San Diego County Water Authority

January 15, 2014

Attention: Imported Water Committee

Bay-Delta Conservation Plan: Preliminary Assessment of Financing Risk Parameters (Discussion)

Purpose
The purpose of this memo is to provide preliminary financial assessment of the Bay Delta Conservation Plan (BDCP) to the Water Authority.

Background
Since the 1930s, the state and the federal government have invested significant resources in the development and operation of the Central Valley Project (CVP) and the State Water Project (SWP) to help meet the water needs of Californians. About two-thirds of residents and more than 40 percent of irrigated farmland in California receive at least some of their water supplies from the CVP and SWP. Both projects utilize the Sacramento-San Joaquin Bay-Delta (Delta) to convey a significant portion of their project water to their respective water contractors. The Delta, therefore, is an important water supply source for many Californians. The Delta is also the largest west coast estuary in North and South America, supporting many fish, wildlife, and plant species; and it is one of four major North American pathways for migratory birds. Over the years, in part due to increased water exports for human use, the Delta habitat has deteriorated, increasing concerns over ecosystem viability.

The efforts to resolve water supply and ecosystem conflicts in the Delta have a long history in California water policy (described in detail in a Board memorandum dated July 17, 2013).[1] Measures to protect threatened and endangered species in the Delta in recent years have significantly impacted both projects' capability to export water through the Delta. The latest effort to address the conflict is a joint effort of state and federal agencies to develop a Bay Delta Conservation Plan (BDCP).

The BDCP is a habitat conservation plan, intended to result in long-term permits from regulatory agencies authorizing take of covered species so the export facilities may be operated in a more stable and reliable manner. Included in the BDCP are 22 conservation measures collectively meant to achieve the BDCP's overall goal of "*restoring and protecting ecosystem health, water supply, and water quality within a stable regulatory framework*" (described further in a Board memorandum dated September 18, 2013).[2] A central component of the BDCP strategy for water exporters is Conservation Measure 1 (CM1), *Water Facilities and Operations*. Conservation Measures 2 through 22 (CM2 through CM22) cover natural community restoration and protection and other stressors, which are intended to restore and protect the natural communities and species. The state has estimated the cost of the BDCP at $24.8 billion, with $16.9 billion envisioned being paid by the contractors, including the Metropolitan Water District (MWD), from which the Water Authority gets its Delta supply.

Water from the Delta makes up about 20 percent of San Diego County's annual water supply. Given the significance of a Delta water supply for San Diego County's water supply reliability and diversification, the Water Authority has long been a proponent of a Delta fix. The Water Authority is

[1] http://www.sdcwa.org/sites/default/files/files/board/2013_agendas/2013_07_13_FormalBoard.pdf, pages 106-123.
[2] http://www.sdcwa.org/sites/default/files/files/board/2013_agendas/2013_09_26_BoardPacket.pdf, pages 57-66.

also a strong advocate for its ratepayers. The Delta Reform Act of 2009 – in Section 85089(a) and (b) of the Water Code – provided that the costs for a new water conveyance facility will be paid by water users, and as such, the Water Authority continues to advocate for a Delta solution that not only would provide improved water supply reliability for water exporters, but also one that is right-sized to match demand and includes firm, long-term financial commitments from water agencies, including member agencies of MWD, to pay for the project.

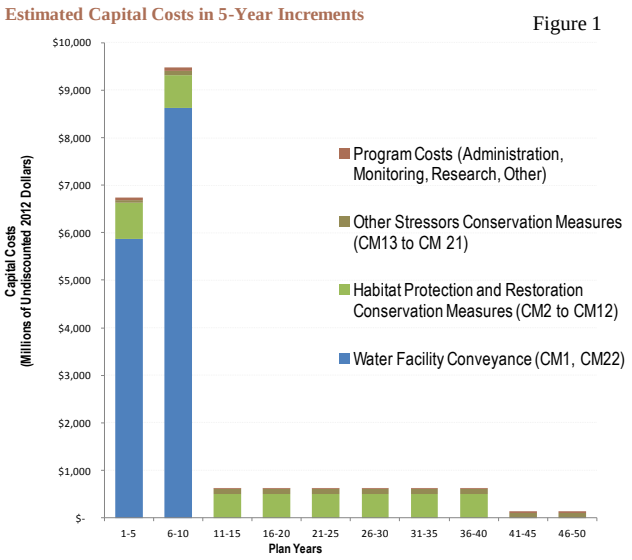
In addition to the BDCP Proposed Action, which the Brown Administration and state agencies are pursuing, other stakeholders have proposed variations of Delta fix strategies. Last July, Water Authority management convened a multi-disciplinary team of Water Authority staff to evaluate four Delta fix strategies (including a no action approach) with an aim to assess how these strategies would address the Water Authority's Bay-Delta Policy Principles and meet supply diversification and reliability goals expressed in the 2010 Urban Water Management Plan. The goals of this review are two-fold: to provide input during the BDCP environmental review process, and to provide technical assessments on various proposals sufficient enough to assist the Board in making policy decisions regarding the BDCP.

Discussion

Cost estimate

On December 9, 2013, the Natural Resources Agency made available the public draft of the BDCP and associated environmental documents for public review (although the official "review clock" started on December 13, 2013, with commenting period ending on April 14, 2014). The total capital cost (as expressed in undiscounted[3] 2012 dollars) for the plan is $19.9 billion, of which $14.6 billion is for the new 9,000 cubic-feet per second twin tunnel system.[4] The operational related costs total about $4.9 billion for the 50 year life of the project. See Figure 1 for the estimated capital costs and Figure 2 for the operational costs for described 5-year increments and as expressed in undiscounted 2012 dollars. As envisioned by the BDCP, while the federal and state water contractors will pay for the new conveyance facility and mitigation related to the construction (CM1),[5] the other conservation measures will be paid by public dollars through federal and state funding arrangements (CM2 through CM22).

