

July 27, 2018

**Andrew Wheeler**  
Administrator  
U.S. Environmental Protection Agency

Water Infrastructure Finance and Innovation Act Program  
Office of Water, Office of Wastewater Management  
1200 Pennsylvania Avenue, NW  
Washington, DC 20004

Dear Administrator Wheeler:

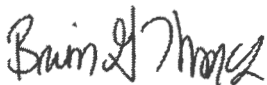
On behalf of the Delta Conveyance Finance Authority (Finance Authority), I am submitting this Letter of Interest for Water Infrastructure Finance and Innovation Act (WIFIA) program to help advance California WaterFix, a generational effort to modernize the hub of the statewide water delivery system.

The Finance Authority is a partnership of public water agencies that have received supplies from the State Water Project for nearly 50 years. The Finance Authority is arranging financing for California WaterFix in coordination with the California Department of Water Resources, which owns and operates the State Water Project and will operate this infrastructure improvement once it is completed.

The WIFIA program offers financing flexibility that is particularly attractive to advancing this critical infrastructure project, given the varying economics of the agencies representing urban and farming communities. Our attached Letter of Interest seeks to explain this exciting modernization project and fully address the pertinent financing details. The Finance Authority seeks \$1.6 billion in initial credit assistance from the program as California WaterFix shifts from the permitting phase into design and construction.

Thank you for your attentive review of our Letter of Interest. We hope this evolves into a successful financing partnership that advances both of our missions.

Sincerely,



Brian Thomas  
Interim Executive Director  
Delta Conveyance Finance Authority

## OVERVIEW OF CALIFORNIA WATERFIX

The Sierra Nevada Mountains provide some or all of the water to an estimated 95% of all Californians. Properly managing this resource for the good of both the California economy and environment is one of the state's highest priorities. The two single largest water projects that rely on this Sierra supply – the State Water Project (SWP) and the Central Valley Project (CVP) – are in the Sacramento-San Joaquin Delta (Delta), where the rivers of the western Sierra merge before heading toward San Francisco Bay. California WaterFix (WaterFix) represents the culmination of more than 11 years of planning, review and refinements to modernize these projects so that they can maintain their original missions of providing reliable water supplies in a manner that is more compatible with accelerated restoration efforts. A successful construction phase will rely upon cost-effective financing. The Water Infrastructure Finance and Innovation Act (WIFIA) presents an exciting opportunity to access credit assistance that will maximize participation in this much-needed water upgrade project.

The cornerstone of WaterFix is the construction of new intakes in the northern Delta to complement the long-time pumping facilities in the southern Delta. There, migrating fish species and environmental constraints can result in low pumping levels when storms have arrived and river flows are at their highest. The existing intakes are only three feet above sea level in this tidal estuary, making them vulnerable to sea level rise, levee failure and other natural events. New intakes upstream, with the supplies transported by a twin-tunnel conveyance system to minimize impacts, will create much-needed flexibility to reliably capture wet-period supplies. With California having the most variable weather patterns in the nation, a water system that can take advantage of storm flows is an absolute imperative.

WaterFix will directly serve more than 27 million Californians from Silicon Valley to San Diego. WaterFix is currently being advanced by public water agencies under contract with the SWP, in partnership with the state. Of note, this project is being constructed with sufficient capacity to include investments from public agencies served by the federal CVP. Combined, these projects provide vital water supplies to 3 million acres of farmland that produce more than 400 agricultural commodities.

As the implementation of groundwater management in the Central Valley in the coming years will limit this pumping from groundwater aquifers, reliable surface supplies improved by projects like WaterFix will grow in importance. While urban areas such as Southern California are diversifying their portfolios with new local projects and conservation, imported supplies will remain an essential baseline and represent the overwhelming majority of water held in storage for prolonged droughts.

In short, WaterFix is a lynchpin to a broader, successful water management strategy for a state that faces shifting weather patterns, population growth and stressed river ecosystems. A federal financing partnership via WIFIA would help move this vital infrastructure project forward to help achieve California's co-equal goals of reliable water supplies and Delta restoration.

