks, were used. By the 1950s, rock riprap came into wide use.

- *Pumps and drains*. At first, water was drained from reclaimed land through sluiceways and gates at low tides. Land with elevations at or near low tide drained well, but as lands subsided, drainage became impaired. Horse powered pumps were introduced in

the late 1870s, followed by steam-powered pumps. Flanged tubes of boiler iron and cast-iron tide gates also came into use.

- *Reclamation districts*. Initial attempts to build levees were uncoordinated efforts of private individuals with minimal government involvement and little effect on flood protection or drainage. To construct and maintain more effective levees and ditches to drain flood basins and backswamps, in 1861 California's legislature enacted Assembly Bill (AB) 54 which authorized the formation of reclamation districts. Districts were assigned numbers in accordance with the order of their formation. An early district in the project area is Reclamation District No. 3, on Grand Island opposite Locke and Pierson District. A generation later, experience with reclamation districts provided the administrative model for irrigation districts, which were first authorized in 1887, and ultimately for California's more than 3,000 other special districts.

  AB 54 also created a central government authority, the Board of Swamp Land Commissioners, a centralized governmental authority to oversee reclamation districts' creation and their plans for flood control and drainage. This was the first public commission established in the state – a second major innovation in state government. The board was short-lived however, swept aside by 1868's Green Act.

  Since reclamation, each of the Delta's islands and tracts has flooded at least once. These periodic floods and repeated levee breaks led reclamation districts to become active in high water levee patrols, flood fighting, and recovery. Early levee breaks were attacked by placing brush fascines within lattices of piles driven into the breach, topped with rock or sandbags. In the 1930s, some breaches were repaired by scuttling rock-filled barges in the crevasse. When deeply subsided islands flood, further work is required to drain flood water, restore scoured fields, restore ditches and drains, and repair damaged buildings.

  In 1973, California began the Delta levees subventions program to help reclamation districts fund the maintenance and rehabilitation of Delta levees. Over time, it has helped districts improve levee conditions to resist failures without significantly modifying their location, setting, appearance, or function. Beginning In 1988, reclamation districts were provided additional help through the Delta levees special flood control projects program, which has helped to fund more significant levee improvements, primarily in the western Delta.

- *California Debris Commission and the origins of Federal Flood Control Programs*. Some Delta levees were improved in response to the deposition of debris washed into rivers from upstream mines. Prior to heavy siltation of the Sacramento River, primarily the result of hydraulic mining operations, it was not uncommon to have a two-foot tide at Sacramento's wharf. By 1890, mining debris had raised the Sacramento River's water level in the northern Delta by 10 feet or more, hindering navigation and increasing flood risks. After decades of studies and controversy, the federally authorized California Debris Commission recommended a plan to manage the mines' debris and improve

navigation that in the Delta included large levees along the Sacramento River, including the levees at the project's diversion sites, and Steamboat Slough to contain river flows and flush sediment toward Suisun Bay. California approved the plan in the state Flood Control Act of 1911. Federal authorization for the project was secured in 1917 in the nation's first flood control project, launching the Corps' flood control program that reshaped the nation's rivers and floodplains and funding the landmark Sacramento River Flood Control Project, an engineering feat on an unprecedented scale at that time.

## 5.2 Islands and Tracts – Reshaping the Delta

The following Delta islands and tracts are key components of the Delta's cultural landscape within the project area:

- Pierson District. Levee building in this 8,980-acre district on the Sacramento River's east bank, between the head of Snodgrass Slough and Walnut Grove, began in 1850. Much of its Sacramento River frontage reflects parcels acquired under pre-1868 acreage and frontage limitations, with long narrow lots arranged perpendicular to the river. Areas away from the river along Snodgrass Slough were acquired by the Tide Land Reclamation Company created by John Roberts and Bay area investors, which at its height owned 250,000 acres of land in the Delta and Yolo Basin. Josiah Buckman Greene was among early settlers responsible for building the district's first levees. Its reclamation district, No. 551, was organized in 1872-74. Steam-powered centrifugal pumps were added to speed drainage in the 1880s. By 1885, reclamation was largely complete, making the district the first in the Delta where reclamation was completed. The district flooded in 1878, 1881, and 1907. As part of the Sacramento River Flood Control Project its riverside levees were massively enlarged, beginning in 1917 with the hydraulic dredge *Natoma*, and completed by the suction dredge *San Pedro*.

- New Hope Tract. The 9,300-acre tract is named for a historic village once located near nearby Thornton. Mokelumne City, another historical settlement on the tract, was swept away in the great flood of 1861-62. New Hope Tract's reclamation began in 1865 with formation of a reclamation district to levee 24,500 acres. A ditch was extended south to convey floodwaters ponded at the Mokelumne-Cosumnes confluence to Beaver Slough. Levee building on the tract's north bank began the following year. It is in Reclamation District 348. Reclamation was largely completed between 1880-1884. The tract flooded in 1886, 1899, 1904, 1907, 1928, 1955 and 1986.

- Brack Tract. The 4,873-acre tract is named for its first owner, Jacob Brack, a German immigrant. Joel Parker Whitney's dipper dredges *Samson* and *Goliath*, reputed to be among the largest in the world, with a shovel mounted to a 55-foot-long dipper arm, assisted in dredging Hog Slough, and building levees along the Mokelumne River here. Reclamation was largely complete by 1886. To ship his farm products, Brack built a small town, Brack's Landing, near Hog Slough's confluence with the Mokelumne, with docks and warehouses served by narrow gauge railroad, the San Joaquin & Sierra Nevada,

extending east. After the tract flooded in 1886, Brack built his own clamshell dredge, the *J. Brack*, to assist a team of Chinese laborers in replacing the prior levee. When the dredge burned, he had an even larger replacement built in 1890. Nine years later, a massive flood on the Mokelumne destroyed the landing. Further flooding occurred in 1904. The tract's Reclamation District 2033 was finally formed in 1917, when ownership of the tract had been divided among Brack's son and close friends, the Frankenheimers.

- Terminous Tract. Reclamation of Terminous Tract began in 1860s. It was part of extensive acreage owned by Ross Sargent, a Gold Rush stockman. In 1878 levees were built along the Mokelumne River and the sloughs flanking the tract. Reclamation was complete in 1886, despite flooding in 1880, 1886, 1899, 1900, 1904, and 1907. The Upland Canal, a dredged cut, separated the property from the Shin Kee Tract, which was farmed by Chin Lung, known as the Chinese potato king. He grew potatoes, beans, onions, asparagus, and hay there. The town of Terminous owes its founding to a water-rail connection point, located at the confluence of Potato Slough and the Mokelumne River. The town earned its name, as it was the "end of the road" for the Western Pacific Railroad's spur into the Delta. It was an especially important trans-shipment point for asparagus from Bouldin Island and became the focus of vegetables brought in on barges from a wide area for washing, trimming, and crating. At the height of the season, it is estimated that 350 laborers were on hand to process the region's agricultural bounty with most workers living in the "box car city," made up of de-wheeled wooden box cars set up on old railroad ties. By the late 1930s, the town's freight business was made obsolete by the introduction of refrigerated trucks and smaller packing sheds distributed throughout the area. A three-story culling chute adjoining Little Potato Slough remains as a reminder of landing's heyday. In 1983, it was nominated to the National Register of Historic Places.

- King Island. This 3,260-acre tract was acquired by the Tide Land Reclamation Company. It is protected in Reclamation District 2044. Reclamation was largely completed between 1900-1920.

- Roberts Island. Northern portions of this 32,547-acre island bordering the San Joaquin River were acquired by Tide Land Reclamation Company. It is named for John Roberts, a San Francisco mining speculator and the company's founder. To promote investment in the company, in 1871 Roberts hosted a steamer expedition through the Delta for 50 friends, potential investors, and journalists, several of whom became investors in Delta reclamation. Roberts Island's first levees were built by Chinese laborers, using carefully laid peat blocks, with a core of solidly packed material deposited in a ditch excavated in the peat. Later, an endless-chain bucket ladder-machine traveling on wheels over a planked track, adapted from machinery used in the peatlands of Wisconsin, was used to cut the peat blocks. A crew of as many as 1300 Chinese laborers and an array of horse-drawn scrapers and ditchers assisted in levee building.

  In 1875, further improvements utilized the steam-powered dipper dredges *Samson* and *Goliath*. To speed drainage, two large cuts, bordered by cross levees, were dredged,

cutting the island into three: 8,260-acre Upper Roberts Island, 13,687 Middle Roberts Island, and 10,600-acre Lower Roberts Island. In 1875, the company's Roberts Island holdings, including the dredges, were sold to Joel Parker Whitney after damage in earlier floods. By 1876/77, M.C. Fisher's Glasgow-California Land and Reclamation had acquired most of the island and continued reclamation activities.