Figure 1



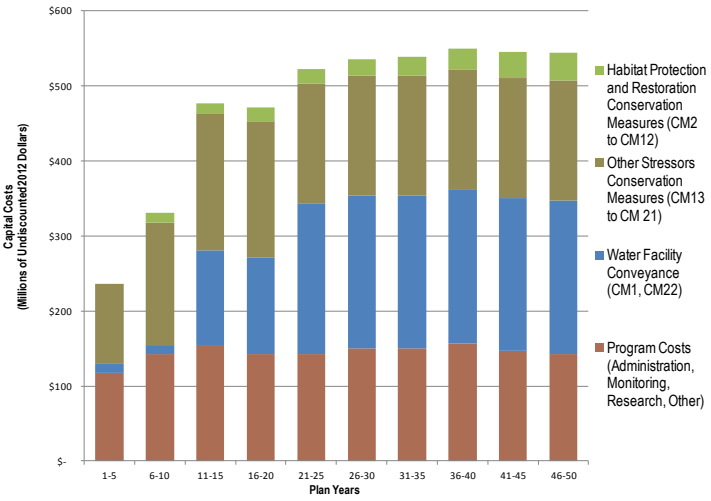
[3] BDCP Chapter 8 Footnote 1: "*This means the estimates exclude future inflation. Reporting costs in (inflation-adjusted) constant dollars allows for a more accurate comparison of relative expenditure over time. These estimates, however, are not indicative of nominal dollar outlays that will be required over the permit period and should not be used directly for financial planning, where use of nominal values would be most appropriate.*"

[4] The cost estimates for the conveyance system is based on a 5-10 percent design level. A separate Water Authority board memo will assess the practicability of cost estimates based upon this level of design effort, to be followed by a comprehensive economic risk assessment.

[5] The contractors are also responsible for that portion of the CM2 through 22 attributable to CM1 mitigation and additional plan components.

Estimated Operational Costs in 5-Year Increments

Figure 2



The entire construction costs for the conveyance facility (CM1 and CM22) will be spent during the first 10 years of the BDCP, while the habitat protection and restoration costs (CM2 to CM 11) will be spread fairly evenly over the first 40 years, with "other stressors" (CM 12 to CM 22) spread out over the entire permit life of 50 years. The capital costs of implementing BDCP (CM1 through CM 22) during the 50-year permit term is estimated at an average of about $1.62 billion annually in years 1 through 10 of the permit term, $124.5 million annually in years 11 through 15, and $86.5 million annually in years 16 through 50 (all in undiscounted 2012 dollars). The related operating costs are estimated at $57.5 million, $97.9 million, and $109.6 million annually during years 1 through 10, 11 through 15, and 16 through 50, respectively. See Table 1 and Table 2 in Attachment 1 for a summary of BDCP capital and operations outlays by plan implementation phase and element.

Recent news reports, citing an independent financial analysis prepared by the Westlands Water District, has identified a BDCP cost range from $51 billion to $67 billion. However, it is important to note that these larger cost ranges – which are substantially higher than cost ranges publicized previously – include financing costs and potential construction delays and are not solely reflective of capital costs for the project.[6] This is much akin to evaluating the purchase of a house from the initial offering price, purchase price, and the total inclusive amount when interest from the loan is included over the period of the home loan. Because the Water Authority generally evaluates project costs based on a nominal dollars approach, that is the approach that will be used in this report and in future reports when cost comparisons and analyses are performed. When reviewing the cost analysis, it is helpful to understand the basis of the cost comparison and the context of what these comparisons are intended to describe.

Funding sources

State and federal regulations require assurance of funding before issuance of permits under the habitat conservation plan.

The federal Endangered Species Act (ESA) requires that habitat conservation plans (HCPs) specify "*the applicant will ensure that adequate funding for the plan will be provided*" for conservation actions that minimize and mitigate impacts on covered species. The case law[7] under ESA provides that:

- The plan must "ensure" funding over the lifetime of the permit;
- The HCP cannot rely on federal funding to "ensure" funding of the plan in light of the "Anti-Deficiency Act and the availability of appropriated funds;"

[6] Santa Cruz Sentinel, 12/26/13 http://www.santacruzsentinel.com/ci_24795356/delta-tunnels-plans-true-price-tag-much-67?IADID=Search-www.santacruzsentinel.com-www.santacruzsentinel.com.

[7] 16 USC 1539(a)(2)(B)(iii); *National Wildlife Federation v. Babbit*, 128 F.Supp.2d 1274, 1294-95 (E.D. Cal., 2000); *Southwest Center For Biological Diversity v. Bartel*, 470 F.Supp.2d 1118, 1155 (S.D. Cal., 2006); HCP Handbook, pp. 3-33 to 3-34.

- The HCP must provide "remedies for failure to meet funding obligations by signatory measures;"
- The HCP "cannot rely on speculative future actions of others" for funding; and
- The HCP effectively must be backed by a guarantee by the applicant to ensure funding for all plan elements.

Since the BDCP relies on both federal funding and future state bonds to fund a portion of its costs, it is unclear whether the regulatory agencies will view the plan as adequately funded when determining if it meets standards for permit issuance.

Like the federal ESA, the state's Natural Community Conservation Planning Act (NCCPA) also requires that natural community conservation plans (NCCPs) contain provisions that ensure adequate funding to carry out the conservation actions identified in the Plan. In discussing the ESA and NCCPA standards, the Delta Stewardship Council recently noted that, "[a]lthough there are no cases interpreting the 'ensured funding' requirement under the NCCPA, there are a number of federal cases, and one state case, interpreting the very similar 'ensured funding' requirements for issuance of incidental take permits under the federal Endangered Species Act and the California Endangered Species Act. In general, these cases conclude that meeting this requirement cannot rely on speculative future actions by other parties, but requires the applicant's guarantee of adequate funds to carry out the plan."[8]

At this time, there is no financing plan for the BDCP. According to the BDCP public draft, "*[s]eparate financing plans, funding agreements, legislative authority, and other documents will be needed to enable the use of certain funding sources.*" To demonstrate the funding "assurances," the BDCP public draft provides an overview of potential funding sources to support the implementation of the BDCP, and relies on the projected benefits afforded to the project proponents to gauge funding support for the conveyance facilities by the water contractors, and the state and federal government funding history for Delta activities to support the public financing assumptions.

