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August 27, 2018

Chair and Members
Delta Stewardship Council
980 Ninth Street; Suite 1500
Sacramento, CA 95814

Re: Appeal of California WaterFix Consistency Certification – Water Code, § 85225.10 - 23 CCR § 5002(a)

Delta Stewardship Council:

This appeal of the State of California DWR's certification of consistency for the California WaterFix (CWF or "the Project") is submitted on behalf of the County of Sacramento ("the County") and the Sacramento County Water Agency (SCWA). The Project proposes the construction and operation of substantial industrial water supply infrastructure within the Sacramento County portion of the Sacramento-San Joaquin Delta. This massive undertaking poses unacceptable impacts for both Sacramento County and the broader Delta region. The Project conflicts with the Delta Reform Act and the Delta Plan including, but not limited to, policies and goals enacted to protect the ecology, culture, economy, agriculture and natural resources of the Delta. (See, e.g., Water Code, §§ 85020, 85301, subd. (a).) One devastating example of this is the acknowledged permanent conversion of 3,909 acres of Important Farmland. (FEIR, p. 14-111.)

The Project would also defeat the policies of the Delta Reform Act and Delta Plan by increasing, rather than reducing, reliance upon the Delta for water exports. (See Water Code, § 85021.) Ostensibly devised as a solution for the environmental problems caused by operation of the Jones and Banks pumps near Tracy, the Project would reaffirm and potentially expand State Water Project (SWP) and Central Valley Project (CVP) reliance upon Delta water, while nevertheless *continuing* to use the Jones and Banks pumps as part of a through-Delta "dual conveyance" operation. (FEIR, pp. 3-90, 3-92.) The Project simply magnifies the challenges and drawbacks of Statewide

dependence on Delta water.

DWR's California WaterFix must be consistent with the Delta Plan. (See Water Code, § 85022, subd. (a).) Further, DWR must certify how the Project is consistent with specified regulatory policies. (Cal. Code Regs., tit. 23, § 5002, subd. (a).) For all of the reasons stated herein, DWR has failed to demonstrate in its Certification of Consistency (filed 7/27/2018) how the Project is consistent with the Delta Plan, how it meets the regulatory policies and how it furthers the coequal goals of the Delta Reform Act. (See Water Code, §§ 85020, 85054.)

The "coequal goals" of the Delta Reform Act refers to "the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem." (Water Code, § 85054.) These goals must 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." (*Ibid.*) Thus, although the Delta Reform Act may call for efforts - and even infrastructure - to improve water supply reliability, it must not be done at the expense of the existing and "evolving" Delta culture and environment.

As discussed below and in the County's supporting materials[1], the Project is inconsistent with the Delta Plan and, as a result of that inconsistency, the Project will have a significant adverse impact on the achievement of one or both of the coequal goals. (See Water Code, § 85225.10.) DWR's Certification of Consistency is not supported by substantial evidence in the record. (See Water Code, § 85225.25.)

THE PROJECT IS NOT CONSISTENT WITH DELTA PLAN POLICIES AND THE REGULATORY POLICIES OF THE DSC.

The Project Fails to Document Use of the Best Available Science. (Delta Plan Policy G P1(b)(3); 23 CCR § 5002(b)(3))

Delta Plan Policy G PI, (Detailed Findings to Establish Consistency with the Delta Plan) requires that all covered actions "document use of best available science." (2013 Delta Plan, p. 53.) The 2015 ISB Report, along with the ISB's May 2014 review of the DEIR/DEIS are highly critical of the data and methodologies supporting the Project and its environmental studies. The ISB's detailed comments lament the RDEIR/SDEIS's "missing content," including key information about adaptive management and collaborative science, how levee failures would affect operation of dual conveyance systems, the effect of climate

[1] This Appeal includes supporting written factual testimony that will be filed along with the appeal. In addition, pursuant to Section 11 of the DSC Administrative Procedures Governing Appeals, the County anticipates submitting additional written factual testimony subsequent to the appeal deadline, but no later than 10 days before the appeal hearing.

change on expected water exports from the Delta and system operations, and effects of changes in operations of the State Water Project and Central Valley Project or other changes in water availability, on agricultural practices in the San Joaquin Valley. (See 2015 ISB Report, at p. 4 et seq.) The 2015 ISB Report is substantial evidence of the DWR's failure to document the use of best available science. Additionally, the expert reports of MBK Engineers, Dave Vogel, Robert Latour and others who commented on the DEIR/DEIS and/or the RDEIR/RDEIS provide additional substantial evidence to demonstrate that the Project and its environmental review documents do not document the use of best available science. In this critical respect the CalWaterFix and its EIR/EIS are inconsistent with both the language and intent of the Delta Reform Act and Delta Plan.

The Project Fails to Properly Define Adaptive Management.
(Delta Plan Policy G P1(b)(4); 23 CCR § 5002(b)(4))

Delta Plan Policy G P1 requires that water management covered actions include adequate provisions appropriate to the scope of the covered action, to assure continued implementation of adaptive management. This requirement shall be satisfied through both of the following: (A) An adaptive management plan that describes the approach to be taken consistent with the adaptive management framework in Appendix 1B; and (B) Documentation of access to adequate resources and delineated authority by the entity responsible for the implementation of the proposed adaptive management process. (2013 Delta Plan, p. 53.)

An essential element of an adequate adaptive management process as defined in Appendix IB of the Delta Plan is the establishment of concrete performance measures against which impacts and mitigation, and the success of the adaptive management process itself, can be measured. (See, e.g., Appendix IB, pp. 1B-3-IB4.) The Project FEIR relies heavily on vague and undefined "adaptive management" processes to quantify and mitigate the Project's many significant environmental impacts. The lack of specified thresholds for action was criticized by the SWRCB in its July 29, 2014, comments on the BDCP and DEIR/DEIS[2], and this error has not been corrected.

The ISB was highly critical of the RDEIR/SDEIS's treatment of adaptive management. (See 2015 ISB Report at pp. 5-6.) The ISB was unable to "find examples of how adaptive management would be applied to assessing - and finding ways to reduce - the environmental impacts of project construction and operations." (*Id.* at p. 5.) The ISB found the project proponents' continued deferral of development of information about adaptive management to project

[2] See July 29, 2014, letter to Ryan Wulff by Diane Riddle, Environmental Program Manager, SWRCB re. Comments on BDCP, Draft BDCP EIR/EIS and BDCP Implementing Agreement.

construction and operations to be inexcusable. Specifically, the ISB opined that "if adaptive management and monitoring are central to California WaterFix, then details of how they will be done and resourced should be developed at the outset (now) so they can be better reviewed, improved and integrated into related Delta activities." (*Id.* at p. 5.) The ISB concluded:

> The protracted development of the BDCP and its successors has provided ample time for an adaptive management plan to be fleshed out. The [RDEIR/SDEIS] does little more than promise that collaborations will occur and that adaptive management will be implemented. This level of assurance contrasts with the central role of adaptive management in the Delta Plan and with the need to manage adaptively as climate continues to change and new contingencies arise.

(*Id.* at p. 6.)

The County further submits written testimony by Thomas Stokely, filed herewith, elaborating on the deficiencies of the Project's adaptive management program.

The Project's lack of a scientifically and legally adequate adaptive management process is inconsistent with Delta Plan Policy GP 1.

The Project Increases, Rather Than Reduces, Reliance on the Delta as a Water Source.
(Delta Plan Policy WR P1; 23 CCR § 5003)

Delta Plan Policy WR P1 states the following:

"Water shall not be exported from, transferred through, or used in the Delta if all of the following apply:

(1) One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);

(2) That failure has significantly caused the need for the export, transfer, or use; and

(3) The export, transfer, or use would have a significant adverse environmental impact in the Delta."

(Cal. Code Regs., tit. 23, § 5003, subd. (a).)

In order to satisfy item 5003(a)(1) of this Policy, DWR would need to show that *every* south-of-Delta SWP and CVP exporter has done each of the following:

"(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;

(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and

(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a)."

(Cal. Code Regs., tit. 23, § 5003, subds. (a) & (c).)

DWR has not made the showing required in item 5003(a)(1). (See DWR Certification of Consistency, at p. 6.) In fact, DWR's consistency finding for WR P1 does not directly address the three self-reliance criteria set forth in subdivision (c) of Section 5003. Instead, DWR offers – "to the extent feasible" - a part-quantitative, part-qualitative exporter self-reliance assessment that does not meet the specific, express requirements of Section 5003(c).

The collective failure of regional self-reliance has significantly caused the need for the Project or, more specifically, a project of this size. A water export project of this magnitude is necessary precisely because the exporters have not sufficiently contributed to reduced reliance on the Delta. Whatever self-reliance efforts have been made have been insufficient to negate or reduce the scale of the proposed Project.

DWR attempts to explain away the "need" element (§ 5003(a)(2)) by reasoning that the need for the WaterFix "predates" and "exists independently" of this Delta Plan policy. (DWR Cert. of Consistency, p. 6.) To accept this argument is to accept the position that the WaterFix is not subject to the Delta Plan's concerns regarding over-reliance on the Delta. There is nothing in the Delta Plan

to suggest that is the case. Even if the Delta Plan recognizes a need for new conveyance infrastructure, that infrastructure must be subject to a consideration of the extent to which it is made necessary by lack of regional self-reliance. Proper consideration of such dependence on the Delta will inform the scale and appropriateness of such a project.

By way of the Project Final EIR's analysis of Alternative 4A, DWR effectively concedes that the "export, transfer, or use would have a significant adverse environmental impact in the Delta." (See, e.g., FEIR, pp. ES-60, ES-62, ES-66, ES-67, ES-117, ES-118, ES-119, ES-120, ES-125, ES-126, ES-128, ES-129, ES-130, ES-132, ES-142, ES-143, ES-144, ES-146 and ES-147.) These various significant and unavoidable impacts occur, for instance, with respect to groundwater depletion, water quality (mercury concentrations), loss of topsoil, land use (new physical structures adjacent to existing communities), permanent conversion of Important Farmland, reduction of recreation opportunities, permanent visual impacts to scenic vistas/resources, effects on archaeological and historic sites, traffic (level-of-service), air quality (GHG and regional criteria pollutants), and construction noise.

DWR misstates the "significant adverse impact" criteria of Policy WR P1 (§ 5003(a)(3)). DWR's Certification states "there is no significant change in amount of water exported that could cause a significant adverse environmental impact in the Delta." (DWR. Cert. of Consistency, p. 6.) That is not the requirement. The issue is simply whether "the export, transfer, or use would have a significant adverse environmental impact in the Delta." The FEIR (and pending Supplemental EIR) make clear that it will.

DWR relies on a self-serving interpretation of "water export" to make the case that Policy WR P1 is not applicable to the Project because the Project does not expand any existing water rights. (DWR Certification of Consistency, p. 5.) Such an interpretation would have the absurd and ironic result of ignoring the goal of reduced Delta reliance in the context of the largest Delta export conveyance project in decades. The occasion of the WaterFix approval is the ideal time to apply this Policy and consider whether the self-reliance efforts of SWP and CVP exporters have been sufficient to justify a project of this scope.

The Project Fails to Respect Local Land Use.
(Delta Plan Policy DP P2; 23 CCR § 5011)

Delta Plan Policy DP P2 (Respect Local Land Use When Siting Water or Flood Facilities or Restoring Habitat) requires that water management facilities respect local land use and be sited to avoid or reduce conflicts with existing uses or those uses described or depicted in city and county general plans. (2013 Delta Plan, p. 194.) The proposed diversion facilities and associated infrastructure fail

to respect local land use and will conflict with and irreparably damage the existing Delta communities of Hood, Clarksburg and Courtland by permanently altering the physical landscape, including agricultural and cultural/historic uses, substantially degrading its unique, secure qualities and cultural/historical and economic values in perpetuity. For instance, construction of the three proposed intakes in Sacramento County will permanently convert 270 acres of agricultural land. (See FEIR, p. 3-91.)

The Project would also conflict with established and planned park and recreational areas in the Delta, including Stone Lakes National Wildlife Refuge and the Cosumnes River Preserve. The Project would site permanent tunnel access shafts (two on Staten Island) and permanent "Reusable Tunnel Material areas" (RTM's) upon and adjacent to these recreational areas. DWR states that it "has decreased and/or moved project facility footprints to reduce impacts to existing uses and the environment". (DWR Cert. of Consistency, p. 9.) However, as recently as the release of its still-pending Supplemental EIR, DWR has proposed changes that would substantially increase the acreage of the northern shaft site on Staten Island (part of the Cosumnes River Preserve) and consolidate various RTM locations at a site immediately adjacent to the Cosumnes River Preserve. The Draft SEIR acknowledges that the total area of RTM sites will increase by 171 acres. (See Draft SEIR, p. ES-6.)

The County offers the written testimony of County Supervisor Don Nottoli, Professor Robert Benedetti, County Agricultural Commissioner Julie Jensen, Virginia Henley Chhabra, Chrisandra Flores, Jeff Leatherman and Amber Veselka, filed herewith, as evidence of the Project's conflicts with the County's established and planned land uses. The County also expects to subsequently file, pursuant to DSC Administrative Procedure section 11, excerpts of the County General Plan Land Use and Agricultural Elements to show how and where the Project is inconsistent with the County General Plan.

For these reasons and the reasons set forth in the accompanying written testimony, the Project is fundamentally inconsistent with Delta Plan Policy DP P2.

The Project Fails to Protect Beneficial Uses of Water.
(Delta Plan Recommendation WQ R1)

Delta Plan Policy WQ RI, Protect Beneficial Uses, provides that water quality in the Delta be "maintained at a level that supports, enhances and protects beneficial uses identified in the applicable State Water Resources Control Board or regional water quality control board water quality control plans." (2013 Delta Plan, p. 230.) The Project will have significant adverse effects to Delta water quality, including salinity, that threaten beneficial uses identified in

the applicable water quality control plans, including agricultural irrigation water, fisheries and drinking water for Delta communities. For instance, increases in mercury levels in Delta water will occur that pose health risks to fish, wildlife, and humans. (See FEIR, p. 8-949.) By degrading Delta water quality to levels that threaten existing beneficial uses, the Project is inconsistent with Delta Plan Policy WQ R1.

The County will file, pursuant to DSC Administrative Procedures, Section 11, the written testimony of Ben Bray and Forrest Williams relating to the Project's impacts on water quality; specifically, how the Project will cause reverse flows moving upstream from the Sacramento Regional County Sanitation District facility, which would require shut down of the SCWA Freeport water intake facility.

THE PROJECT IS INCONSISTENT WITH THE COEQUAL GOALS OF THE DELTA PLAN.
23 CCR § 5002(b)(1)

When a covered action cannot show full consistency, "the agency that files the certification of consistency may nevertheless determine that the covered action is consistent with the Delta Plan because, on whole, that action is consistent with the coequal goals." (Cal. Code Regs., tit. 23, § 5002, subd. (b)(1).) In its Certification of Consistency, DWR attempts to make such a showing generally and in the context of Delta Plan Policy WR P1 (Reduce Reliance on the Delta). (See DWR Cert. of Consistency, pp. 2, 6-7.) As discussed above, there are several areas where the Project is not consistent with the Delta Plan. DWR, however, cannot rely upon this regulatory savings clause because the Project is inconsistent with the coequal goals.

Providing a More Reliable Water Supply Via Cal WaterFix Cannot 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.

Even if the Project is accepted as one that will provide a more reliable water supply for California, it cannot be constructed, implemented and operated "in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the delta as an evolving place." (Water Code, § 85054.) Rather, the Project will harm and adversely impact each of these Delta values.

In its Final EIR, DWR concedes that the Project will have multiple significant and unavoidable impacts on cultural resources of the Delta. (See FEIR, pp. 18-213 to 18-219.) Construction of the conveyance facilities would

affect ten identified archaeological resources that occur in the Project footprint. (See FEIR, p. 18-213.) DWR identified these resources and and found that they are likely to qualify as historical resources or unique archaeological resources under CEQA. (See *ibid.*; see also FEIR Appendix 18B.) In addition, ten identified historic-era built-environment resources have the potential to be directly or indirectly affected by constructing the water conveyance facilities. (See FEIR, pp. 18-216 and 18-217; See also FEIR Appendix 18B, p. 188-17 to 188-18.) These are resources, such as the Mosher House and George Cornish House of Clarksburg, that are eligible for listing on the National Register of Historic Places and the California Register of Historic Places. (*Ibid.*)

The County also submits with this appeal the written testimony of Dr. Robert Benedetti, which addresses the Project's impacts on Delta cultural resources. The written testimony of Reza Moghissi, filed herewith, describes how the Project's impacts on transportation in the Sacramento County portion of the Delta will affect the Delta lifestyle and economy.

The Final EIR acknowledges that "construction of the [Project] intakes and related water conveyance facilities would result in permanent and long-term (i.e., lasting over 2 years) impacts on well-established recreational opportunities and experiences in the study area because of access, noise, and visual setting disruptions that could result in loss of public use." (FEIR, p. 15-469.) Two recreation sites, Clifton Court Forebay and Cosumnes River Preserve, are within the construction footprint and six recreation sites or areas (Sone Lakes NWR, Clarksburg Boat Launch, Wimpy's Marina, Delta Meadows, Bullfrog Landing Marina, and Lazy M Marina) are within the 1,200 to 1,400-foot indirect impact area. (See FEIR, p. 15-468.) This is a significant and unavoidable impact. (See FEIR, p. 15-469.)

The written testimonies of Jeff Leatherman and Amber Veselka, filed herewith, further describe the Project's impacts on recreational resources within the Delta.

DWR concedes several significant and unavoidable Project impacts to Delta agricultural resources. (See FEIR, pp. 14-191 to 14-198.) "Permanent features associated with [the Project] could convert approximately 3,909 acres of Important Farmland and 2,035 acres of land subject to Williamson Act contracts to other uses." (FEIR, p. 14-191.) Further, the FEIR states that:

> Alternative 4a [will have] effects related to seepage from the operation of forebays and from disruption of drainage and irrigation facilities during construction of water conveyance facilities. The conveyance alignment constructed under this alternative would cross or interfere with approximately miles of agricultural delivery

> canals and drainage ditches. These activities could create indirect but adverse effects on agriculture by converting substantial amounts of Important Farmland and through disruption of drainage and irrigation facilities.

(FEIR, p. 14-192.)

Additionally, "[w]ater conveyance facility construction and operation could create a significant impact on agriculture by converting substantial amounts of Important Farmland to other uses through changes to groundwater elevation in localized areas and disruption of drainage and irrigation facilities." (FEIR, p. 14-194.) These adverse results unquestionably fail to "protect and enhance" Delta agricultural resources.

The written testimony of Julie Jensen, Virginia Henley Chhabra, and Chrisandra Flores, all filed herewith, elaborate further on the Project's adverse impacts to Delta agriculture.

The Project Does Not Protect, Restore and Enhance the Delta Ecosystem.

The Project fails to achieve the second of the Delta Plan's coequal goals. Although the FEIR does not conclude that any significant and unavoidable impacts will occur to aquatic or terrestrial biological resources, the Project nevertheless cannot be said to "protect, restore and enhance" the Delta ecosystem. The FEIR divulges a multitude of Project impacts on aquatic and terrestrial biological resources that are significant prior to implementation of mitigation. (See, e.g., FEIR, pp. ES-67 to ES-117.) Note that implementation of mitigation measure results in few "beneficial" impacts. (See *ibid.*)

The Project's three new intakes, which will each divert Sacramento River water at a rate of 3,000 cubic feet per second, will result in entrainment of fish, including listed species. While the proposed fish screens may arguably reduce the impact, this critical Project element does not restore or enhance the Delta ecosystem.

Project construction will undoubtedly have an adverse effect on both aquatic and terrestrial species. Construction impacts such as equipment noise, grading, digging and groundborne vibration, and visual impacts from artificial lighting will disorient, if not directly take, sensitive species. (See written testimony of Amber Veselka, filed herewith.)

Changes in Sacramento River flow rates and temperatures caused by the Project will also adversely affect aquatic species, including salmonids.

CONCLUSION

For the reasons stated above, in the accompanying written statements filed herewith, and in the written presentations that will be submitted pursuant to Section 11 of the DSC Administrative Procedures Governing Appeals, the County of Sacramento requests that the DSC remand the matter to the State for reconsideration of the covered action based on a finding that the certification of consistency is not supported by substantial evidence in the record. (See Water Code, § 85225.25.)

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BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

HEARING ON THE MATTER OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND UNITED STATES BUREAU OF RECLAMATION REQUEST FOR A CHANGE IN POINT OF DIVERSION FOR CALIFORNIA WATER FIX.	**PART TWO TESTIMONY OF DON NOTTOLI**

I. INTRODUCTION

By way of introduction, my name is Don Nottoli and I am currently serving as a member of the Sacramento County Board of Supervisors. First elected in 1994, I represent the geographically large and diverse 5th District of Sacramento County, which includes the Sacramento County portion of the Sacramento-San Joaquin Delta. I will soon begin my 40th year with Sacramento County, and as a long term elected representative and lifelong resident, it has been my privilege and good fortune to serve the people of this great county and to have come to know much of the geography and many of the people in the communities I represent, including those in the Delta region.

II. SUMMARY OF TESTIMONY

To bring a bit of focus to my testimony, I will devote much of my written submittal to describing a long list of lasting impacts to the Delta and its people which, I believe,

will result from the proposed California WaterFix (WaterFix), should, in fact, it receive all necessary regulatory permit approvals.

III. DISCUSSION

I trust that in the course of these hearings, you will get the opportunity to hear from many people regarding the important matter before you. I implore you to carefully consider the comments and concerns of those who reside, work, visit and represent the Sacramento-San Joaquin Delta.

Having previously served as a member of the Delta Stewardship Council and currently the Delta Protection Commission and Delta Conservancy, I have had a tremendous opportunity to work side-by-side with many dedicated and experienced folks on water-management issues of vital importance to the Delta and its people, but in my view, nothing holds a potentially greater impact to the long term viability and sustainability of the Delta than the WaterFix.

The fact that we are engaged in this **Change of Point of Diversion Petition hearing** reflects upon an insatiable demand for water; should the Petitions be granted to accommodate the WaterFix, in my estimation, the Delta will be diminished as a place of beauty and wonder, and the project itself will result in irreparable harm to the environment, agriculture and a generations-old way of life.

Sacramento County, and the historic communities of Courtland, Hood, Locke and Walnut Grove, will be "ground zero" for both construction and long term impacts associated with the WaterFix. Many of these communities were settled around the time of the Gold Rush era, and in some cases today are part of a legacy of seven, and even eight, generations of farming families and Delta residents.

Instead of "reducing reliance on the Delta," as provided for in the 2009 Delta Reform Act, Water Code Section 85021, which I presume means less impact, not more, on the Delta, the WaterFix proposes two massive, 35-mile long tunnels, 40' in diameter, be built underneath the Delta to improve reliability for water deliveries to downstream customers. I pose the question as to whether this "reduces reliance," or in actuality,

assures continued, sustained and potentially increased reliance on the Delta.

We are told, in tens of thousands of pages of environmental documentation prepared for the project that the WaterFix will not only improve water supply reliability but will likely help protect, restore and enhance collapsing Delta ecosystems, and yet the Petitioners bring a proposal filled with uncertainty, unanswered questions, lack of enforceable protections, and a lengthy list of irreversible and often unmitigatable impacts.

But, there is another important fact, though often lost in the drive to assure the water supply portion of the co-equal goals, that needs to be acknowledged. The co-equal goals are to be implemented in tandem and "shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resources and agricultural values of the Delta as an evolving place." (Wat. Code, § 85054.) In my view, the Delta Reform Act makes it clear that the co-equal goals need to account for reduced reliance on the Delta, improve the reliability of water supply and protect the land, the ecosystem and the people of the Delta.

So, I respectfully ask this Board, in considering the Petitioners' request, to also consider the tremendously damaging impacts which could and would result from this project. To be clear, much of the project construction, including the proposed intakes, miles of pipelines and the intermediate forebay are to be located in Sacramento County.

Please allow me to briefly paint another picture of project impacts. Imagine 100's of additional truck trips per day on rural roads traveling throughout the Delta. Imagine too, this snarling traffic crawling through Delta towns dotted with modest homes, small businesses, schools, parks, churches and other amenities, and along with it the roar and rumble of big rigs and other transports laden with materials of every shape and size. Imagine too, this is not a temporal occurrence for only a short period of time; no, it may last for one, two, three, four, five and ten or even more years.

Add to this all the daily activity of hundreds and hundreds, if not thousands, of other vehicles squeezing onto rural two-lane, many of them levee roadways, and the

continued disruption of daily life and commerce, as well as interference with annual planting and harvest seasons, for a decade or more.

And finally, add to the traffic congestion and frustration all the boring, drilling, auguring, transporting, moving, dewatering, relocating, testing, collecting, sampling, pumping, exploring, constructing, deconstructing, demolishing, burrowing, digging and yet more trucking, and you get a fuller package of on-going activities which will serve to disrupt, interrupt, destroy and I truly believe, forever change daily life in these Delta communities and throughout the accompanying environment.

Quiet rural farming areas will be transformed into gigantic construction zones, more akin to an industrial complex than tranquil country settings. Impacts of these prolonged and intense activities, sometimes seven days a week, 24 hours a day for years, including traffic generation, noise, vibrations, and general disruption, will undoubtedly affect the quality of life and daily activities of these rural farming towns. It will likely displace people from their homes, creating economic uncertainty for many small businesses and farming pursuits, and negatively affect the recreational, fishing, boating and ecotourism activities along hundreds of miles of waterways and in the Stone Lakes National Wildlife Refuge.

In addition to this incessant activity, the question of what happens to all the "spoils" generated from tunneling and other excavation sites needs to be pointed out. This tunnel muck "wonder mud" as I refer to it, will be stockpiled in locations on 2,600 acres across the country-side for however long it takes to find a suitable permanent location for the "reusable tunnel muck." Again, imagine, more than 30 million cubic yards of this material, equivalent in mass to at least 10 Great Pyramids of Giza, stored land side in piles 10-15 feet in height scattered throughout the Delta, impacting aesthetics as well as virtually rendering useless sites which were formerly farmed or used for other purposes.