The levees built on Roberts Island after 1876 were far more massive than the levees of the previous decade, averaging thirty feet wide at the base, ten to fifteen feet high, and five feet wide at the crown. Their unique design set the levee back from the river by up to 100-200 feet, with soil excavated from the intervening area used to construct the levee and leaving behind distinctive in-channel islands in Middle River and borrow pits on Trapper Slough which are still visible today. An indication of the scale of effort required is that teams of 200 scrapers were employed at one time, as well as bespoke inventions to transport fill and place it on the levee. Steam-powered drainage pumps were added about 1887. By 1880-1890, reclamation was largely complete, despite levee breaks in 1880 and 1893, and land was leased to tenants for grain farming. The island flooded in 1880, 1886, 1890, 1893, and 1906. Reclamation District 684 comprises Lower Roberts Island.

- Jones Tract. The 12,153-acre island was acquired by the S.C. Hastings Company. Its founder, Serranus C. Hastings, was an early California Supreme Court justice (1849-51), attorney general (1852-54), and real estate speculator. Today, increased attention is also paid to his role in organizing and financing a private militia that killed and imprisoned Yuki Indians on land he had acquired in Mendocino County.

  To speed drainage from the Jones Tract, a cut bordered by cross levees was dredged, cutting it in half: 6,259-acre Upper Jones Tract and 5,894-acre Lower Jones Tract. The Rindge Land and Navigation Company managed subleasing to tenants. Reclamation was largely complete by 1900-1910. The tract flooded in 1906 1907, 1980, and 2004. Jones Tract is protected with Reclamation District's 2038 and 2039.

  At typical swampland purchase prices of $1 per acre, restoration costs of $75-$125 per acre and land resale values of $250 acres per acre, Jones Tract's reclamation may have gained Hastings' company $2 million ($26.3 million in 2020 dollars). One beneficiary was the University of California (UC), whose Hastings School of Law was founded with $100,000 made from Hastings' real estate investments.

- Bacon Island. Bacon Island is among the lands reclaimed by the S.C. Hastings Company. Its reclamation was largely complete by 1916.

- Union Island. Union Island originally was comprised of present-day Union Island, the Fabian Tract, Victoria Island, and the upper half of Woodward Island. Much of the island was owned by the Tideland Reclamation Company. Its reclamation began in earnest in 1876, under the supervision of G.W. Walker, the company's general superintendent. Over 1000 Chinese laborers were employed in building the island's massive levees,

which were eight to ten feet high, 50 feet wide at the base, and 5 to 20 feet at their crown. Cross levees were constructed in 1878-1880, and with the aid of the Old River Reclamation Company, the levees were enlarged and the Grant Line and North canals that separate Union Island from Victoria Island and Fabian Tract.

- Victoria Island. These 7,250 acres, originally a northern extension of Union Island, were initially acquired by the Tide Land Reclamation Company, and subsequently obtained by former California Attorney General Thomas Williams in settlement of debts owed to him by the company. It is protected within Reclamation District 2040. Williams employed hundreds of Chinese laborers, many carpenters, and scores of teamsters, as well as dredges, to build large sand filled peat levees set back from the river. The large canal separating it from the remainder of Union Island was cut in 1885. After 1890, it was leased to the Old River Land and Reclamation Company, controlled by John Herd, a former grain merchant and immigrant from Britain, who named the island for the British queen. Using steam-powered clamshell dredges and other equipment, Herd completed the island's reclamation by 1898, shortly before its sale. I.L. Borden managed subleasing to tenants. The tract flooded in 1901 and 1907.

- Byron Tract. Reclamation of this 6,933-acre tract began in 1870 but was interrupted by flooding in 1875. About 1890, John Herd purchased the tract. By 1900, he had completed its reclamation. About 1907, he sold the tract to Frank West and Eugene Willhoit, owners of the dredge *Columbia,* a clam shell dredge with an extraordinary 135-foot-long boom. By 1909, using the *Columbia* and the dipper dredge *Big Dipper,* they restored the tract's levees over several months. The tract is protected in Reclamation District 800.

## 6.0 Orchards, Vineyards, and Farms

Agriculture is central to the culture of the Delta and plays a dominant role in defining the character of its landscape. Its origins in both family farms and large agricultural corporations, including historic irrigated agribusinesses that rival the biggest in California today, reflect the variety of agriculture in the state from the 1850s to the current era.

The Delta's flat terrain, coupled with year-round availability of fresh water, made growing crops in the Delta cheaper and simpler than other regions of California. With fertile soils, a benevolent Mediterranean climate cooled by breezes from San Francisco Bay, abundant water resources, and ready waterborne access to San Francisco, Sacramento, and Stockton, the Delta provided extraordinary opportunities for agriculture. The locally adapted agricultural systems developed there are testimony to the inventiveness and ingenuity of the region's culturally diverse farmers. Crops vary based on the soils deposited on riverbanks and marshes and the success of drainage and reclamation, as well as farming systems, markets, and farmers' preferences. Some early products, such as dairies and sugar beets have declined, while replaced by others, such as wine grapes. Since 1900 the specialty crops familiar to most Californians, including asparagus, pears, and tomatoes, have become iconic of Delta agriculture.

Today, agriculture occupies 415,000 farmed acres in the Delta, producing $965 million in gross farm revenue in 2016, supporting 12,400 jobs and $1.7 billion in economic output in the five Delta counties. Its orchards, vineyards, and crops have been the region's predominant vegetation for a century, shifting in variety as Delta farmers adapt to changing conditions, markets, and innovations, but constant in their significance in the landscape. The farmlands provide the setting, too often unacknowledged in national register nominations and other documentation, for the Delta's historic landmarks, districts, sites, and other properties, contributing to their authenticity and integrity. The Delta's current productivity is testimony to its farmers' generations of hard work and innovation to bring it into production.

## 6.1 Formation of California Delta Farming Culture

Early farming practices and technology. Early farms of gardens and orchards were established on the mineral soils of natural levees along the Sacramento River from Rio Vista to Sacramento and on upper Roberts Islands' sandy natural levees and progressed to other lands with their reclamation. In the 1860's fire was used to clear tules and break up the fibrous peat soil in preparation for farming, followed by seeding wheat or other grain which was trampled into the ash by flocks of sheep. Even after a first harvest of grain, the tough sod could be broken only with difficulty by four to six-horse teams drawing locally developed "tule cutters". Large, coal-fired steam traction engines replaced horse teams by 1900.

Locally invented farming innovations. To prevent miring in the soft soils, wheels on the steam tractors used on Delta farms became ever wider and higher, reaching a width of 18 feet and a height of 12 feet. Still, they were not completely effective in the peat soil. As described in Section 4 above, in 1906 Benjamin Holt sold the first Caterpillar tractor, revolutionizing farming in the Delta, and throughout the United States and the world.

Crops. Delta agriculture experienced several phases of development as the popularity of different crops rose and fell, and new crops and processing methods were introduced. During the first decades of reclamation, wheat, potatoes, beans, and onions were the staple crops, although a variety of other vegetables and grains were harvested too. To control fungus and other infestations, high value crops like potatoes or onions were rotated with beans or barley. Fruit and vegetable growing expanded with completion of the transcontinental railroad to serve eastern markets. Canneries were established at the turn of the 19$^{th}$ century to pack and ship produce to distant markets.

Potatoes and asparagus have long been signature crops in the Delta. On Roberts Island, Jones Tract, and other large holdings, asparagus, tomatoes, and celery began to replace beans and potatoes by 1900. During the second quarter of the 20$^{th}$ century, the most important Delta crops in acreage were winter grains (primarily barley), asparagus, field corn, and alfalfa. Together, they occupied well over half of the acreage cultivated. By the 1950s, Lower Roberts Island included potatoes, barley, alfalfa, tomatoes, sunflowers, walnut orchards, and field corn, while Jones Tract was planted in field corn, barley, celery, and asparagus. Lands bordering the Mokelumne River historically grew vegetables and grain.

Today, the garden of the Delta grows over 70 different crops. In spring and summer, their verdure wraps the Delta in green. Squads of farm workers in broad-brimmed hats irrigate and cultivate crops under the summer sun. In fall, harvesters crisscross Delta fields, combining grain, harvesting crops, and mowing hay, leaving fields of stubble and crop residue interspersed with tilled and bare acreage. In winter, workers return to prune orchards and vineyards and prepare for spring planting. Regional residents and visitors appreciate vistas of the Delta's farmlands from its state and locally designated and candidate scenic highways and routes. These include pear orchards along State Route 160 and the River Road adjacent to the Sacramento River, vineyards bordering Twin Cities Road across Glanville Tract from the Delta's boundary to the Sacramento River, croplands overlooked from I-5 east of the Mokelumne River, including New Hope and Brack tracts, fields bordering Eight Mile Road across King Island, the truck and field crops and hay pastures seen from State Route 4 and Holt, Neugeber, and McDonald Roads on Lower Roberts Island, and Byron Tract's farmland west of the Byron Highway.