In regards to funding assurance from the water contractors, and without the funding cost allocation clearly delineated, the BDCP public draft presents the following "*primary conclusions*" in its analysis:

- *"The costs of CM1 and associated mitigation and construction are affordable by the ratepayers of the urban and agricultural agencies receiving federal and state water supply delivered through the Delta*
- *"The benefits of the preferred project to these ratepayers will exceed the total cost of CM1 and associated mitigation and conservation. Thus, the relevant water contractors have an underlying economic incentive to implement CM1"*

The BDCP public draft indicates the plan will be funded by the "*Authorized Entities, which will include funding from public sources, through state and federal agencies, and other public funding sources*." Authorized Entities are the "*parties seeking take authorizations pursuant to the BDCP and the associated biological assessments*." They include the California Department of Water Resources, Bureau of Reclamation, and these federal and state contractors:

- Kern County Water Agency

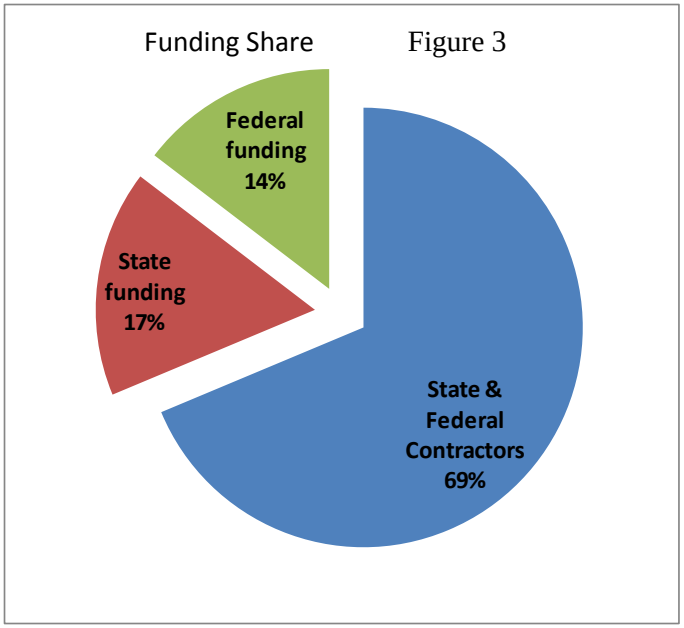
[8] October 24, 2013 staff report, Agenda Item 9, page 2.

- Metropolitan Water District of Southern California
- San Luis & Delta-Mendota Water Authority
- Santa Clara Valley Water District
- State and Federal Water Contractors Agency
- Westlands Water District
- Alameda County Flood Control and Water Conservation District (Zone 7 Water Agency)

Stating "*[a]s is typically the case of NCCPs and HCPs, plan costs will be borne by the applicants and the state and federal governments*," the BDCP envisions that costs for the plan will be shared between water export contractors and the state and federal governments, with the state and federal governments paying for costs related to ecosystem restoration and the water export contractors paying for the conveyance facilities and related mitigation costs (Figure 3 depicts the state, federal, and contractors share of the costs as envisioned by the BDCP; see also Table 3 in Attachment 1 for a summary of all potential funding sources as described by the BDCP):

1. State and federal water contractors ($16.9 billion, or 68.4 percent)
2. State funding (including two new water bonds, totaled $4.1 billion, or 16.6 percent)
3. Federal funding (existing and new authorizations, totaled $3.6 billion, or 14.3 percent)

Funding Share Figure 3



BDCP envisions that the Authorized Entities will begin implementation of the conveyance facility following the approval of the BDCP, without additional actions or authorizations either by the Legislature or by voters. DWR will rely on its authority derived from the Central Valley Project Act of 1933 (CVPA), the Burns Porter Act, the Davis Dolwig Act, and other special acts of the State Legislature to construct the BDCP conveyance facility. The BDCP public draft states that although the federal government has built certain facilities described in the CVPA, the Act authorizes DWR to build facilities described in the CVPA and to issue bonds – "*The CVPA describes specific facilities that have been and may be built by DWR… and allows DWR to administratively add other units to the SWP… and develop power facilities*."

The BDCP public draft cites the state's successful passage of prior water bonds as an indication of passage of two future water bonds that would include at least $3.76 billion in ecosystem restoration funding to support the BDCP. Although California voters have historically supported passage of water bonds, the recent economic climate led the Legislature to twice postpone the ballot measure for an $11.14 billion "Safe, Clean, and Reliable Drinking Water Supply Act of 2010," and there continues to be speculation and uncertainty regarding its fate for the November 2014 ballot. Moreover, the Governor's proposed State Budget, released on January 8, 2014, indicates that the state's long-term financial liabilities -- to schools, public employees' pensions and retirement health benefits, infrastructure debt, deferred maintenance, and unemployment insurance -- total $355 billion. The

Governor's proposed State Budget makes a concerted effort to address these obligations with as much as $4 billion dedicated to begin reducing these long-term liabilities. In this context, there is uncertainty about the Governor's willingness to place possible new debt burden -- in the form of a water bond -- on the ballot in the near-term. Additionally, the Governor and future Administrations may become more selective about the types of bonds that are placed on ballots, as water infrastructure needs continue to compete with school infrastructure, transportation, parks, libraries, and other historical general obligation bond recipient programs.

The BDCP public draft has also identified $3.55 billion in total funding through the federal Central Valley Project Improvement Act restoration fund and California Bay-Delta restoration appropriations from the federal government. The BDCP has identified CALFED Bay-Delta Restorations appropriations as a significant source of federal funding, as various activities previously funded under the California Bay-Delta Restoration Program align with numerous BDCP conservation measures, and that many federal agencies have received funding through the Bay-Delta Restoration appropriations. However, the BDCP also footnoted that funding sources totaling $3.16 billion attributable to this appropriation remain uncertain: "*[f]unding may be provided from this source but it is not assumed due to the uncertainty in funding to support the BDCP."* It is unclear what the BDCP means by "funding is not assumed" in this context. Other than the footnote, under the "Funding Assurances" section of the BDCP public draft, the BDCP states that these funding sources "*are expected to meet all anticipated costs of the BDCP*."

The BDCP public draft addresses the possibility that a shortfall occurs in either the state or federal funding by stating that the "Authorized Entities" will not be required to provide land, water, or monetary resources beyond their commitment in the Plan in the event of a shortfall in state or federal funding." Instead, the BDCP Implementation Office "*will make reasonable adjustments to expenditures to continue to meet the obligation of the Plan*," and "*will confer with the fish and wildlife agencies to identify alternative courses of action*" including adjusting the scope of the plan in proportion to the public funding shortfall. The BDCP Implementation Office, as envisioned by the BDCP, will be responsible for ensuring that conservation measures are properly timed, sequenced, and implemented to achieve the biological goals and objectives. The Office will be managed by a program manager and governed by the Authorized Entities through the Authorized Entity Group.