For a quick start to understanding WaterFix, please see:

**Attachment 1:**

[A Modern Infrastructure Upgrade Fact Sheet](#)

**Attachment 2:**

[California WaterFix Benefits Animation Video](#)

**Attachment 3:**

[Tunnel Construction Overview and General Project Description Animation](#)

## Letter of Interest

### SECTION A: PROSPECTIVE BORROWER INFORMATION

**1. Legal name of prospective borrower:**

Delta Conveyance Finance Authority (Finance Authority)

**2. Other names under which the prospective borrower does business:**

None

**3. Department and division name:**

N/A

**4. Business street address:**

Delta Conveyance Finance Authority  
1121 L Street  
Suite 1045  
Sacramento, California 95814

**5. Mailing street address (if different from above):**

Same

**6. Website**

Project website: <https://www.californiawaterfix.com>  
Finance Authority website: <https://www.dcdca.org>

**7. Employer/taxpayer identification number (EIN/TIN):**

Not yet available. The Finance Authority held its initial meeting on July 19, 2018 and applied for its EIN on July 25, 2018. The EIN for the Finance Authority will be provided when it becomes available later this summer.

**8. Dun Bradstreet Data Universal Number System (DUNS) number:**

Not yet available. The Finance Authority will apply for a DUNS number at the end of July and report that number to WIFIA staff when received.

**9. Type of entity (check all that apply):**

- |  |  |
|--|--|
| <input type="checkbox"/> Corporation   | <input checked="" type="checkbox"/> Federal, State, or Local Governmental Entity |
| <input type="checkbox"/> Partnership   | <input type="checkbox"/> Tribal Government or Consortium of Tribal Governments   |
| <input type="checkbox"/> Joint Venture | <input type="checkbox"/> State Infrastructure Finance Authority                  |
| <input type="checkbox"/> Trust         | <input type="checkbox"/> Combination of the Above Entities                       |

**10. Describe the organizational structure of the project(s) and attach an organizational chart illustrating this structure. Explain the relationship between the prospective borrower, the project, and other relevant parties. Include individual members or titles of the project team(s) and their past experiences with projects of similar size and scope. If multiple parties are involved in the project’s construction, maintenance, and operation, describe the project’s risk allocation framework.**

**RESPONSE**

WaterFix seeks to build upon the successful 58-year relationship between the California Department of Water Resources (DWR) and local water agencies that have contracts with DWR for water supplied via the SWP. DWR owns and operates the SWP and is participating with new governance partnerships to build and finance WaterFix. The overall organizational structure is illustrated in **Figure 1**. The prospective borrower is the Finance Authority, which is one of two joint powers agencies set up under state law to implement WaterFix. The Finance Authority was established for the sole purpose of securing financing for WaterFix (**Attachment 4**). The Delta Conveyance Design and Construction Joint Powers Authority (Construction Authority) was established for the sole purpose of designing and constructing WaterFix (**Attachment 5**). Both the Finance Authority and the Construction Authority are composed of participating local public water agencies that will provide the revenue to finance and construct the project. The Construction Authority and DWR have signed a joint exercise of powers agreement to delineate DWR’s oversight roles for implementation of the project.