Delta residents believe in the value of farming as an economic activity, a contribution to the nutrition of the nation and world, and a way of life. Throughout the Delta, a variety of community-based organizations support agriculture. These include local farm bureaus in each county, agricultural marketing organizations and other trade groups for Delta grown commodities, like CalPear, and regional groups such as the Clarksburg Wine Growers and Vintners Association and the Sacramento River Delta Grown farm trail. Other organizations support the region's farm workers. County general plans and zoning, including extensive agricultural preserves, protect the Delta's islands and tracts for agriculture. The state Delta Protection Act of 1992, which protects rural Delta farmland from urban development, is an expression of the State's commitment to maintaining agriculture. Locally organized groups that further protect Delta farmland from development include the Yolo Land Trust and the California Farmland Trust. Many Delta farms are family operations, often employing several generations of a family. Educational efforts to pass on the agricultural skills and traditions include ten 4-H Clubs and ten Future Farmers of America chapters in Delta communities.

## 6.2 Lasting Legacy - Orchards

The Delta's agricultural land is a key component of its cultural landscape. Defining features of this cultural landscape in the project area include the orchards, vineyards, and farms where these crops are grown:

- Orchards. On mineral soils along the Sacramento River, pear orchards, which were adapted to the rising water tables associated with the higher water elevations caused by mining debris, were planted by the 1860s. During the 1860s and 70s when Delta pear orchards were first planted, farming was a part-time occupation. During the summer months, families grew pears, shipping them to San Francisco on a steamboat that pulled up to the dock below the farm and loaded pears. When pear harvest concluded for the season, farmers fled potential floods to higher ground where they joined miners in the gold fields,

returning each spring to see what was left of their pear trees after the flood waters receded.

Already in 1885 pears occupied 6,000 acres there. An 1894 promotion for the region bragged of a 40-mile orchard stretching upriver from Isleton toward Freeport. Riverside piers and packing sheds allowed growers to ship fruit directly from their orchard on steamboats travelling to markets in Sacramento or San Francisco, saving shipping costs and jostling of the fruit in wagons on poor roads. Colorful labels, such as River Boy, Netherlands, and Delta Rose, on crates and cans of Bartlett pears carried the Delta brand across the nation and overseas.

As more dependable levees were completed, and World War I increased demand for canned fruit, many families were able to settle into full-time pear growing in the Delta Many current Delta pear growers and packers operate businesses begun by family forebears two, three, or even five generations ago. Unlike most fruit trees that lose their vigor in a matter of decades, pear trees get better with time and will produce a good crop for 50, 75, or even 100 years or more. Many orchards' locations are unchanged over the past century. In 2016, pear orchards occupied 5,429 acres in the Delta, primarily in Sacramento and Yolo counties. The crop was valued at $44.1 million, almost five percent of all Delta farms' gross revenue. The beauty of historic pear orchards contributes significantly to the appeal of communities such as Courtland and Clarksburg located along the Sacramento River. The orchards, often enclosed in distinctive windbreaks of Lombardy poplar, offer a scenic vista for motorists traveling north of Walnut Grove on State Route 160 or the River Road, especially in spring when they flower.

## 6.3 Delta Powerhouse - Vineyards

- Vineyards. James Sims, the founder of Courtland, was one of the first grape growers in the Delta. At first, grape growing and winemaking in the Delta was a non-commercial household activity, including some bootlegging during Prohibition. In the 1960s, commercial vineyards began to be planted. Clarksburg's American Viticultural Area (AVA), which extends into Solano and Sacramento counties, was established in 1984. It's cool evenings and warm days with limited summer fog allow Clarksburg to produce a diverse portfolio of premium grapes and wine. Vineyards east of the Mokelumne are in Lodi's Mokelumne River AVA. It has long been a center for Portuguese and Italian wine grape varietals that reflect the Delta's southern European immigrants, as well as Old Vine Zinfandels, some first planted in the 19th century.

  In 2016, wine grapes grew on 41,600 acres in the Delta, and produced a crop worth $212.2 million, about 22 percent of Delta farms' total gross revenue. The Clarksburg Winegrowers and Vintners Association includes 46 grower members, and 12 wineries, several of whom have tasting rooms in Clarksburg's repurposed Old Sugar Mill.

## 6.4 The Foundations - Farms

- Small grains. Wheat and later barley were the first widely planted crops in the Delta. By the early 1880s, about 75,000 acres of wheat and barley were farmed in the Delta, producing more than a million bushels of wheat and barley each year. During this era of peak wheat production in the Delta, which coincided with the wheat boom in California, grain farming prospered, but over time Delta farmers learned their wheat needed to be rotated with other crops to avoid plant diseases and maintain soil fertility.

  Small grains remain an important feature of the Delta landscape. In 2016, 42,181 acres of barley, oats, and wheat were planted in the Delta. In the project area, small grains were planted in San Joaquin, Sacramento, and Contra Costa counties. Wheat, the Delta's first crop, comprised two thirds of small grain acreage, with a value of $11.6 million, about 1.2 percent of the gross value produced by all Delta farms.

- Truck Crops. Truck farmers in the Delta grew a variety of crops throughout the year to maintain an ongoing cash flow. Asian and Italian immigrants made significant contributions to truck farming. Italians introduced new varieties of Mediterranean crops resulting in the rich diversity of produce that the region is known for today. Asian growers mastered the complexities of large-scale agriculture that rivaled today's largest agribusinesses.

  Truck crops, including potatoes, tomatoes, and asparagus, were planted on 49,419 acres in 2016. In the project area, they are most common in San Joaquin County, especially east of the Mokelumne River, near the San Joaquin River, and on Victoria Island.

  A. *Potatoes*. Potatoes were the first produce grown in the Delta for export. By rotating potatoes with small grains, growers could produce a profitable and easily shipped crop that could also reduce plant diseases when rotated with wheat and other small grains. Delta potato yields were significantly higher than elsewhere in California or the US, reached the market earlier than competitors', and had a pale skin preferred by consumers.

     Potatoes were a particular specialty of several Chinese growers, despite laws that prohibited "aliens ineligible for citizenship" (defined as Japanese, Chinese, Koreans, Filipinos, and other East Asians) from owning land or possessing leases longer than three years. On Brack Tract between 1895 and 1900, 33 companies controlled by Chinese proprietors and three Chinese individuals leased plots of 90 to 115 acres to grow potatoes, paying Jacob Brack $8 per acre plus a share of the crop. To ship their produce, three river landings were constructed: Quong Lee and Quong Goon on the Mokelumne and Gee Fung on Sycamore Slough.

     Especially influential Asian immigrants associated with the success of potato cultivation in the Delta include the Chinese immigrant Chin Lung and Japanese immigrant George Shima. Chin Lung arrived in California in the early 1880s—close to the time of the

passage of the Chinese Exclusion Act of 1882—and would become known as the Chinese "Potato King." He leased extensive acreage in the Delta, including on Roberts Island and Byron Tract. In 1912, one year before the California legislature passed the Alien Land Law, Chin Lung purchased an 1,100-acre tract northwest of King Island that he named the Shin Kee Tract. He hired Chinese laborers to grow potatoes as well as beans, asparagus, onions, hay, and grain, employing approximately 500 Chinese laborers each year to cultivate and harvest his crops, and mastered the tasks associated with large-scale tenant farming. Despite the heavy Chinese presence in the Delta that dates back almost to the Gold Rush, this tract remains the only one of Chinese provenance. By 1923, the Alien Land Acts forced Chin to give up his land and other businesses. A decade later, he returned to China.

George Shima, born Ushijima Kinji, immigrated from the Japanese island of Kyushu and by the end of 1889 settled in the Delta, where he quickly advanced from farm worker to labor contractor to independent farmer. By 1899 Shima had begun to experiment with potato cultivation and was reclaiming acreage in the central and lower Delta northwest of Stockton. California Delta Farms, a reclamation company controlled by Lee Phillips, a Los Angeles financier, leased Shima's recently reclaimed land to be cleared and planted to potatoes. Its acreage included King Island and parts of Jones Tract. In 1910 Shima purchased an 800-acre parcel southeast of King Island on what is now known as the Shima Tract, the first of several purchases. In addition, he leased land on Brack Tract, Terminous Tract, and Roberts Islands, including as many as 14,000 acres from California Delta Farms.