Despite statements made in the BDCP public draft, due to ESA case law and uncertainty associated with funding allocation among contractors, the issue as to whether the BDCP contains guaranteed funding assurances remains subject to potential challenge, and could place the issuance of permits at possible risk.

<u>Cost allocation</u>

For the purposes of describing implementation costs and funding sources, the BDCP assumes that the conveyance facilities will be "*owned by the state, and that the costs of constructing and operating the facility will be shared by the participating state and federal contractors*." Even though the bulk of the BDCP will be paid by the federal and state contractors, the actual funding cost allocation negotiations between the state and federal water contractors for the facilities are continuing while the BDCP is undergoing public review. The BDCP indicates that the actual funding share between the federal and state contractors will not be determined until it is "*near the time that permits are issued for BDCP*." If this timing holds true, it will place the certainty of cost share allocation long after conclusion of the public commenting period. Although the BDCP public draft presents an economic benefit and cost summary showing a net statewide benefit resulting from the BDCP Proposed Action of between $4.5

billion and $5.3 billion, the lack of resolution on cost allocation – both between the state and federal contractors, and within the individual contractor groups – hinders the water agencies' ability to assess the cost impact of the Proposed Action to their individual agencies.

The CVP and SWP are owned and operated separately by the federal and state government, respectively, but because of the shared Delta waterway, the CVP and SWP have entered into agreements over the years to address common shared responsibilities, including the 1986 Coordinated Operation Agreement. The CVP and SWP have also jointly developed facilities in the past. The joint-use facilities include the San Luis Reservoir, where the facility is owned by the federal government and costs are shared approximately 55 percent by the state and 45 percent by the federal government. While the cost allocation for BDCP between the state and federal contractors has not been agreed upon, many, including MWD, have loosely used a cost sharing of 55/45 between the SWP and CVP – along the lines of the cost-share ratio under the Coordinated Operation Agreement – as a proxy when estimating cost impacts. The BDCP public draft has also footnoted these cost sharing agreements. Some recent reports and water contractors' presentations suggest the possibility of a 60/40[9] split between SWP and CVP contractors. There are also occasional public discussions hinting about the potential for urban agencies to bear a larger share of BDCP costs because of the potential higher "value" BDCP provides to urban agencies when compared with that of agricultural agencies.[10] Because of the Water Authority's purchasing profile at MWD and how MWD currently recovers costs on its rates, if the BDCP costs were to be paid for in a similar fashion as the existing shared facilities, the Water Authority would be counted on to pay the second-largest share of the BDCP costs[11] on a statewide basis and the largest within MWD.

The BDCP public draft notes the state and federal contractors that are "participating" in the development of the BDCP have committed to fund construction, operation, and construction-related mitigation costs for implementing the new water conveyance facilities. According to BDCP, the SWP contractors' share of any new facilities associated with BDCP could be paid through a mechanism similar to the way the existing SWP is being paid for. That is, DWR-issued bonds would be repaid with revenues from the participating SWP water contractors via a take-or-pay contract. Individual water contractors may issue their own revenue bonds or they may do so collectively through a joint powers authority to pay their individual shares of the obligation. This arrangement will require that the existing SWP contracts be amended to allow the costs to be financed beyond the current term of around 2035. In fact, separate from the BDCP discussion, SWP contractors are already in discussions with DWR to extend the contracts beyond the current term, but these discussions have yet to reach conclusion. As noted by the then-Natural Resources Deputy Secretary Jerry Meral at the Water Authority's May 2013 Imported Water Committee meeting, the BDCP is a voluntary plan,[12] and therefore, existing SWP contractors are afforded the option not to sign up to pay for the BDCP (nor to receive any of the benefits that may come with the plan); but the Resources Agency hopes that the BDCP provides sufficient benefits for all contractors to participate; and by the BDCP public draft's own account, it does. However, if some contractors elect not to participate in the BDCP, how the costs would be allocated and benefits assigned will need to be determined.

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[9] In a recent Central Valley Business Times article http://www.centralvalleybusinesstimes.com/stories/001/?ID=24580, Central Coast Water Authority Executive Director was quoted on a cost sharing split of 60/40 between SWP and CVP. The same split was used in a presentation at the December Coachella Valley Water District board meeting.

[10] The definition of "value" has yet to be established.

[11] Second only to Kern County Water Authority, assuming existing SWP allocation.

[12] "But it is a voluntary project. There's nothing mandatory about this. The State cannot impose these costs on anyone." Dr. Meral, Water Authority IWC meeting, May 23, 2013.

The CVP water contractors will also have to develop their own funding agreements. The CVP water contractors have individual agreements with the federal government to pay for their share of project and operating costs. Because the BDCP as envisioned would be owned by the state, the CVP contractors have yet to determine how any new funding mechanism with the state would be structured. The BDCP public draft discusses a potential financing mechanism using a joint powers authority, and cited the State and Federal Water Contractors Water Agency (SFCWA) as having the potential to fund BDCP projects on behalf of its membership, with bonds "backstopped" by the participating members. SFCWA covers a majority of the SWP and CVP contractors, but not all. It is a joint powers authority formed in 2009 by a majority of the state water contractors and member agencies of the San Luis & Delta-Mendota Water Authority, which covers 29 federal and exchange CVP contractors. If a funding structure through the SFCWA is developed, and not all existing contractors sign up to pay for the BDCP, how the benefits anticipated from the BDCP will be determined and divided among those who pay will need to be addressed. Any BDCP funding undertaken by SFCWA would need to be structured so participating members provide the necessary revenues to pay the debt service on bonds. Under the SFCWA Joint Powers Agreement, this requires future contract arrangements.

Currently, a majority of the state water project contractors rely on property tax levies[13] to pay for a significant portion of their existing SWP costs. As a pre-Proposition 13 approved project, the contractors are allowed to adjust their ad valorem tax rate annually to match their annual SWP obligations. Some have questioned whether these contractors may continue to rely on the taxing authority that was afforded to them in 1960 for the SWP, to now pay for the BDCP. If existing taxing authority cannot be relied upon, new voter approval will be required.