The economy of the Delta, dependent primarily on agriculture and recreation, and exceeding $1 Billion annually, would be negatively affected in untold ways. And

meanwhile, the people, families from all walks of life, will have to endure nearly endless construction related activities for more than a decade, no matter what the day or time. And to what end? I believe it will bring a gradual but very real degradation and destruction to the Delta from which there will be no recovery.

How then is it, I ask, that the Delta with its diversity of agriculture, wildlife habitat and rural communities, will benefit from any of this? What real economic analysis has been done which demonstrates the true cost/benefit components of this proposed WaterFix? And why is the Delta region considered to be less valuable to our State than other, more arid or populated regions of California? And why aren't more viable, 21st century alternatives to the WaterFix given serious and thoughtful consideration?

I pose these questions as examples of unanswered questions, because they tend to highlight what is really wrong with the WaterFix proposal. In great part, the Petitioners are largely ignoring the impacts of this mega project on the Delta, and in so doing, are sacrificing the Sacramento-San Joaquin Delta, and its many treasured resources for benefit of other regions of California. This all-or-nothing approach is wrongheaded and misguided. We should, as the Delta Reform Act mandates, protect the resources in the Delta, both natural and manmade, for generations to come. Rather than pursuing a multi-billion dollar project which damages the Delta, we should invest in our levees, support our communities, protect our environment and preserve this very special place in all the world, for today and for tomorrow.

I would encourage your Board to carefully examine the information before you and to take a broader view of the impacts to Delta communities, the people who live and work there and the environment. Please look to a brighter, bolder future where the development of new water is accomplished in a manner which embraces and values all communities and in a way which is both supportable and sustainable and which comports with the co-equal goals while protecting the Delta.

It is important to note that the Sacramento-San Joaquin Delta is a key contributor to the local, regional and state economies and is home to more than 500,000 people.

The Delta should not be viewed as just a plumbing fixture for movement of water in our State, but valued for its many unique resources and connectivity to the Sierra watersheds which feed our rivers as well as the San Francisco Bay Estuary and Pacific Ocean.

I know we are challenged to find solutions to quench the thirst and meet the needs of a growing California, but in order for the Delta to thrive and prosper, it will require all of us to seek more creative and sustainable approaches to water management in our state. To move this proposal, the WaterFix, and all its component parts, forward would be the worst example of implementing sound and just public policy as it is NOT the answer to California's long-term water management needs.

IV. CONCLUSION

As I close, I think it is entirely appropriate to offer a quote from Oliver Wendell Holmes, Jr. which sums up where I believe we are with respect to consideration of the gravity of this matter. Holmes said, ***"A hundred years after we are gone and forgotten, those who never heard of us will be living with our words and actions."***

The Delta is worthy of our focused attention and we should do everything we possibly can to protect and preserve it for future generations.

Let us hope that 100 years from now, people from throughout the Sacramento-San Joaquin Delta and all of California, can proudly know and honestly say that we, in our time, did the "right thing" in the decisions we made to serve the Delta, its people, the environment and the people of the great State of California.

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BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

HEARING ON THE MATTER OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND UNITED STATES BUREAU OF RECLAMATION REQUEST FOR A CHANGE IN POINT OF DIVERSION FOR CALIFORNIA WATER FIX.	**PART TWO TESTIMONY OF ROBERT BENEDETTI**

I. INTRODUCTION

My name is Robert Benedetti and I submit this testimony on behalf of Sacramento County in Part Two of the California WaterFix (WaterFix) petition for change proceeding pending before the California State Water Resources Control Board. Relevant to this proceeding, I was Co-Director of Delta Narratives, a project to assemble historical records of the Sacramento-San Joaquin Delta and to relate that record to regional and national trends. I hold a doctorate in Political Science from the University of Pennsylvania. I have taught and been an academic administrator at New College (Florida) and the University of the Pacific. Currently, I am a research scholar at the Center for California Studies, CSU Sacramento. I have been chair of both the Florida Endowment for the Humanities and California Humanities as well as served on the board

of the Federation of State Humanities Councils. My curriculum vitae is Exhibit SACO-3.

II. SUMMARY OF TESTIMONY

My testimony will demonstrate the historical and cultural significance of the Sacramento-San Joaquin Delta. My analysis focuses particularly on the portion of the Delta from Hood to Courtland as this is one area most at risk from the implementation of the WaterFix project. In my opinion, the built environment, the natural environment, the transportation venues, and the historical artifacts of the region provide a unique view of California's evolution from a refuge for native peoples, a testing ground for agricultural innovation, a mecca for recreation, and a tourist destination. The Delta has attracted the attention of artists and writers as well as immigrants from every continent. To preserve its stories, it is necessary to protect the environment out of which they grow. The WaterFix will inalterably change the material and natural environment within the Sacramento River Delta, particularly between Clarksburg and Walnut Grove, and fundamentally compromise its unique cultural and historic resources.

III. DISCUSSION

> "If this Delta were almost anywhere but California –it would no doubt have been heralded as a major scenic wonder and perhaps would be protected as a national park."[1]

The Sacramento River Delta between Clarksburg and Walnut Grove is the epicenter of the proposed WaterFix construction and operation. The area between Hood and Courtland will be particularly impacted by both construction activity and the effects of the WaterFix's permanent facilities. These portions of the Delta are key to the preservation of the region's historic and cultural heritage and to providing an opportunity for future generations to experience the patterns of life in 19th and 20th century California.

A. Prehistoric Cultural Resources

Plains Miwok tribelets were strung along the Sacramento River on the eastern as well as the western banks from Rio Vista north for as many as 10,000 years. While little

[1] Richard Dillon, Delta Country, Forward (1982).

of their material culture survives, the habitat which supported their long and generally tranquil existence remains. Their reverence for nature has impressed observers including John Muir and Malcolm Margoles and continues to challenge assumptions about environmental sustainability. The Bay Delta Conservation Plan/WaterFix Final Environmental Impact Report/Environmental Impact Statement (FEIR/EIS) identifies multiple archeological sites in Sacramento County potentially affected by Alternative 4A.[2] The FEIR/EIS also documents the multiple archeological sites which have yet to be fully explored and which new techniques may make available to us.[3]

Dr. Narciso Duran recorded detailed observations of the lower Sacramento River in 1817, but the Spanish did not choose to settle the area. Even before the Spanish and Mexican governments sold off Delta lands to private entrepreneurs, malaria and smallpox epidemics decimated native populations. Those possessing land grants focused settlements in Sacramento, Stockton, and the Pittsburg/Antioch region, leaving much of the Delta open for future immigrants.

B. Historic-Era Cultural Resources

1. Accessible Properties

It is well known that the world rushed in to California to find gold following its discovery in 1849. Less appreciated are the choices made by miners who did not strike it rich. An option for many was farming the rich soils of the Delta, which the 49ers had witnessed on the boat ride from San Francisco to Sacramento, the gateway to the northern mines. With funds saved from successful prospecting, Josiah Buckman Greene bought property on the western side of Sacramento River sight unseen in 1850. Greene later expanded his holdings on the eastern side, where the house bearing the Greene name still stands. He and his family were responsible for early levee building and had a

[2] Exhibit SWRCB-102, FEIR/EIS, App. 18 B, p. 18B-1; Table 18B-1 identifies CA-SAC-21, CA-SAC-395, CA-SAC-056, CA-SAC-057, and CA-SAC-062.

[3] Exhibit SWRCB-102, FEIR/EIS, p. 18-133: 39-42; As noted in Appendix 18A at 18A-5: 31-34, the presence of numerous recorded prehistoric resources, and the presence of landforms that are sensitive for additional unidentified resources, suggests that the action alternatives will disturb both additional resources that can be identified through inventory, and buried resources that cannot be feasibly identified.

talent for the use of technology including the early dredger.

Though the Greene family focused on cattle ranching, over time, a branch of the family planted pear trees on the so-called Pierson parcel on the east bank of the Sacramento. There have now been five generations from Joseph Greene raising pears at this location. Jane Wolff points out the importance of pear farming for the culture of this area:

> Pears engenders rituals. The Pear Fair is held every July in Courland; people eat pear fritters, and the new Pear Queen is crowned. There are pear dynasties. The history of the north Delta can be told through the stories of pear families like the McCormacks, the Wilsons, the Learys, the Eliots, the Greenes, the Caseys, the Mealers, the Van Lobensels, the Fongs, and the Gardeners.[4]

According to the FEIR/EIS, the Greene home between Hood and Courtland has been overlooking the Sacramento River since 1876.[5] The FEIR/EIS also indicates the potential for a significant impact on this dwelling with the implementation of WaterFix, including a permanent visual impact.[6] The impacts to the Greene home are an example of the WaterFix's acknowledged significant and unavoidable impacts on built-environment cultural resources due to direct demolition or changes in the setting that remove the resource or substantially alter the resource character.[7]

The Greene home and farm is hardly the only historic building along Delta waterways. An evaluation of historical resources undertaken in 2012 and 2013 as part of the preparations for the Bay Delta Conservation Plan found 680 structures of potential historical value, but only 440 or two thirds could be accessed directly. Fifty-five (55) of the 440 were found to be significant, using rigorous government standards of value.[8] Thus, the Greene home and others along the River Road between Hood and Courtland

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[4] Jane Wolff, Delta Primer: A Field Guide to the California Delta (2003), p. 140.
[5] Exhibit SWRCB-102, FEIR/EIS, App. 18B, p. 18B-49:28.
[6] Exhibit SWRCB-102, FEIR/EIS, App. 18B, p. 18B-69, PTO_016_001. Direct physical impacts to the Greene property are discussed more fully in the Part 2 testimony of Virginia Hemly Chhabra.
[7] Exhibit SWRCB-102, FEIR/EIS, p. 18-142:20-24, 30-31.
[8] Addendum 1 to *The Built Historical Resources Evaluation Report for the Bay Delta Conservation Plan Project* (ICF: September, 2013), p. 11. (2013 Built Resources Report)

are part of a chain of architectural gems documenting the story of agribusiness and settlement in the Delta. Their restoration and maintenance is an important part of maintaining and establishing cultural tourism in the region as testified by the role of historical restoration in the establishment of National Heritage Areas nationally that have benefited from increased tourism like the Erie Canal in upstate New York.

2. Inaccessible Properties

The 2013 Built Resources Report lists 12 sites in Sacramento County which were not accessible and therefore not evaluated for historical or cultural value.[9] Two were in Hood and one in Courtland.[10] An additional five were on the River Road near these towns.[11] Clearly given the significance of other buildings in these areas, the fact that these structures have not been evaluated opens the possibility that residences of historic value are undercounted and have not yet been appropriately evaluated for potential mitigation to address unknown significant impacts associated with historic, inaccessible properties.

3. Adopted Mitigation Inadequate to Protect Resources Because Cannot Retain Historic Character and Setting Once Disturbed

The FEIR/EIS discusses mitigation for three historic structures along the River Road between Freeport and Courtland: the Mosher House (mistakenly listed in Yolo County), The Greene House, and the Rosebud Rancho. The FEIR/EIS recommends that the Mosher House be moved, the Greene House be "stabilized" and possibly moved temporarily, and the Rosebud Rancho be ignored since it has sustained fire damage. Since a substantial part of the value of these residences is their location, relocation would substantially lessen their value and impact on visitors. Temporary relocation and "mothballing" would take portions of the Greene property out of commission for an indeterminate period risking mold and other destructive forces. While the Rosebud Rancho may be damaged, refusing to protect it may jeopardize any future restoration of

[9] 2013 Built Resources Report, p. 22.
[10] 2013 Built Resources Report, p. 22.
[11] 2013 Built Resources Report, p. 22.

a property long seen as valuable to the region and often included on tourist agendas.

C. Historic Communities

In addition to native habitats, historic homes, and long established agricultural businesses, the eastern side of the Sacramento River benefited from the founding of several towns, two of which survive to the present day. Both Hood and Courtland have been recognized by the California Legislature as "Legacy Communities". These towns provide the anchors for any attempt to vitalize the Delta as a center for those attempting to trace the history of the region. Among their stories are the resilience of their citizens in accommodating changing modes of transportation (boats, rail, cars, pleasure craft), changing market conditions for food, shifting dreams for community development, and the vagaries of nature (subsidence, flooding, salinization).

The 2012 *Built Historical Resources Evaluation Report for the Bay Delta Conservation Plan Project* sums up their historical value:

> .... The early development of Hood and Courtland was driven by fruit production and other agricultural activity .... Initially known as Richland, Hood was established in 1860 as a river landing with a warehouse and school house... Courtland was founded in 1867, when a post office was moved there from across Steamboat Slough. Encompassing wharves, a hotel, and stores, Courtland experienced continued growth after 1900. Unlike other Delta landing settlements, Courtland sent its fruits and vegetables to other towns for ... processing. Eschewing industry, Courtland remained a residential settlement and agricultural shipping center with a wharf and a commercial district serving area farmers. Courtland and Richland would remain well known for pear production into the twentieth century.
>
> ... In 1909, the Southern Pacific Company named the small shipping enclave for William Hood, a Southern Pacific engineer who planned a rail spur from the landing to Franklin Junction on the Sacramento Southern Railroad, ... As a complement to its rail spur to Hood, the Southern Pacific erected a wharf on the Sacramento River. The building continues to stand today...
>
> The Southern Pacific partnered with Madison P. Barnes to develop a residential community adjacent to the new shipping facilities. A prominent Sacramento businessman and civic leader, Barnes is credited with founding the real estate development firm Hood Improvement Company in 1909.... Early promotional efforts tied the development—fancifully dubbed "a New Netherlands"—to SP's Netherlands Route, a steamboat passenger line between Sacramento and San Francisco...William Barnes commissioned the

> 1914 construction of a twenty-one-room Netherlands Hotel (no longer extant). Barnes' efforts were poorly timed, however, and Hoods residential growth remained limited for several decades. Around the Southern Pacific wharf, however, several growers' associations and companies established warehouses, packinghouses, and cold storage facilities ...[12]

The two towns encapsulate the economic history of the Delta and California in their boom and bust cycles, reliance on global agricultural markets, close ties to transportation conglomerates and experimentation residential development. Importantly, the architectural footprints of each cycle are still visible in their precincts.

With the introduction of the outboard motor and improvements in pleasure craft, Courtland also became a mecca for recreational activities on the water. Hal Schell, long considered the informal spokesperson for the Delta's waterways, wrote in 1995:

> Courtland Docks is a comfortable little marina here with guest docking, fuel, cocktails, a café and some supplies...Cruising this section of the river, you will pass a surprising number of marinas. Although few are imposing each has its own personality and adds to the overall charm of the Delta. Each has its river rats and its live-a-boards and its own local characters.[13]

In other words, the Delta evolved from agricultural hub to a resort and escape for dropouts and sports men from the Bay Area and farther afield. Earle Stanley Gardner, the author who invented Perry Mason, chronicled many of these characters in three books on the Delta. And, as journalist and yachtsman, Robert Walters reminds those visiting Courtland,

> Behind those high levees are streets and old buildings straight out of a rural 1915 movie set. Along the way, there is also some fascinating architecture in the grand farmer estate manner. From your boat, these spots can be located by the fine stand of old trees, plantation style, reaching about the river banks.[14]

Given the significance of these communities to the historic and cultural character of the Delta, it is surprising that the FEIR/EIS does not discuss how community life will

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[12] *The Built Historical Resources Evaluation Report for the Bay Delta Conservation Plan Project* (ICF:September, 2012), pp. 43-44.
[13] Hal Schell, Cruising California's Delta (1995), p. 35.
[14] Robert E. Walters, Cruising the California Delta (1972), p. 24.

be sustained during and following the implementation of the WaterFix. Traffic will make daily contacts difficult and damage the transactions of business.[15] Customers and residences will not be able to continue routines; community events, such as the annual Courtland Pear Fair, that contribute to community cohesion and identity, and also attract substantial numbers of visitors, likely will be disrupted.[16] Investments may be put on hold. Some residents may leave, others not arrive. Safety that had been taken for granted may no longer be secure.[17] For these towns to survive as social units, the boomtown milieu that often accompanies a construction site needs to be avoided.

D. Historic Transportation Routes

State Highway 160, which runs the length of the Delta from Sacramento to Antioch has been designated a Scenic Highway because of the beauty and history of the scenes that one passes on a drive along its winding way. It fulfills the purposes and deserves the protections implicit in the legislation that formed the designation:

> 260. It is the intent of the Legislature in designating certain portions of the state highway system as state scenic highways to establish the State's responsibility for the protection and enhancement of California's natural scenic beauty by identifying those portions of the state highway system which, together with the adjacent scenic corridors, require special scenic conservation treatment. It is further declared to be the intent of the Legislature in designating such scenic highways to assign responsibility for the development of such scenic highways and for the establishment and application of specific planning and design standards and procedures appropriate thereto and to indicate, in broad statement terms, the location and extent of routes and areas requiring continuing and careful co-ordination of planning, design, construction, and regulation of land use and development, by state and local agencies as appropriate, to protect the social and economic values provided by the State's scenic resources.[18]

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[15] Exhibit SWRCB-102, FEIR/EIS, pp. 19-210-211, 215, CT-23, -24, -25, -26, -27, -28; SC 09, 10 (showing WaterFix will generate substantial increases in hourly traffic volumes on all segments of Highway 160/River Road from City of Sacramento limits to Walnut Grove Bridge); Exhibit SWRCB-102, FEIR/EIS, p. 19-218:5-9 (indicating it is likely that these impacts could remain significant and unavoidable, even after mitigation).

[16] Exhibit SWRCB-102, FEIR/EIS, p. 23-132; 5-11, 20-24; Figure 23A-04, Figure 23A-11 (discussing disruptive noise associated with intake and surface construction activities and truck traffic); see also pp. 23-134 – 23-136 (identifying the adverse effects of groundborne vibration from intake construction).

[17] Exhibit SWRCB-102, FEIR/EIS, p. 3B-81 (recognizing potential for theft and vandalism in major construction sites after work hours); See Exhibit SWRCB-102, FEIR/EIS, Figure M3-4: Sheet 2 of 15 (showing approximately 120-acre construction work area immediately adjacent to the Town of Hood).

[18] Streets and Highway Code, State of California, Sections 260-284.

In particular, the section between Sacramento and Walnut Grove has been recognized as typifying Delta culture. In 1971 when Sunset magazine published "Back Roads of California" by Earl Thollander, it selected this particular stretch of Highway 160 to feature: "The Sacramento River is on your left and below on the right is the vast farming area of the delta. Pretty country towns along the way are Clarksburg and Courtland."[19]

The novelist Gayle Brandeis captures one's emotional response to driving near Courtland:

> We drove past grand estates, crumbling canning houses, lots of little wooden markets, orchard after orchard after orchard as the road curved with the greenish river. At some point, we took a small ferry, free of charge, that was pulled across the water by cables; it was big enough for maybe six cars, although ours was the only one to make the three-minute crossing. Quinn was thrilled—she said it felt like we were being transported back in time as we floated to the other side. Time did seem to change in the Delta; I could feel my internal clock begin to slow, start to turn as languid as the Sacramento.[20]

This idyllic route will be physically altered forever with the relocation of the highway at each of the three intakes, thereby taking passers by 220 feet further inland from the river.[21] Certainly, the visual aesthetic of the highway in and around the intakes will starkly contrast with the relatively placid surroundings elsewhere on the route.[22] Construction will change the driving experience for 10+ years on Highway 160 given the increases in traffic volumes from Sacramento to Walnut Grove.[23]

E. The Prerequisites for Cultural Tourism

That the State of California intends to preserve and protect the historical and cultural values inherent in the Delta generally and in the portion from Hood to Courtland specifically is made manifest in the multiple citations of state and local ordinances noted

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[19] See Earl Thollander, Back Roads of California (1971), p. 178.
[20] Gayle Brandeis, Delta Girls (2010), p. 7.
[21] Exhibit DWR-212, p. 12-1.
[22] Exhibit DWR-212, p. 6-3; see also SWRCB-102, FEIR/EIS, App. 17D-29, 30, 31 (describing "very noticeable effect" on viewers at intake locations).
[23] Exhibit SWRCB-102, pp. 19-210-211, 215 (CT-23, -24, -25, -26, -27, -28; SC 09, 10).

in the FEIR/EIS, Chapter 18. However, the analysis there relies on hypothetical impacts on casual visitors. It does not adequately take into account the fatigue factor that would weigh on visitors, property and business owners, and potential investors in cultural tourism institutions over the course of construction, and subsequently during operation of the WaterFix. In my opinion, the WaterFix has insufficient mitigation for the significant impacts of construction and operation (including permanent physical effects of the WaterFix diversion structures and related facilities) to balance against the significant impacts both to the specific area and for the development of the Delta as a living and cultural archive. The opinions of residents and sensitive observers like artists and writers need to be consulted. It is significant that residents who have left the area are currently returning for retirement attracted by the ambiance of the area. Further, a number of internationally recognized artists, including Wayne Thiebaud, Ning Hou, and Greg Kondos, as well as photographers like Rich Turner, continue to focus major works on the Delta and in particular the stretch from Freeport to Walnut Grove.

One of the specific vulnerabilities for cultural tourism regarding the WaterFix project relates to potential investment in historical restoration in the Courtland-Hood area. Clarksburg, across the Sacramento River, already has begun several restoration projects in the hope of generating sufficient sites to stimulate cultural tourism. More generally, the Delta Protection Commission's pursuit of a National Heritage Area Designation, as discussed below, is based on the assumption that the Delta region will continue to improve its access to significant artifacts and interrelate the stories of its various settlements. It is reasonable to expect that the WaterFix will effectively put on hold any participation by the Courtland-Hood communities to achieve this designation and substantially impede efforts to attract outside investors to such initiatives. However, formal designation by state or federal authorities as a cultural or historic resource is not necessary to further articulate the narratives of these towns, as well as their physical structures. Generally speaking, private foundations and local organizations do not define projects worthy of investment based on governmental approval designation; it is

the physical and historic character of the area that is most important. Nevertheless, the inability to obtain, or delay in obtaining, a notable designation may have long-term consequences for protection of the area. Moreover, those interested in preservation may come from outside a town's limits: history buffs in Elk Grove have long taken tours to the Rosebud Rancho, built in 1887, but remodeled in 1990, and located on the Sacramento River just north of the Town of Hood. However, the FEIR/EIS suggests the property is in such disrepair that it should be declassified as a National Historical Site.[24] The FEIR/EIS states that WaterFix would result in a permanent surface impact including adding an access road and transmission line at the site.[25] In my opinion, the permanent alteration of the site, including the likely further deterioration of the property during the lengthy WaterFix construction, would thus slow, if not make impossible, any attempt to restore this National Register property.

While each of the five Delta counties has developed future oriented plans for the region, the most visionary plan, developed by the Delta Protection Commission in the form of a proposal, is the application for a Delta Heritage Area addressed to the Department of the Interior and the U.S. Congress.[26] It sets out the following vision and six goals:

Vision:

A regional network of partner sites with interpretive/educational components that will be linked where possible and serve as the primary attractions, on existing public properties or on private properties with the voluntary consent and involvement of the landowners.

[24] Exhibit SWRCB-102, App.18B, p. 18B-17, 69, PTO_010_002.
[25] SWRCB-102, App.18B, p. 18B-69, PTO_010_002.
[26] National Heritage Areas are designated by Congress as places where natural, cultural, and historic resources combine to form a cohesive, nationally prominent landscape. Public-private partnerships are critical to the success of community-driven heritage conservation and economic development.

Goals:

1) Identify the Delta as a region of national significance to educate the public about 'Delta as a Place', and build more support for preserving, protecting, and enhancing the Delta.
2) Support economic development of the Delta by drawing visitors to designated partner sites, as well as local markets, restaurants, hotels, campgrounds, bed and breakfasts, hostels, farmstays, and other recreation and visitor facilities.
3) Promote heritage tourism, ecotourism, and agritourism, which are aligned with existing activities, infrastructure, and land uses in the Delta. Maintain Delta agriculture while improving public access and developing necessary visitor amenities in the Delta such as public restrooms, garbage receptacles, directional signage, and dockage.
4) Make available maps of partner sites which identify waterways and byways to connect the sites.
5) Undertake and provide resources for historic preservation projects at partner sites with the consent and involvement of willing landowners.
6) Develop interpretive signage to educate the public about the Delta's natural, historical and cultural heritage; and support programs which teach Delta history.[27]

In my opinion, the WaterFix will substantially undermine the vision and the attainment of its specific goals. In fact, it likely will retard progress that has already been made in regard to tourism and recreation. *The Feasibility Study for a Sacramento San Joaquin Delta National Heritage Area* (July 2012), at p. 33, states:

> Recreation is an integral part of the Delta economy, generating roughly 12 million visitor days of use annually and approximately $250 million dollars of visitor spending in the Delta each year. Of the roughly 12 million visitor days spent in the Delta each year, approximately 8 million days are for resource-related activities (e.g., boating and skiing), 2 million days are for

[27] Delta Protection Commission, Feasibility Study for a Sacramento-San Joaquin Delta National Heritage Area (July, 2012), p. 37.

> right-of-way related tourism activities (e.g., bicycling and driving for pleasure), and 2 million days are for urban parks-related activities (e.g., picnicking and organized sports). Boating and skiing have the biggest economic impact, and are estimated to generate nearly 80 percent of the recreation and tourism spending in the Delta, including significant expenditures on lodging, meals, supplies, marina services, and fuel. Delta recreation and tourism supports over 3,000 jobs in the Delta counties. These jobs provide over $100 million in labor income and over $175 million in value added to the regional economy. Across all of California, Delta recreation and tourism supports over 5,300 jobs, and contributes about $353 million in value added.