The agricultural expansion that Shima was able to achieve was built on the labor of six hundred multinational workers. Approximately fifty percent were Japanese, thirty percent East Indian/Sikh, and twenty percent Mexican and other groups. These laborers lived in Shima's camps, of which a dozen are still intact and constitute the Bacon Island Rural Historic District. To improve yields and quality, Shima consulted with agricultural experts at Stanford University and UC Berkeley regarding seeds and planting and harvesting techniques. By 1906, Shima became the largest potato grower in the world, growing 85 percent of California's potato crop with a market value of $18 million annually (more than $200 million in today's dollars). His production and marketing innovations contributed to his success. He is reportedly the first grower to wash potatoes before sacking them for shipment; to grade potatoes for sale by quality; and to sell potatoes under a trademark, using red bags. But the Alien Land Law's limitations on Asian immigrants' purchase or leasing of land ultimately led to the dismantling of his empire.

In 2016, potatoes continued to be planted on 4,054 acres. They had a gross value of $49.9 million, about five percent of the total for all Delta farms.

B. *Asparagus*. Asparagus became a popular crop in the 1890s, accelerated by the development of canneries at Walnut Grove and other communities in and around the

Delta. Pierson District was among the Delta's early asparagus districts. Growers even developed a unique local asparagus variety, Delta Queen, with thicker stems and sweeter taste. To serve the district's growers, the California Fruit Canners' Association opened an asparagus canning plant at Vorden, about three miles north of Walnut Grove. In the early 20th century, Chinese workers predominated in both asparagus fields and canneries in the Delta. Production became concentrated in the San Joaquin Delta during the 1930s, and by the mid-1940s the peat lands had become the Delta's major asparagus producing area, with significant acreage on Union, Victoria, and Lower Roberts islands and the Byron tract. Filipinos made up ninety percent of the asparagus harvesters in the Delta then. Ninety percent of all the asparagus grown in the United States was produced in the Delta during this era. Each spring hundreds of railroad cars of fresh asparagus were shipped daily to points east. Place-based brands, such as Silver Bend, Sunmist, and Delta King featured Delta imagery to create iconic labels for crates and cans of asparagus.

Difficult labor conditions in Delta asparagus fields led to strikes by the largely Filipino work force in 1939, 1948, and 1949. In 1948, asparagus fields near Stockton, Holt, and Byron were targets of the strike, which was organized by the Cannery Workers Union, and offshoot of the International Longshoreman and Warehouse Workers Union

Asparagus has declined markedly in the Delta recently. In 2016, only 2,000 acres were grown.

C. *Tomatoes*. Chinese and Italian gardeners leasing land along Old River were among the first to grow tomatoes as well as a wide variety of other crops to market in San Francisco. The Delta climate was ideal for their growth. Tomatoes for canning were introduced in the Delta in the 1910s. By 1940, the south Delta's San Joaquin County became number one in the country in tomato production. Over the succeeding forty years, production per acre increased 250 percent.

A key development was the invention of the mechanical tomato harvester by the Blackwelder Manufacturing Company of Rio Vista, accompanied by development of the VF-145 tomato at nearby UC Davis. In 1960, the prototype harvester and production tomato were field tested in front of 2,000 farmers and other spectators on the Heringer Farm near Courtland. Blackwelder's tomato harvester was designated as a Historic Landmark of Agricultural Engineering by the American Society of Agricultural and Biological Engineers and is displayed at the San Joaquin County Historical Society.

Tomatoes remain among the Delta's major crops, being grown on 29,200 acres and accounting for 12 percent of Delta farms' gross revenue. Together, the five Delta counties' 16.5 percent share of worldwide processing tomato production exceeds the global market share of vehicles produced by General Motors and Ford combined.

- Livestock and Livestock Feed. Livestock, including cattle and sheep, were introduced into the Delta on Mexican Ranchos such as John Marsh's land grant at Los Medanos, east of the

Delta on the Cosumnes River. Cattle driven along the California Trail added to these herds. The broad grasslands, rising from the tules toward the foothills and often overflowed by the Cosumnes and other Delta tributaries, provided readily available forage. During summer droughts, livestock could move downslope to graze in the margins of tules and other wetlands.

Cattle comprised $22.4 million of Delta farm products in 2016. Cattle remain common around the project area at Twin Cities Road, where dense soils have discouraged orchards and vegetable farming.

The rural properties at 4900 Dierssen Road and 54116 Dierssen Road hold utilitarian ranch homes with east-facing porches to escape afternoon heat that typify livestock ranches on the Delta-foothill boundary. Barns, storage buildings, culling shuts, and fences complete the properties' built resources. Landscaping with palms, Italian cypress, and other shade trees is representative of early 20th century agricultural properties. The properties are untilled, presenting rare examples within the Delta of once prevalent cattle grazing that characterized early agriculture there.

Feed Crops:

A. *Corn*. Raising field corn as fodder for nearby dairies began after 1908, increasing to over 50,000 acres by 1930. It continues to be grown on 82,300 acres in 2016, producing almost nine percent of Delta farms' gross revenue.

B. *Alfalfa and hay*. Marsh hay cut from un-reclaimed islands was an early Delta product. Pastures of alfalfa began to be developed in the early 1870s, cut for city livery trade and for large ranches raising beef cattle. Alfalfa remains a common crop, growing on 77,576 acres in 2016, where it produced almost seven percent of Delta farms' gross revenue. Forage hay is grown on another 5,900 acres. Because alfalfa and hay are perennial crops that can be grown without frequent tillage, they are encouraged to reduce subsidence caused by peat soils' oxidation.

# 7.0 Delta People –Heritage, History, and Settlements

The Sacramento-San Joaquin Delta's ethnographic landscape tells many stories of settlement, immigrants' experience, and community building. It reflects both pre-Gold Rush settlements of native California Indians and populations from the United States, Asia, southern Europe, and Mexico who settled in the Delta from the Gold Rush through the contemporary era. Over time, the succession of immigrants and economic transitions transformed the landscape and created a different but unique sense of place, with lessons to impart about labor, agriculture, race relations, economic development, and alterations of the natural environment.

Before the Gold Rush, the Delta was (and still is) home to a large and diverse native California Indian community but quickly became one of the early settlement locales associated with the Gold Rush migration. Later, its physical and geographical attributes brought together a complex mix of social classes and ethnic groups from many nations who transformed the Delta into one of the world's most productive agricultural regions. The Delta is also a place of transient labor.

Villages along Delta waterways emerged as centers for processing and transporting crops to markets, for business serving growers and farm workers, and for residents. Rural homes, from Victorian farmsteads to barracks and labor camps for farmworkers, sheltered those who lived outside of town. On weekends, rural workers sought out Delta villages and cities to socialize, recreate and spend their pay in shops, restaurants, gambling dens, and brothels.

People. At the heart of the Delta's environmental and economic transformation was the cross-cultural migration and settlement of newcomers. The Delta was a meeting ground where peoples of the Asian Pacific Rim interacted with white Anglo settlers. Land reclamation and the diversification of the Delta's agricultural economy depended on a permanent and sometimes mobile workforce that involved both skilled and unskilled laborers. Immigrant laborers repeatedly endured immense hardships, discrimination, and meager pay. These newcomers worked the land, became entrepreneurs, and built lasting communities. Their rural experiences of economic success, social exclusion and celebrations of ethnic solidarity are recorded in the ethnic businesses, schools, and cultural heritage festivals of the Delta. Each cultural and ethnic community shaped the region and continues to leave its imprint on the landscape.

- *Native California Indians*. Native California Indians were the Delta's first residents. The tribal governments representing them are best entitled to identify significant properties in the project area and the values they preserve. Out of respect for the tribes and because much information about their cultural resources is confidential, the summary below is brief. Its brevity is not a reflection on resources important to these tribes or to an understanding of their contributions to the Delta's history.

  In the Delta, native California Indians settled on the natural levees and other high ground along rivers and major sloughs in villages of 200 to 1,200 residents – not much different in size than today's legacy communities. A typical community included several dozen semispherical homes, granaries to store acorns, ramadas shading work areas, sweathouses, and a ceremonial assembly house. Surrounding marshes provided tules for building and basketry materials, and waterfowl, roots, and pollen for food, while the rivers offered dependable runs of salmon, sturgeon, and steelhead. With elevations seldom higher than ten to fifteen feet above sea level, more permanent villages were typically placed on the highest ground available along or near a natural streambed or slough, usually "mound like" in appearance leading to cartographic representation of abandoned Native sites as "Indian mounds" on historic Delta maps. Delta Meadows, on Snodgrass Slough near Locke, was a site of one native community. Others were near Clarksburg on Elk Slough (*Ylame*), south of Hood (*Gualacomne* and *Chupmne*), near Courtland (*Suisumne*), and near the Cosumnes River (*Ohonapatme*). These first settlements should remain undisturbed by DCP development. Archaeologists from UC Berkeley excavated a village site between Hood and Courtland between 1949 and 1954. In Contra Costa County, a Yokuts village (*Tamcan)* was near Byron.