Because of the economic output potential of urban water agencies, they and their ratepayers have historically been more willing to pay more for alternative water supplies than their agricultural counterparts. In a presentation to the MWD Board, Beacon Economics showed an almost 90-to-10 ratio of "willingness to pay" between urban and agricultural communities.[14] BDCP officials have observed that the project provides more "value" to the urban communities than the agricultural communities.[15] So far, the discussion in the public forum has been that the project would be paid for under the "beneficiary pays" concept, which has been interpreted by urban agencies as all users paying the same dollars per acre-foot, with aggregate costs correlating to benefits received. But, if "beneficiary pays" is being redefined based upon the "value," as opposed to the cost of the project to the user in the context of BDCP cost allocation, there could be significant cost implications to various contractors. Whether a price differential based on "value" alone is consistent with cost of service pricing requirements of Propositions 218 and 26 has not been addressed.

Cost to the Water Authority

This Board memo focuses on a preliminary financial analysis based solely on the BDCP Proposed Action, including a sensitivity analysis to evaluate a range of potential impacts due to uncertainties

[13] Unique among the SWP contractors, the MWD Act was amended in 1984 and limited the tax levy to its debt service on state general obligation bonds for facilities benefitting MWD as of 1990/91; however, the Act allows MWD to suspend the restriction if its board finds suspension is "essential to the fiscal integrity of the District." The MWD board, in fact, suspended its tax rate limitation for FY 2014 and kept the tax rate the same as FY 2013.

[14] Slide 20, Beacon Economics presentation to MWD board, December 9, 2013. http://edmsidm.mwdh2o.com/idmweb/cache/MWD%20EDMS/003734608-1.pdf.

[15] Then-Deputy Secretary Meral at Water Authority's May 23, 2013 IWC: "The urban benefits of this project are enormous and really… dwarf the ag benefits because an acre-foot of water building… microchips is worth more than corn…that's just the way it is."

associated with the proposed cost allocation. Other sensitivity analyses, including costs for other Delta fix options and potential construction overruns and delays of the Proposed Action, will be performed at a later date following staff's review of the BDCP Public Draft and preliminary engineering plans.

Because the cost allocation between the state and federal contractors has not yet been finalized or agreed upon, uncertainties associated with state and federal funding and the potential that costs may be allocated based on the "value" that BDCP produces to contractors, this analysis utilizes a bookend[16] approach of potential cost allocation scenarios using the following parameters for the BDCP Proposed Action. Under each scenario, it is assumed that the Water Authority would pay 25 percent of MWD's share based on its anticipated purchase profile.[17]

Scenarios

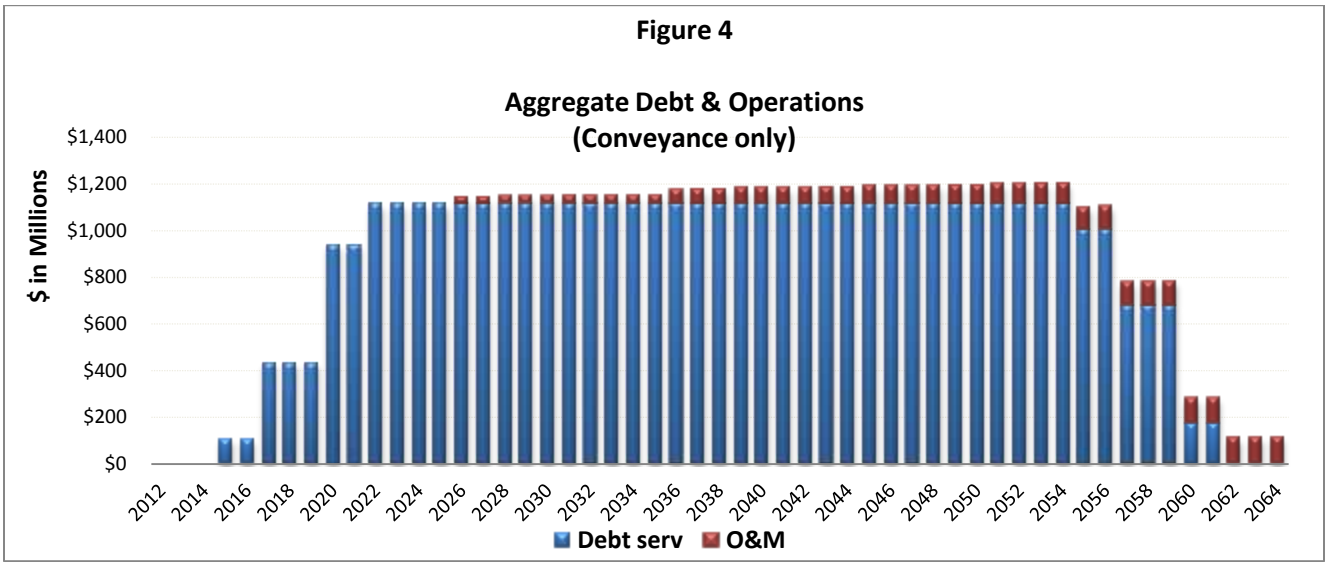
1. Contractors will pay for only conveyance and mitigation related costs of $16.9 billion, with cost shared between SWP and CVP 55/45; MWD share assumed to be existing Table A allocation
2. All of the $24.8 billion of the BDCP costs will be paid by contractors, with cost shared between SWP and CVP 55/45; MWD share assumed to be existing Table A allocation
3. Contractors will pay for only conveyance and mitigation costs, with urban agencies from CVP and SWP paying for 90 percent of the cost and agricultural agencies paying for the remaining 10 percent; MWD share assumed to be 58 percent[18] of urban share, based on estimated proportional share of water benefits

Table 1. Range of Potential Total BDCP Cost to the Water Authority (undiscounted 2012 $)