It is reasonable to expect that the WaterFix project will slow or prevent the realization of all six goals. The Delta could be identified as a redistribution station for a natural resource in the public mind rather than an historical cultural region. Damage to the environmental ambiance will impede the development of "partner sites" including markets, restaurants, and visitor facilities. The impact of WaterFix likely will deter agritourism, ecotourism, and heritage tourism by impairing local farming, habitats, and historic structures. The potential for such growth is illustrated by the current success of the Old Sugar Mill, a venture integrating the telling of industrial history, agritourism, and a pleasing habitat. It is in Clarksburg directly across from the Hood/Courtland area. Mapping, as contemplated by the goals for implementing the Delta Heritage Area vision, will be a meaningless exercise if, as would occur under WaterFix, the waterways and byways lack aesthetic, environmental, or recreational interest. The uncertainty surrounding the impact of the WaterFix on the region's economy and environment will reduce the number of partners willing to support historic preservation projects in the Delta. Finally, the Delta experience will not be able to fulfill its promise as a way to teach historical and environmental realities to visitors as the material culture and habitats will no longer be accessible; its narratives will wither without the preservation of a cohesive physical setting to reinforce the viewer's imagination.

In sum, the historical and cultural heritage of the Hood/Courtland corridor has been an important part of the Sacramento San Joaquin narrative for over 10,000 years. From the Native American experience through the agricultural boom following the Gold Rush and subsequent revolutions in transportation, to the rise of the Delta for recreation

and escape, this area has been fully engaged. The WaterFix puts at significant risk the preservation of historic sites and the promotion of tourism in the region. Many who reflect on the future of the Delta have concluded that agritourism, eco-tourism, and heritage tourism is an appropriate future; the WaterFix not only will result in the loss of distinct and cohesive cultural and historic resources, but also will substantially impede, and perhaps prevent, the goals for the Delta to attain National Heritage Area status and to become an internationally recognized tourist destination like the Erie Canal has become in recent years in the state of New York.

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BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

HEARING ON THE MATTER OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND UNITED STATES BUREAU OF RECLAMATION REQUEST FOR A CHANGE IN POINT OF DIVERSION FOR CALIFORNIA WATER FIX.	**PART TWO TESTIMONY OF JULI JENSEN**

I. INTRODUCTION

My name is Juli Jensen and I am the Agricultural Commissioner for Sacramento County. I have served as the Commissioner since 2011 but have worked in the Sacramento County Agricultural Commissioner's Office for 36 years, since 1981, with one year spent in El Dorado and Alpine Counties as the Agricultural Commissioner there. I have a Bachelor's degree in Agronomy from the University of California, Davis. I have experience working in agriculture both at the state level for the California Department of Food and Agriculture and the Illinois Department of Agriculture as well as at the county level for San Joaquin, Sacramento, El Dorado, and Alpine counties.

II. SUMMARY OF TESTIMONY

My testimony addresses the extent and nature of agriculture and related attributes throughout the Delta, with a focus on the portion lying within Sacramento County. I also

discuss how the California Water Fix could impact long-term agricultural production in Sacramento County.

III. DISCUSSION

A. The Setting

The Sacramento-San Joaquin Delta encompasses the final watershed of the confluence of both the Sacramento and San Joaquin Rivers. It is located in five northern California counties: Contra Costa, Sacramento, San Joaquin, Solano, and Yolo. It is comprised of both mainland and numerous small islands.

Much of the soil of the Delta is peaty and provides a rich nutritional agricultural substrate. This soil has produced some of the richest agricultural land in California since it first came under production during the gold rush to produce fresh fruits and vegetables for the miners. The Delta covers 738,000 acres of which 73% or 538,000 acres is devoted to agriculture.[1] The level ground, fertile peat soils, moderate marine climate, and year round supply of fresh water made the Delta arguably the richest farming area in California for many years and it still remains among the state's most productive agricultural regions, with per acre yields that are almost 50% higher than the state's average.[2] About 75% of the agricultural land in the Delta is classified as Prime Farmland (land with the best physical and chemical characteristics and reliable irrigation water).[3] The diversified crops of the Delta account for an average of $654,766,017 in annual gross agricultural revenue.[4] This figure does not take into account the secondary benefits of this agriculture to the local economies which accounts for another $2 billion.[5] If the Delta were a county, its agricultural production value would rank 15th out of 58 counties.[6] Agriculture contributes 7.3% of all California jobs but that is likely to be a higher percentage in the Delta due to the labor intensity of many of its orchard and

[1] http://www.water.ca.gov/swp/delta.cfm.
[2] Context Memorandum: Agriculture in the Delta, Iteration 2, Delta Vision.
[3] Exhibit SWRCB-102, FEIR/S, p. 14-12.
[4] Context Memorandum: Agriculture in the Delta Iteration 2, Delta Vision.
[5] Overview of Delta Agriculture, Restorethedelta.org.
[6] Context Memorandum: Agriculture in the Delta, Iteration 2, Delta Vision.

vineyard crops.

But farming in the Delta is not without its challenges. One challenge is the water quality and the intrusion of salt water or brackish water from the Bay making that water unfit for irrigation of crops. This problem is even more significant during droughts which decrease the fresh water flow through the Delta. Another challenge is the conversion of farmland due to urbanization, building of ranchettes and land conversion for public open space uses. Some of the highest rates of farmland conversion are taking place in San Joaquin and Sacramento Counties.[7] These two counties make up 75% of the land contained in the Delta.[8]

The crops grown in the Delta are diversified and they are the principle land use in the Delta. The permanent crops are primarily vineyards and fruit orchards. The Delta has long been the top pear producing region in California; specifically, Sacramento County has been the top pear producing county in California for many years with California being the third highest pear producer in the nation.[9] Recently, higher value vineyards of wine grapes have replaced some orchards and many acres of annual crops. Other permanent or semi-permanent crops include alfalfa and turf grass in Sacramento County. Annual crops in the Delta in Sacramento County include corn, other grains, safflower, hay, and tomatoes. Some areas of the Delta have already switched to lower risk crops that can better withstand the salinity, for example in Sacramento County, some areas of the Delta have converted to grazing and animal production which can withstand higher salinity than some permanent crops.[10]

Agriculture in the Delta is not only important for its food production and creation of jobs directly and indirectly related to agriculture. It also provides wildlife habitat, recreation, and scenic open space. Many growers leave uncultivated areas that serve as wetland or riparian habitat for wildlife including many species listed in the Endangered

[7] Context Memorandum: Agriculture in the Delta, Iteration 2, Delta Vision.
[8] Context Memorandum: Agriculture in the Delta" Iteration 2, Delta Vision.
[9] 2016 Crop & Livestock Report Sacramento County.
[10] Context Memorandum: Agriculture in the Delta, Iteration 2, Delta Vision.

Species Act. The cultivated field crops are suitable sites for the Sandhill Crane and the many waterfowl that pass through on their annual migrations. The development of agricultural tourism involving wineries and roadside farm stands increase the recreational use of the Delta. Agriculture supports the rural historically and culturally rich communities of the Delta. Growers, through the payment of property taxes and water and reclamation district fees support the maintenance of critical Delta infrastructure including roads, water conveyance and levees. Diminishment in funding for levees could result in failure of these levees, which would not only destroy the agriculture and infrastructure of the region but would also alter the salinity balance in the Delta affecting the local wildlife and the quality and quantity of the water available from the Delta to the Central Valley and Southern California.

Agricultural producers in the Delta tend to be medium sized farms owned by families that have farmed in this area for several generations and are experienced in the management of this land, including the challenges presented by the water table. Increasing land prices make it difficult for small farms to survive in the Delta. There has been a significant increase in public or quasi-public land ownership, including land held by the Nature Conservancy, Stone Lakes National Wildlife Refuge, and White Slough Wildlife Area in Sacramento County.[11] Many of these lands continue, at least currently, in agricultural production. The shift to public lands does have implications on the local tax base and reclamation and water district revenues. It diminishes the funds available to maintain Delta agricultural and community services and infrastructure, including levees.

B. Water Fix Impacts

Construction of the proposed twin tunnel water conveyance system will have a profound effect on the agricultural production in Sacramento County in the Delta. Review of the various proposals indicates that construction will result in not only taking agricultural lands directly out of production for varying lengths of time but also disruption of various transportation arteries used for production, harvest, and transport of the

[11] publiclands.org.

agricultural commodities of the Delta. As mentioned earlier, the lands that would be taken out of production are among the most fertile and productive agricultural lands in California.

Some of the agricultural land would be taken up by construction of the intakes and deposit of tunnel materials and would never be available to return to agricultural production again.[12] Relying on the lost agricultural revenue and income reduction calculations of Dr. Jeffrey Michael in Exhibit SDWA-134R, p. 7, I have roughly calculated the economic impact to Sacramento County associated with permanent conversions. Relying on Figure M3-4, Sheets, 1, 2, and 5 of Exhibit SWRCB-102, my office determined that about 1,000 acres of Sacramento County agricultural land would be permanently lost to agricultural production. Assuming lost revenue of $1,949 per acre in 2009 dollars (Exhibit SDWA-134R, p.7:17-19), lost agricultural revenue for Sacramento County would be about $1.9 million per year in 2009 dollars. Assuming each million dollars of Delta agricultural output supported 12.2 jobs and $859,000 in income (Exhibit SDWA-134R, p. 7:21-24), lost production in Sacramento County would eliminate about 24 jobs and reduce income by about $1.7 million in 2009 dollars, or about $1.9 million in 2016 dollars.

Some of these lands may not be removed from production permanently, but for some period of time; all indications point to at the very least more than two years and possibly up to 10 years. Even this short term or temporary disruption of production will have dramatic effects on Delta agriculture. These medium sized farms cannot withstand the removal from production of their lands for any significant period of time. Land that is removed from production temporarily may eventually be available for agricultural production again but the current families that farm them may not have the financial resources to survive in agriculture until those lands are ready to return to farming. Farm economies are such that few to none of our growers could survive the loss of their production for prolonged periods.

[12] Exhibit SWRCB-102, FEIR/S, pp. 14-111-112.

Of course, not all Delta growers would have land taken out of production, but the disruption of the transportation arteries in the Delta would affect most, if not all, growers.[13] The geography of the Delta does not lend itself well to large, wide, modern roadways and therefore transportation in the Delta is already somewhat problematic. Closure of roadways during construction would make an already difficult situation much worse and add to the costs of transport of labor, materials, equipment, and the agricultural commodities. Traffic would be constrained to fewer roadways and construction equipment would add to the burden of these narrow roads.

Also, the degradation in the quality of the water supplies that Sacramento County farmers rely on to irrigate their crops will be an ongoing issue for many Sacramento County farmers.[14]

The majority of the agricultural lands in Sacramento County in the Delta are in Williamson Act contracts. Land that is taken out of agricultural production that is in Williamson Act contracts would be immediately removed from contract with no penalty to the grower other than the loss of the reduced tax benefit. Only the portion of the parcel that is removed from production would be removed from the contract. This would necessitate the rescinding and re-entering into newly surveyed contracted land. The cost of this process and surveying is normally borne by the land owner. This could also create an extensive workload for the Sacramento County Planning and Environmental Review Department. Land value of the affected lands would most probably decrease precipitously and when reassessed would probably offset the loss of tax benefit.

IV. CONCLUSION

I have absolutely no doubt that this project will negatively affect Sacramento County's annual crop and livestock income for many years to come, as well as change the culture and atmosphere of this unique environment.

[13] Exhibit SWRCB-102, FEIR/S, pp. 19-208-218, Table 19-25; FEIR/S, Figure 19-2a.
[14] Exhibit SWRCB-102, FEIR/S, pp. 14-192-195.

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BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

HEARING ON THE MATTER OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND UNITED STATES BUREAU OF RECLAMATION REQUEST FOR A CHANGE IN POINT OF DIVERSION FOR CALIFORNIA WATER FIX.	**PART TWO TESTIMONY OF VIRGINIA HEMLY CHHABRA**

I. INTRODUCTION AND SUMMARY OF TESTIMONY

My name is Virginia Hemly Chhabra. I have been the packing house manager at Greene and Hemly, Inc. since 1997. My testimony addresses the direct and indirect effects of the California Water "Fix" on Greene and Hemly, Inc. and the community surrounding our operation.

II. DISCUSSION

Greene and Hemly is a family owned and operated grower, packer, and shipper of pears and apples in the Sacramento River Delta. Our family history is a little unusual for California, in that we have been in the same place since 1850. Our history is not that unusual for the Delta however. There are many people up and down the river that share a similar family story, a history tied to the place as much as to the people. We are still here because of a bone-deep love for the land, this place. It really isn't exaggerating to say that there is no other place like it on Earth.

I occasionally get asked if we have made any significant changes since our company started, and I have to laugh because it's tough not to change in 167 years, not if you want to stay in business. The family farm has expanded and contracted and expanded again through the decades, diversifying and simplifying and diversifying. My brother and I are the sixth generation of our family to work on the family farm, and we want our children to have the opportunity to do the same.

In high school, I hand wrapped pears in the very same packing house where I work now. It looks a little different than it did way back then, but it is still recognizably the same building, built in the same place the original packing house stood in the 1800s. But should the tunnel project go through, I very much doubt that this place that is so important to me and to my family will still exist.

Greene and Hemly is at ground zero for the proposed California Water "Fix". Of the three current proposed intakes from the Sacramento River, each one touches us in a close and specific way. The northern one takes out a pear orchard we have farmed for decades and displaces a family we have been related to by sentiment if not by blood for generations. The middle one takes out an apple orchard owned by our neighbors and whose fruit we pack. The most southern of the three intakes is immediately to the north of our office, main packing and cold storage facilities, and my parent's house, built by my grandmother's grandfather. Importantly, this intake will sever the driveway leading to all these buildings. (See Exhibit LAND-3, LAND-57, p. 3.)

Aside from the huge question of "How can Greene and Hemly stay in business if our driveway is severed for ten plus years?" I wonder about other unintended consequences of the tunnel project. I am concerned that dewatering will run the aquifer dry and leave the packing house and cold storage plant without water to wash the fruit and run defrost on the storage rooms. (See Exhibit DWR-218, p. 7 [recognizing that even with the use of slurry walls, dewatering is likely to occur and DWR will still need to monitor groundwater levels and offset well impacts].) Construction of the Water "Fix" intakes and the associated truck trips and worker commutes will significantly increase

the noise at our packing and storage facilities and my parents' house. (See Exhibit SWRCB-102, FEIR/EIS, p. 23-132:5-11, 20-24; Figure 23A-04, Figure 23A-11.) In addition to disrupting our rural way of life, the increases in noise will impact our ability to detect problems with the equipment before something breaks. (See Exhibit SWRCB 102, FEIR/EIS, p. 23-9 [current noise levels in Sacramento County range from 40 to 50 dBA], p. 23-121 [chart predicting up to 102 dbA for construction of intakes].) We anticipate significant construction-related vibration associated with construction of Intake 5. (See Exhibit SWRCB-102, FEIR/EIS, App. 1813, p.18B-69 [Greene House mitigation acknowledges potentially significant adverse construction-related vibration].) Not only may construction-related vibration risk the stability of historic buildings on the property, but also the constant vibration from the construction could cause problems with the ever more sensitive electronics of the packing equipment. (See SWRCB-102, FEIR/EIS, pp. 23-134 – 23-136 [identifying the adverse effects of groundborne vibration from intake construction].) Packing house personnel will have added obstacles with such a large construction project so close, such as added traffic, noise, and decreased air and water quality, and general quality of life during work. (See Exhibit SWRCB-102 FEIR/EIS, pp. 19-210-211 [showing substantial increases in hourly traffic volumes on Hwy. 160 between Hood and Courtland (CT26, CT27)].) I am concerned that the dust from construction will increase pest populations in the area or degrade fruit appearance so it cannot go to market. (See Exhibit SWRCB-102, FEIR/EIS, pp. 22-286 [showing dust emissions from construction], 22-304 [noting impacts from dust].) Road closures and traffic will make trucking companies unwilling to deliver or pick up at our facility, given the ongoing construction and the inevitable delays involved. The permanent loss of orchards and fruit will inhibit our ability to enjoy future business and marketing opportunities.

My focus is naturally enough on the impact to Greene and Hemly in particular, but the tunnels will not hurt just us. The entire area in and around the intakes and everyone we interact with will be affected: employees, suppliers, growers, buyers, local towns,

wildlife – everyone and everything. The landscape of the northern Delta will be forever changed, and the very existence of its small towns put in jeopardy. Boaters and waterskiers will not be able to enjoy the river. (Exhibit SWRCB-102, FEIR/EIS, p.15-472:11-13, 15-16 [impeding boat passage and navigation and resulting impacts on recreation would occur during construction of the intakes].) Who wants to recreate in an industrial construction zone? Wildlife, native and migratory, will be affected, disturbed by both the construction and by permanent loss of habitat. What had been a rural farming area will be forever changed into an industrial zone. The small town of Hood will essentially disappear, swallowed under the construction on either side of it as it becomes an afterthought at the dead end of a road. (See Exhibit SWRCB-102, FEIR/EIS, Figure M3- 4: Sheet 2 of 15 [showing staging area adjacent to Hood].) This means the loss of the market, the post office, the restaurant, and the fire station as well.

In farming, the physical impacts of any project are direct financial impacts to the business. Loss of an orchard is loss of income, loss of flexibility, loss of economies of scale, and loss of time. It is my understanding that Water "Fix" will result in salinity intrusion due to the removal of Sacramento River flows. (See Exhibit II-24 Revised, p. 8.) If given the chance, Bartlett pear trees are economically productive for over a century. But they are not immune to salt poisoning, and degradation of water quality will kill them. This means not just the definite and immediate loss of one pear orchard and one apple orchard, but the gradual loss of many more farther downstream, as well as cherry orchards and vineyards and everything else that is grown in the Delta. The death of Hood will be echoed all down the Sacramento River as other towns slowly wither away with the decline of their economic base.

The Delta as a place is unique. The tunnels will destroy that.

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PART 2 REBUTTAL TESTIMONY OF CHRISANDRA J.FLORES

INTRODUCTION

My name is Chrisandra J. Flores and I am the Chief Deputy Agricultural Commissioner/Sealer for Sacramento County. I have served as the Chief Deputy Agricultural Commissioner since January 2017. I have worked in the Sacramento County Agricultural Commissioner's Office for 1 ½ years. Previously, I served as the Nevada County Agricultural Commissioner and Sealer of Weights and Measures. I hold a Bachelor of Arts degree from the University of California, Santa Barbara in Environmental Studies with an emphasis in Natural Resource Management. Exhibit SACO-25 contains my statement of qualifications.

SUMMARY OF TESTIMONY

Previously, Sacramento County Agricultural Commissioner, Juli Jensen, submitted testimony concerning the extent and nature of agriculture and related

attributes throughout the Sacramento-San Joaquin River Delta (Delta), with a focus on Sacramento County. Ms. Jensen also discussed how the California WaterFix project could impact long-term agricultural production in the Sacramento County portion of the Delta.[1] Relying on Figure M3-4, Sheets 1, 2, and 5 of Exhibit SWRCB-102, the County Agricultural Commissioner's office determined that about 1,000 acres of Sacramento County agricultural land would be permanently lost to agricultural production with implementation of the WaterFix project approved by the California Department of Water Resources (DWR) on July 21, 2017 (Approved Project).[2] Ms. Jensen estimated that this loss of agricultural land would result in lost revenue of $1.9 million per year in 2009 dollars, a loss of 24 jobs and lost income of $1.9 million (in 2016 dollars).[3]

On June 18, 2018, the Hearing Team ruled that parties may submit evidence in response to the DWR's Administrative Draft WaterFix Supplemental Environmental Impact Report/Environmental Impact Statement (EIR Supplement). I understand that DWR's EIR Supplement was prepared in connection with proposed changes to the California WaterFix project (Proposed Project). I have reviewed Chapter 14 and Figure M3-4, Sheets 1, 2 and 4 of the EIR Supplement to determine whether DWR's Proposed Project may adversely impact agricultural lands in Sacramento County.[4] This testimony highlights the potential additional permanent impacts to agricultural lands, and the local economy.

DISCUSSION

The Proposed Project includes changes related to moving Reusable Tunnel Material (RTM) storage areas in the vicinity of the Intermediate Forebay.[5] These changes would result in the conversion of more Important Farmland and Williamson Act lands than would occur under the Approved Project. Specifically, 44 additional acres of

[1] Exh. SACO-14.
[2] Exh. SACO-14, p. 5.
[3] *Ibid.*
[4] The EIR Supplement is Exhibit SWRCB-113. EIR Supplement, Chapter 14 and Figure M3-4, Sheets 1, 2, and 4 are included as Exhibits SACO-26 and SACO-27, respectively.
[5] SACO-26, p. 14-3:18-34.

Important Farmland would be permanently converted by the reconfiguration of the RTM storage areas in the Proposed Project.[6] Also, an additional 119 acres of land under Williamson Act contracts would be permanently converted for the Proposed Project in and around the Intermediate Forebay.[7]

As discussed in Ms. Jensen's testimony, the agricultural lands that would be taken out of production are among the most fertile and productive agricultural lands in California. The elimination of this additional acreage from agricultural production would result in the loss of food production and attendant benefits for wildlife, recreation, and scenic open space.

Permanent conversion of additional Important Farmland acreage would have economic impacts as well. Relying on the lost agricultural revenue and income reduction calculations of Dr. Jeffrey Michael in Exhibit SDWA-134R, p. 7, I have roughly calculated the economic impacts to Sacramento County associated with the permanent conversion of 44 additional acres of Important Farmland. Assuming lost revenue of $1,949 per acre in 2009 dollars (Exhibit SDWA-134R, p. 7:17-19), Sacramento County would see additional lost agricultural revenue of about $86,000 per year in 2009 dollars. Assuming each million dollars of Delta agricultural output supports 12.2 jobs and $859,000 in income (Exhibit SDWA-134R, p. 7:21-24), lost production in Sacramento County would eliminate one additional job and reduce income by about $82,000 in 2016 dollars.

I understand that Petitioners will comply with Government Code sections 51290-51295 when acquiring lands subject to Williamson Act contracts.[8] When Williamson Act land is acquired by eminent domain or in lieu of eminent domain, the contract is normally terminated (Gov. Code, § 51295). When only a portion of a parcel in a Williamson Act contract is removed from agricultural production, the landowner is likely to experience a reduction in land value for the remaining land. Also, WaterFix activities on former

[6] SACO-26, p. 14-3:24-29.
[7] SACO-26, p. 14-3:29-31.
[8] SWRCB-102, p. 14-118:11-13

Williamson Act lands are likely to negatively affect adjacent lands under Williamson Act contracts through a reduction in land values. With permanent conversion of an additional 119 acres of land in Williamson Act contracts, the Proposed Project is likely to increase the risk of these adverse effects on local landowners.

CONCLUSION

The additional impacts to the local agricultural industry associated with the permanent conversion of nearly 5 percent more Important Farmland in Sacramento County than assumed in the Approved Project would exacerbate what is certain to already be a severe blow to this important industry and Delta communities.

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I. SUMMARY OF TESTIMONY

My testimony addresses the BDCP/California WaterFix's ("the Project") impacts on recreation and recreational facilities throughout Sacramento County.

II. IMPACT OF WATERFIX ON SACRAMENTO COUNTY PARKS AND RECREATION

A. Reservoir and River Flow Levels

A key issue of importance to the County of Sacramento is the impact and potential harm of the Project on river flows and river levels, as changes in river levels have the potential to significantly impact river-dependent recreational uses, including marinas and riverside parks. The Recreation chapter of the Project Final EIR/EIS ("FEIR") contains no analysis of Project effects on river levels and the resulting effect on

river-dependent recreational uses.[1] The FEIR states that "CALSIM modeling results indicate that effect on Sacramento…River flows would be less than significant. [ ] Therefore, these are not discussed further." (See FEIR, p. 15-64.) However, other evidence in the record indicates that various Project scenarios would result in reduced Sacramento River flows at certain times of the year, if not the entire year. (See, e.g., FEIR Figures 6-26, 6-27, 6-30 and 6-31.)

Sacramento River Flow at Freeport, Average Wet Years

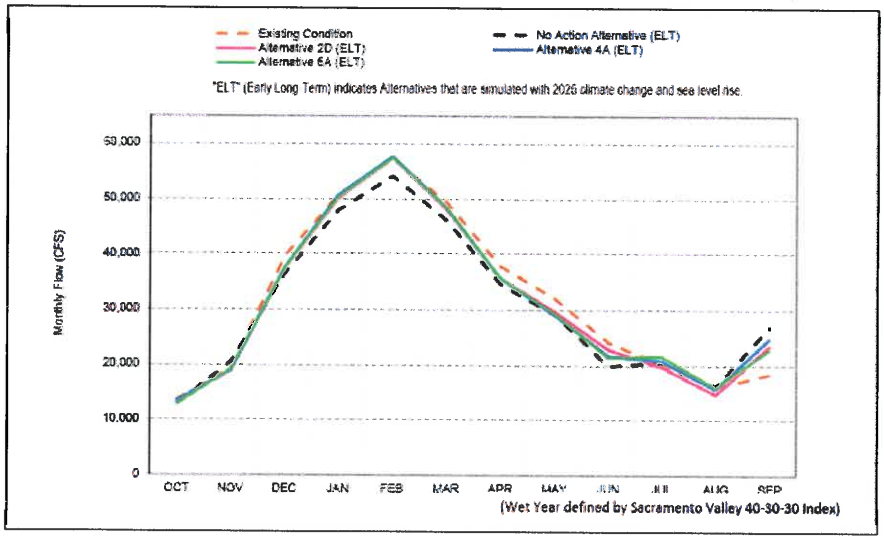

Figure 6-26
Sacramento River Flow at Freeport for Alternatives 2D, 4A and 5A, Average Wet Years[1]

Utilizing the Existing Condition as the basis for comparison, a noticeable difference in Sacramento River flows at Freeport would occur between the months of April and July in average wet years.

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[1] References to the FEIR are references to Exhibit SWRCB-102.