Some groups occasionally buried their dead, so special care should be taken to avoid disturbing burials. Burial zones and other village sites are known to occur along the proposed tunnel routes in Sacramento and San Joaquin counties.

Archaeologists have concluded that California's first human settlers arrived in the Delta at least 8,000 years ago. Distinctive spear points associated with these settlers have been found throughout the Delta region. Between 4,000 and 5,000 years ago, something changed, making the Delta area hospitable for a second wave of native immigrants. Plains Miwok were especially prominent on both sides of the Sacramento River from Rio Vista to Freeport. The San Joaquin River, with its maze of channels, formed the core of the Northern Yokuts homeland. Before Spanish colonization, their population densities were the highest in North America, exceeded only in central Mexico. Most of native California Indians were displaced from the Delta by the 1850s, decimated by Spanish and Mexican raiders, disease, and settlers' occupation of their lands. The Delta's historic vernacular landscape overlays this ethnographic landscape created by native California Indians.

Descendants of the Delta's native California Indian residents are members of many contemporary tribes that retain an interest in the region's cultural resources. These include the Buena Vista Rancheria of Me-Wuk Indians, the California Valley Miwok Tribe, the Cortina Indian Rancheria of Wintun Indians, the Ione Band of Miwok Indians, the Jackson Rancheria of Me-Wuk Indians, the Shingle Springs Band of Miwok Indians, the United Auburn Indian Community of the Auburn Rancheria, the Wilton Rancheria, and the Yocha Dehe Wintun Nation.

- *Anglo-Americans*. Unlucky gold miners replaced the Delta's native California Indians, settling in simple camps on the rivers' natural levees to garden and cut wood to fuel passing steamboats. A few established camps near Clarksburg and Hood, attempting to claim land by preemption. In 1849, one small riverside farm was said to have returned its owner $25,000 at a time when many miners were lucky to clear $3-$4 daily. In subsequent decades, other American immigrants led efforts to purchase and reclaim the region's swamp and overflow lands, often capitalized with fortunes won in the mines. During levee construction and drainage, they worked as carpenters, teamsters, and managers. Others manufactured construction equipment used in reclamation or ran businesses in Delta communities. Most farmland was owned by Anglo-Americans, and they oversaw most farming operations.

- *Chinese*. In the post-Gold Rush era, Chinese laborers were among the first newcomers to arrive in the Delta, where they contributed to levee construction, orchard work, and potato, onion, and asparagus farming. Most Chinese workers had immigrated during and after the Gold Rush from the Pearl River Delta, where conditions resembled the Delta. They were brought to the Delta not to farm but to carry out the difficult work of reclamation for white landowners. As reclamation proceeded, some Chinese laborers remained to lease and farmland that they had drained. Later, the diversification of crops in the Delta meant that Chinese men could work in farming a variety of crops throughout the year. Weeding,

pruning, harvesting, as well as repair work on the farm and on the levees gave them ample work and allowed Chinese residents to stay in the region. In 1870s and '80s, Chinese growers dominated production of potatoes, vegetables, and beans in the Delta. Chinese tenants farmed leased plots on Pierson Tract, Brack Tract, Terminous Tract, Empire Tract, Roberts Island, Jones Tract, Victoria Island, and Byron Tract between 1880 and 1910. In 1910, Chinese farmers leased 5,381 acres in San Joaquin County, growing to 13,500 acres by 1920. In San Joaquin and Contra Costa counties work in canneries also contributed to the significant growth of Chinese populations after 1900, when they began finding long-term employment doing "floor work" previously reserved for white women including cutting, pitting, and sorting fruit.

Exclusionary laws led to the spatial isolation of Chinese residents of the Delta and the development of Chinatowns in Delta communities, including Courtland, Locke, Walnut Grove, Isleton, and Stockton. Emboldened by anti-Japanese agitation, a 1921 state law allowed for the establishment of separate schools for Chinese, Japanese, and south Asian and Indian children.

- *Japanese*. Japanese settlers arrived in the region to meet the demand for agricultural workers. Entering America through Pacific Rim ports like San Francisco, many first-generation *Issei* men found employment opportunities in agriculture in the Delta. Many started out as field hands, eventually becoming *keiyaku-nin* or a field foreman who supervised crews and helped to ensure the quality of the harvest. These immigrants moved into farming in great numbers and quickly progressed to secure long-term leases to grow high-value crops. By the turn of the 19th century, they began to overtake Chinese immigrants as the Delta's predominant tenant farmers. They made important contributions to large-scale agricultural operations including potato farming and cannery work.

  Japanese immigrants' success often made them the target of discriminatory policies including discriminatory land laws and the establishment of segregated schools in the Delta. To fight against these laws, George Shima became president of the Stockton-based Japanese Association of America from 1908 to 1925. Ultimately, racial hostility resulted in the forced relocation and incarceration of Japanese Delta residents during World War II. In spring 1942, Japanese families living throughout the Delta were evacuated to assembly centers and in some cases sent directly to the camps. For example, Issei and Nisei who were living in the Clarksburg area were forced to board trucks in Freeport and were then sent directly to the Tule Lake facility in northeastern California (now Tule Lake National Monument). Others were assembled in Courtland and sent by train to the assembly center in Turlock, eventually ending up at the Gila River camp in Arizona. Many Japanese Americans lost their homes, their land, and their family possessions. Some eventually returned to the Delta; most did not. Walnut Grove's Japanese community fared better than some because the local bank honored loans and local people took care of their property during internment.

- *Southern Europeans*. Southern Europeans began to arrive in the Delta region in the late 1880s. Italians made significant contributions to truck farming by introducing new varieties of Mediterranean crops. They were also important innovators of mechanized farming equipment and they developed important labeling and packaging advances that allowed for the export of quality produce to the world market. Portuguese immigrants from the Azores were involved in reclamation activities in the northern Delta. Their efforts led to the creation of the Lisbon District near Clarksburg and the manufacturing of the first clamshell dredger.

- *Filipinos*. Filipinos played a major role in Delta farming and the urban life of Stockton. As residents of a U.S. territory, they could immigrate to California free from the discriminatory quotas that constrained migration from other Asian countries. In the 1920s, their migration to California gained strength and Stockton was a primary destination. They made up ninety percent of the asparagus harvesters in the Delta during the 1920s and 1930s and worked under some of the most difficult farm labor conditions in the country. Filipinos used Stockton as a base, as they moved from one labor camp to another throughout the year.

  During the height of asparagus season, it is estimated that ninety percent (6,000 workers) of the harvesters were Filipinos. It was common to have teams of 300 asparagus cutters descend on the fields before dawn, attaching flashlights to their heads to see and be able to gather the tender shoots. Laborers would move from camp to camp, starting in January with asparagus picking, and then move on to row crops throughout the Central Valley and Central Coast. They used ferries and small boats to travel from one island to another to labor on farms and then return to temporary living quarters in Delta work camps.

  Filipino farm workers responded to difficult living and working conditions with resistance, became instrumental in the farm labor movement, and created highly influential ethnic organizations. A 1939 strike by the Stockton-based Filipino Agricultural Workers Union against asparagus growers on San Joaquin River delta lands was among the few farm labor actions of that era to secure better wages and working conditions. Filipino farm workers also struck in the 1940s and 1950s, securing grower concessions. In 1959, Larry Itliong, a Stockton-based Filipino labor activist, helped organize these strikes and later led the Agricultural Workers Organizing Committee, a precursor of the United Farm Workers Union.

- *Punjabi Sikhs*. Punjabi Sikh immigrants also arrived in the Delta in the early 1900s. The region resembled their homeland in northern India, and they found work in the Delta's orchard and field crops and eventually expanded into leasing farmland. Prevented from land ownership under the 1913 California Alien Land Act, Sikh workers struggled to establish a livelihood and retain their social and religious life amidst the same type of discrimination endured by other Asian immigrants. Sikh newcomers gained a foothold in the celery, bean, and potato fields near Holt, just east of Stockton They built a temple (*gurdwara*) there at a farm labor camp called Quito. They were also hired to work on farms in Isleton, often replacing Japanese workers. Locke's grain mill was operated by Sikh immigrants. Sikhs also settled in Stockton where they built the first permanent *gurdwara* in the United States in

1912. Much like the Japanese, Sikh field hands eventually advanced from performing wage labor for others to leasing farmland for themselves, and they ultimately thrived in the Central Valley.