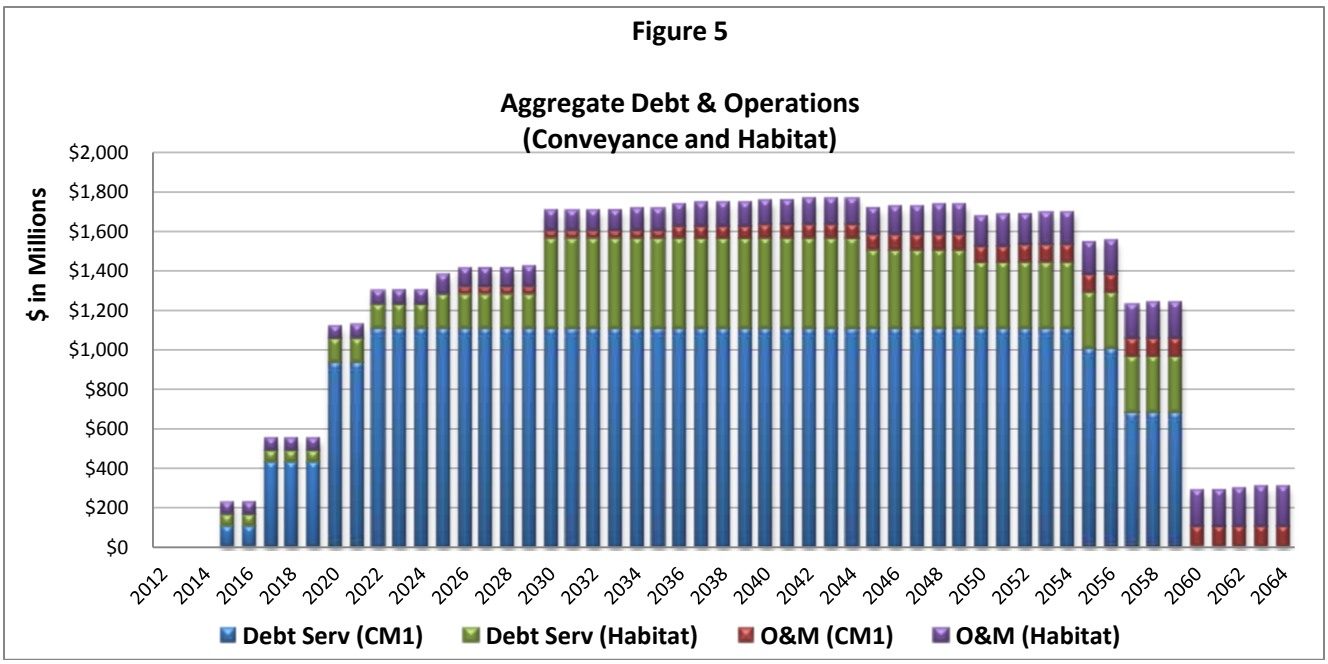
	Scenario 1	**Scenario 2**	**Scenario 3**
Description	Contractors pay for conveyance; cost share between SWP & CVP & 55/45	Contractors pay for all costs; cost share 55/45 SWP/CVP	Contractors pay for conveyance; urban and agricultural split: 90/10
Total Cost (Capital and O&M)	$16,930M	$24,754M	$16,930M
SWP (or urban in scenario 3)	$9,312M	$13,617M	$15,237M
MWD	$4,218M	$6,168M	$8,832M
Water Authority	$1,055M	$1,542M	$2,208M

As shown on Table 1, depending on how costs are allocated among federal and state contractors and whether the public funding comes through – without considering other potential risks due to construction delays and/or supply yields – the potential cost to the Water Authority ranges between $1.1 billion and $2.2 billion in undiscounted 2012 dollars.

[16] This bookend approach is utilized to provide the Board with a range of potential cost impacts; it is not intended to suggest that these are the cost allocation scenarios being explored by BDCP participants, as the Water Authority has not been provided information that would be necessary to make a more definitive analysis.
[17] Assumes status quo Table A allocation formula, with MWD share at 45.3% (Table A at 1.91 MAF).
[18] Estimated proportional share; urban CVP based on long-term average deliveries; urban SWP based on contract amount



The BDCP public draft describes a financing scenario under consideration, which is through the issuance of a series of revenue bonds to finance the costs. Figure 4 above shows staff's analysis of the result of the aggregate annual debt service and operations costs for the conveyance facility only. The annual capital debt service costs average approximately $1.1 billion from 2021 through 2055. For the



purpose of this analysis, it is assumed that the construction will start in 2015 and BDCP capital costs will be financed through four debt issuances (two in the first 5 years, the others in year 6 and 8), each with a term of 40 years.[19]

[19] This assumption on debt issuances is similar to what BDCP describes as a potential financing plan, which is based on an analysis performed by the Southern California Water Committee. It differs slightly from Westlands' analysis, which assumed a more rigorous debt financing schedule with shorter debt terms. For the base case (contractors responsible for only the conveyance facilities and without schedule delays), both analyses resulted in similar annual debt services with SCWC showing an annual debt service of $1.1 billion, and Westlands at $1.24 billion.

Figure 5 presents the annual debt service and operations that include both conveyance and habitat restoration. The annual capital debt service for this scenario rises to $1.6 billion.[20]

There are several ways to evaluate project costs. Two of them are:

- Net Present Value Approach – Takes into consideration the time-value of money by comparing a project cost estimate in today's dollars to a future discounted project cost. Based on the foundational principle that a dollar in the future is worth less than a dollar today, one can evaluate a project's current value in consideration of future assumptions such as scheduling, financing costs, and inflation to arrive the project cost.
- Nominal Costs Approach – Does not take into account the time value of money and instead treats all project costs equal regardless of when they are incurred. Under this approach, future costs are represented in undiscounted constant dollars and not adjusted for future variables.

Because of these different ways of evaluating costs, it is important when comparing project costs that the basis of evaluation is comparable. In the BDCP Proposed Action analysis, both undiscounted 2012 dollars (nominal) as well as net present value are presented. Although the costs are often described in undiscounted 2012 dollars, when evaluating the economic benefits, the BDCP utilizes the net present value approach that factors in the difference between financing interest rate and inflation. The net present value approach reflects the time value of money, so when this approach is used to determine the cost per acre-foot, some economists also "discount" the water yield to present time to make the unit cost determination consistent.

Rather than using the net present value calculation and discounting the value of water to determine the unit cost, for the purpose of this analysis, annualized costs are represented as the "peak" or "maximum" debt service requirement over the project's financing term, which is an approach the Water authority utilizes in general when comparing project costs. Where unit costs are displayed, they are based on undiscounted water yield. Moreover, the unit cost described here is based on incremental unit cost (as in the unit cost based solely from BDCP yield benefit), rather than the average unit cost impact on all supplies from the project.[21] The sensitivity analysis risks associated with construction and operations, long-term supply yields, and rate impacts to the Water Authority will be analyzed in future memos.