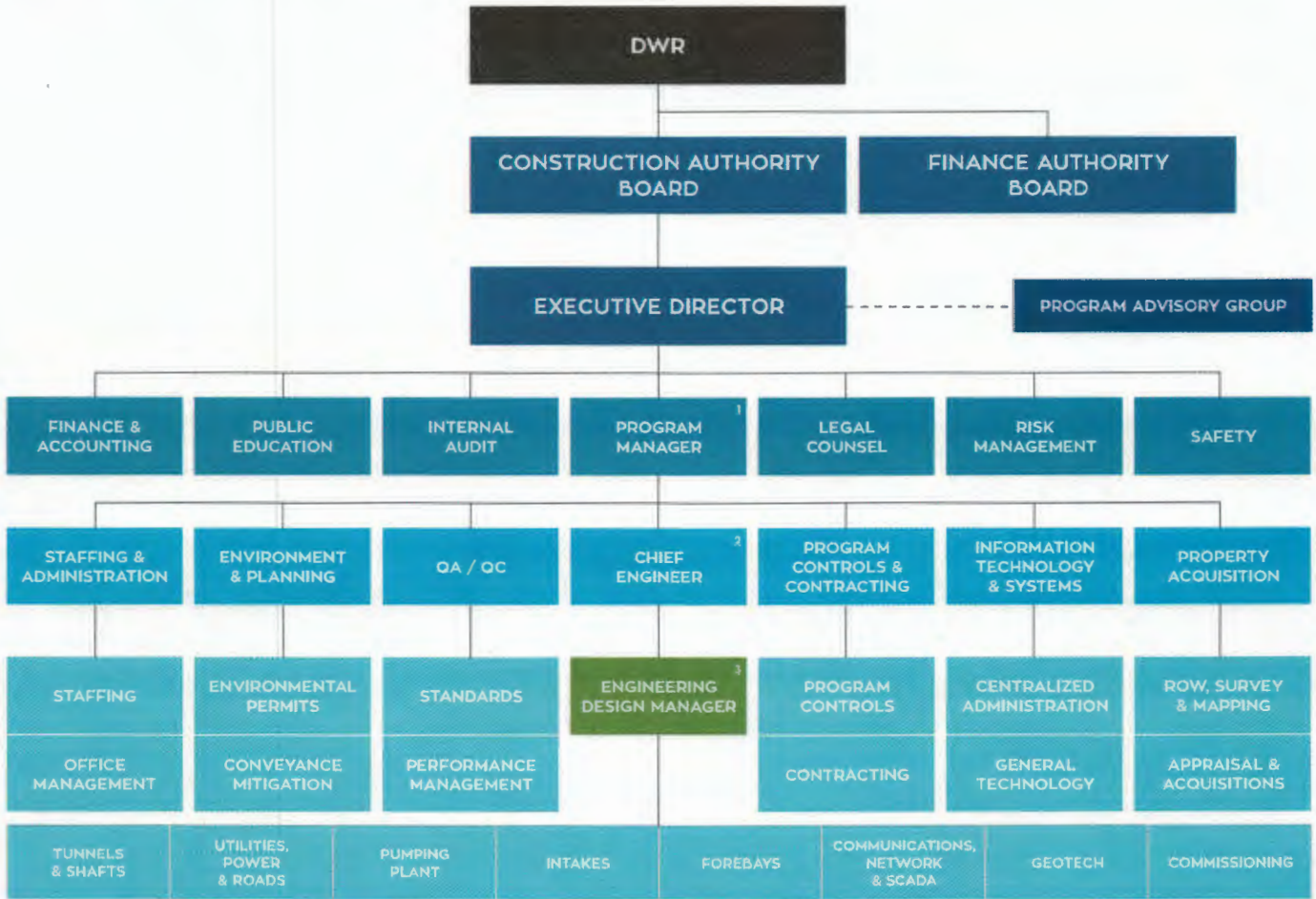
- ▶ See attached fact sheet that describes governance: “WaterFix: Creating a Model Organization to Deliver the Program on Time and Budget” (**Attachment 6**)
- ▶ See attached memo from the DWR Director that outlines the organizational structure for DWR staff: (**Attachment 7**)



Figure 1: Overall organizational structure

An organizational chart describing how design and construction of WaterFix will be managed by the Construction Authority is provided in **Figure 2**.

(See **Figure 2** next page).



1. Safety function will report to the Program Manager  
 2. Estimating function will report to the Chief Engineer  
 3. Engineering Support function will be provided through Engineering Design Manager team

- Executive Director Reports
- Program Manager Reports
- Technical Leadership
- Work Team

Figure 2: Organizational structure

Approved by California voters in 1960, SWP facilities include Oroville Dam on the Feather River, the nation's largest earthen dam, and the nation's highest lift of water via pumping facilities to transport water from the San Joaquin Valley over the Tehachapi Mountains to Southern California. The SWP can deliver more than 4.1 million acre-feet of water annually and is one of the largest public water and power utilities in the world, providing water to more than 27 million people and more than 750,000 acres of the nation's most productive farms. When complete, WaterFix will be owned and operated by DWR.

The Metropolitan Water District of Southern California (MWD) and other member agencies of both the Finance Authority and the Construction Authority have significant, long-term experience constructing large water infrastructure projects. The SWP was designed and constructed by DWR in the 1960s and has been operated and maintained by DWR for more than 50 years. Due to the size of the SWP, many maintenance projects performed by DWR are very large projects often exceeding \$100 million. MWD designed and built the 242-mile Colorado River Aqueduct and the extensive water distribution system that treats and delivers water from the Colorado River and from Northern California throughout the Southern California region. In 2000, MWD completed construction of the Diamond Valley dam and reservoir, a \$1.9 billion project, and in 2009 completed a \$1.2 billion 44-mile water conveyance project known as the Inland Feeder, which includes

more than 17 miles of tunnel 12 feet in diameter. Expert staff from DWR and MWD will be used to manage the design and construction of WaterFix using consultants and contractors who possess a world-class level of knowledge and experience constructing and operating tunnel projects. See **Figure 2** above.

Finance and construction risks are centralized within the Finance and Construction Authorities (See **Figure 1** above). While DWR will be the ultimate owner and operator of the project, it is not currently issuing the revenue bonds for construction in the short term. By delegating the design risks to the Finance and Construction Authorities, DWR incentivizes safe construction, cost control, and on-time delivery of the project, while maintaining oversight authority and setting construction parameters.