- *Mexicans*. As the Filipino immigrant work force grew older, younger Filipinos moved from farm labor to the broader work force. To replace them, Delta farmers increasingly hired Mexican labor crews, primarily migrants from Michoacán and Jalisco. The 1940 census enumerated a well-established Mexican immigrant presence in the orchards and fields of the Delta. Immigration of Mexican laborers increased with the bracero farm labor recruiting system in 1942, which was initially driven by the demand for agricultural laborers to harvest the Delta's sugar beets. Today, Mexicans and immigrants from Central American comprise most of the Delta's farm laborers.

  Stockton resident Delores Huerta founded the Agricultural Workers Association in 1961 to lobby politicians on behalf of migrant workers and other issues and was an early organizer for the Agricultural Workers Organizing Committee, a precursor to the United Farmworkers Union. She later joined with Cesar Chavez and Stockton-based Larry Itliong to found the United Farm Workers Union.

Infrastructure. The Delta's railroads and roads were built in the early 20th century to transport its crops to market, competing with riverboats that had served waterfront communities and rural landings. Many roads follow riverbanks or levee tops, capturing trade previously carried by the riverboats that served waterfront villages and farms. Several branch railroads also pushed into the Delta as harvests of more valuable farm products increased. Key infrastructure in the project area includes:

- *Sacramento Southern Railroad*. The Sacramento Southern (SSRR), whose abandoned right of way is still evident, extended south from Sacramento to river landings in Freeport, Hood, Locke, Walnut Grove, Isleton, and Bouldin Island. Its main purpose was to haul fruit and vegetables to the Southern Pacific's yards in Sacramento and Roseville for shipment across the nation. Construction began in 1906 from Sacramento to Freeport. It reached Walnut Grove in 1912 with further extensions to Isleton in 1929 and a three-mile branch to the Golden State Cannery on the Mokelumne River in 1931. The SSRR continued operations until October 10, 1978, facing stiff competition from refrigerated trucks beginning in the 1950s. Rails and ties have all been pulled south of Hood, leaving occasional stretches of flattened right-of-way but little other evidence of the energy and scale of this historic operation. California State Parks owns some of the SSRR right of way.

- *Western Pacific Railroad*. The Western Pacific extended a spur west from its Sacramento-Stockton mainline to Terminous.

- *Roads and bridges*. In the 1910s-20s, paved roads, often atop riverside levees, began to be improved to serve newly popular automobiles and trucks. Engineers welcomed the traffic as the heavy cars and trucks helped consolidate the levees' sediments. The California Delta Highway, now State Route 4, was an early improved route connecting Stockton with Antioch

and the Bay area. In 1921, the River Road from Sacramento to Antioch, now State Route 160, was incorporated into the Victory Highway, an early transcontinental route named to memorialize American forces who died in World War I. Part of its route through Sacramento County was planted with trees forming an arbor that shaded the highway. Improvements to these and other Delta roads were spurred by passage of California's State Highway Act of 1915, the Federal Road Aid Act in 1916, and subsequent state and local bond acts.

Many Delta roads are served by its collection of more than two dozen bridges or ferries. By 1931, eleven were built in a remarkable burst of public works construction. These include draw and lift bridges at the Middle River and Old River on State Route 4 and the Paintersville Bridge, which are all on the National Register of Historic Places. Other historic bridges in the project area in Sacramento County include the Freeport Bridge, the Miller Ferry Bridge, the Snodgrass Slough Bridge, the Steamboat Slough Bridge, and the Walnut Grove Bridge. In San Joaquin County, other historic bridges in the project area include State Route 4's San Joaquin River Bridge and the Miller Ferry Bridge.

Communities. Delta towns encapsulate the region's history of boom-and-bust cycles, reliance on global markets, close ties to transportation conglomerates, and experiments in residential development. Significant sites in the Delta's cultural landscape in the project area include:

- *Hood*. The community of Hood began as "Richland" in 1860 for the purpose of shipping grain. It was the site of an early terminal from which local fruit growers shipped produce downriver. By the 1870s, these farmers formed the California Transportation Company whose steamboats carried their produce on the river. At its peak Richland boasted a warehouse, hotel, grocery, church, school, and post office. The community declined as crops shifted from grain to fruit but was revived and renamed in 1909 by William Hood, Southern Pacific's Chief Construction Engineer, who saw a future as the newly built SSRR reached the town. Edward Harriman, who owned the SSRR and the Southern Pacific, envisioned it as a picturesque "Netherlands Route" that would eventually connect Sacramento to San Francisco by rail and steamboat. A depot was built in Hood with a spur from the Sacramento Southern mainline down to the wharf where a large packing shed was constructed to service fruit producers, especially the California Fruit Exchange and Stillwater Orchards. The railroad partnered with Sacramento businessman Madison Barnes, who founded the Hood Improvement Company to develop a residential community adjacent to the new shipping facilities. A hotel, hardware store, grocery, church, and post office (1912) operated in the town. Beginning in World War II, a cadre of Mexican American agricultural workers, many of whom were participants in the Bracero program, settled in Hood with their families.

  Today, Hood has nearly 300 residents, 70 percent of whom are Hispanic. Many families have lived there for generations. The post office remains, and there is a market and a community park. Several historic properties are near the intersection of Hood-Franklin Road and State Route 160:

A. Hood Supply Company: The Hood Supply Co., a restaurant and bar, occupies a building that was originally a combination gas station, soda fountain, and mercantile and supply store serving travelers on the Victory Highway.
B. River Road Exchange: The River Road Exchange was originally home to a bustling waterfront fruit shipping and processing facility. Currently, the 100,000 square foot space is being renovated, with some renovation completed, for retail use, including the Willow Ballroom and potential future wineries, distilleries, or breweries. The owners envision a second phase that will restore the original waterfront, boathouse/steamer shed and pear lockers (with river views).
C. Hood Post Office (10749 River Road). The current building is the second to house Hood's post office. Its furnishings were relocated from its predecessor.
D. Delta Bait and Tackle (10749 River Road). This commercial building is a local example of early 20th century commercial architecture.
E. Casitas (10775 Third and 10781 Third Street). These tiny homes were built to provide affordable housing for railroad and farm workers. One is a studio. The other has a single bedroom. Other similar homes scattered through Hood have simple expansions, often a lean-to or enclosed porch, added as families expanded and their finance allowed. They are prototypes for today's "tiny homes".
F. Barnes House (10780 3rd Street). This large home, with elaborate garden landscaping, was the home of a son of Hood's developer.
G. 10727 2nd Street. This residence, like its neighbor, is typical of early wood frame Hood homes built for railroad workers.

- *Clarksburg*. In 1861, Frederick Babel acquired 160 riverside acres where Clarksburg stands and moved his family into a newly constructed house. Nearby Babel Slough is named for him. The community began as a simple river landing. A post office was established in 1876. The 1883 Clarksburg School House is among early structures remaining in the community. In 1920, the Holland Land Company, which had taken over the reclamation district extending west into the Yolo Bypass, began to improve Clarksburg as a model town to serve purchasers of farms in the surrounding Holland district, with a ferry and later a bridge linking it to Freeport. Many of the families who initially settled there are still present, reinforcing the community's small-town charm. Development of the American Crystal Sugar Company refinery, now the Old Sugar Mill, contributed to Clarksburg's growth and prosperity. Many properties in the community were built prior to 1970 and exemplify architectural styles of the eras of their construction. The Medieval Revival-style Clarksburg Community Church was designed by well-known architect William Raymond Yelland, who spent his summers in Clarksburg. Clarksburg's population in 2018 was 442.

  Clarksburg was a southern anchor to the riverside Lisbon District, which attracted many immigrants from the Azores. By 1880, the census recorded Portuguese immigrants comprised forty percent of the population of the area, giving rise to the reputation of the riverside north of Clarksburg as "Portuguese Bend."

For Portuguese in the Delta, community identity and cultural renewal center on participation in the annual *Festa do Espirito Santo* (Festival of the Holy Spirit), held since 1893 at the historic Portuguese IDES (*Irmandade di Espirito Divino*) Hall, on South River Road in Clarksburg, and commonly referred to as simply the festa. Traditionally held on Trinity Sunday, eight weeks after Easter, the festa attracts Portuguese from throughout northern California. Prior to construction of the Freeport bridge, celebrants would converge in Freeport and then ride the Soto Ferry to the IDES Hall. The festa celebration lasts several days and includes a procession of bands and queens dressed in handmade capes and gowns, walking along South River Road from St. Joseph Catholic Church to the IDES Hall, where a community meal of *sopas e carne* (Azorean beef stew ladled over mint bread) is served.