Sacramento River Flow Downstream of North Delta Intakes, Average Wet Years

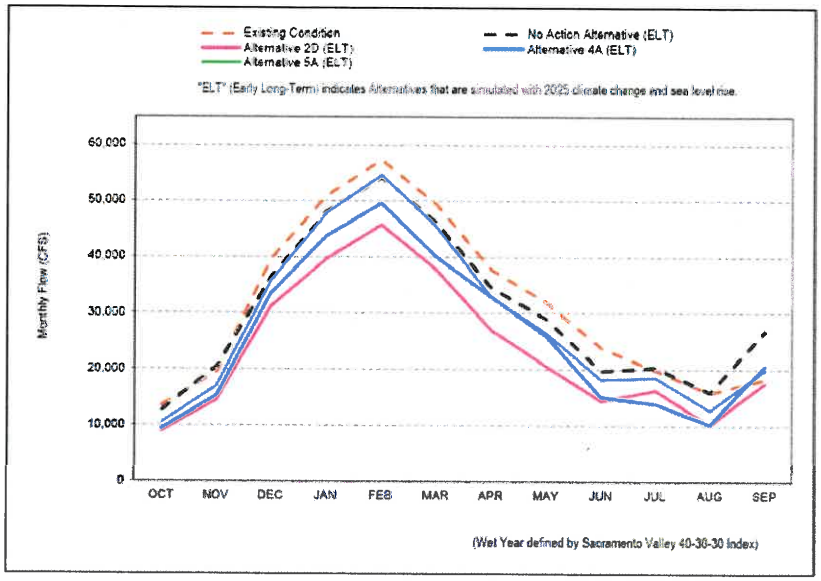

Figure 6-30
Sacramento River Flow downstream of North Delta Intakes for Alternatives 2D, 4A and 5A, Average Wet Years

The adverse changes in Sacramento River flows downstream of the north delta intakes under Alternative 4A appear to be particularly considerable in terms of reduced cubic feet per second (cfs). Such reductions in flow levels affect recreation in a variety of ways, including aesthetics, boating and viability of fish habitat. This constitutes an actual harm to the public interest.

In Sacramento County's comments on the Draft EIR, the County noted the DEIR's emphasis on reliance upon the No Action Alternative (NAA) baseline rather than existing conditions baseline. We argued that use of the NAA with respect to recreation impacts to reservoirs and rivers would not capture the severity of short-term (i.e., the first few decades of Project operation) impacts to reservoir storage and river flow levels. The NAA's incorporation of considerations such as climate change and sea level rise would minimize the Project's actual recreation impacts on reservoirs and rivers. Whereas, use of an existing conditions baseline would potentially disclose significant impacts to recreation uses that are likely to occur in the years immediately following commencement of operations unless and until the predicted future climatic influences

actually occur.

The FEIR does include brief consideration of how an existing conditions baseline could alter the analysis with respect to impacts on recreation. (See FEIR, p. 15-475, discussing Impact REC-6.) The FEIR acknowledges that, under Alternative 4A:

> "recreational thresholds would be exceeded more frequently at Trinity, Shasta, Oroville, Folsom and San Luis Reservoirs relative to Existing Conditions. These changes represent a greater than 10% increase in the frequency the recreation thresholds are exceeded at Trinity, Shasta, Oroville, Folsom and San Luis Reservoirs, compared to Existing Conditions."

(FEIR, p. 15-475.)

The recreation significance threshold is a 10 percent or greater reduction in the frequency of recreation facility availability, based upon reservoir levels. I am troubled by this finding with respect to Folsom Reservoir, even though the FEIR attributes the significant change in reservoir elevations primarily to external factors such as change in demand, sea level rise and climate change. Again, those external factors would not necessarily have an effect during the first decade or more of Project operations. Notably, the FEIR declines to make an impact conclusion for REC-6 using the Existing Conditions baseline due to an inability to isolate the precise contributions of the external factors to the total differences between Existing Conditions and Alternative 4A. Rather than evading a conclusion, this impact should be deemed significant to the public interest in recreational opportunities.

FEIR Table 15-12b is instructive on this point. In the FEIR's 82-year simulation period, the loss of recreation access under existing conditions is 22 years out of 82; under the NAA, it is 50 years out of 82; and under Alternative 4 it is 41 years out of 82. The FEIR thus concludes Alternative 4 would be an improvement as compared to the NAA. (See FEIR, p. 15-90; 15-280 to 15-281.) By failing to evaluate the Project's impacts against existing conditions, the FEIR fails to disclose that the Project will

substantially reduce access to recreation (by a factor of almost 2). Using the threshold of significance set forth for impacts to reservoirs (see above), it would appear that the Project would have a significant impact when compared to existing conditions because it reduces the frequency of availability 50 percent of the time, compared to just 26 percent of the time under existing conditions, a 24 percent reduction in availability.

In any event, using the NAA baseline, the FEIR concludes there would be three additional years (out of 82) under Alternative 4A during which the reservoir levels would fall below the reservoir boating threshold at the end of September. Although this apparently does not trigger the FEIR's significance threshold that would indicate an adverse impact on recreation occurring at the reservoir, the County of Sacramento nevertheless considers this result to be harmful to the public interest in recreational opportunities.

B. Impacts to Cosumnes River Preserve and Stone Lakes NWR

The FEIR improperly diminishes the Project's permanent and direct impact to recreational opportunities at the Cosumnes River Preserve (Preserve). Alternative 4A facilities include elements that would be permanently located within and adjacent to the Preserve. (See FEIR, pp. 15-258, 15-467.) A Reusable Tunnel Material area would be built to the north of the Preserve, southeast of the intermediate forebay. An east-west permanent transmission line would be constructed adjacent to the northern boundary of the Preserve along Lambert Road where California Department of Fish and Wildlife manages the lands as an ecological reserve. Permanent tunnel shafts would be located on the Preserve. The FEIR concludes these features and impacts are less than significant. (Impact REC-1.)

Sacramento County disagrees with this impact conclusion. The FEIR acknowledges that the Project would cause permanent surface impacts to the Preserve "and would displace portions of the preserve that may be used by recreationists." (FEIR, p. 15-467.) Permanent noise and visual impacts would occur from the RTM areas adjacent to the Preserve. The FEIR appears to rationalize that this impact is not

significant because it would not result in the permanent loss or closure of a facility or activity. That is not a proper measure for the impact. The value of the Preserve depends in great deal upon its quiet, natural and undisturbed aural and visual character. These Project features would meaningfully conflict with each of those values, thus diminishing the recreational experience at the Preserve. This constitutes an unreasonable harm to the public interest.

More accurately, the FEIR concludes that the construction-related impacts to recreational opportunities and experiences such as the Preserve will be significant and unavoidable (Impact REC-2), even with mitigation. (FEIR, pp. 15-267, 15-469.) The Preserve is located within the construction footprint of the Project. Other recreational sites, including Stone Lakes National Wildlife Refuge, are within the 1,200 to 1,400 foot indirect impact area. These significant impacts are unacceptable and clearly constitute harm to the public interest.

Similar to the permanent impacts noted above, the direct construction impacts to the Preserve would introduce adverse noise, light and temporary facilities such as access roads, safe haven work sites and tunnel shaft with temporary work areas for up to thirteen years. Together, these impacts will cause a loss of public use of a well-established recreation opportunity and experience. The impacts would occur year-round.

The impacts to Stone Lakes NWR, although "indirect", are no less concerning. As explained by the FEIR:

> "The northern section of Stone Lakes NWR is adjacent to Intakes 2 and 3, and the southern portion is approximately 1 mile from Intake 5. Recreation does occur in the northernmost section of Stone Lakes NWR, which would be east of a temporary work area and an RTM area associated with Intake 2 and could cause noise and visual disturbances to recreationists. Geotechnical exploration would occur along the tunnel corridor, to the east of Stone Lakes NWR, for up to 2.5 years. [ ]

> Construction of the intakes and temporary work areas could also cause noise and visual disturbances to recreationists. Construction of the proposed 230 kV and 69 kV temporary transmission lines would be constructed to the west and south of the North Stone Lake Unit, and could cause noise and visual disturbances to visitors in the refuge for up to 1.5 years. Access to the refuge would be preserved, but because of the proximity of the alignment and associated construction work areas and borrow/spoil areas, there could be effects on wildlife viewing and environmental education opportunities within the Stone Lakes NWR."

(FEIR, p. 15-260.)

FEIR, Figure M3-4, Sheets 1 and 2, visually depict the close proximity of Project features with Stone Lakes NWR. The Project proponents concede this significant and unavoidable impact. As such, it must be regarded as equally harmful to the public interest.

C. Impacts To Staten Island

In addition to tunneling through the Staten Island nature preserve, the Project would build a tunnel shaft, a launch shaft, a vent shaft, two reusable tunnel material areas and a conveyor facility, two temporary access roads, a permanent access road, temporary work areas, and a temporary barge unloading facility on the island. (FEIR, pp. 15-258, 15-261 to 15-262.) The FEIR downplays the significant adverse effect this construction will have on recreational opportunities and the visitor experience at Staten Island.

Staten Island receives significant amounts of visitors – over 3,000 per year according to staff at the Nature Conservancy, which manages conservation easements on the island. Not only would recreation use be substantially diminished during the years of construction, but the placement of RTM areas, shaft locations, and a permanent access road would cause permanent surface impacts and would permanently displace portions of the preserve that are used by recreationists. The Project would result in the permanent loss of a substantial portion of the preserve. The fact that the preserve as a whole would not be permanently lost or closed does not mean the significant

diminishment of the quality of the island as a nature preserve, and diminishment of the visitor experience due to the intrusion of these industrial elements, would not be a significant adverse impact on a recreation facility and the public interest.

D. Impacts to the American River and Discovery Park

The FEIR refers to goals and policies of the American River Parkway Plan, including policies specific to the Discovery Park Land Use area. (FEIR, p. 15-47.) The FEIR recognizes impacts to Discovery Park but fails to look at the 23 miles of river upstream from Discovery Park on the American River and how Project-related flows will impact recreation on the river. A change in flow standards will impact access to recreation on the river, parking and trails and may cause scouring of river banks, trails and access areas near the American River. The graphs included above in the discussion of river flows demonstrate that the Project will affect flow rates and levels in the Sacramento River, not far from its confluence with the American River. The variations in Folsom Reservoir storage between Alternative 4A and the existing condition (See FEIR Figures 5-45 and 5-46) further suggest the Project will have an effect on flow rates and flow levels for the American River.

Figure 5-46: Folsom Lake End of September Storage

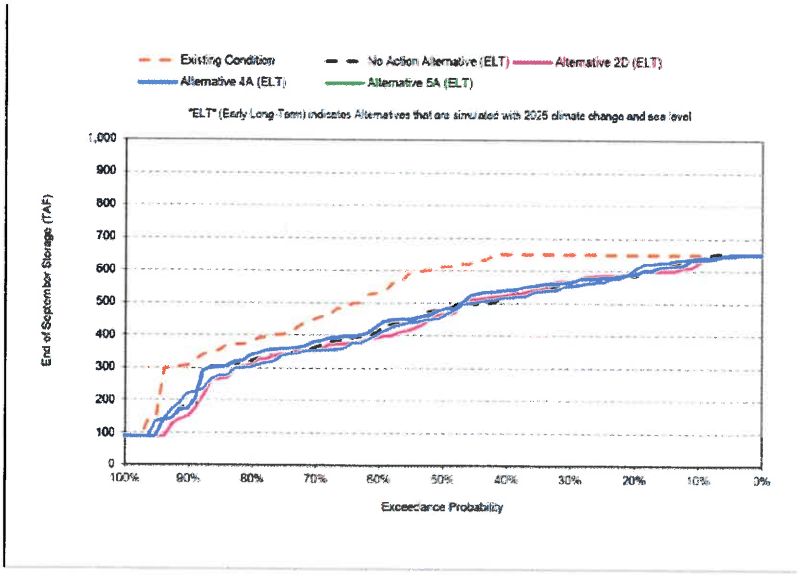

Figure 5-46
Folsom Lake End of September Storage for Alternatives 2D, 4A and 5A

The FEIR has not analyzed the potential impacts to the American River in terms of flow rates and flow levels and the attendant impact on American River recreational opportunities. The failure to do so constitutes a risk that should not be tolerated and is harmful to the public interest.

E. Mitigation Measure REC-2

The mitigation measures for Georgianna Slough Fishing Access and Cliffhouse Fishing Access improvements will create additional cost of management, maintenance and law enforcement responsibilities for County of Sacramento Regional Parks. While the mitigation measure creates alternative recreation opportunities, it also financially impacts the Department of Regional Parks with cost increases to managing the facilities. This is an additional taxpayer burden that the County had not planned for or anticipated. Moreover, the FEIR's failure to define "enhancements" precludes the County from evaluating their potential cost and effectiveness.

F. FEIR Misinterprets Boat Registration Data

The FEIR may attempt to diminish the level of interest and investment in recreational boating activity in establishing the Project's environmental setting. The FEIR observes that boat registration data for 2002-2009 indicates "a pattern of slight but steady declines in boat registrations over that period in most counties." (FEIR, p. 15-3.) Although that may be factually accurate, it does not take into account the economy in 2007-2009 and the impacts to boat purchases due to the recession. That period likely represents an aberration in the ordinary rate of boat registrations, and should not be relied upon as a basis for determining that impacts to boating recreation are not significant.

III. CLOSING

The proposed California WaterFix will significantly and adversely affect the public interest in the context of park use and recreation opportunities and experience. The impacts will be realized in the form of reduced river and reservoir water levels, construction disturbances upon well-established nature preserves, and permanent

industrial-type intrusions upon designated and protected natural wildlife reserves.

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BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

HEARING ON THE MATTER OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND UNITED STATES BUREAU OF RECLAMATION REQUEST FOR A CHANGE IN POINT OF DIVERSION FOR CALIFORNIA WATER FIX.	**PART 2 TESTIMONY OF AMBER VESELKA ON BEHALF OF THE COUNTY OF SACRAMENTO**

I. SUMMARY OF TESTIMONY

My testimony addresses the impacts of the California WaterFix (the "Project"), as revised in the Administrative Draft Supplemental Environmental Impact Report ("ADSEIR")[1], on recreation and recreational facilities in the Delta portion of Sacramento County.

II. IMPACT OF THE PROJECT ON PARKS AND RECREATION WITHIN SACRAMENTO COUNTY

A. The Realignment of the North Tunnels Increases the Impacts to Stone Lakes National Wildlife Refuge.

Under the ADSEIR, the Project's North Tunnel alignment will shift to the east to avoid the town of Hood, but would lie roughly 1/2 mile closer to the Stone Lakes National

[1] The ADSEIR is Exhibit SWRCB 113. The ADSEIR chapters discussed in my testimony have been filed herewith as follows: Chapter 3 (SACO-29), Chapter 12, pp.12-30, 12-34 (SACO-30), Chapter 15 (SACO-31), Chapter 17 (SACO-32), and Chapter 23 (SACO-33).

Wildlife Refuge (SLNWR or Refuge). (See ADSEIR, p. 3-7; ADSEIR Figures 17-1, 17-3a and M15-4.) Although the tunnel footprint does not cross over into SLNWR, the facility will now be as close as 100-200 feet from the Refuge. (See ADSEIR, Figure M15-4.) This means that construction of the tunnel, for more than ten years and with all of its attendant impacts, will take place within a few hundred feet of the Refuge, which is renowned for and depends upon a quiet, undisturbed environment.

The Project Final EIR/EIS (FEIR), SWRCB-102, concluded that the Project would result in a significant and unavoidable long term-reduction in recreation opportunities and experiences as a result of constructing the proposed water conveyance facilities. (See FEIR, pp. 15-259 to 15-267; 15-468 to 15-469.) The FEIR acknowledged that SLNWR would be located within the 1,200 to 1,400 foot "indirect impact area" associated with aboveground construction of the Project. (FEIR, pp. 15-259, 15-260; 15-468.) Further, the FEIR stated that "[p]otential indirect effects on recreation include access, construction noise, and changes in visual character of the area surrounding the recreation sites, as well as reduced wildlife-related recreational opportunities due to nearby noise effects." (*Ibid.*)

> The ADSEIR describes its methodology for determining impacts as follows:
>
> "The focus of this assessment is to compare the impacts on recreation previously determined for the approved project with how those impacts may either increase or decrease as a result of implementing the proposed changes to the water conveyance facilities. This incremental analysis addresses whether the proposed project, compared with the approved project, would lead to any new significant environmental effects or to any substantial increase in the severity of previously identified significant effects."

(ADSEIR, p. 15-1.)

The ADSEIR once again recognizes that SLNWR will be located within the 1,200 to 1,400 foot indirect impact area of the Project, but without noting that the indirect impact area will encroach further into the SLNWR. (See ADSEIR, p. 15-3; Figure M15-4.) The ADSEIR concludes the changes in alignment "would not affect the previously disclosed impacts on these facilities." (ADSEIR, p. 15-3.)

In my opinion, the change in the alignment and corresponding increase in proximity of construction to the Refuge constitutes a substantial increase in the severity of the previously identified significant effect on recreational opportunities and experiences. (Compare location of "Impact Area" in FEIR Figure M15-4, Sheet 1 with ADSEIR Figure M15-4, Sheet 1.) The setting can generally be described as follows:

> "Stone Lakes NWR is composed of a rich mosaic of habitats that support hundreds of species for both resident and migratory wildlife. The main types of habitat you'll see are grasslands, riparian forest, woodland savanna, freshwater lakes, freshwater sloughs, perennial wetlands, seasonal wetlands, and vernal pools."
>
> "The diverse habitats of Stone Lakes National Wildlife Refuge are home to over 200 species of birds and numerous other fish and wildlife species. The refuge is located in the heart of California's Central Valley along the Pacific Flyway. When combined with neighboring natural areas, it is part of a vast landscape corridor that serves as a sanctuary for many resident and migratory fish, wildlife, and plant species."

(https://www.fws.gov/refuge/Stone_Lakes/wildlife_and_habitat/index.html)

Construction of the Project along the new alignment will expose a larger area of the natural environs in and around the Refuge to unprecedented disturbances in the form of noise (FEIR, pp. 23-122, 23-132), groundborne vibration (FEIR, pp. 23-135, 12-3559, 12-3545) and visual impacts (FEIR, pp. 12-3552, 12-3566), while increasing the degree of those impacts already presumed to occur within the Indirect Impact Area under the FEIR.

For example, the FEIR concedes that construction of conveyances under the prior alignment would have a significant and unavoidable noise impact on "natural/recreational parcels" (12 during the day and 34 at night). (FEIR, pp. 23-123, 23-132.) Although the ADSEIR does not provide similar information with respect to natural/recreational parcels, it does state that an additional 97 residential parcels would be significantly affected by noise from construction of conveyance facilities. (ADSEIR, pp. 23-1, 23-5.) This substantial increase in the number of residential parcels that will be exposed to a significant noise impact is indicative of what the expanded impact to natural/recreational parcels will be, particularly given the eastward shift of the north

tunnel route towards SLNWR. The shift closer to the Refuge will also increase the severity of threshold exceedances on sensitive receptors already presumed to be affected. (See FEIR Table 23-59, at p. 23-120 [noise levels as a function of the distance between "source and receiver"].)

The increased proximity of Project construction will have an adverse effect on wildlife in the Refuge, which is a primary component of the recreational opportunity and experience at SLNWR. The FEIR states that artificial lighting during construction may indirectly affect certain species such as the greater and lesser sandhill crane. (See FEIR, pp. 12-3552, 12-3566.) Temporary impacts on sandhill crane foraging habitat would also result from geotechnical boring activities along the tunnel alignment. (FEIR, pp. 12-3545, 12-3559.) Generally, construction-related "noise, dust and visual disturbance caused by grading, filling, contouring and other ground disturbing operations outside the project footprint" will affect multiple species found within the Refuge. (FEIR, pp. 12-3551, 12-3565; see also FEIR, pp. 12-3515 [Western Pond Turtle], 12-3576 [Yellow Warbler], 12-3587 [Swainson's Hawk], 12-3595 [Tricolored Blackbird], 12-3603 [Western Burrowing Owl].)

Without specifically acknowledging the increased proximity of the tunnel alignment to the SLNWR, the ADSEIR observes some of these indirect impacts to terrestrial biological resources would remain present, although reduced to less-than-significant with mitigation. (See, e.g., ADSEIR, pp. 12-30 [Greater Sandhill Crane], 12-34 [Lesser Sandhill Crane].) Nevertheless, this effect upon wildlife still contributes to the overall impact to recreational opportunities within the Refuge, now to a greater degree with the new alignment.

B. The Area of the RTM Site Immediately North of the Cosumnes River Preserve Will Substantially Increase.

Under the FEIR, three reusable tunnel material (RTM) areas were planned to be located immediately north of the Cosumnes River Preserve. Specifically, these three RTM areas were to be located west of Interstate 5, east of the proposed Intermediate

Forebay and on either side of Twin Cities Road. (See FEIR, Figure M3-4, Sheet 5.) Those three RTM areas had proposed areas of 39 acres, 43 acres and 114 acres, for a total of 196 acres. (See ADSEIR, p. 17-5.) Under the revised plan, those three RTM areas would be "reconfigured" to create "one larger RTM area north of Twin Cities Road (275 acres) and one smaller RTM area south of Twin Cities Road (77 acres)" for a total area of 352 acres of RTM at a height of 10-15 feet. (*Ibid.*; see also, FEIR, p. 17-188.) The change results in an increase of 156 acres of RTM area adjacent to the Cosumnes River Preserve (See ADSEIR, Figure 17-3b.)

The "reconfiguration" and increase of the RTM areas on either side of Twin Cities Road appears related to the removal of other nearby RTM areas near the Intermediate Forebay (46-acre, 33-acre and 131-acre sites). (See FEIR, Figure M3-4, Sheets 2 and 4; see also ADSEIR, p. 17-5.) The ADSEIR looks at the result from a Project-wide perspective, concluding that the total RTM area will decrease from 2,571 down to 2,369. From the on-the-ground visual perspective of the Cosumnes Preserve, however, the increase is substantial and detrimental. Visitors to the Preserve, particularly in the area where the Cosumnes River flows west, under I-5 and towards the Sacramento River (the lower Cosumnes), will see a significantly larger RTM mound than previously analyzed in the FEIR.

The FEIR concluded that the aesthetic impacts of the RTM areas, during construction and as completed, would be significant and unavoidable, even with mitigation. (See FEIR, pp. 17-197, 17-204, 17-320, 17-322). The ADSEIR concludes that the incremental impact of the Project revisions would be "similar" (ADSEIR p. 17-8) or "the same" (ADSEIR p. 17-11) to that of the approved project, though it is unclear whether the ADSEIR is concluding the incremental impact constitutes a new significant environmental effect or a substantial increase in the severity of previously identified significant effects. (See ADSEIR, pp. 17-1.)

In my opinion, the 156-acre increase in RTM acreage, at a height of up to 15-feet, directly adjacent to the Cosumnes River Preserve constitutes a substantial increase in

the severity of the previously identified significant effect. The topography in and around the Preserve can be described as follows:

> "[T]he western part of the watershed is characterized by lowland Delta and Valley habitat types such as tule, sedge, riparian forests, and freshwater marshes located adjacent to the Cosumnes River and its tributaries. The lower floodplain has some of the best remaining valley oak riparian forest in the Central Valley. Chinook salmon spawn in the river downstream of Latrobe Falls, and native fishes rear on the seasonally flooded floodplains. Unique terrace and mudflow vernal pool systems are found embedded within annual grasslands on the eastern edge of Sacramento and San Joaquin Counties. Agricultural land, particularly irrigated agriculture, is concentrated on the fertile upland valley soils of the valley floor in the lower watershed."

(2008 Cosumnes River Preserve Management Plan, Section 2.1.2, p. 2-11.)

The addition of 156 acres of RTM mounds will be a substantial artificial change to the otherwise characteristically flat, natural Delta landscape. It will constitute an incrementally significant unnatural addition to the surrounding scenery. This is a substantial, adverse impact to the public interest, both in terms of the aesthetic and recreational value of viewing a natural landscape in and around the Preserve.

C. The Expansion of the Shaft Facility Area and the New Safe Haven Work Area on Staten Island Constitute Significant Impacts.

Under the FEIR, the "approved" Project proposed to locate two shaft sites on Staten Island. (See FEIR, Figure M3-4, Sheets 6 and 7.) During construction, the shaft sites would be used for retrieval, launch and ventilation. (See FEIR, p. 17-189.) Following construction, they would be converted to permanent access shaft sites. (See *ibid.*; see also, e.g., FEIR Figure 17-80.) The FEIR concluded that construction and permanent effects of the shaft sites would contribute to a significant and unavoidable aesthetic impact on Alternatives 4 and 4A. (See FEIR, pp. 17-197, 17-208, 17-209, 17-320, 17-322.)

The northernmost shaft site on Staten Island was originally proposed to be 10 acres. Under the revised Project, it will be a 39-acre site, for an increase of 29 acres.

(See ADSEIR, p. 17-6.) The revised Project would also add a 10-acre "safe haven work area" to Staten Island, for a total of three such areas. (See *ibid.*; see also, FEIR, p. 17-190.)

Staten Island supports agricultural uses and provides natural habitat for various species. It is part of the Cosumnes River Preserve and is a recreational location for hiking and bird watching. The terrain is primarily flat and undeveloped. Although it is far from clear what the ADSEIR's impact conclusion is with respect to the alteration in existing visual quality or character during construction of conveyance facilities (ADSEIR, pp. 17-8, 17-11 & 17-12), the addition of 29 acres to the shaft site, along with a new safe haven work area, constitutes a substantial increase in the severity of the previously identified significant visual impact on Staten Island, and upon the public interest.

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BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

HEARING ON THE MATTER OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND UNITED STATES BUREAU OF RECLAMATION REQUEST FOR A CHANGE IN POINT OF DIVERSION FOR CALIFORNIA WATER FIX.	**PART TWP TESTIMONY OF REZA MOGHISSI, PE, ON BEHALF OF THE COUNTY OF SACRAMENTO**

I. SUMMARY OF TESTIMONY

I, Reza Moghissi, submit this testimony on behalf of Sacramento County in Part 2 of the California WaterFix petition for change proceeding pending before the State Water Resources Control Board. Based upon my review of the Final Recirculated EIR/EIS ("FEIR") for the BDCP/California WaterFix and other relevant materials, I anticipate that the construction and operation of the California WaterFix (FEIR Alternative 4A) ("the Project") will significantly and adversely change the nature of travel in the Delta. Heavy construction traffic will be introduced for over ten years into a setting that is accustomed to a rural way of life. Not only will residents and visitors be affected by traveling with a heavy increase in construction traffic, but pavement conditions in the Delta will deteriorate to a point of disrepair. Construction impacts to pavement condition will be significant and roadways will need to be reconstructed to current structural standards.