Once the project is complete, it will be delivered to DWR as the owner and operator, assuming DWR is successful in various legal actions described in *Section B, Question 15*. DWR has owned and operated the SWP for more than 50 years and has significant water operation expertise.

The revenue necessary to repay bonds used to support design, construction and operation of WaterFix will come through payments to DWR from participating water agencies, or from those participating water agencies directly to the Finance Authority.

- 11. If the prospective borrower is not a public entity or in the case of the prospective borrower being a state infrastructure finance authority, the sub-recipient(s) is not a public entity, is the project(s) publicly sponsored? Please explain.**

**RESPONSE**

N/A. The prospective borrower is a public entity.

- 12. When will the prospective borrower be prepared to submit an application? (Assume invitations to apply will be issued approximately 90 days from the close of the letter interest submission period).**

**RESPONSE**

The Finance Authority expects to submit an application within 90 days of receiving an invitation to submit an application. It is the goal of the Finance Authority and its members to complete the project selection, project approval and negotiation and closing phases of the WIFIA loan process by June 30, 2019.

## SECTION B: PROJECT PLAN

**1. Project name(s) (for purposes of identification assign a short name to the project(s)):**

**RESPONSE**

“California WaterFix” or “WaterFix”

**2. National Pollutant Discharge Elimination (NPDES) and/or Public Water System (PWS) number (if applicable):**

**RESPONSE**

N/A. Neither the SWP nor WaterFix are required to have an NPDES permit. However, some WaterFix construction activities will require an NPDES permit. The necessary NPDES permits will be applied for prior to the initiation of construction activities that require NPDES permits.

**3. Project website(s):**

**RESPONSE**

<http://www.californiawaterfix.com>

**4. Provide a brief description of the project(s) (major project scope items such as capacity, diameter and length, treatment components, and other design features):**

**RESPONSE**

WaterFix seeks to modernize the existing conveyance system where water supplies are diverted in the Delta, the merging point of all the rivers that carry waters from the western Sierra Nevada mountain range toward San Francisco Bay. The 700,000-acre Delta is the largest estuary in the western hemisphere. The existing water intakes for the SWP and the nearby CVP are on dead-end sloughs in the southern Delta. By constructing new intakes in the northern Delta and a tunnel system that can flow by gravity to a forebay that delivers the water to the existing aqueducts, WaterFix creates a more flexible, durable water delivery system that is more compatible with ongoing efforts to restore important native fish species. The proposed design reflects years of refinements to avoid or minimize environmental conflicts and adverse effects to Delta communities, minimize the overall footprint, and maximize the use of public lands.<sup>1</sup>

WaterFix will provide a new conveyance system that will move water through two roughly 30-mile tunnels to the SWP’s existing Banks Pumping Plant and the CVP’s Jones Pumping Plant. The new tunnels and three new water intakes (see **Figure 3**) could in total divert up to 9,000 cubic feet per second (cfs) from the Sacramento River. WaterFix facilities include:

- ▶ Three new 3,000 cfs intakes with sediment basins and water inlet shafts on the Sacramento River (**Figure 3**).
- ▶ 73.8 miles of tunnels, 150 feet under the Delta. The tunnels consist of 6.8 miles of 28 foot inside diameter (ID) tunnels and 67.0 miles of 40-foot ID tunnels. The tunnels have access shafts for maintenance and inspection at approximately eight-mile intervals (**Figure 3**).
- ▶ One approximately 30-acre intermediate forebay (**Figure 3**).
- ▶ One approximately 800-acre forebay at the southern end of the alignment (**Figure 3**).
- ▶ A combined pumping facility at the southern end of the main tunnels. The pumping facility consists of

<sup>1</sup> WaterFix continues to be refined to minimize impacts, as described in the Public Draft Supplemental EIR/EIS.

pumping plants each with a capacity of 4,500 cfs for a total capacity of 9,000 cfs (**Figure 3**).

- ▶ Canals with four control structures to connect to existing CVP and SWP facilities (**Figure 3**).
- ▶ The existing CVP and SWP southern facilities would be modified to receive water from the northern Delta facilities and retain the current south Delta water export capabilities (**Figure 3**).

By modernizing the Delta water system so that it has both northern and southern diversion options, WaterFix will enable real-time water operations to avoid environmental conflicts and improve water supply reliability. The project will also improve water quality, protect against saltwater contamination in the case of earthquake induced levee failure, improve protections for endangered fish species, and prepare California's water system for sea level rise caused by climate change.