Table 2. Range of Annualized Potential BDCP Debt Service Cost to MWD

	Scenario 1	Scenario 2	Scenario 3
Description	Contractors pay for conveyance; cost share between SWP & CVP 55/45	Contractors pay for all costs; cost share 55/45 SWP/CVP	Contractors pay for conveyance; urban and agricultural split: 90/10
Annualized Debt Service	$1,111M	$1,563M	$1,111M
SWP share (or urban)	$611M	$859M	$1,000M
MWD	$277M	$389M	$579M

[20] For the purpose of this analysis, the capital portion of the habitat conservation costs is assumed to be financed over a 30 year period at an interest rate of 5 percent.
[21] An incremental unit cost calculation allows for a comparable cost comparison against other incremental supplies.

This memo focuses on a preliminary analysis of the BDCP incremental unit cost for MWD under varying cost allocation assumptions. The incremental unit costs (e.g., cost per acre-foot) for MWD depends on the benefit it receives from the BDCP yield. MWD's benefit from the BDCP yield depends on a number of factors, including the consumptive need for the water and perhaps most significantly, the ability to place the water in storage when available. Thus, rather than using a single yield benefit, a unit cost for a range of potential BDCP yields is evaluated.

Under the high outflow scenario, BDCP modeling results indicate that the Proposed Action would provide 1.2 million acre-feet of average annual benefit when compared with no action. With the low outflow scenario, the benefit may increase to 1.7 million acre-feet when compared with no action. This range translates to between 299,000 acre-feet and 424,000 acre-feet of potential average annual benefit to MWD.

Table 3. Range of Capital Unit Cost for MWD[22]

	Scenario 1		**Scenario 2**		**Scenario 3**	
Description	Contractors pay for conveyance; cost share between SWP & CVP 55/45		Contractors pay for all costs; cost share 55/45 SWP/CVP		Contractors pay for conveyance; urban and agricultural split: 90/10	
Annualized Debt Service to MWD	$277M		$389M		$579M	
BDCP Yield	High Outflow	Low Outflow	High Outflow	Low Outflow	High Outflow	Low Outflow
Potential Benefit (TAF)	299	424	299	424	299	424
Incremental Unit cost ($/AF)	$926	$653	$1,201	$848	$1,938	$1,368

As shown in Table 3, depending on how costs are allocated among contractors and federal and state governments, and between urban and agricultural contractors, MWD's unit costs for conveyance vary between $653 per acre-foot and $1,938 per acre-foot.[23] As noted earlier, these costs represent the unit cost of incremental supply; MWD's unit cost of the entire SWP, inclusive of existing supplies, would range between $199 per acre-foot and $494 per acre-foot based upon its share of overall yields of 5.6 million acre-feet to 4.7 million acre-feet under these scenarios.

When evaluating the cost benefit of various water supplies, it is important to keep in mind the difference between a supply that would produce a consistent volume of water on a year-in, year-out basis and that which is more varied. Although the costs may be placed on comparable terms, how the water is intended to be used, may be different. The major water supply initiatives the Water Authority has embarked on in recent years – the Colorado River Quantification Settlement Agreement supplies and the Carlsbad Seawater Desalination – fall in the category of water that could be counted on an annual basis. That is, these supplies are largely immune to annual hydrologic variations.

[22] It should be noted that this analysis varied the cost obligations only, but assumes MWD's share of the BDCP benefits remains constant – i.e., 45.3 percent (Table A) of 55 percent (SWP share).

[23] Unit cost based aggregate debt service costs calculated when debt is issued. Because BDCP cost represents only a portion – albeit not insignificant – of MWD's overall costs, the rate impact of a BDCP cost would be very different when looking at just the BDCP cost alone. As noted earlier, the rate impact to the Water Authority as a result of BDCP will be analyzed in future memos.

Supplies from the SWP and CVP are more dependent on hydrologic conditions and the system's capability to manage supplies to produce yield. These systems have been historically attractive and popular because their ability to convey a large quantity of water from areas with high precipitation to areas where precipitation is less abundant. The supplies expected to be produced under the BDCP vary depending on hydrology. As discussed in the November 13, 2013 and January 9, 2014 staff reports, the greatest value of BDCP comes from its ability to produce the "big gulp," associated with wet years. To fully utilize the "big gulp," contractors' ability to store excess water for dry-year use is critical, as BDCP does not provide additional dry-year yields. MWD's ability to receive on average 299,000 – 424,000 acre-feet of water created or restored by the BDCP Preferred Action largely rests on its consumptive needs for the water, and perhaps more importantly, its (and its member agencies') ability, capability, and willingness to buy and store the excess water beyond consumptive use for later dry-year use. To ensure the full benefit of BDCP's big-gulp, a storage fill plan, along with a financing plan that details how MWD and its member agencies would store excess wet-year water would need to be developed.

Next Steps

Staff is continuing to undertake its multidisciplinary evaluation and analysis of the four Delta fix options. Following staff's review of the preliminary engineering report, a more in-depth analysis of the economic issues, including sensitivity analyses on construction costs, supply yields, and rate impacts on the Water Authority will be further conducted.

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Attachment 1: Tables

Table 1: Undiscounted Capital Outlays by Plan Implementation Phase and Element

BDCP Plan Implementation Elements	Average Annual Expenditure by Plan Implementation Period (Millions) [1]			50-year permit term Total Expenditure (Million) [1]
	Near Term (Yrs 1-10)	Early Long-Term (yrs 11-15)	Late Long Term (yrs 16-50)	
Water conveyance (CM1)	$1,457.1	$0.0	$0.0	$14,570.9
Natural community restoration (CM2-CM11)	$146.7	$98.6	$63.1	$4,170.0
Other stressors (CM12-CM 22)	$15.3	$24.5	$18.6	$926.7
Changed circumstances	$0.8	$1.7	$4.8	$183.9
Total Capital Outlays	**$1,619.9**	**$124.8**	**$86.5**	**$19,851.4**

Notes: (Data sources: BDCP Table 8-33)
[1]In undiscounted 2012 dollars
The 50-year total expenditures are more precise than the annual averages and may not sum directly from the annual averages due to rounding errors.