The FEIR only identifies 16 Sacramento County roadways within the study area as potential construction routes. In addition to the roadways identified in the analysis, there are 14 roadway segments that are either adjacent to the identified routes or are close to the project construction sites. These roadway segments will be impacted either directly or indirectly by the construction activity associated with the Project. Those roadway segments are shown in Exhibit SACO-22. Based on my experience, truck drivers have the tendency to use the shortest and easiest route every time, regardless of designated construction routes. They pay for their fuel and many get paid by the load.

II. TRAFFIC IMPACTS ON DELTA WAY OF LIFE

The following Sacramento County Delta roads will experience dramatic and unprecedented increases in traffic levels during the Project's 10+ year construction period: Hood Franklin Road, Lambert Road, Franklin Boulevard, Twin Cities Road, Sutter Slough Bridge Road, River Road and Walnut Grove Road.[1] Each of these roads will experience significant hourly volume increases during construction, even though level of service (LOS) calculations may show acceptable operations. *(See, e.g.,* FEIR, Table 19-25, p.19-215; Attachment E to Appendix 19A.)

For example, as shown in Figure 1, during the peak traffic times, Hood Franklin Road, from State Route 160 (River Road) to Interstate-5, will experience a five-fold increase in traffic volumes (approx. 153 vehicles/hour increased to approx. 773 vehicles/hour). (See FEIR, Appendix 19A, Table 9 and Attachment E.)

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[1]/ The corresponding road segment ID's for these roads in the FEIR are SC 02, SC 03, SC 04, SC 05, SC 06, SC 07, SC 08, SC 10 and SC 11.

ID	Roadway	Segment	
		From	To
SC 02	Hood Franklin Rd	SR 160 (River Rd)	I-5

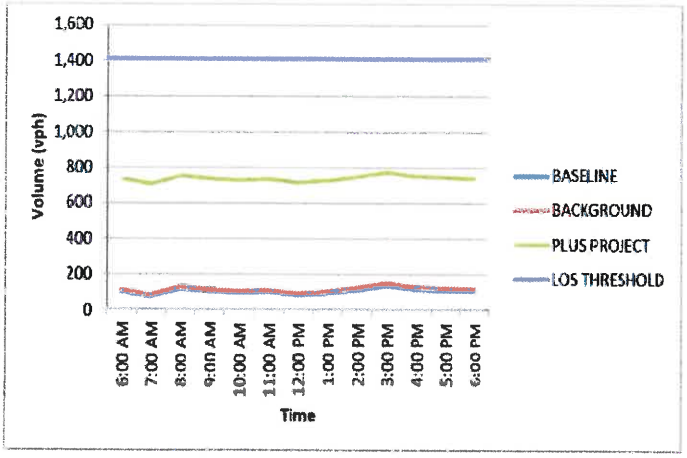

Figure 1. Traffic Volumes, Hood Franklin Road from Hwy 160 to I-5

Similarly, as shown in Figure 2, during peak traffic hours, Sutter Slough Bridge Road, from the Sacramento/Yolo County line to Paintersville Bridge, will see hourly trips drastically increase from a mere 140 up to 760. (See FEIR, Appendix 19A, Table 9 and Attachment E.) Although the resulting increases from Project construction trips may not technically trigger the County's ordinary LOS significance threshold, the effect on local residents will be substantial, adverse and will alter their local travel patterns, routes and timing.

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ID	Roadway	Segment	
		From	To
SC 08	Sutter Slough Bridge Rd	Sacramento Co./Yolo Co. Line	Paintersville Bridge

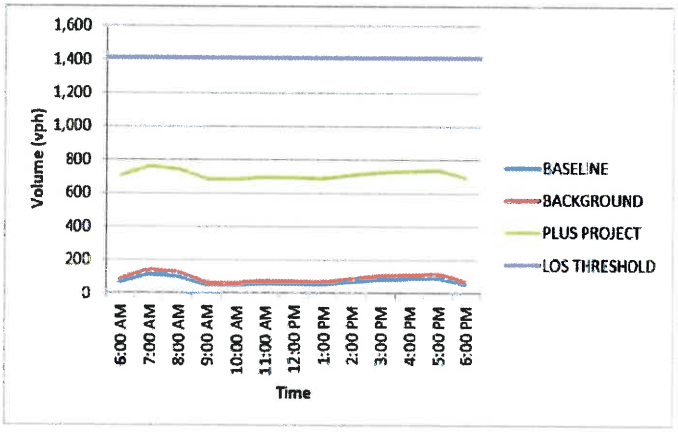


Figure 2. Traffic Volumes
Sutter Slough Bridge Rd, Sac./Yolo Co. to Paintersville Bridge

The expected traffic volume increases for these Sacramento County Delta roads is not marginal. The increases will be more than double or triple. The increases are by an order of magnitude of four or even five. (See FEIR, Appendix. 19A, Table 9 and Attachment E.) These lightly traveled rural roads will be inundated with construction-related traffic volumes that are more characteristic of urban road traffic volumes. Not only will this force local residents, business owners, employees and suppliers to alter their routes and schedules, but it will also alter the quiet character of the area for more than ten years. The change constitutes much more than an inconvenience. Trip times for residents, business owners, employees and suppliers will inevitably and substantially change such that they will need to alter their practices and expectations. Moreover, the FEIR acknowledges that there will be detours and road closures, which will even more severely hinder the expectations of local drivers.

III. TRAFFIC OPERATIONS METHODOLOGY

The FEIR analyzes traffic operations of roadway segments using a methodology described in the Highway Capacity Manual (HCM) and the hourly traffic volume thresholds. The HCM methodology is generally used for the Level of Service (LOS) analysis of urban streets and highways where the roadway characteristics are very

different from the roads in the Delta. The physical characteristics of Delta roads in Sacramento County consist of generally narrow pavement widths, limited or nonexistent shoulders, and often drainage ditches on one or both sides of the roadway. The road segments mentioned in the study carry a combination of cars, trucks, and wide-slow-moving agricultural equipment, especially during the growing season. The above conditions create an environment that is quite different from an urban setting. This environment directly affects the speed of traffic and the capacity of the roadway. Therefore, it is highly doubtful whether the traffic operation analysis included in the FEIR realistically forecasts the level of service during Project construction for Sacramento County roads in the study area. It is highly expected that the Project's impacts will be greater than what has been determined by the Project Roadway Traffic Operations Analysis.

While roadway capacity is one measure of operations on a roadway, the nature of the construction traffic will also affect traffic flow. The Project will consist of significant amounts of heavy equipment on roads that do not normally experience this type of traffic. It is not clear that passenger car equivalents (PCE's) for construction equipment were taken into consideration with this volume analysis. The length of construction and nature of traffic (heavy vehicles) should be taken into consideration in assessing the nature and extent of the Project's impacts. The increase in heavy vehicle traffic volumes due to Project construction will be an unreasonable effect on the public interest of Delta residents, including economic and commercial interests, and Delta visitors.

IV. MITIGATION FOR LOS IMPACTS

The FEIR does not propose mitigation to reduce the LOS impacts of the Project on County road segments because it fails to acknowledge the actual severity of such impacts to the County roads that will be utilized for construction routes.[2] In any event,

[2] Notwithstanding the FEIR's impact conclusions with respect to traffic volumes on Sacramento County roads, Table 23 in FEIR Appendix 19A (pp. 193-194) appears to require implementation of MM TRANS-1b for five identified Sacramento County Road segments. This may be as mitigation for pavement deterioration impacts.

the FEIR's mitigation for impacted road segments is not effective to remedy the impacts that will occur to Sacramento County roads, or other similarly impacted Delta roads.

Mitigation Measure TRANS-1b (MM TRANS-1b) calls for limiting construction activities so that construction traffic remains below acceptable LOS levels on roadways. (See FEIR, p. 19-221.) In the County's experience, more than likely it will not be efficient or feasible for construction-related traffic to be limited or confined to designated or approved routes. Moreover, it is almost impossible to enforce. Truck traffic during construction projects is difficult to control. Truckers do not stay on designated routes, cut across islands on peripheral roads, ignore bridge weight limits, and tear up intersections by making unauthorized U-turns.

It is unclear how MM TRANS-1b would be achieved. Will someone perform hourly volume counts on various roadways in the study area and shut down construction traffic if LOS capacities are reached? Petitioners should require that the transportation management plan specify short- and long-term roadway use and include enforcement provisions. However, due to the significant uncertainties in the feasibility of this mitigation, I am skeptical that it would be effective to mitigate impacts below a level of significance.

Mitigation Measure TRANS-1c (MM TRANS-1c) calls for making "good faith efforts" to enter into mitigation agreements to enhance capacity on congested roadway segments. This measure is indefinite and illusory. It is unclear what constitutes a "good faith effort". MM TRANS-1c potentially places more of a burden and responsibility on local jurisdictions to remedy a problem that the Petitioners are causing. Also, more information is needed about the specific capacity enhancement projects that would be required to mitigate impacts. We do not know what the expected location and extent of these improvements would be. It does not appear that the impacts of capacity enhancement have been studied. If roads must be widened to mitigate Project traffic, homes, businesses and/or agricultural land would likely be lost. Are the needed improvements included in an existing program of planned improvements? If so, what is

the funding status of that program? In my opinion, making a good faith effort or paying a fair share is not sufficient mitigation if there is no evidence that mitigation will actually result. Accordingly, I do not view MM TRANS-1c as a clear solution to the impacts that will occur to County roads.

V. IMPACT OF CONSTRUCTION TRAFFIC ON SAFETY AND EMERGENCY SERVICES

The Project will likely impact the safety of Delta citizens due to an increase in roadway safety hazards, including interference with emergency routes during construction on heavily congested highways including I-5, 1-80, SR 50, SR 99, SR 160, and low capacity roadways including Lambert Road, Grant Line Road, Hood Franklin Road and River Road. *(See* FEIR, Impact TRANS-3 - *Increased Safety Hazards and Interference with Emergency Routes,* p. 19-231.) Project construction traffic will greatly increase an already lengthy law enforcement response time to the residents of the river Delta communities. Current emergency law enforcement response times to the communities of Locke, Hood, Isleton, and the many recreational sloughs and islands are in excess of 25 minutes. Based on the Sheriff Department's experience with prior roadway and bridge construction projects in that area, the Project impact of roadway hazards, traffic control, and interference will increase this response time to more than 60 minutes.

The only mitigation noted (MM TRANS-1c) is a "good faith effort" to enter into agreements to enhance capacity of affected roads. As I previously noted, this measure is illusory, indefinite and does not guarantee that mitigation or improvement will occur. Moreover, the impact discussion indicates that MM TRANS-1c will not reduce the severity of the impact to a less than significant level. *(See* FEIR, p. 19-231) This is unacceptable and will adversely affect law enforcement response and community safety for a period of 9 to 12 years.

VI. IMPACTS TO THE PHYSICAL CONDITION OF COUNTY ROADS

The FEIR acknowledges that Project construction traffic is likely to substantially degrade some Delta roads within Sacramento County. However, the FEIR's analysis of construction impacts does not address the full scope of the Project's impacts to County roads, and mitigation is not adequate to avoid or substantially lessen significant impacts.

During construction of the proposed Project, various materials would be transported to and from the construction area in heavy trucks. The immediate impacts of such heavy truck traffic on the Delta roads will be the crumbling of the roadway surface to a point it would be impassable or very hazardous for vehicular traffic. It is important to address the current reality of the roadway conditions in the Delta area within Sacramento County. The FEIR reflects that a majority (9 out of 16) of the Sacramento County roads within the study area are currently below a PCI threshold rating of 55. (See FEIR Table 19-26, at p. 19-227; FEIR Appendix 19A, Table 10 at pp. 75-76.) In Sacramento County, the calculated Pavement Conditions Index (PCI) is used as a metric to describe the *surface* condition of the roadway. The PCI does not take into account the pavement structure or pavement structural section strength. As such, a PCI 55 for an engineered roadway has vastly different capacity to withstand truck loading impacts compared to a PCI 55 for a rural farm road built on poor soil with no engineered structural section. The FEIR does not make this important distinction and consequently, the impacts of the construction activity in the study area will be far worse than projected by the report.

Because of sub-surface and foundational/structural issues with Delta roads, even the roads deemed by the FEIR to be in "acceptable" condition are vulnerable to pavement deterioration impacts from construction trucks and related traffic. The FEIR treats roads in baseline "acceptable" condition as not being susceptible to a significant impact. (See, e.g., Lambert Road [SC 03], Twin Cities Road [SC 06] and Walnut Grove Road/River Road [SC 11] at p. 19-227.) Even a road that currently exists at a PCI above 55 will be significantly damaged by the substantial number of truck trips and other construction-related trips for the Project. Any construction traffic that will be added to

either "acceptable" or "deficient" types of roadways, due to the nature of heavy loads, is expected to break down pavement conditions significantly. The FEIR incorrectly concludes those "acceptable" roads will not be significantly impacted.

Due to the age and condition of the infrastructure in the Delta, roads not built to current standards will deteriorate more rapidly as a result of the existing geologic and hydrologic conditions in the area (roadways constructed on levees and on peat or in tidal areas), heavy construction traffic volumes and the nature of that traffic (heavily laden trucks). Consequently, the Project will result in significant deterioration of roadways that are presently in "acceptable" condition, in addition to those identified in the FEIR as currently deficient. Road deterioration will result in additional traffic delays, damage to vehicles, and increased safety hazards.

The FEIR surprisingly concludes that the pavement condition of certain baseline "acceptable" road segments will not be significantly impacted even though substantial amounts of construction-related trips will be added. For example, the FEIR shows Lambert Road, between State Route 160 (River Road) and Herzog Road, as currently in acceptable condition. However, hourly trips will exorbitantly increase from a mere 35/hour to 655/hour, as shown in Figure 3. (See FEIR, Appendix 19A, Table 9, at p. 67.)

ID	Roadway	Segment	
		From	To
SC 03	Lambert Rd	SR 160 (River Rd)	Herzog Rd

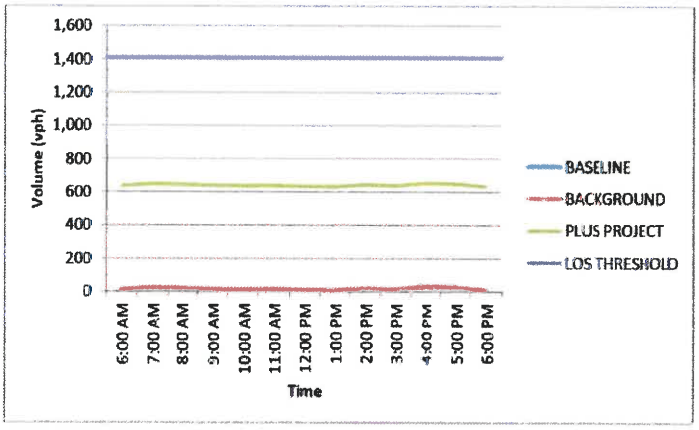


Figure 3. Traffic Volumes
Lambert Rd., SR 160 to Herzog Rd.

This massive increase in construction-related trips will undoubtedly have a significant and detrimental impact on the pavement condition of Lambert Road along this segment.

Similarly, the FEIR shows Twin Cities Road, between River Road and Interstate 5, as being in "acceptable" condition. (See FEIR, Table 19-26, at p. 19-227.) However, as shown in Figure 4, with the Project, hourly trips will increase from 263 to 668. (See FEIR, Appendix. 19A, Table 9, at p. 67.) The addition of approximately 400 trips per hour to this road segment will more than likely degrade the pavement condition to a level below PCI 55.

ID	Roadway	Segment	
		From	To
SC 06	Twin Cities Rd	River Rd	I-5

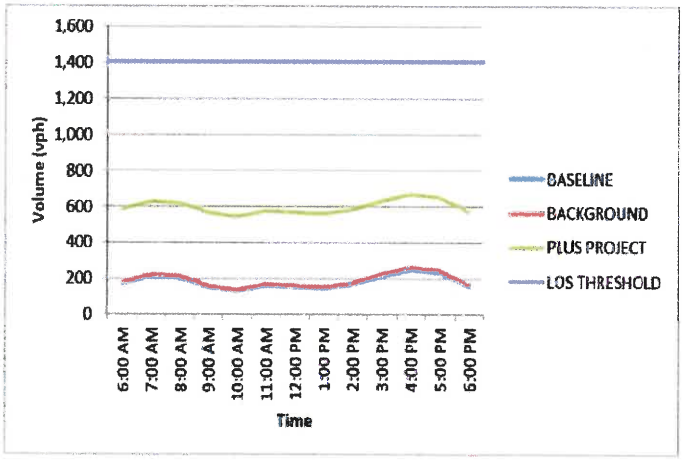


Figure 4. Traffic Volumes
Twin Cities Rd., River Rd. to I-5

For certain other road segments,[3] the FEIR indicates that there will be "no construction trips added to [the] roadway." (See FEIR, Table 19-26, p. 19-227.) However, that is not technically accurate. For each of these segments, 45 hourly trips will be added due to construction-related traffic. (See FEIR Appendix. 19A, Table 9, pp. 67-68.) These additional trips are not nominal. The additional increment will significantly impact these roads, particularly in consideration of the additional truck trips.

[3]/ In particular, SC 07, SC 09 and SC 12 through SC 16.

For each of these reasons, Petitioners do not fairly acknowledge the true extent of damage that construction-related trips will have on the County's Delta roads. Although many of the Delta roads are currently in poor condition, the Project construction trips will substantially accelerate the deterioration of the roads. Moreover, the introduction of Project construction trips will necessitate the immediate reconstruction of many of these roads, which are not currently constructed to support a Project of this scale and magnitude. Some Delta roads that could otherwise support ordinary traffic and trip levels for another decade would not last for more than a few weeks if the Project is started.

VII. MITIGATION FOR PAVEMENT CONDITION IMPACTS IS INSUFFICIENT

Mitigation Measures TRANS-2a and TRANS-2b call for prohibiting or limiting construction activity on existing physically deficient roadway segments, if feasible. As discussed above with respect to MM TRANS-1b, these approaches are probably not feasible. Most of the Delta roads planned (or unplanned) for use by the contractors will be physically deficient after a few weeks of construction trips. It would be infeasible to prohibit construction trips on these roads because that would have the effect of grinding construction progress to a halt.

Mitigation Measure TRANS-2c (MM TRANS-2c) addresses the effect of construction traffic on roadways that currently have unacceptable pavement conditions by improving the physical condition of affected roadways. MM TRANS-2c, however, is too narrowly focused to adequately mitigate the Project's impacts to County roads because the Measure, and FEIR generally, does not acknowledge that more than just five County road segments will be subject to significant pavement deterioration. As shown in FEIR Table 19-5 - *Existing Pavement Conditions in the Study Area,* the pavement conditions on most of the Sacramento County roadway segments in the study area are unacceptable. (FEIR, pp. 19-21 to 19-22.) Furthermore, the few that are classified as acceptable have a Pavement Condition Index (PCI) rating on the border of unacceptable. Adding construction traffic to these roadways will make them deteriorate

to unusable conditions. Any roads used, whether they have an existing pavement deficiency or not, are expected to deteriorate due to the nature of construction activity. Roadways with a current PCI slightly higher than 56 out of 100 may be considered "acceptable," but they are very close to becoming unacceptable. The introduction of significant amounts of heavy construction traffic will quickly cause them to deteriorate into the unacceptable category. MM TRANS-2c fails to account for or mitigate significant impacts to these roadway segments. All roadways that will carry construction traffic will be affected, including side roads. The Petitioners' failure to account for these additional significant impacts constitutes a significant adverse effect on the public interest.

The Petitioners commit to restoring certain roadways "to pre-construction condition or better" at the end of the construction period. This commitment is both unclear and impractical. This mitigation measure requires restoration of roads to their "pre-construction" condition. For roads that are presently deficient, or on the verge of being deficient, the measure would require the Proponents to ultimately restore these roads to an "unacceptable" condition. Because the Project does not commit to delivering acceptable roadways back to the people of Sacramento County at the conclusion of the work, the Project results in actual harm to the public interest.

Similarly, the Project fails to require routine maintenance on substandard or damaged roadways throughout construction activities to ensure that roads remain safe and in acceptable condition for other users, including emergency vehicles.

VIII. IMPACTS TO SIDE ROADS

The FEIR identifies roadway segments for impact study based on the likelihood that they would be utilized for construction-related activities. The analysis does not evaluate the impacts to side roadways that may be used during construction. A large percentage of sub-contract goods/supply haulers do not adhere to prescribed hauling routes, primarily due to limited oversight and enforcement. For example, Herzog Road, Varden Road, Russell Road, and Terminous Road will be negatively affected because they are adjacent to the FEIR's study segments and will provide an accessible

alternative route. (See SACO-22.)

Additionally, as a consequence of the construction activity within the designated construction routes, many non-construction truck drivers will use the adjacent roadways depicted in SACO-22 to avoid construction trucks and potential delays caused by the construction activity. In my opinion, the deterioration of pavement will not be limited to the designated construction routes and it will be much broader than reported by the FEIR.

IX. CONCLUSION

The Project will introduce construction activity of a scale, magnitude and proportion never before seen in the Delta such that the existing roads cannot accommodate the associated traffic in terms of capacity or durability. The delays, disruptions and intrusions to local residents, businesses, employees, suppliers and visitors that are conceded in the FEIR will not only occur over the 14-year course of construction, but will have a residual and likely permanent effects. That is, local activities, practices, expectations and efficiencies will be altered in a significant way that may not be restored at the conclusion of construction (i.e., lost revenues and business.) These effects directly harm the public interest.

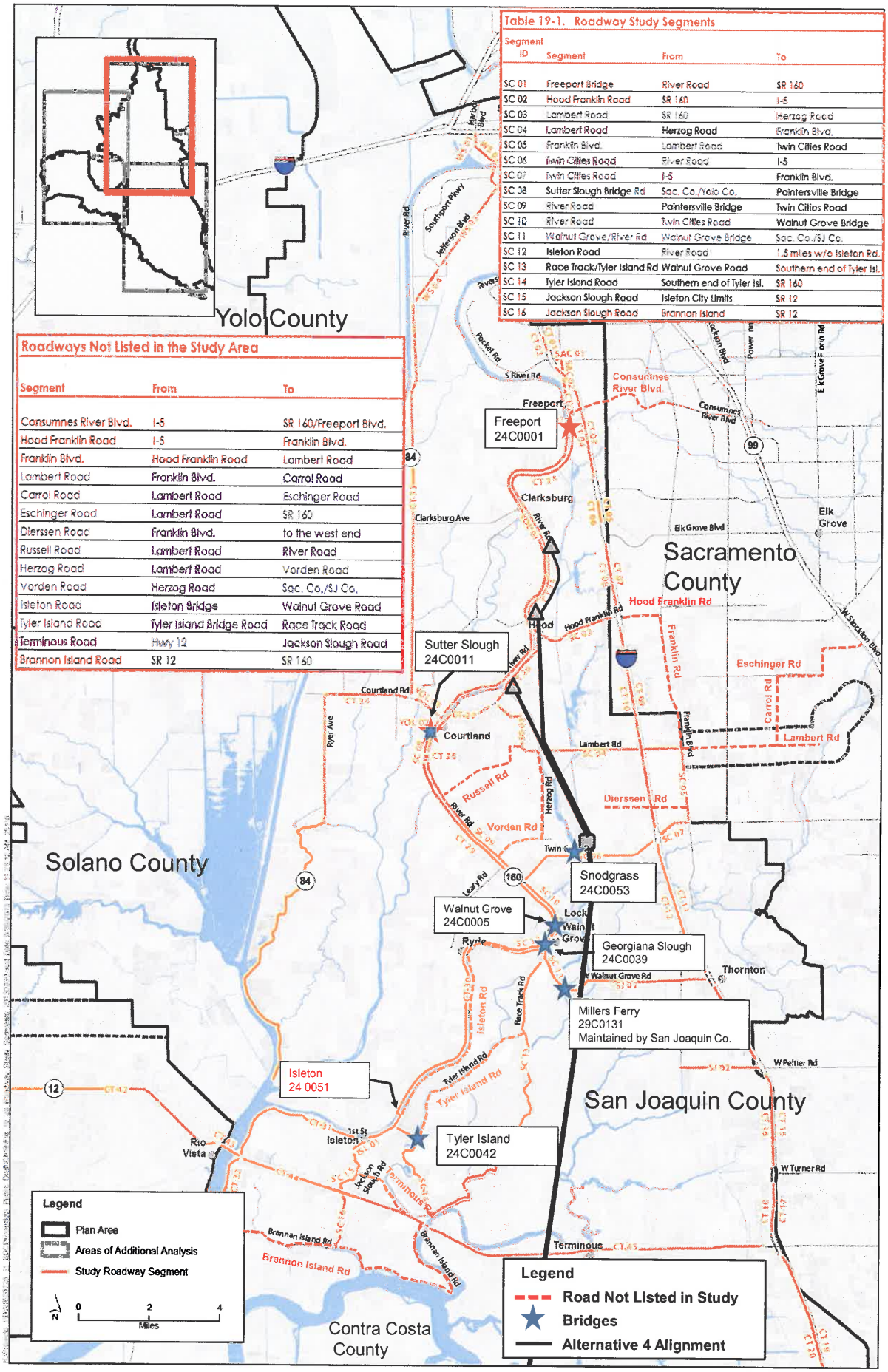


Figure 19-2a
Roadway Segments

Sacramento County Affected Roadways Segments

SACRAMENTO COUNTY

County of Sacramento comments to Bay Delta Conservation Plan/California WaterFix

Department of Transportation

Physical Characteristics of Delta Roads

- Narrow pavement width, limited or nonexistent shoulder, often drainage ditches on one or both sides of the roadway.
- Built on levees that were constructed from native soils.
- Many roads that are not on the levees are at or below sea level. The ground moves with the tides.
- Roadways are old and in poor condition.
- Bridges are at capacity and too narrow for constant truck traffic.