Holland Union Gakuen, one of the few remaining Japanese language school buildings in the Delta, is also located in Clarksburg. Plans to preserve and redevelop this historic site are currently underway.

- *Courtland*. James Sims, a forty-niner, established the town in 1871, downstream from a Chinese community that had answered the call for farm laborers and levee construction. It developed as a Delta-oriented trading and shipping center. A post office was established here in 1872, followed by wharves, a hotel, and stores. Early photographs show a bustling community complete with social halls, grocery stores, a Greek revival bank with Doric columns, a service station, and the iconic Courtland Market, which remains one of the most recognized buildings in town today.

  Though small, Courtland's Chinatown served a large Chinese population, many living on surrounding farms. Its Chinatown suffered fire in 1879 and again in 1906. The town was the site of the Courtland Bates Oriental School, a separate school for Chinese and Japanese children. It was later converted into a public elementary school which still operates today.

  Courtland thrived with the prosperity of fruit growers and asparagus farmers on Pierson Tract and other nearby islands. It also attracted Italian immigrants who maintained orchards and dairy herds. "Vista del Rio Brand" pears were grown and packed by J. A. DeBack at Courtland in the 1920s. The imagery on its crate label features a large Delta farmhouse, fenced yard, and a steamboat and canoe on the Sacramento River. Today, Courtland's small commercial center includes Chinese architecture and an outdoor museum featuring farming equipment from Chan's Diversified Farms. The town's population in 2018 was 537. The town's Pear Fair is held in the summer and is a celebration of the annual Bartlett pear harvest and the town's unique character and rural lifestyle.

- *Locke*. According to the Locke Foundation, Locke is the nation's last vestige of a rural Chinese community. It originated as a Delta-oriented trading and shipping center for John Locke, a Delta pear grower and merchant. In 1914, Chinese merchants leased lots from Locke, where they built a store, saloon, boarding house, and gambling parlor. In 1915, Locke's primarily Chinese workers and their families, many from Walnut Grove, following

fires that displaced them from their homes, chose to relocate to Locke's property and began expanding the town. "Pride of the River" brand was George Locke's personal label for the pears and asparagus shipped from his riverside packing house. On its label, three pears in the foreground lead the viewer to see a steamboat on the Sacramento River with a colorful sky.

Locke's four blocks of one- and two-story commercial and residential buildings, designed in the false-fronted, woodcutter Gothic style, are typical of turn of the 19th-20th century river towns. Locke is also home to the Chinese School, established in 1915. The building was funded by the Kuomintang (Chinese Nationalist Party) and was originally used as a meeting place for Kuomintang members. A bust commemorating the Chinese revolutionary leader, Dr. Sun Yat-sen, is in front of the school. A permanent population of around 400 made this an important ethnic as well as social and economic center for the Chinese, with up to 1,000 workers entering the town and the nearby orchards during harvest and packing season. Locke was a lively hub of activity in the 1920s, supporting a permanent population of around six-hundred residents. On the weekends, the population would swell closer to a thousand with field workers coming into town from the surrounding agricultural camps. The Libby Fruit Company began processing tomatoes at Locke in the early 1920s.

As its residents dispersed and its Chinese population declined, Locke's setting and low rents have sometimes attracted artists and writers. These including the late Laura Ulewiecz, a Beat generation poet whose poems include "Notes toward the River Itself" and the late photographer James Motlow whose pictures illustrate the book *Bitter Melon: Stories from the Last Rural Chinese Town in America*.

Today, Locke maintains its charm and authenticity. Many of the Chinese-built buildings are still in use; they may no longer be a saloon, goods store, or bordello, but they retain their unique character and are being preserved for future generations. John Locke's riverside packing shed is a boathouse, and the Dai Loy Museum is housed in the former gambling hall. The town's current population is 40 to 50. The community hosts an annual Asian-Pacific festival each spring. Locke symbolizes the tenacity of immigrant Chinese who overcame prejudice and segregation to form a cohesive community with the full range of businesses, social and religious institutions, and housing.

The Locke Historical District is a national historic landmark. The Dai Loy Museum, the Chinese School Museum, the private Jan Ying Association Museum, and the Locke Boarding House, a California State Park property, help preserve and interpret the community's history.

- *Walnut Grove.* A post office was established in Walnut Grove in 1850. Its location at Tyler and Georgiana sloughs' confluence with the Sacramento River helped it develop as a Delta-oriented trading and shipping center. It was named by its founder, John Wesley Sharp, for the native trees he found there. Sharp acquired 160 acres under the 1850 Swamp Land Act and built a wharf, making the eventual town an important transportation stop along the Sacramento. He donated land for the first school and the site for the California

Transportation Company's landing. Walnut Grove benefited from river traffic, stage service, and ferries linking it to Grand, Andrus, and Staten Islands.

Walnut Grove's Chinese settlement was established in the mid-1870s, initially including residents from both the Sze Yup and Zhongshan districts of China's Guangdong Province. By the early 1900s, Walnut Grove supported the largest Chinatown in the Delta. Japanese residents created their own district just north of the Chinese settlement. By the 1920s, the right bank (Clampett Tract) was the preferred location for the town's prosperous residents. Such clusters of homes were given the name "Asparagus Row." Over time, Walnut Grove boasted a diverse mix of commercial and cultural establishments including canneries, a theatre, and several European-style hotels.

Currently, Walnut Grove is divided into three sections. First, located on the high ridge of the east bank levee is the main business section. Behind the levee is old town, which includes some of the commercial activities Walnut Grove has to offer along with Chinatown and Japantown. Lastly, across the main bridge are stores, churches, and the "bedroom community." The town's population in 2018 was 1,542.

Walnut Grove includes three districts on the National Register of Historic Places: the Walnut Grove Chinese American Historic District, the Walnut Grove Commercial-Residential Historic District, and the Walnut Grove Japanese American Historic District, as well as three other properties on the national register: the Imperial Theater, the John Stanford Brown house, and the Walnut Grove Gakuen Hall. Several buildings blend Chinese influence with the 1930s' Streamline Moderne style. The Chinese Freemason Hall is another prominent landmark. Other important landmarks include several businesses owned by Alex Brown and other family members, the Walnut Grove Buddhist Church, Kawamura's Barber Shop, and Hayashi's Market.

- *Terminous*. Terminous owes its founding to a water-rail connection point, located at the confluence of Potato Slough and the Mokelumne River. The town earned its name, as it was the "end of the road" for the Western Pacific Railroad's spur into the Delta. It was an especially important trans-shipment point for asparagus from Bouldin Island where the first test fields of the crop were planted. The town became the focus of vegetables brought in on barges from a wide area for washing, trimming, and crating. At the height of the season, it is estimated that 350 laborers were on hand to process the region's agricultural bounty with most workers living in Terminous' "box car city," made up of de-wheeled wooden box cars set up on old railroad ties. By the late 1930s, the town's freight business was made obsolete by the introduction of refrigerated trucks and smaller packing sheds distributed throughout the area. A three-story culling chute adjoining Little Potato Slough remains as a reminder of the landing's heyday. In 1983, it was nominated to the National Register of Historic Places.

  Terminous has made the successful transition from an agricultural-based economy to recreation and tourism. Many of the town's original waterfront warehouses have been repurposed as boat storage facilities and the former box car city has been replaced by camp sites and a mobile home park near a large marina. Its population in 2010 was 381.

- *Holt*. Holt, eight miles west of Stockton, is named for the Holt family around whose farmsteads the community grew. It was located on spur railroad tracks linking Delta landings and farmers on nearby Roberts Island, Union Island, and Upper and Lower Jones tracts to the main rail network. Its advantageous location along the Borden Highway (now State Route 4), the first paved road in the Delta, reinforced the town's importance. The hamlet was even featured in a *Sunset* Home Seekers Bureau publication extolling Holt as the largest town in the San Joaquin Delta.

  In its day, Holt was a bustling place with a hotel, speakeasies, and bordellos. Many agricultural laborers were employed in the Holt area and not surprisingly, the town became an entertainment mecca on weekends. There were gambling houses, illegal stills, and prostitutes and "taxi dancers" (paid female dance partners) arriving by train from Stockton in the late afternoon. Holt also displayed an early multiethnic character that included Chinese and Japanese sections of town. By 1917, the local school included students with Japanese, Mexican, Portuguese, and Italian heritage. Its current population is 110.