Table 2: Undiscounted O&M Outlays by Plan Implementation Phase and Element

BDCP Plan Implementation Elements	Average Annual Expenditure by Plan Implementation Period (Millions) [1]			50-year permit term Total Expenditure (Million) [1]
	Near Term (Yrs 1-10)	Early Long-Term (yrs 11-15)	Late Long Term (yrs 16-50)	
Water conveyance (CM1)	$0.0	$25.1	$38.0	$1,456.0
Natural community restoration (CM2-CM11)	$1.2	$2.9	$6.0	$236.6
Other stressors (CM12-CM 22)	$30.8	$38.9	$35.2	$1,734.5
Local government revenue replacement	$1.7	$3.0	$5.6	$226.0
Monitoring & research measures	$17.2	$20.4	$18.3	$912.8
Plan administration	$6.7	$7.6	$6.6	$336.4
Total Operating Outlays	**$57.5**	**$97.9**	**$109.6**	**$4,902.3**

Notes: (Data sources: BDCP Table 8-34)
[1]In undiscounted 2012 dollars
The 50-year total expenditures are more precise than the annual averages and may not sum directly from the annual averages due to rounding errors.

Table 3. Summary of Estimated Funding by Entity, Sources, and Plan Component[a]

Potential Funding Source[b]	Estimated Funding by Plan Component (in millions $)[c]						Total	%
	Program Administration	Monitoring, Research, Adaptive Management, and Remedial Measures	Water Facilities and Operation	Natural Community Protection and Management (CM3, CM11)[d]	Natural Community Restoration (CM2, CM4–CM10, CM12, CM22)	Other Stressors Conservation (CM13–CM21)		
Participating State and Federal Water Contractors	**$31**	**$113**	**$16,027**	**$266**	**$269**	**$224**	**$16,930**	**68.4%**
State Funding Sources								
New Water Bond (2014)	-	-	-	$184	$900	$430	$1,514	6.1%
Second Water Bond	-	-	-	$205	$1,200	$840	$2,245	9.1%
Proposition 1E	-	-	-	-	$100	-	$100	0.4%
Proposition 84	-	-	-	-	$42	$21	$63	0.3%
Wildlife Conservation Board	-	-	-	$10	$40	-	$50	0.2%
Interagency Ecological Program (state funding)	-	$55	-	-	-	-	$55	0.2%
Delta Stewardship Council	-	$90	-	-	-	-	$90	0.4%
Ecosystem Restoration Program[e]		-	-	-	-	-	-	0.0%
Environmental Enhancement Fund[e]		-	-	-	-	-	-	0.0%
Fisheries Restoration Grant Program[f]		-	-	-	-	-	-	0.0%
Subtotal State Funding	**-**	**$145**	**-**	**$399**	**$2,282**	**$1,291**	**$4,117**	**16.6%**
Federal Funding Sources								
Existing and New Federal Authorizations								
Central Valley Project Improvement Act RestorationFund(Reclamation)	-	-	-	$50	-	$50	$100	0.4%
CA Bay-Delta Restoration Appropriations (Reclamation)[f]	$100	$640	-	-	$602	$1,027	$2,369	9.6%
CA Bay-Delta Restoration Appropriations (USFWS)[f]	$60	$10	-	$96	$96	-	$261	1.1%
CA Bay-Delta Restoration Fund (EPA)[f]	-	-	-	-	$238	-	$238	1.0%
CA Bay-Delta Restoration Appropriations (USGS)[f]	-	$175	-	-	-	-	$175	0.7%
CA Bay-Delta Restoration Appropriations (NRCS)[f]	-	-	-	-	$102	-	$102	0.4%
CA Bay-Delta Restoration Appropriations (NMFS)[f]	-	$15	-	-	-	-	$15	0.1%
Regional Ecosystem Conservation (NMFS)	-	-	-	-	$5	$5	$10	0.0%
Estuary Restoration Act (NMFS)	-	-	-	-	$3	$2	$5	0.0%

Potential Funding Source[b]	Estimated Funding by Plan Component (in millions $)[c]						Total	%
	Program Administration	Monitoring, Research, Adaptive Management, and Remedial Measures	Water Facilities and Operation (CM 1)	Natural Community Protection and Management (CM3, CM11)[d]	Natural Community Restoration (CM2, CM4–CM10, CM12, CM22)	Other Stressors Conservation (CM13–CM21)		
Existing Federal Grants								
Wetlands Reserve Program (NRCS)	-	-	-	$125	-	-	$125	0.5%
Cooperative Endangered Species Conservation Fund (USFWS)	-	-	-	$50	-	-	$50	0.2%
Environmental Quality Incentives Program (NRCS)	-	-	-	$50	-	-	$50	0.2%
Land and Water Conservation Fund	-	-	-	$25	-	-	$25	0.1%
National Coastal Wetlands conservation grants (USFWS)	-	-	-	-	$5	-	$5	0.0%
Restoration Partnership Grants (NMFS)	-	-	-	-	$7	$3	$10	0.0%
San Francisco Bay Area Water Quality Improvement Fund (EPA)	-	-	-	-	$5	-	$5	0.0%
Subtotal Federal Funding	**$160**	**$840**	**-**	**$396**	**$1,062**	**$1,087**	**$3,545**	**14.3%**
Other Funding Sources								
Interest income	$145	-	-	-	-	$20	$165	0.7%
Summary								
Total Funding	$336	$1,098	$16,027	$1,061	$3,613	$2,623	$24,758	100.0%
Total Cost[g]	$336	$1,097	$16,027	$1,061	$3,610	$2,623	$24,754	-
Difference (funding minus cost)	$0	$1	$0	$0	$3	$0	$4	0.0%

Notes (Data Source: BDCP Table 8-37)

[a] In most cases, funding amounts are estimates only based on funding history, overlap with BDCP goals, and assessment of competitiveness of BDCP projects. Where a range is provided inthe text, the midpoint of the range is used for this table unless otherwise described. Funding estimates from state and federal agencies do not represent commitments and are subject togrant awards, annual appropriations from Congress, and passage of water bonds by the voters of California. Totals may not sum directly from components due to rounding error.

[b] See text for explanation of funding source, including legal citations for federal and state funding.

[c] See text for rationale of funding estimate. Where funding sources apply to multiple Plan components, funding is allocated proportional to cost across applicable components, unless there is a basis to allocate funds differently. Allocations are estimates of potential funding and do not imply dedicated or guaranteed funding.

[d] Includes property tax revenue replacement for land acquired in fee title from private parties.

[e] Funding may be provided from this source but it is not assumed due to the uncertainty in funding to support the BDCP.

[f] See Table 8-55, *Potential Funding from California BayDelta Restoration Appropriations, by Federal Agency and Plan Component*, for details on funding.

[g] Excludes EIR/EIS mitigation costs.