Traffic Operation Analysis

- The roadway segment traffic analysis does not fully consider the physical characteristics of Delta roads in determining the Level of Service (LOS) during project construction.
- The Traffic Operations Analysis has left out an intersection-level analysis citing insufficient information regarding construction traffic patterns.
- Intersection operations in the study area within the commercial centers of the Delta and at the bridges, especially the draw bridges, pose a real concern during construction of the project.
- It is highly expected that the project's impacts will be greater than what has been determined by the Project Roadway Traffic Operations Analysis.

Physical Impacts of Construction

- Pavement Conditions Index (PCI) is used as a metric to describe the surface condition of the roadway.
- The analysis deems existing pavement conditions as acceptable if the PCI is greater than 55.
- The PCI does not take into account the pavement structure or pavement structural section strength.
- A PCI 55 for an engineered roadway has a vastly different capacity to withstand truck loading impacts compared to a PCI 55 for a rural farm road built on poor soil with no engineered structural section.

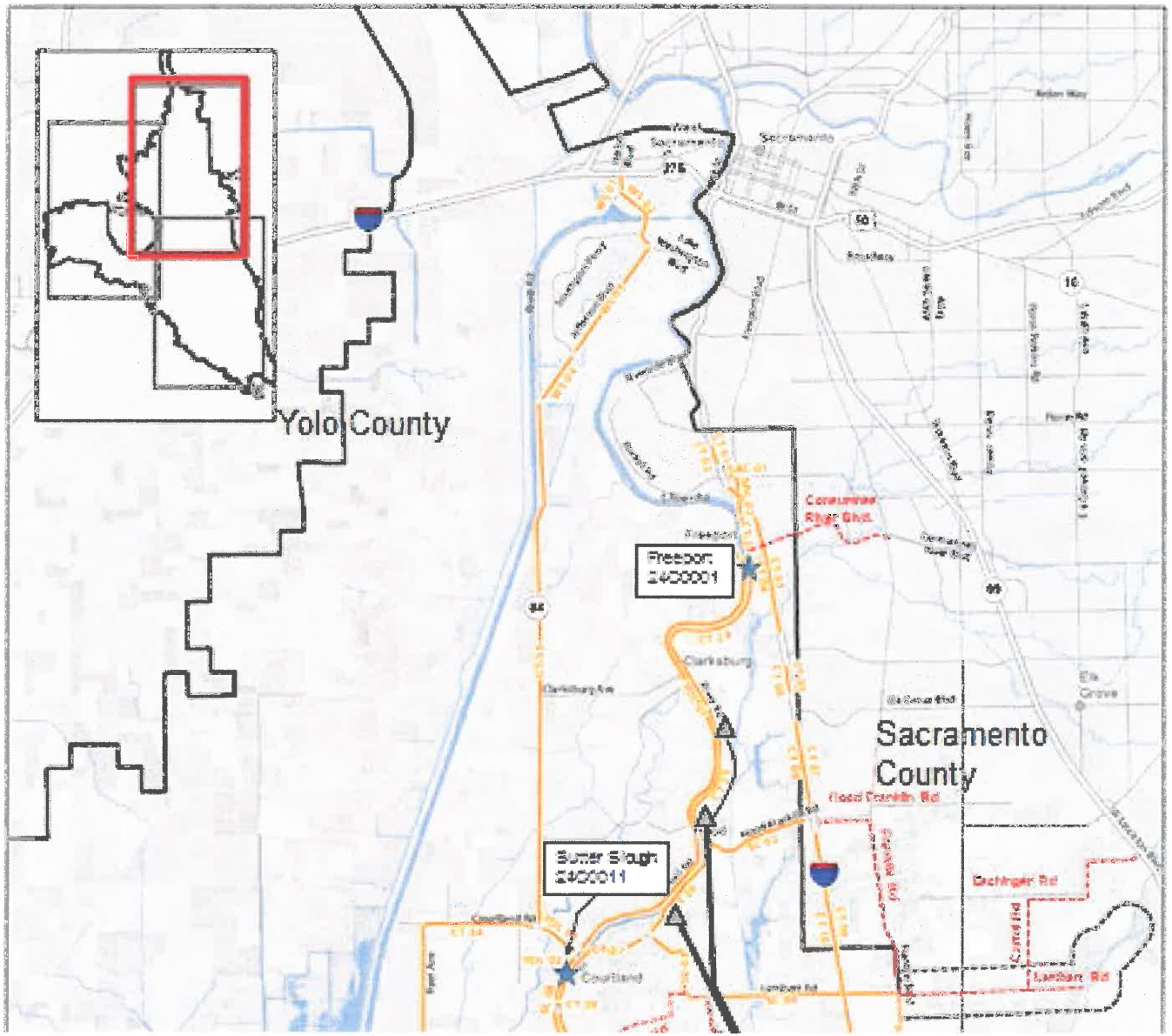
Existing Pavement Condition

The Pavement Condition Index (PCI) is expressed as a number from 0 to 100, with 100 being new pavement. A PCI of 55 represents the threshold between "Fair/Good" condition. A PCI greater than 70 is considered "Very Good".

Table 19-5. Existing Pavement Conditions in the Study Area

Segment ID	Segment	From	To	Condition	Extent of Deficency	Notes
SC 01	Freeport Bridge	River Road	SR 160	N/A		Bridge
SC 02	**Hood Franklin Road**	**SR 160**	**I-5**	**Deficient**	**Majority**	**PCI 45 to 67**
SC 03	Lambert Road	SR 160	Herzog Road	Acceptable		PCI 56
SC 04	**Lambert Road**	**Herzog Road**	**Franklin Blvd.**	**Deficient**	**Majority**	**PCI 35 to 59**
SC 05	**Franklin Blvd.**	**Lambert Road**	**Twin Cities Road**	**Deficient**	**All**	**PCI 32**
SC 06	Twin Cities Road	River Road	I-5	Acceptable		PCI 84
SC 07	**Twin Cities Road**	**I-5**	**Franklin Blvd.**	**Deficient**	**All**	**PCI 45**
SC 08	**Sutter Slough Bridge Rd**	**Sac. Co./Yolo Co.**	**Paintersville Bridge**	**Deficient**	**All**	**PCI 24**
SC 09	**River Road**	**Paintersville Bridge**	**Twin Cities Road**	**Deficient**	**Majority**	**PCI 43 to 54**
SC 10	**River Road**	**Twin Cities Road**	**Walnut Grove Bridge**	**Deficient**	**Minority**	**PCI 48 to 64**
SC 11	Walnut Grove/River Rd	Walnut Grove Bridge	Sac. Co./SJ Co.	Acceptable		PCI 64
SC 12	Isleton Road	River Road	1.5 miles w/o Isleton Rd.	Acceptable		PCI 85
SC 13	**Race Track/Tyler Island Rd**	**Walnut Grove Road**	**Southern end of Tyler Isl.**	**Deficient**	**Minority**	**PCI 36 to 94**
SC 14	**Tyler Island Road**	**Southern end of Tyler Isl.**	**SR 160**	**Deficient**	**All**	**PCI 20 to 36**
SC 15	Jackson Slough Road	Isleton City Limits	SR 12	Acceptable		PCI 86 to 94
SC 16	Jackson Slough Road	Brannan Island	SR 12	Acceptable		PCI 86

Roadways Not Considered For Impacts



Roadways Not Considered For Impacts

Consumnes River Blvd.	I-5	SR-160/Freeport Blvd.
Hood Franklin Road	I-5	Franklin Blvd.
Franklin Blvd.	Hood Franklin Road	Lambert Road
Lambert Road	Franklin Blvd.	Carrol Road
Carrol Road	Lambert Road	Eschinger Road
Eschinger Road	Lambert Road	SR-160
Dierssen Road	Franklin Blvd.	to the west end
Russell Road	Lambert Road	River Road
Herzog Road	Lambert Road	Vorden Road
Vorden Road	Herzog Road	Sac. Co./SJ Co.
Isleton Road	Isleton Bridge	Walnut Grove Road
Tyler Island Road	Tyler Island Bridge Road	Race Track Road
Terminous Road	Hwy 12	Jackson Slough Road
Brannon Island Road	SR-12	SR-160

Roadways Not Considered For Impacts

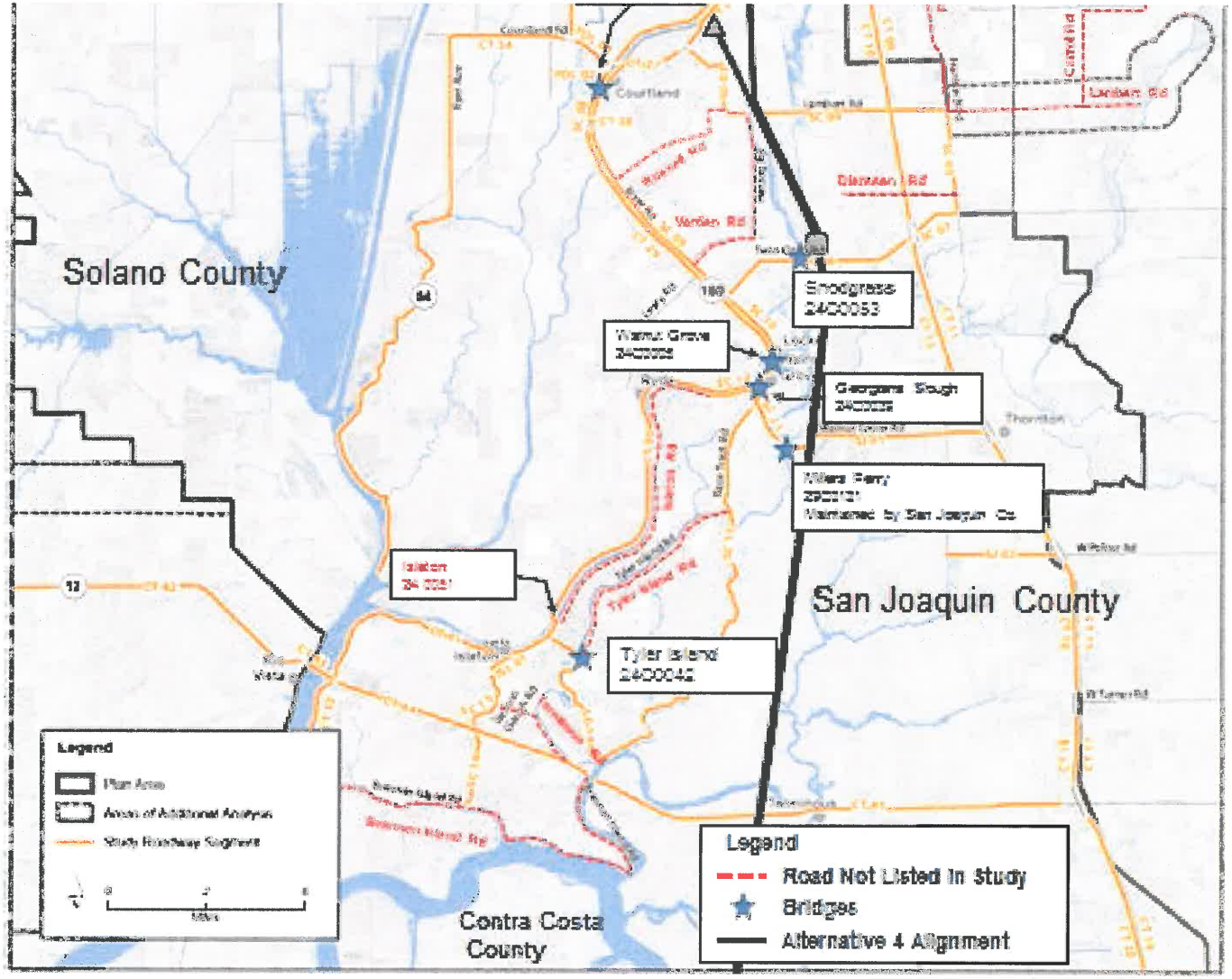


Figure 19-2a
Roadway Segments

Sacramento County Affected Roadways Segments

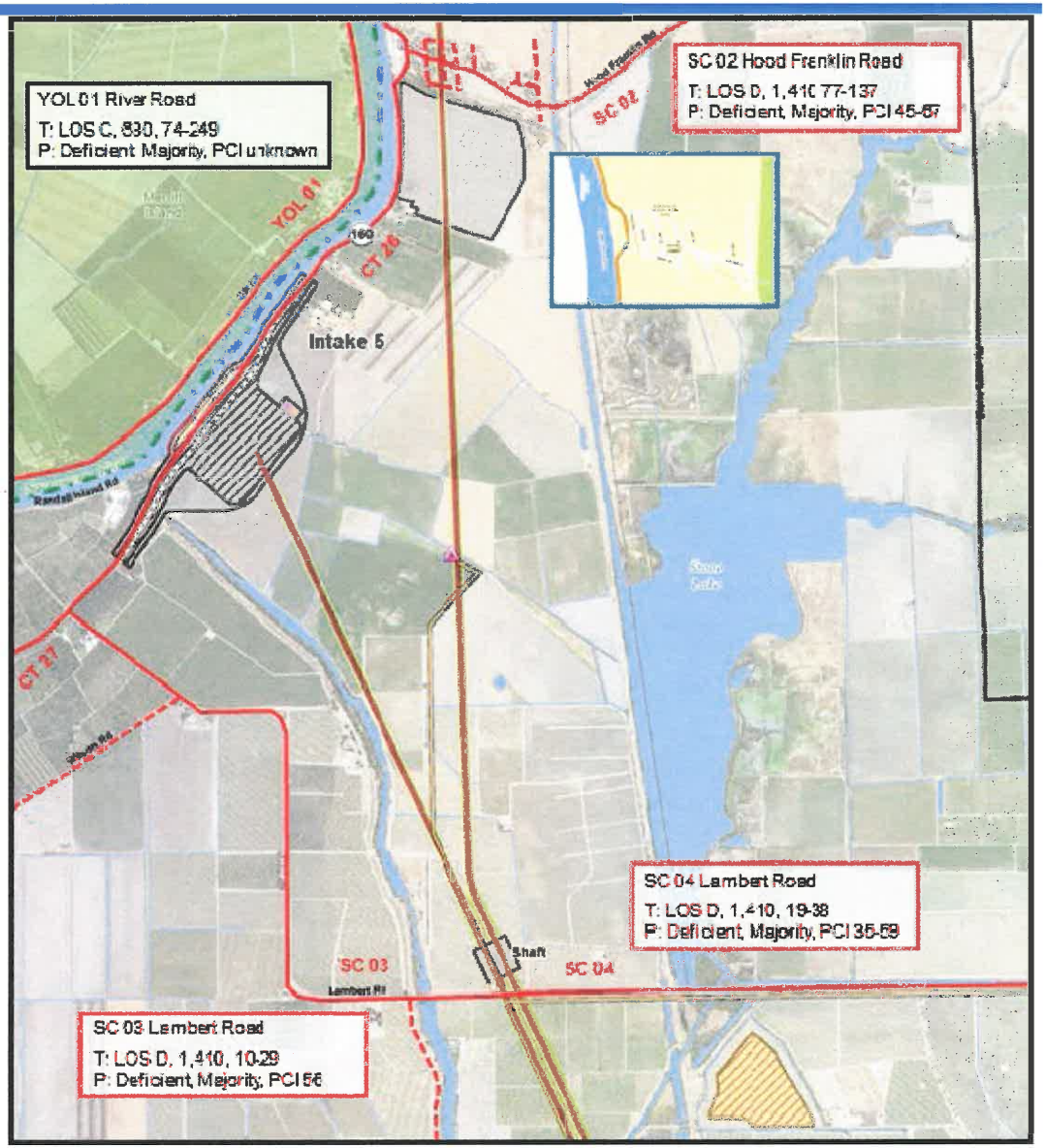
Roadway Impacts

Truck traffic during construction projects is difficult to control. Truckers do not stay on designated routes, cut across islands on peripheral roads, ignore bridge weight limits, and tear up intersections by making unauthorized U-turns.

Traffic Impacts on Delta Way of Life

County Roads such as Hood Franklin, Lambert, Twin Cities, Sutter Slough, River, Walnut Grove, Isleton and Race Track will all experience significant hourly volume increases during construction.

Current emergency response times to communities of Locke, Hood, Isleton and many recreational sloughs and islands will increase from 25 minutes to more than 60 minutes.



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STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

Hearing in the Matter of California Department of Water Resources and United States Department of the Interior, Bureau of Reclamation Request for a Change in Point of Diversion for California Water Fix

DR. JEFFREY MICHAEL'S WRITTEN SUMMARY OF TESTIMONY, PART 2 CASE IN CHIEF

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I. Introduction

I am Executive Director of the Center for Business and Policy Research and Professor of Public Policy at the University of the Pacific. Economic and policy issues in the Delta have been a major focus of my research and the Center's work since I came to Pacific in 2008, both because of its importance to the regional economy that is the Center's focus and its fit with my own educational and research background in agricultural and resource economics and economic development. I received my Ph.D. in Economics from North Carolina State University in 1999, where I received a National Needs Fellowship from the U.S. Department of Agriculture to support my Ph.D. studies in the economics of natural resource management. My dissertation was one of the first empirical studies of the economic effects of the Endangered Species Act on rural economies and resource management decisions by private landowners. I have published in scholarly journals economics, law, and environmental science on relevant topics including the economic impacts of sea-level rise and habitat conservation. My Delta research experience includes being Principal Investigator of the Delta Protection Commission's Economic Sustainability Plan in 2011-12, and benefit-cost studies of the Bay Delta Conservation Plan ("BDCP") tunnels in 2012, and the WaterFix in 2016.

In Part 1 of this hearing, I testified about the economic impacts of WaterFix on Delta agriculture as a result of degraded water quality and land loss. In Part 1, I also discussed how building WaterFix would negatively affect investment in Delta levees, and the economic effects of increased flood risk on aspects of the Delta economy such as transportation. While several aspects of these topics cross-over into Part 2 issues, I will not add any further testimony on these topics. Part 2 of the hearing includes the questions of whether the proposed WaterFix project is in the public interest, and whether WaterFix operations will have an unreasonable effect on environmental resources. Economic and financial analysis is fundamental to evaluating both of these questions, and my comments will focus on three primary issues. First, I will discuss some negative local economic impacts from the environmental effects of constructing and operating the WaterFix with a focus on small businesses that serve the Delta

recreation economy and shape community character. The second topic is benefit-cost analysis, a long established professional standard that plays a critical role in determining whether public investments in infrastructure, including water infrastructure, are in the public interest. The third topic, financial feasibility analysis, is closely related to benefit-cost analysis, but is more narrowly focused on the benefits and costs to project beneficiaries, and the specifics of a financial plan such as the allocation of costs across beneficiaries. In the case of the California Department of Water Resources (DWR) and United States Bureau of Reclamation's (collectively, Petitioners) petition to change and add the points of diversion in their water rights (Petition), financial analysis is critical to determining the feasibility of any constraints to project operations that are proposed.

Despite the fundamental role of benefit-cost and financial feasibility analysis to evaluating WaterFix, Petitioners have not completed these analyses and have not submitted any economic and financial evidence in support of their Petition. The absence of this information violates the agencies' own planning guidelines, and their Petition is clearly incomplete without it. My testimony will demonstrate that the WaterFix project, as proposed in this petition and described in the EIR, badly fails the tests of benefit-cost analysis and financial feasibility.

II. Waterfix Will Adversely Impact Small Businesses In The Delta That Serve The Recreation Economy And Local Residents.

The Delta Protection Commission Economic Sustainability Plan estimated that the Delta attracted 12 million visitor days per year, directly or indirectly supporting 3,000 jobs and $329 million in annual economic activity in the five Delta counties. Water based recreation is the primary attraction, but scenic drives and land based visits to historic, natural and cultural attractions is also important – especially along the highway 160 corridor which will be severely impacted by construction of the WaterFix intakes. Construction of the WaterFix will include significant disruptions to popular waterways through barge traffic and loading zones, construction of intakes, and disrupt traffic and tourist attractions along highway 160, 4, 12 and local roads. Three characteristics of the WaterFix construction will result in more serious and

long-term economic losses than those resulting from a typical construction project. First, the construction period is exceptionally long with active construction disrupting traffic and business for more than a decade. Second, Delta recreation businesses are predominantly small independent enterprises that typically have limited resources to endure an extended loss in business. Third, the multi-layered regulatory environment in the Delta, described in Chapter 10 of the ESP, makes new business investment after construction is over extremely challenging, if not prohibitively costly. For example, in addition to California's typically burdensome entitlement process, business development in the Delta is subject to additional layers of review by the Delta Protection Commission and Delta Stewardship Council as a covered action and could trigger reviews from additional federal agencies. Thus, the economy in the primary zone of the Delta is less resilient to construction-related disruption than most areas.

All of these factors combine to make permanent economic damage from WaterFix construction much more likely than in most public works projects. Additional long-run damage to the recreation economy would occur if WaterFix has negative environmental impacts, such as degraded water quality, reduced fish populations, and increased algal blooms.

The WaterFix is an enormous construction project estimated to cost $17 billion. A construction project of this size will undoubtedly stimulate economic activity and create many jobs in areas nearby the construction project. Petitioners have emphasized these positive economic impacts that would occur in Delta counties during an estimated 15 year construction period.[1] However, it is important to recognize that these positive effects may not accrue to the small businesses that predominate in the primary zone of the Delta which primarily serves the local agriculture and recreation industries. While a retail or restaurant business might be able to offset some lost sales to recreationists and tourists through new sales to WaterFix workers,

[1] http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Final_EIR-EIS_Appendix_16A_-_Regional_Economic_Impacts_of_Water_Conveyance_Facility_Construction.sflb.ashx

this is highly uncertain, and will certainly not be the case for other recreation oriented businesses like a marina. In fact, the Final Environmental Impact Report states, "recreation-dependent businesses including marinas and recreational supply retailers may not be able to economically weather the effects of multiyear construction activities and may be forced to close as a result." [2]

As discussed earlier, the economy of the primary zone faces many challenges that make it vulnerable to disruption from WaterFix, and it is important to ensure these businesses can survive a decade or more of construction. It is not unusual for large infrastructure projects to negatively impact local businesses in the construction zone, and for those businesses to receive compensation for those impacts even when those businesses could benefit from the project in the long-run. At this time, the WaterFix does not include any such fund even though the project will have extended, and likely permanent, negative effects to the region without any offsetting long-run benefit from the infrastructure.

A highly-relevant current precedent is in Los Angeles, where businesses impacted by Metro Rail's tunneling and other construction activities as it expands its transit network are eligible for compensation for lost business from Metro's Business Interruption Fund (BIF).[3] Metro describes BIF as follows:

> "Metro's Business Interruption Fund (BIF) provides financial assistance to small "mom and pop" businesses located along the Crenshaw/LAX Transit Project, the Little Tokyo area and the 2nd/Broadway segment of the Regional Connector, and Section 1 and Section 2 of the Purple Line Extension that are impacted by transit rail construction.
>
> Transit rail construction can mean growth opportunities for small "mom and pop" businesses located along transit corridors; however, transit construction also can be challenging for them. Metro wants small businesses to continue to thrive throughout construction and post construction. Through the establishment of

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[2] Page 16-168, Final EIR. http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Final_EIR-EIS_Chapter_16_-_Socioeconomics.sflb.ashx

[3] http://media.metro.net/projects_studies/bif/images/factsheet_bif.pdf, http://media.metro.net/projects_studies/bif/images/bif_faqs.pdf

> the BIF, Metro can provide financial assistance to directly impacted small businesses through grants to cover certain fixed operating expenses."

Metro provides $10 million annually to BIF which makes payments to small businesses (fewer than 25 employees) affected by certain construction projects. Eligible businesses can receive compensation equal to 60% of demonstrated lost sales, up to $50,000 annually, from BIF. In my opinion, the Project should provide a similar fund for Delta businesses, although higher compensation thresholds would be appropriate given the length of the construction period, vulnerability of Delta businesses, and the fact that Delta businesses will not receive any long-run benefits from the WaterFix after construction is complete. The economy and community character of the Delta is at risk of permanent harm from business interruptions due to the WaterFix, and the failure of the WaterFix to include a business interruption fund as is currently part of large transportation tunneling projects in Los Angeles, greatly increases the risk.

III. By Failing to Submit a Benefit-Cost Analysis of the WaterFix, Petitioners Have Failed to Follow Their Own Guidelines for Determining Whether a Project is In the Public Interest.

Benefit-cost analysis is well-established as a key part of determining if water resource infrastructure investments are in the public interest. As WaterFix is estimated to be the most expensive water infrastructure project ever proposed by the state of California, it is surprising that DWR has not completed such an analysis, and does not appear to be submitting any benefit-cost analysis in support of its Petition.

The Department of Water Resources' *Economic Analysis Guidebook*[4] provides clear definitions and guidelines for benefit-cost analysis, and clearly identifies its role in determining whether a project is in the public interest. Page 5 of the *Guidebook* states:

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[4] http://www.water.ca.gov/pubs/planning/economic_analysis_guidebook/econguidebook.pdf

> "The objective of economic analysis is to determine if a project represents the best use of resources over the analysis period (that is, the project is economically justified)"
>
> "The economic analysis should answer questions such as, Should the project be built at all? Should it be built now?, Should it be built to a different configuration or size? Will the project have a net positive social value for Californians irrespective of to whom the costs and benefits accrue?"

In an October 2017 report, the California State Auditor found that DWR, by failing to complete a benefit-cost analysis, was not following its own guidelines.[5] The Auditor's report also includes the following explanation (see page 34) for the failure by DWR: "According to DWR officials, the economic analysis could not be finalized because DWR determined it was not possible to complete an accurate cost benefit analysis until understanding which agencies will be participating in and funding the project and at what level." This explanation is inconsistent with DWR's own guidelines, which state that a benefit-cost analysis determines whether a project has "a net social value for Californians irrespective of to whom the costs and benefits accrue" and how the project is financed. In fact, DWR and Reclamation have a long history of producing benefit-cost analysis before project financing is finalized, because a major benefit of the analysis is to inform the development of financial plans and the decisions of stakeholders about whether to participate in a project.