  Holt also was a center for early innovation in the region. In 1904, the first successful test of the Caterpillar track-powered vehicle occurred in Holt. "Scientific" farmers experimented with Red Milo Maize and found hemp to be a viable crop in the area. Early dairyman John DeCarli introduced Ladino clover to milk production and developed new technologies for piping milk from dairies into tankers.

- *Byron*. In 1878, the town of Byron was established. By 1880, the Southern Pacific Railroad added a passenger stop there to serve the nearby Byron Hot Springs resort. Promoters continued to advertise the Byron area well into the 1920s as the heart of California's "Edenic Delta". Its population in 2010 was 1277.

- *Historic rural farmsteads.* In addition to these settled communities, individual rural farmsteads were located along the Sacramento River and other channels. Many featured their own landings where crops could be loaded onto passing riverboats or supplies received from carriers like the Southern Pacific Railroad and the California Transportation Company, which ran riverboats from Sacramento to San Francisco, and the California Navigation and Improvement Company on the San Joaquin River, serving hundreds of landings.

  Especially noteworthy in the project area are the farmsteads along the Sacramento River from Freeport south to Walnut Grove. Here the acreage limitations of the early Swamplands Acts encouraged division of the land into long-lots that are unique in California history but similar to the French system along the St. Lawrence, around Detroit, and in Louisiana. Each family on the Sacramento had river frontage, with a long strip of land running perpendicularly away from the river. Typical house construction was two-stories with kitchen and pantry on the ground floor and bedrooms and living quarters above, an architectural pattern still visible today. Riverside farmsteads also often included a multi-story tankhouse, a smokehouse, sheds, garages, and occasionally a barn. Many homes and some outbuildings were elevated on mounds to avoid floods.

The Greek Revival Runyon House on River Road near Courtland, a National Register property built by one of the Delta's early orchardists, is representative of many early farm residences. The Rosebud Ranch, an Italianate house on the National Register of Historic Places, fronts the Sacramento River near Hood and typifies more elaborate later 19th century farm homes. Beginning in 1967 it was the home of celebrated artist Wayne Thiebaud. Here Thiebaud painted a series of Delta landscapes, such as "Brown River" and "Y River".

Along the riverside are many other fine old riverside homes built by the "pearistocracy" of prosperous fruit growers during the 19th or early 20th centuries but not yet listed on the National Register. Older residences may be 2-story Victorians, while more modern bungalows date from 1910-1930. Examples include the Lisbon District's Brown House, the Cornish House south of Clarksburg, the Greene home south of Hood, Merritt Island's Nelson Bump house, the Thomas Webster Dean House and "Ivy Banks," George Buckham Greene's house north of Courtland, the George Augustus Smith house south of Courtland, the Solomon Runyon, and William Neely Runyon homes on Sutter Island downstream from Paintersville, and the Albert Thomas James Reynolds house north of Walnut Grove. The river, its levees, and the surrounding reclaimed farmland contribute to the setting of each of these properties, buttressing their authenticity and integrity.

Farm workers on Delta farms rarely enjoyed such comfortable homes. Rather, while tending crops they often lived on weekdays in barracks at the back of the property, close to the orchards and fields they tended. Old barracks remain on some properties, often in disrepair. Prior to the 1950s, weekends and the off-season found Asian farmworkers rooming at boarding houses in Courtland, Locke, Walnut Grove, Holt, or Byron, where they found companionship and relaxation in gambling halls, bordellos, and speakeasies, or in Chinatowns in Stockton, Sacramento, or even San Francisco.

# 8.0 Water Management

Managing water has been a key to Delta life since construction of its first levees, ditches, and tide gates. The region's easy access to irrigation water protected reclaimed lands from droughts that desiccated farms in the Sacramento and San Joaquin Valleys. More recently, the Delta's location at the hub of the Central Valley Project and State Water Project has focused attention on protecting the region's resources and unique landscape from the depredations of outside agencies that covet its water. Debates about these projects from the 1940s to the contemporary era define too many Californians understanding of the Delta.

Key water management resources of the Delta's cultural landscape in the project area include:

- Local irrigation works. Irrigated agriculture became common in the Delta during the 1870s, although it had been practiced earlier. Flood irrigation, with water delivered at high tide through tidal gates in levees and spread by gravity through ditches across the level islands, then removed at low tide through drainage ditches, was initially the most common method.

But this system worked poorly on low-lying islands, and by the end of the 1880s began to be replaced by sub-irrigation. This method involves raising the water table by filling a system of unlined head ditches and small lateral ditches ("spud ditches"). First utilized for potatoes by George Shima, and for beans or volunteer hay crops, sub-irrigation gradually became the standard method for all crops grown. After 1900, siphons were often used to divert water to more subsided islands. In 1910, over 60 percent of Delta farmland was irrigated. In spring, as crops are emerging, and during summer heat, head ditches often run full with water to sustain the season's produce. At other times, pumps and siphons are employed to drain and discharge excess water from low-lying islands to adjacent sloughs.

- Mokelumne Aqueduct. The East Bay Municipal Utility District's Mokelumne Aqueduct crosses Roberts Island and Jones Tract, carrying water from the Pardee Reservoir and the Folsom South Canal to parts of Alameda and Contra Costa counties. Its initial above-ground cross-Delta pipeline was built between 1926 and 1929. A second pipeline was added in 1949 and a third in 1963. Water delivered through the aqueduct has been a key to development of urban communities in the East Bay.

- Central Valley Project. With the introduction of commercial production of rice In the Sacramento Valley in 1912, demand for irrigation water from the Sacramento River and its tributaries increased radically. In only four years, from 1915 to 1919, irrigation diversions of Sacramento River water doubled from 1.15 million acre-feet to 2.30 million acre-feet, drastically reducing Sacramento River flows to the Delta and increasing penetration of ocean salinity, harming Delta and Suisun Bay water users. In 1920, this situation coincided with a serious drought, which exacerbated the salinity problem, prompting the state to search for a solution. The resulting plan, which passed into State law in 1933 as the Central Valley Project Act, called for development of Shasta Lake on the Sacramento River to release water to the Delta to repel salinity. The act was welcomed by Delta residents, who believed that the project would secure the future of agriculture not only in the Delta, but throughout the Central Valley.

  When the Great Depression impaired California's capacity to finance the project, the State appealed to the federal government, which responded in 1935 by authorizing initial construction by the Corps and again in 1937 when Congress authorized the Bureau of Reclamation's Central Valley Project (CVP). It called for Shasta Dam on the upper Sacramento River to regulate the river's flows to control salinity problems in the Delta, Friant Dam on the San Joaquin River from which water would be diverted south to farms on the San Joaquin Valley's east side, and the Delta-Mendota Canal to deliver "substitute" water from the Delta to lower San Joaquin River water users. The Delta-Mendota Canal established a precedent for water transfers across the Delta from the Sacramento Valley to the San Joaquin Valley.

  CVP features in the project area include the C.W. Bill Jones Pumping Plant, completed in 1951 near Tracy to pump Delta water south to the Delta-Mendota Canal. Further north, the Delta Cross Channel, located between Locke and Walnut Grove, was constructed to send

fresh water from the Sacramento River toward these pumps through the Mokelumne, San Joaquin, Middle, and Old Rivers. Western Area Power Administration transmission lines cross Roberts Island and Byron Tract to serve the CVP's Jones pumping plant.

- State Water Project. The magnitude of water diversions through the Delta from the Sacramento River, and the problems for the Delta associated with them, would increase dramatically after the 1960s when the State Water Project (SWP) was constructed. The project dammed the Feather River at Oroville to transport part of its flow, mingled with that of the Sacramento River, across the Delta and into the new California Aqueduct, which provides water to the west side of the San Joaquin Valley and beyond to the cities of Santa Clara County and southern California. Historic SWP properties in the project area include the Clifton Court Forebay and Bethany Reservoir.

Throughout the period of the SWP's development and during the more recent era of Delta water planning, Delta residents have generally opposed a series of Delta conveyance projects and large habitat restoration programs to compensate for the CVP's and SWP's impacts, including the proposed Peripheral Canal in the 1970-80s, the CALFED Bay-Delta Program in the 1990-2000s, and the Bay-Delta Conservation Plan and California WaterFix in the 2010s. Delta residents viewed these projects as threats to the Delta's agricultural, historic, and natural landscape, objecting to the multiple adverse effects these projects would have on the region's identity. None of these projects were constructed, but a series of borrow pits excavated as part of constructing Interstate 5, including the White Slough Wildlife Area in San Joaquin County, mark the canal's proposed route. Meetings where opposition to these projects was voiced were held at Walnut Grove's Jean Harvie Community Center, a California Point of Historical Interest.

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