IV. Benefit-Cost Analysis of the WaterFix Demonstrates That the Project Is Not Economically Justified.

In "Benefit-Cost Analysis of the California WaterFix,"[6] I estimated benefits and costs for the operations described in the draft Biological Assessment, which assumed that the WaterFix would generate an average annual water yield of 225,000 acre feet. The results of my analysis are summarized below in Table 1. The base scenario estimates the value of water

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[5] https://www.bsa.ca.gov/pdfs/reports/2016-132.pdf
[6] https://www.bsa.ca.gov/pdfs/reports/2016-132.pdf

to urban agencies by the cost of alternative supplies as most recently estimated by DWR, and estimates the value of water to agricultural users by comparing market data on the rental value of irrigated and unirrigated farmland in 2014, a year where farm profits were near record high, water was relatively scarce, and irrigated land rents were at record levels. These values are then increased by 20% to account for the possibility that the value of water at the margin could increase faster than general inflation, and the value of urban water from the tunnels was not adjusted for pumping and treatment costs. Thus, even the base scenario could be seen as favorable to the tunnels. The "optimistic" scenario derives the value of water from earlier work to support the BDCP that exaggerated the future scarcity value of water by using out-of-date, high growth forecasts and assuming there would be no additional development of alternative water supplies, no increase in conservation, and no development of new technology for alternative water supplies. While the demand assumptions in the optimistic scenario are unrealistic and biased to favor the tunnels, it results in an average value of all incremental water from WaterFix that is very similar to the urban value of water in the base scenario. Thus, the optimistic scenario could be seen through another lens where the WaterFix is an urban-only project and the urban agencies pay all costs and receive all the incremental water supply benefits from the WaterFix.

Table 1. Present Value of Benefits and Costs of the California WaterFix: 2014 dollars, 3.5% real discount rate, 15 years of construction, and 100 years of operation.

	Base scenario	Optimistic Scenario
Benefits		
Export Water Supply	$1,319,521,208	$2,822,409,124
Export Water Quality	$1,677,361,307	$1,677,361,307
Earthquake Risk Reduction	$0	$435,796,554
Total Benefits	*$2,996,882,515*	*$4,935,566,984*

Costs		
Construction and Mitigation	$11,676,474,531	$11,676,474,531
Operation and Maintenance	$591,658,075	$591,658,075
Ecosystem	$0	$0
In-Delta Municipal	$111,279,332	$37,093,107
In-Delta Agriculture	$682,807,143	$293,953,421
In-Delta Transportation	$132,205,755	$132,205,755
Total Costs	*$13,194,424,836*	*$12,731,384,889*
Net Benefit	($10,197,542,281)	($7,795,817,905)
Benefit/Cost ratio	**0.23**	**0.39**

The benefits of the tunnels include export water supply, export water quality, and risk reduction from a catastrophic flood from an earthquake or other source that could interrupt water exports. Costs include construction, mitigation and operation costs that would be paid by exporters and impacts to third-parties such as environmental cost, in-Delta municipal, agriculture and transportation impacts. As shown in Table 1, the results of the benefit-cost analysis show the net benefit is negative $10 billion and benefit-cost ratio is 0.23 for the base scenario. Using optimistic values, the net benefit is negative $7.8 billion and benefit-cost ratio is 0.39. The WaterFix is clearly not economically justified with the water supply yields in the Biological Assessment.

It should also be noted that the negative benefit-cost results presented above incorporate many assumptions that favor the WaterFix tunnels. These favorable assumptions include:

- The assumed annual average water yield of 225,000 af is higher than the estimated water yield in the final EIR, 172,000 af. [7]
- Did not include any environmental costs despite the fact that final biological assessments showed negative impacts on endangered and threatened species relative to no project.
- It assumes no advances in alternative water supply technology for a century.
- It does not consider the risk of cost overruns.
- Excludes some areas of potential social costs, including impacts to upstream water users and recreation.
- Uses a discount rate below the recommendation in DWR's Economic Analysis Guidebook.

The results can be used to consider how much additional export water yield would be needed for the WaterFix to be economically justified, if export water yield could be increased without causing significant environmental harm or damage to 3rd-parties. The results show that a break-even benefit-cost ratio of 1 would require annual average export water yields of about 2 million acre feet (maf) in the base scenario, and nearly 1 maf annually in the optimistic scenario. The highest water yield estimated in the Petition is the Boundary 1 (B1) scenario. According to Thomas Burke, DSM2 modeling of B1 estimates an annual average water yield of 812,000 acre feet. Thus, even the highest water supply scenario considered in the petition falls short of a benefit-cost ratio of 1 when using the most optimistic approach to valuing the benefits of the project.

The benefit-cost analysis clearly shows that the WaterFix petition is not economically justified, and therefore, is not in the public interest.

V. Petitioners have provided no evidence that the project is financially feasible, ignoring their own guidelines and direction provided by the Board.

[7] From Table 5-12 of the Final EIR/EIS. http://baydeltaconservationplan.com/FinalEIREIS.aspx

Financial feasibility analysis is closely related to benefit-cost analysis. Feasibility studies are a normal and well-established part of planning water resources projects. Agencies, including the Petitioners, have well established guidelines for investigating and establishing project feasibility. Other large water storage and conveyance proposals by Petitioners, including Sites and Temperance Flat reservoirs and a proposed raise to Shasta dam, are informed by feasibility studies that include significant economic and financial analysis. WaterFix stands alone among the largest water infrastructure proposals in California for not including economic or financial feasibility analyses, despite having the highest cost by far.

In addition to being a normal part of evidence presented to support a water resource infrastructure project, the State Water Resources Control Board (State Water Board) Hearing Team specifically requested evidence of feasibility in a March 4, 2016 ruling wherein the Hearing Team stated "[t]he petitioners should also show that there are feasible operations available to meet any performance standards."[8] Economic feasibility is essential to the concept of operational feasibility, but Petitioners have provided no evidence to support economic feasibility.

The California Environmental Quality Act (CEQA) defines "Feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."[9] The CEQA definition of feasibility is the common meaning of the term applied in many legal and planning settings throughout California. The definition explicitly lists economic factors among four areas of consideration.

Economic and financial issues play a central role in the concept of feasibility in water resources infrastructure planning." In 2016, the California Water Commission identified the following factors that inform project feasibility:[10]

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[8] Revised Hearing Schedule, Revised Notices of Intent to Appear, Electronic Service and Submissions, and Other Procedural Issues Concerning the California WaterFix Water Right Change Petition Hearing, March 4, 2016, p. 2

[9] Public Resources Code, § 21061.1.

[10] https://cwc.ca.gov/Documents/2016/02_February/February2016_Agenda_Item_10_Attach_1_ModelingPresentation_final.pdf

- Project Description and Operations
- Feasibility Studies and Engineering
- Environmental Documentation, Mitigation Requirements, and Permit Status
- Cost Estimate
- Benefit/Cost Analysis
- Cost Allocation and Requested Amount
- Finance and Construction Planning
- Monitoring and Management Planning

As of this date, Petitioners have failed to provide any evidence regarding four of these eight components of feasibility identified by the California Water Commission.

In 2014, DWR published "Guidance for Development of a State-Led Feasibility Study." [11] On page 1, the DWR guidance document identifies the three most important factors to feasibility as follows:

- "Financing: feasibility studies must be accompanied with a reasonable and implementable financing plan
- Agency Alignment: many water resource projects require permitting. Proper environmental documentations and alignment of the agencies during the planning process is needed to ensure support by permitting agencies
- Value assessment: it is critically important to our decision makers and the public to understand the value of a proposed projects, how it helps the wellbeing of the society, its health and safety, its environment and its economy"

Petitioners have presented no financing plan and no assessment of the economic value of the WaterFix and thus are ignoring their own standards for determining project feasibility.

[11] http://www.water.ca.gov/floodmgmt/funding/docs/Final-Draft-Feasibility-Study-Guidance-wAppendices-2014.pdf

Finally, the Department of Water Resources' *Economic Analysis Guidebook*,[12] provides clear definitions and guidelines for financial feasibility analysis, and how these should be conducted by the Department.

> "The objective of financial analysis is to determine financial feasibility (that is, whether someone is willing to pay for a project and has the capability to raise the necessary funds). The test of financial feasibility is passed if (a) beneficiaries are able to pay reimbursable costs for project outputs over the project's repayment period, (b) sufficient capital is authorized and available to finance construction to completion, and (c) estimated revenues are sufficient to cover allocated costs over the repayment period. Thus, a financial analysis answers questions, such as, Who benefits from a project? Who will repay the project costs? Are they able to meet repayment obligations? Will the beneficiaries be financially better off compared to what they will be obligated to pay? Within DWR, the State Water Project Analysis Office performs financial feasibility analyses for proposed SWP facilities."

There are more examples, but the point should be clear. Evidence of feasibility requires evidence of economic and financial feasibility including benefit-cost analysis, and a cost allocation with a financial plan. Economic and financial analysis is critically linked to operational, engineering, and environmental feasibility. Petitioners have provided no evidence of economic or financial feasibility consistent with long established professional standards, including their own agency guidelines.

Permitting a financially infeasible project creates serious risk for the environment and the public interest, particularly for a project such as WaterFix that has vast physical capacity and enormous costs. These risks include a) the loss of funding for other critical public needs if backing or subsidy from general tax revenues are required, b) funding diverted from other environmental programs , c) failure to adequately fund mitigation actions, d) increased economic, financial and political pressure on the State Water Board to approve Temporary Urgency Change Petitions (TUCPs), and e) increased economic considerations and political

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[12] http://www.water.ca.gov/pubs/planning/economic_analysis_guidebook/econguidebook.pdf

opposition to implementing future environmental regulations, including the ESA and the Bay-Delta Water Quality Control Plan. These latter risks are of particular interest to the State Water Board since Petitioners have frequently requested and received TUCPs from the State Water Board due to economic considerations, especially in drought conditions. Debt service for WaterFix is estimated to impose over $1 billion in new annual costs on Petitioners, and would further increase economic and political pressure for TUCPs in dry years since these large debt payments are still required during years where water exports, and thus revenues from water sales and agricultural production are low. Financial feasibility requires provisions to ensure debt payments can still be made during these dry years while maintaining environmental requirements. Furthermore, the State Water Board is considering new regulations as it updates the Bay-Delta Water Quality Control Plan and should ensure that the WaterFix is financially feasible under any new regulations that could result from the Bay-Delta Plan update since economic considerations are considered in water quality control plans according to Water Code section 13241. Given the linkage between the Bay-Delta Water Quality Control Plan and the WaterFix, it is important to demonstrate that WaterFix is economically justified and that its proposed operations are financially feasible so that these issues do not become a barrier to achieving environmental objectives of the Bay-Delta Plan.

VI. There is considerable evidence that the WaterFix is not financially feasible.

In summer and fall of 2017, state and federal customers were asked by DWR to vote on whether they would fund their share of construction costs, defined as the share of water exported from the Delta that they receive. In September 2017, the largest potential agricultural water contractor voted 7-1 not to participate in the WaterFix, and afterwards stated, "from Westlands' perspective, the project is not financially viable."[13] Subsequent to this, Reclamation stated that it would not be funding the WaterFix, and DWR had assumed Reclamation would pay 45% of the project costs. The WaterFix did not fare much better on

[13] https://mavensnotebook.com/2017/09/20/this-just-in-westlands-water-district-statement-on-california-waterfix/

the State Water Project side as Kern County Water Agency only approved funding about one-half of their share, and Santa Clara Valley Water District did not approve the project described in the Petition, and instead voted to conditionally approve a single-tunnel with conditions on cost and environmental impacts that seem unlikely to be met.

Metropolitan Water District was the only major water agency to approve its full share of the WaterFix, approximately 26% of the cost. However, it is important to note that Metropolitan Water District staff described the project to its board in a way that is inconsistent with the Petition. Specifically, Metropolitan Water District staff did not compare the WaterFix to the No Action alternative as is done in the Environmental Impact Report, Biological Assessment and this Petition. Instead, Metropolitan staff created an alternative no-tunnel scenario that reduces water exports by more than 1 maf compared to the EIR No-Action alternative, and thus is much more protective of the environment. This change to the no-tunnel assumption increases the project's water yield to 1.3 maf per year, which is 7.5 times larger than the 172,000 acre feet of yield in the final EIR. This assumption makes the project appear to have much lower unit costs, but it implicitly assumes that the WaterFix has a level of protection from future environmental regulations and a level of environmental performance that is not supported by the Petition or any of the environmental documents supporting the Petition. Specifically, the Metropolitan Water District white paper states,

> "Without California WaterFix, it is estimated that combined future SWP and CVP average annual exports could potentially decrease to 3.5 to 3.9 million acre-feet (MAF) from the current average annual supply of 4.9 MAF. With California WaterFix, the range of combined annual exports in future years is projected to be 4.7 to 5.3 MAF. " (page 4)
>
> "The estimated future supply without California WaterFix assumes increasing future regulatory constraints. Since the long-term trend has been toward increased regulation and reduced supply of the SWP and CVP, it is assumed that this trend would continue into the future." (page 10)[14]

[14] http://www.mwdh2o.com/DOCSVCsPubs/WaterFix/assets/cawaterfix_operations_whitepaper_factsheet.pdf

Thus, the Metropolitan white paper is based on an assumption that regulatory constraints will not increase with WaterFix beyond what is described in the initial operating criteria in the EIR, but much more stringent regulatory constraints will occur without WaterFix. This is the only scenario it uses to evaluate the proposal. The assumption that increasing regulatory constraints brought on by poor environmental performance is more likely without WaterFix than with it is simply contrary to the findings of the Biological Opinions that found Winter-run Chinook salmon and other species would fair more poorly with WaterFix than without, and only assessed species impacts at the programmatic level making it likely that future consultations could further restrict the water yield from the project. Also, these future supply assumptions ignore potential limitations resulting from imposition of Delta Flow Criteria by the State Water Board in this proceeding. The State Water Board, in a ruling dated February 11, 2016, stated that "[t]he appropriate Delta flow criteria will be more stringent than petitioners' current obligations and may well be more stringent than the petitioners' preferred project."[15] Thus, even Metropolitan Water District's board approval was based on a project description that is inconsistent with the EIR and the analysis that supports this petition to the Board.

A key issue for financial feasibility of the project is that the cost per acre foot varies dramatically with the project yield. Noted water economist and consultant Dr. Rodney Smith provided me with a brief report that calculates the cost per acre foot for the delta tunnels at various levels of project yield.[16] The table below shows his results and clearly illustrates the important relationship between the project's operations and its financial requirements. Dr. Smith advises that a risk premium of between 1% and 2% over a risk-free U.S. Treasury Bond is appropriate for the WaterFix given historic borrowing rates of California utilities and the environmental and cost risk profile of the WaterFix. Thus, Dr. Smith estimates the cost of the

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[15] https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/docs/021116phc_ruling.pdf, p. 4.

[16] SDWA 148.

Waterfix incremental water yield would be in excess of $6,000 per acre foot for most of the scenarios described in the Petition because yields are generally 200,000 acre feet or less. Even using the more generous yield assumptions from the Metropolitan Water District operations white paper, the cost of incremental water supplies would exceed $1,000 af. Dr. Smith notes that these costs are for a non-firm supply of untreated water in Tracy and thus pumping, treatment and reliability would need to be considered, and would increase the cost over those reflected in the table.

Annualized Cost of Twin Tunnels Water (2014$) by Incremental Yield of Tunnels

Annual Yield		Risk Premium	
(acre feet)	0%	1%	2%
100,000	$9,590	$12,817	$16,926
200,000	$4,795	$6,408	$8,463
300,000	$3,197	$4,272	$5,642
400,000	$2,397	$3,204	$4,231
500,000	$1,918	$2,563	$3,385
600,000	$1,598	$2,136	$2,821
700,000	$1,370	$1,831	$2,418
800,000	$1,199	$1,602	$2,116
900,000	$1,066	$1,424	$1,881
1,000,000	$959	$1,282	$1,693
1,100,000	$872	$1,165	$1,539
1,200,000	$799	$1,068	$1,410

1,300,000	$738	$986	$1,302
1,400,000	$685	$915	$1,209
1,500,000	$639	$854	$1,128
1,600,000	$599	$801	$1,058
1,700,000	$564	$754	$996
1,800,000	$533	$712	$940
1,900,000	$505	$675	$891
2,000,000	$479	$641	$846

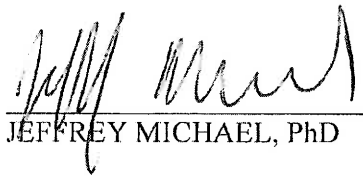
Given proportional cost allocation, where all water users are paying the same cost per unit of water received through the tunnels, financial feasibility is going to be determined by comparing the cost of the project to the participants with the lowest ability and willingness to pay. Thus, the feasibility should be determined by comparing the values to the willingness and ability to pay of agricultural users who also receive the majority of water exported from the Delta. Currently, most studies place the value of agricultural water in California at around $150-$200 per acre foot. The highest estimated value I have ever seen estimated for agricultural water south of the Delta is a recent estimate by the California Water Commission that considers the effects of fully implementing the Sustainable Groundwater Act which will increase water scarcity in the valley. This modeling places the value of agricultural water in an average year at about $600 af after full SGMA implementation after 2045. Even if we consider that agricultural water could be worth $600 af in the future, Dr. Smith's table shows the cost per acre foot exceeds $600 per acre foot at 2.0 maf of average annual yield, which is far outside the range of plausible water yields even under the most favorable assumptions for water exports.

Feasibility of the project would increase if a finance plan were developed such that all of the incremental water went to urban contractors such as the Metropolitan Water District. At about 700,000 acre feet of annual yield, the tunnels would have similar average cost as the desalination plant recently opened in Carlsbad. However, a desalination plant in Southern California is a superior water supply source to the tunnels because it is reliable in droughts and provides purified water close to the point of consumption rather than untreated water in Tracy. WaterFix yield needs to be in excess of 1 maf per year before it is competitive with most relevant urban alternatives such as water recycling plants. This yield is far outside the range considered in the Petition and thus WaterFix as described in this Petition may not be feasible even as an urban-only project.

VII. Conclusion

In conclusion, the WaterFix petition fails to include any evidence that the WaterFix is economically justified or financially feasible even though such information is critically linked to engineering and environmental feasibility and a normal part of project evaluation. While Petitioners provided no evidence on these subjects, there is ample evidence from other benefit-cost analyses of the project, calculations of cost per acre foot, and recent votes by potential WaterFix beneficiaries on whether to participate in WaterFix that shows very clearly that the project is neither economically justified or financially feasible as described in the Petition. In addition, the WaterFix is likely to cause permanent damage to small businesses in the Delta that serve recreational users and the local community and WaterFix.

Dated: November 29, 2017



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BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

HEARING IN THE MATTER OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND UNITED STATES BUREAU OF RECLAMATION REQUEST FOR A CHANGE IN POINT OF DIVERSION FOR CALIFORNIA WATER FIX	**WRITTEN TESTIMONY OF THOMAS STOKELY – ADAPTIVE MANAGEMENT** **(Part 2 Rebuttal)**

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A. INTRODUCTION AND BACKGROUND

My name is Thomas Stokely. I am presenting this rebuttal testimony on behalf of Local Agencies of the North Delta ("LAND"), San Joaquin County, and Sacramento County in this evidentiary hearing before the State Water Resources Control Board ("State Water Board") concerning the petition to change the point of diversion for the California WaterFix ("CWF" or "Delta Tunnels") for the State Water Project ("SWP") and federal Central Valley Project ("CVP"), as specified in the licenses and permits of the US Bureau of Reclamation ("USBR") and the California Department of Water Resources ("DWR").

I have previously testified in this Hearing. My statement of qualifications was provided in Exhibit PCFFA-88, as modified by my testimony on March 27, 2018. (March 27, 2018 Hearing Transcript, page 32, lines 3 to 8; see also LAND-267 [updated Statement of Qualifications.) My PowerPoint for this testimony is LAND-268. This rebuttal testimony responds to the assertions by DWR witnesses Christopher Earle (DWR-1014 and DWR-1072) and Marin Greenwood (DWR-1012 and DWR-1029) that due to adaptive management, Petitioners' proposed project (CWF H3+) will be reasonably protective of fish and wildlife. (DWR-1012, pp. 4:7–17; 3:21–4:2; 24:7–12; 25:19–26:2; 27:1–3; 38:20–23; 40:5–10; 44:12–20; 46:22–47:11; 49:13–17 & fn. 60; DWR-1014, pp. 4:14–20; 4:28–5:7; 8:18–27; see also Hearing Transcripts, February 22, 2018, pp. 60–62, 146–147; March 5, 2018, pp. 110–114, 116–118, 120–128, 132–138, 142–145; March 9, 2018, pp. 96–100, 113–119 [cross examination regarding adaptive management].) Earle and Greenwood's testimony refers to the proposed Adaptive Management Program for the CWF and Current Biological Opinions on the Coordinated Operations of the Central Valley and State Water Projects ("Delta Tunnels AMP"). (See SWRCB-107, Att. 5; see also SWRCB-102, SWRCB-104, Appendix 3.H, SWRCB-105, SWRCB-106, SWRCB-108, SWRCB-110 and SWRCB-111.)

The Delta Tunnels AMP is a planning process that DWR, USBR, National Marine Fisheries Service ("NMFS"), United States Fish and Wildlife Service ("USFWS"), and California Department of Fish and Wildlife ("CDFW") propose to undertake to address ecological uncertainties associated with management of the proposed Delta Tunnels as part

of the CVP and SWP. (SWRCB 107, Att. 5, p. 3.) According to Petitioners, the Delta Tunnels AMP will establish the Interagency Implementation Coordination Group ("IICG"), which will oversee the development and implementation of the Delta Tunnels AMP. The IICG will be composed of representatives of USBR, USFWS, NMFS, DWR, CDFW, a federal water contractor, and a state water contractor. According to Petitioners, the Delta Tunnels AMP will apply science to address the effectiveness of management actions and address physical and biological uncertainties related to these actions.

My testimony focuses on the serious deficiencies in the proposed Delta Tunnels AMP as a future decision-making structure and the unacceptably high likelihood that it will fail to achieve its stated objectives. My critique of the proposed Delta Tunnels AMP is based largely on my experience with the failure of the Trinity River Restoration Program's ("TRRP") Adaptive Environmental Assessment and Management ("AEAM") Program established by the 2000 Trinity River Record of Decision ("Trinity ROD") (PCFFA-98). I will compare the AEAM's Program structure to the Delta Tunnels AMP, using elements identified by the Delta Independent Science Board ("DISB") and others as critical to a successful adaptive management program. The failures of the AEAM Program—and the causes underlying those failures—are well documented. In my opinion, the proposed Delta Tunnels AMP and the AEAM Program share critically important deficiencies. In particular, (1) they both have fatally flawed decision-making processes with built in conflicts of interest; (2) neither plan encourages meaningful stakeholder and public support and participation in decision making; and (3) both plans mistakenly rely on an assumption of unlimited dedicated funding to implement adaptive management.

I conclude that for many of the same reasons the AEAM Program has failed, the Delta Tunnels AMP, as currently proposed, is very unlikely to succeed in achieving its objectives. As I will explain, one need look no further than the adaptive management recommendations of the DISB to understand why these deficiencies in the two plans undermine those objectives. (SWRCB-51.) Moreover, the Department of the Interior's own adaptive management guidelines underscore some of the serious deficiencies in the Delta Tunnels

AMP. (LAND-244.) Although the Delta Tunnels AMP, as proposed, would not be implemented as a decision-making structure until many years from now, the Petition depends on the unfounded assumption that the proposed Delta Tunnels AMP will succeed, in order to satisfy Petitioners' burden of proving that the Petition will not result in injury to legal users of water or unreasonable adverse effects to fish and wildlife. For the reasons I describe, the Delta Tunnels AMP is unlikely to succeed.

Petitioners have deferred critical decisions on a vast range of key operational challenges the Delta Tunnels will face for implementation of the Delta Tunnels AMP. As proposed, the Delta Tunnels AMP does not include safeguards that would ensure that changes in operations developed under the AMP will not result in injury to public trust resources, especially fish and wildlife, or to other legal uses and users of water. In my opinion, the plan's critical deficiencies—including the lack of a meaningful opportunity for stakeholders (both water users and environmental) to participate in the adaptive management process, the absence of dependable and flexible financing, and the lack of clear and enforceable conflict-of-interest provisions—are fatal to the Delta Tunnels AMP, as proposed, and thus should result in denial of the Petition.

B. TRINITY RIVER ADAPTIVE MANAGEMENT EXPERIENCE

My experience with the AEAM Program predates the Trinity ROD. In 1988, as an employee of the Trinity County Planning Department, I began working to restore the Trinity River's fisheries through funding provided by the Trinity River Basin Fish and Wildlife Management Program authorized by PL 98-541 (PCFFA-92). I ran a small fishery restoration grant program and took minutes and acted as the administrative assistant for the chairman of the Technical Coordinating Committee of the Trinity River Task Force. Through the small grant program, combined with other funding sources, I oversaw many on-the-ground fishery restoration projects, development of new reservoir and river temperature models, as well as various other projects and studies.

From 1994 through 2003, I represented Trinity County as the CEQA lead agency for the NEPA/CEQA documents (an EIS/EIR and a supplemental/recirculated draft EIS/EIR) that

led to the Trinity ROD, which included the AEAM Program, as described in Appendix C from the Trinity ROD (LAND-269) and the 2000 Biological Opinion by the National Marine Fisheries Service (PCFFA-109).

Following adoption of the Trinity ROD in 2000, I acted as Trinity County's CEQA lead agency representative for the Trinity River Bridges EIR/EA to replace four undersized bridges and a culvert on the Trinity River. I also acted as the CEQA lead agency representative for the Indian Creek Rehabilitation Site EIR/EA. I was Trinity County's alternate representative on the Trinity Management Council ("TMC"), which was established under the Trinity ROD as a board of directors for the TRRP. I was a co-author of the 2004 "Trinity Management Council Subcommittee Trinity River Restoration Program Evaluation Final Report". (LAND-270).

In January 2012, former Interior Secretary Salazar appointed me as a member of the Trinity Adaptive Management Working Group ("TAMWG"), representing commercial salmon fishing interests. I was reappointed by former Interior Secretary Sally Jewell in March 2015. My appointment expired in March 2018 but the TAMWG was effectively disbanded, i.e., declared "administratively inactive" by the Interior Department in November 2018 (LAND-271), thereby ending all formal public participation in the TRRP. The TAMWG was the federal advisory committee established as part of the Trinity ROD to provide a venue for stakeholder input to the TMC concerning the implementation of the TRRP (LAND-269, Trinity ROD, Append. C.) The USFWS managed the TAMWG and provided member travel expenses, a paid note-taker, and a "Designated Federal Officer" to oversee the group.

The failures of the AEAM Program have been well documented since 2004. That documentation includes the 2004 "Trinity Management Council Subcommittee Trinity River Restoration Program Evaluation Final Report" (LAND-270), the 2008 CDR Associates "Trinity River Situation Assessment" (LAND-272), the June 2016 letter by the California Advisory Committee on Salmon and Steelhead Trout (LAND-273), and the TRRP Science Advisory Board's Phase I review (LAND-274, Buffington et al. 2014). Two reports have been issued by Headwaters Corporation under that contract with Reclamation, including a 2017 "Summary Report on Trinity River Restoration Program Goals and Objectives Including Components of

Governance and Adaptive Management" (LAND-278) and the 2017 "Summary of Trinity River Restoration Program Interviews Final Report to the Trinity River Restoration Program" (LAND-279).

C. KEY PRINCIPLES APPLICABLE TO ADAPTIVE MANAGEMENT

In preparing my testimony, I carefully considered the August 2015 draft report of the DISB, "Adaptive Management in the Sacramento-San Joaquin Delta, How Is It Used and How Can It Be Improved," which developed the following recommendations to improve adaptive management in the Delta:

1. Create a Delta Adaptive Management Team (AMT)
2. Support adaptive management with funding that is dependable yet flexible.
3. Monitor.
4. Capitalize on unplanned experiments.
5. Use selected restoration sites to test adaptive-management and monitoring protocols.
6. Integrate science and regulations to enhance flexibility.
7. Recognize where adaptive management is not appropriate.
8. If the impediments to conducting adaptive management are insurmountable, revisit or revise the mandates.

(SWRCB-51, pp. 2–4, 35–39.)

In this testimony, I will evaluate the proposed Delta Tunnels AMP, focusing on the first three DISB recommendations and applying the lessons learned from the AEAM Program's adaptive management experience. Using the first three DISB recommendations as an analytical lens, I will also give my professional opinion about how likely the Delta Tunnels AMP is to succeed at implementing adaptive management and achieving its stated objectives. I will also opine on the suitability of the Delta Tunnels AMP for addressing CWF operation and mitigation assumptions for spring outflows (SWRCB-107, Att. 5, pp. 60–64, SWRCB-111, pp. 2-21 to 2-22 [mitigation for longfin smelt]), fall X2 outflows (SWRCB-107, Att. 5, pp. 60–64), farmland loss (SWRCB-111, pp. 2-41 to 2-44), and water quality impacts such as selenium (SWRCB-111, pp. 3-75 to 3-76), salinity, and Microcystis (SWRCB-111, pp. 2-13 to 2-14).)

Trinity River Adaptive Management Comparison to DISB Recommendations

Similar to the DISB's methodology used to assess adaptive management in the Delta, Headwaters Corporation conducted a series of written and oral interviews in 2017 with TRRP

participants for the report, "Summary of Trinity River Restoration Program Interviews. Final Report to the Trinity River Restoration Program," hereafter, the "Headwaters Report." (LAND-279.) Before applying the Trinity River lessons, the DISB recommendations, and the Headwaters Report to the proposed Delta Tunnels AMP, it is useful to examine the failures of the AEAM Program using the DISB recommendations and Headwaters Report. The findings in the Headwaters Report and pertinent sections of the DISB's recommendations are set forth below:

DISB Recommendation 1. Create A Delta Adaptive Management Team.

> The AMT should be composed of individuals who are knowledgeable and skilled in all phases of adaptive management. These individuals may be drawn from agencies, non-governmental organizations, universities, or other sources, but all will be dedicated, full-time members of the Team who operate independently of state or federal agencies. The Team will work closely with those who plan, implement, or oversee management actions in the Delta. Strong leadership will be required to foster the mutual trust and respect among scientists, managers, stakeholders, decision-makers, and agencies that are needed to design and conduct coordinated adaptive management and navigate the tangled web of Delta interests.

(SWRCB-51, p. 36.)

The Headwaters Report clearly identified the AEAM Program's shortcomings with respect to the DISB's teamwork recommendation:

> Interviewees indicated there is limited TRRP identity. People identify themselves as working for their specific agency/entity and not for the TRRP. There is little sense of team or collaborative spirit within the program.
>
> Several interviewees pointed to a lack of continuity in leadership as a problem for the TRRP. There is no consistent TRRP vision/plan so each new agency head brings their own interests and focus to the program, some of which frequently are not consistent with the TRRP goal. [¶] . . . [¶]
>
> Regarding the role of the federal agencies in staffing the TRRP, some interviewees focused on staff in the Weaverville office as being the unit that should be transferred to an independent entity, like the USGS or a private contractor. Another option would be to continue to house TRRP staff from different agencies/entities but that the Executive Director (ED) should have direct supervisory authority over all TRRP staff housed at that office. There was no clear model described that was viewed as a way to overcome seeming internal difficulty in the relationship between Reclamation TRRP staff and Service TRRP staff. [¶] . . . [¶]

> Several interviewees viewed the DOI agencies (Reclamation and Service) as having a great deal of animosity towards each other and not working together effectively. The Memorandum of Understanding (MOU) between Reclamation and the Service expired over a year ago and a revision has not been signed by either agency. Some interviewees felt finalizing this MOU was critical because it outlines how the Executive Director, Science Coordinator, and Implementation Branch Chief will work together as a staff leadership team for the TRRP. Many interviewees described a feeling of distrust of the Tribes by other TRRP partners. Interviewees viewed the two Tribes as not getting along which translates into difficulties at the TMC level.

(LAND-279, pp. 7–8.)

The TRRP's lack of an effective independent team was not otherwise saved by a strong framework that was less subject to the vagaries of individual personalities and interests. On the issue of a framework, the TRRP Science Advisory Board, in its Phase I review (LAND-274, Buffington et al 2014), identified serious frailties of the AEAM Program. These included:

- Lack of integration of program activities and data collection (p. 33);
- Lack of formal hypothesis testing (p. 33); and
- Lack of a formal adaptive management framework (p. 33 ["A formal adaptive management framework is needed, as called for in the ROD (USDOI 2000), to better structure and integrate Program activities and to increase the defensibility and transparency of management actions."]).

DISB Recommendation 2. Support adaptive management with funding that is dependable yet flexible.

> Adaptive management in the Delta will not become a reality unless the paucity and unpredictability of funding to support critical stages of the process are remedied. Radical approaches to funding adaptive management are needed. The past and present piecemeal approaches will not provide the long-term support needed to reach the "adapt" part of the process, without which there is only a business-as-usual management approach.

(SWRCB-51, pp. 37-38)

DISB Recommendation 3. Monitor.

> Monitoring the right things, at the right times, and in the right places, is essential. Without it, there is no way to know whether management actions are moving

> toward the desired goal or toward a different, less desirable, outcome. Designing monitoring protocols to fit the magnitude of management actions and the timing of important ecosystem processes would make the value of adaptive management more readily apparent. Developing an institutionalized regional approach to monitoring could also help to coordinate actions among projects and facilitate the collection, analysis, and synthesis of data that are compatible across projects.

(SWRCB-51, p. 38.)

Funding and monitoring for adaptive management are integrally linked. The DISB noted this conflict:

> Where they are not accorded a high priority, adaptive management and monitoring activities are likely to languish when funds are tight. Moreover, available funds often come in pulses, making it difficult to sustain the monitoring, data analysis, and evaluation that are essential to doing adaptive management.

(SWRCB-51, p. 2.)

The TRRP has had a long-standing conflict between funding for monitoring of adult salmon populations and adaptive management monitoring. Adaptive Management monitoring was consistently shortchanged in order to fund other projects such as adult weirs and redd surveys.

On the tension between funding and monitoring in the AEAM Program, the Headwaters Report stated:

> TRRP science is viewed by many as being a lower priority in the budget than construction projects. Many interviewees described science (or adaptive management) as receiving what is left over in the budget after construction projects are funded. The TRRP was described as data rich but information poor. For example, there is a belief that the TRRP is creating more habitat for fish and producing more juvenile fish, but there are no reports showing these results and making these connections. [¶] . . . [¶]
>
> This was a significant concern noted by nearly all interviewees [on conflicts of interest]. Interviewees stated that TMC members are voting on budgets that benefit their agencies/entities in staffing, construction projects, and monitoring and see this as a significant conflict of interest. . . . [T]here was significant concern raised by multiple interviewees that this conflict of interest in the budget, how money is allocated to projects, and how decisions are made about this allocation is a potential fatal flaw for the TRRP.

(LAND-279, pp. 8–9.)

The Headwaters questionnaire asked about the overall health of the TRRP and received a negative response that several respondents felt was a result of the following problems:

- The culture of the overall TRRP was described as "a meeting culture" not a "doing culture".
- TRRP leadership was frequently described as "lacking".
- The lack of a strategic plan and common vision for the TRRP is viewed as a significant impediment to progress on the goals and objectives.
- The TRRP is viewed as lacking transparency. Issues are decided behind closed doors, quid pro quo deals are struck between partners, and any negative or unexpected outcomes regarding construction projects or monitoring are suppressed.
- Staff turnover at the Bureau of Reclamation and the U.S. Fish and Wildlife Service is viewed as a significant issue that contributes to the lack of a consistent vision/mission of the TRRP.

(LAND-279, p. 4, lines 124–132.)

In summary, while touted originally as a model adaptive management and environmental management program, the Trinity River AEAM Program is not implementing adaptive management in a manner that the DISB recommends and the authors of the Trinity ROD envisioned. This failure is well documented by the fact that USBR has committed significant financial resources for the TRRP "program refinement" contract with the Headwaters Corporation. Past recommendations such as those found in the 2008 CDR Situation Assessment Report (LAND-272) have been largely ignored, and more money is being spent to come up with solutions that likely won't be implemented.

D. THE PROPOSED DELTA TUNNELS AMP WILL LIKELY FAIL DUE TO THE SAME PROBLEMS THAT CONTRIBUTED TO THE AEAM PROGRAM FAILURE

1. There are No Assurances for a Strong, Cooperative and Complete Adaptive Management Team

According to the DISB, an effective Delta Tunnels adaptive management program requires an adaptive management team with strong leadership and full time committed members with a strong sense of trust. (SWRCB-51, p. 36.) With agencies having different missions, conflicts often arise as agencies focus on priorities aligned with their agency

mission rather than the goals and objectives (mission) of an interagency program. This creates dysfunction, hinders implementation and limits the potential for success of interagency collaborative efforts at adaptive management such as the TRRP and that being proposed for the Delta Tunnels by the DISB.

The proposed Delta Tunnels AMP structure includes the same five agencies that are all members of the TMC. The USFWS, USBR, NMFS, DWR and CDFW all are members of the TMC and would also be members of the proposed IICG, along with San Luis-Delta Mendota Water Authority ("SLDMWA") and the State Water Contractors ("SWC"). (SWRCB-107, Att. 5, p. 10.) These entities are not independent. They are the same parties that will plan, implement, and oversee management actions coming out of the Delta Tunnels AMP process. While water contractors with an interest in diverting as much water as possible from the new intakes would be included, nowhere in the Delta Tunnels AMP process is there an opportunity for meaningful input from in-Delta governments, water users, landowners, fishermen, environmentalists, upstream water users, or other stakeholders whose interests would be affected by those same diversions.

The DOI's Adaptive Management and Overview Slide Show (LAND-276, slide 4) identifies set-up phase one as "Stakeholders as Partners". Other authors consistently cite public participation as an essential feature of a successful adaptive management program.

A key failure of the Trinity AEAM Program is that DOI did not follow its own recommendations. Broad stakeholder participation was not included, and the TRRP stakeholders that were included were never treated as partners. The TAMWG was mis-named as the "Trinity Adaptive Management Working Group." Yet, the TAMWG was simply a federal advisory committee without a vote at the TMC, where the decisions are actually made. Originally, the TAMWG chairman was not a member of the TMC, but, following the 2008 CDR Situation Assessment (LAND-272), the TAMWG chairman was granted a membership on the TMC, albeit a non-voting one. This lack of public support and partnership among stakeholders has led to dysfunction within the AEAM Program.

The death of stakeholder involvement in the TRRP came with the dissolution of the TAMWG in November 2017 by DOI. DOI was dishonest in its explanation of why the TAMWG was disbanded. (LAND-271.) Interior said that a written justification for the group to continue had not been submitted, but in fact it had occurred, according to a FOIA response to the *Eureka Times Standard*. (LAND-271.) This lack of candor by a member of the key decision making body is indicative of the protectionist mentality that interviewees have said is pervasive among the agencies, where concern for agency budgets and projects appears to have been more important than a collaborative, science-driven process.

Similar to the AEAM Program, key stakeholders are excluded from the Delta Tunnels AMP. Such exclusion will mean that key concerns are similarly not considered in the Delta Tunnels AMP process. Based on my extensive experience with the TRRP, it is my opinion that the outcome of the Delta Tunnels AMP is likely to be similar to that of the TRRP. In fact, it appears more likely that the Delta Tunnels AMP could suffer from the same protectionist mentality because the majority of IICG members have a vested interest in increased Delta exports (BOR, DWR, SWC and SLDMWA), and the Collaborative Science and Adaptive Management Program ("CSAMP") policy group (LAND 281) currently does not represent important interests like Delta agriculture or local public agencies, and it only includes one representative of in-Delta and upstream water users.

2. Dependable and Flexible Funding Is Not Assured

The DISB also recommends that there be "dependable yet flexible" funding for the proposed Delta Tunnels AMP and that the right kind of monitoring be funded. (SWRCB-51, p. 3.) As mentioned previously, funding and monitoring are linked. With respect to monitoring within an adaptive management program, the DISB has said:

> Monitoring the right things, at the right times, and in the right places, is essential. Without monitoring, little is learned and success (or failure) cannot be evaluated. Designing monitoring protocols to fit management actions and the timing of important ecosystem processes will make the value of adaptive management more readily apparent.

(SWRCB-51, p. 3.)

The DISB identified the conflict between funding for historic monitoring and adaptive management monitoring:

> Thus, adaptive management is often viewed as an unfunded mandate. We believe that people and programs generally want to, and try to, practice adaptive management, but without dedicated and reliable funding they are reluctant to do so at the expense of existing projects and programs.

(SWRCB-51, p. 29)

The DISB, in its evaluation of Delta adaptive management (SWRCB-51, p. 12), found inadequate funding to be the most common response from Delta adaptive management participants:

> The strongest, most uniform response we received, however, was disagreement with the statement that "Monitoring is adequately funded to support adaptive management." This concern will emerge often in this report; we consider it further in Section VI.

The Delta Tunnels AMP (SWRCB-107, Att. 5, p. 4) acknowledges that "significant" funding is necessary:

> Success of the adaptive management process outlined within this Framework **hinges upon significant new investments in related research**, monitoring and modeling that build on existing efforts. These investments will address key uncertainties related to water operations and threatened and endangered species that have been raised in a number of different venues . . .

(*Emphasis added*)

The Draft Adaptive Management Framework for the Delta Tunnels further addressed the tension between institutional capacity and funding:

> The key issue is whether existing efforts, individually and collectively, have enough capacity both in terms of staff capacity and senior researcher capacity, and have stable funding to ensure a long-term scientific basis to support successful adaptive management decision making that is relevant to project operations now and in the future.

(SWRCB-104, Append. 3H, p. 3.)

The TRRP had a remarkably stable and generous budget, averaging around $15 million/year for several years. In my opinion, the TRRP had more than adequate funding to implement an effective fishery restoration and adaptive management program. However, the

problem lies with the decision-making process of the TMC. There was also a great deal of controversy about how to allocate the funds. There are no conflict of interest requirements for TMC members, who are able to vote on funding for their own agency/tribal programs and projects. Exacerbating that problem, there are many long-standing fishery monitoring projects that have received funding instead of high priority adaptive management monitoring needs.

I am not aware of a reliable funding source for the proposed Delta Tunnels AMP having been identified. (SWRCB-107, Att. 5, p. 36.) The proponents are having problems raising all the funds necessary to construct the project, the project is nowhere near final design, and there are as yet many serious unknowns. (See, e.g., SDWA-265, pp. 15–16.) As of the writing of this testimony, a secured funding source to construct the entire project described in the Petition (including the SWP/CVP split described therein) has not been identified in Hearing evidence. (See, e.g., SDWA-265, pp. 15–16, SDWA-315.)

The failure of Petitioners to demonstrate sufficient funding is a fatal flaw of the Delta Tunnels AMP. Petitioners have failed to provide evidence that there will be a firm commitment of sufficient resources or staff for adaptive management, and therefore it is reasonable to assume adaptive management will be stymied, as it has been for the TRRP.

My experience with the old and new TRRP is that when unforeseen construction, operation or maintenance funding needs arise, the science and restoration funding will be cut to pay for it. The same is likely for the Delta Tunnels. Moreover, without more detail about the Delta Tunnels AMP scope, it will not be possible to demonstrate compliance with the Water Code section 85089 requirement that funding for all mitigation and management be in place prior to construction:

> Construction of a new Delta conveyance facility shall not be initiated until the persons or entities that contract to receive water from the State Water Project and the federal Central Valley Project or a joint powers authority representing those entities have made arrangements or entered into contracts to pay for both of the following:
>
> > (a) The costs of the environmental review, planning, design, construction, mitigation, including mitigation required pursuant to Division 13 (commencing with Section 21000 of the Public Resources Code) required

but for the construction, operation, and maintenance of any new Delta water conveyance facility.

(b) Full mitigation of property tax or assessments levied by local governments or special districts for land used in the construction, location, mitigation, or operation of new Delta conveyance facilities.

Petitioners' failure to assure complete funding for final design and construction (after more than a decade in pursuit of the Delta Tunnels) supports a finding that they are unlikely to secure adequate, dependable funding for adaptive management, as recommended by the DISB. (SWRCB-51, p. 3.) With significant uncertainty surrounding the Delta Tunnels AMP funding, Petitioners cannot meet their burden, and the State Water Board cannot find, that the CWF will not unreasonably impact fish and wildlife and other public trust resources, or that approval of the project would not be contrary to the public interest.

3. The Governance Structure, Voting Rules and Failure to Protect Against Conflicts of Interest Pose Significant Problems

The "Agreement for Implementation of an Adaptive Management Program for Project Operations" ("AMP MOU") is a draft agreement that proposes to have the IICG member agencies operate by consensus, with a lengthy non-binding appeal process through establishment of an appeals panel. (SWRCB-107, Att. 5, MOU p. 10.) Some of the specific problems that undermined the AEAM Program are likely to also undermine the Delta Tunnels AMP:

- Voting rules for the IICG have been clearly established as consensus.

I recommend simple majority voting rules for the IICG with expanded membership. Collaboration through consensus or super-majority is wonderful to strive for, but my experience in the case of the TRRP (TRRP/TMC uses super majority), it is often used to coerce a decision that is to one or more member's advantage by withholding a vote on an issue. To remedy the gridlock, the other members feel compelled to "make a decision" that cannot occur without a super majority vote that includes the holdouts who benefit from the final vote. The Delta Tunnels AMP, using consensus instead of super majority like the TRRP, will find itself in a similar situation because of the consensus requirement and an elaborate non-binding appeals process.

- The entity that the IICG recommends take a management action can veto a decision of the IICG, regardless of the IICG vote.

The TRRP has demonstrated that the system operators will act in their best interests and those of their constituencies, irrespective of the opinions of staff at fish and wildlife agencies. The Delta Tunnels AMP and the AMP MOU clearly state that ultimately, each agency (DWR, USBR, NMFS, USFWS, and CDFW) retains the discretion to make decisions whether to implement the operational decisions and other management actions that the IICG might recommend. (SWRCB-107, Att. 5, p. 10, AMP MOU, p. 10.) With respect to the project operators, DWR and USBR, given the significant investments being made by their customers, there will be significant pressure to act in the best interests of their customers, despite the opinions of the fisheries agencies. Based on my experience with the TRRP, the ability of an agency to overrule a recommendation of the IICG after achieving consensus could risk the loss of trust among committee members.

- The lack of conflict of interest rules significantly hinders the likelihood of success for the Delta Tunnels AMP.

In the case of the TRRP, voting members of the TMC can vote to approve no-bid federal contracts for themselves to design, build and monitor restoration projects. This hinders funding for key adaptive management projects because voting members do not want to see their projects defunded for adaptive management projects. Additionally, proposed adaptive management projects may show that the restoration strategy voting members are implementing (and getting paid to do) is ineffective. In the case of the Delta Tunnels, IICG votes could be steered in the direction of funding the regulatory agencies' historical work such as monitoring adult salmon populations for harvest management purposes in exchange for a favorable vote on operations that might harm protected fish and wildlife resources, or water quality. The Delta Tunnels AMP, as proposed, includes no safeguards to prevent this from happening.

- The governance structure is deficient because the IICG does not include essential stakeholders such as in-Delta agencies, water users, environmentalists, environmental justice groups, recreationalists, fishermen and upstream water users.

In the case of the TRRP, key stakeholders were never given a final vote on anything, only advisory votes. Ultimately, public support for the program decreased significantly. Without meaningful mechanisms for stakeholder input, the Delta Tunnels AMP is unlikely to address issues of concern to the public, including Delta water levels and quality for a variety of beneficial in-Delta uses. The issue of conflict of interest is also exacerbated because Reclamation, DWR and the state and federal water contractors make up the majority of IICG voting members.

The proposed public participation element of the Delta Tunnels AMP is to utilize the existing CSAMP. (SWRCB-107, Att. 5, pp. 65–66.) This is hardly a model for public participation. The CSAMP policy group's membership is limited to federal and state water management and fisheries agencies, fishing and environmental organizations, and SWP/CVP south-of-Delta water contractors, with only one seat held by in-Delta and upstream water users, respectively. (See LAND-268, slide 25). Many other critically affected interests such as public agencies, upstream water users and Delta agricultural interests would have to be added to the CSAMP policy group in order for it to be truly representative. Also, the CSAMP policy group is similar to the TRRP's TAMWG in that neither group actually gets a final vote on anything. These groups are merely advisory and offer only the illusion of public involvement.

4. Petitioners' Proposed Use of Adaptive Management Is Overly Broad and Inappropriate

The DISB, in its report on adaptive management has a seventh recommendation—i.e., "*Recognize where adaptive management is not appropriate*." (SWRCB-51, p. 4.)

The TRRP had some significant advantages over the Delta Tunnels in terms of adaptive management, yet even it has failed to implement an effective adaptive management program. In particular, Trinity River annual instream flow volumes were fixed by water year.

Impacts to landowners along the Trinity River were largely mitigated by funding commitments for new bridges, purchase of homes in the floodplain and replacement or repair of water and sewer systems that would be damaged by higher river flows. Thus, many controversial issues were resolved and not subject to resolution through a consensus-based adaptive management decision-making process.

The Delta Tunnels project proposes to use adaptive management to resolve numerous controversial issues. The Delta Tunnels AMP proposes to use adaptive management to revise the CWF's initial spring outflow and fall X2 criteria. (SWRCB-107, Att. 5, pp. 60–64; DWR-1143, p. 6, fn. 39 [adaptive management of spring outflow criteria planned]; see also p. 3, fns. 29, 31 [adaptive management of South Delta operational criteria planned].) Changing these parameters outside of the permitting process could also affect other users of water and members of the public who are not part of the AMP process.

The Delta Tunnels AMP is also proposed for issues that may not be apparent upon review of a description of the Delta Tunnels AMP and its objectives. For example, the Petitioners propose to use adaptive management to mitigate farmland losses and address water quality impacts. (See, e.g., SWRCB-111, at pp. 2-13 to 2-14 [adaptive management to address water quality effects, including EC and Microcystis]; pp. 2-41, 2-44:26-27 [adaptive management as part of adopted mitigation for impacts to farmlands].) At least with respect to the latter two issues, it appears that the Delta Tunnels AMP is being used to defer the adoption of mitigation for significant unmitigated impacts to loss of farmland and water quality impacts, with the result that significant environmental and financial commitments are undefined and unassured.

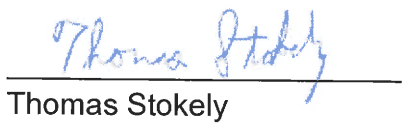
In short, Petitioners' proposal to use adaptive management in this context is overly broad and inappropriate. When such proposed use is combined with their failure to assure sufficient funding, it is clear that Petitioners have failed to demonstrate that the Petition will not unreasonably affect fish and wildlife, or public trust resources, or injure legal users of water, or that it is in the public interest.

E. CONCLUSION

The TRRP was envisioned as a model adaptive management program. It has failed for a number of reasons. Despite having stable and substantial funding, initial strong public support, clearly identified blocks of water for fisheries and regulatory flexibility, the TRRP has not achieved any of its objectives or demonstrated that adaptive management can actually succeed.

The proposed Delta Tunnels adaptive management program is not likely to succeed and is not even appropriate in some areas the Delta Tunnels proponents propose to apply it, such as loss of farmland and impacts to water quality, which is clearly a deferral of mitigation. Important decisions about how much water is dedicated to the environment and how to mitigate significant environmental impacts should not be put off until a later date under the guise of adaptive management. The management structure and operating procedures of the proposed Delta Tunnels AMP make it clear that impasse will be the result of consensus voting rules. The same agencies that have been in charge of the AEAM Program would also be in charge of the Delta Tunnels AMP. If history is any indication, the outcome is likely to be a huge disappointment. Due to its many shortcomings, the Board should not rely on the proposed Delta Tunnels AMP to find that the Petition is reasonably protective of legal users of water, fish and wildlife, the public interest, or public trust resources.

Executed on the 13th day of July, 2018, at Mount Shasta, California.



Thomas Stokely