Figure 3: Overview of the Delta and California WaterFix Facilities

## Major Components and Facilities

### SACRAMENTO RIVER INTAKES

Three intakes, each with a capacity of 3,000 cfs, will be constructed along the Sacramento River in the northern Delta about 12 miles south of the state capital. These intakes are roughly two-thirds of the combined capacity of the existing aqueduct systems of the SWP and CVP. Proposed operations call for maximizing diversions during high-flow periods during the rainy season and minimal to no diversions during dry periods. (see **Figure 4**). The location of each intake was determined by extensive collaboration between DWR and state and federal fishery





Figure 4: Sacramento River intakes

agencies to identify locations that would minimize incidental take of listed species.

Each of the intake facilities will consist of on-bank intake structures with state-of-the-art fish screens that vary in length from 1,300 to 1,700 feet; gravity-fed intake conduits; flow meters and control gates; sedimentation basins to allow suspended material from the river to be removed before the water enters the tunnel system; and a drop-shaft at the end of the sedimentation basins to deliver water to the tunnel system. The bottom-most portion of each intake screen will be situated

three to five feet above the river bottom to prevent large debris and other heavy suspended materials from entering the intakes or becoming impinged on the screens.

The intake structures are configured to meet specific flow velocities for water moving past and through the screens that are slow enough to protect fish. To meet recommended criteria set by state and federal fishery agencies to protect delta smelt and migrating salmon, the screen area has been designed to ensure the approach velocity of the water toward the screens would be no greater than 0.2 feet per second.

### TUNNELS & SHAFTS

WaterFix will construct twin underground tunnels rather than a surface canal in order to dramatically reduce the project footprint and to protect ongoing agricultural operations that are the Delta's primary form of land use. The tunnels have been divided into two sections, the North Tunnels and the Main Tunnels (see **Figure 5**). The North Tunnels extend from the intakes to the intermediate forebay and have been sized so river flows could be diverted by any or all of the three river intakes depending on operational needs. The two Main Tunnels extend from the intermediate forebay to the combined pumping plant at Clifton Court Forebay and are sized so that each tunnel can deliver up to 4,500 cfs under design conditions for a total capacity of 9,000 cfs. Dual Main Tunnels are proposed to ensure system reliability, allowing one tunnel to be isolated for maintenance or major repairs while the second tunnel is kept in operation.

All tunnels will be excavated using tunnel boring machines (TBMs) instead of cut-and-cover construction. Although the Main Tunnels run more than 30 miles, they will be constructed in segments or reaches about six to eight miles long. Each reach will be connected to subsequent tunnel reaches at vertical access shafts located along the alignment, as shown in **Figure 5**. As the TBMs advance, soil will be removed from the tunnel and concrete segments will be installed to form the tunnel lining system. This concrete segmented liner serves as the final lining system for the tunnels. This approach is commonplace on tunnel construction projects throughout the world and is used in both transportation and water infrastructure projects. To prevent liner leakage, each concrete segment will be equipped with perimeter gaskets and bolted to adjacent segments.

Much of the Delta geology consists of organic peat deposits. Ground conditions beneath the peat and where tunneling is to occur are generally characterized as dense deposits of silts, sands and clay layers. These dense layers are suitable for the planned tunnels because they are not subject to liquefaction or settlement during a seismic event. The tunnels will be constructed at sufficient depth below the ground surface (about 150 feet from ground

surface to the bottom of the tunnel) to avoid existing surface infrastructure and liquefiable soil materials.

Deep vertical shafts will be required along the tunnel alignments to facilitate construction, and later operation and maintenance of the conveyance system. During construction, the shafts will be used to launch and retrieve the TBMs, provide an access point into the tunnels for delivery of tunnel building supplies and labor, and provide a location to join adjacent tunnels to the larger tunnel system. After construction, some of the construction shafts will be modified and used to support long-term operations and maintenance needs for the tunnels. Other shafts used in the construction process, such as maintenance shafts, will be sealed and buried to a depth that will allow farming activities to continue after construction concludes.

An extensive mitigation, reporting, and monitoring plan (**Attachment 8**) has been adopted by DWR and must be followed by the Construction Authority during the design and construction of WaterFix.

**INTERMEDIATE FOREBAY**

The 30-acre Intermediate Forebay allows for flows from the three separate intakes to be blended before entering the two Main Tunnels. The forebay also will help dampen hydraulic surge waves that could occur in the Main Tunnels in the unlikely event of a power outage at the Clifton Court pump station. The forebay, along with flow meters and control gates in the intakes, will enhance the ability for independent operation of each river intake and the two Main Tunnels while providing for the overall operational stability of the system. The

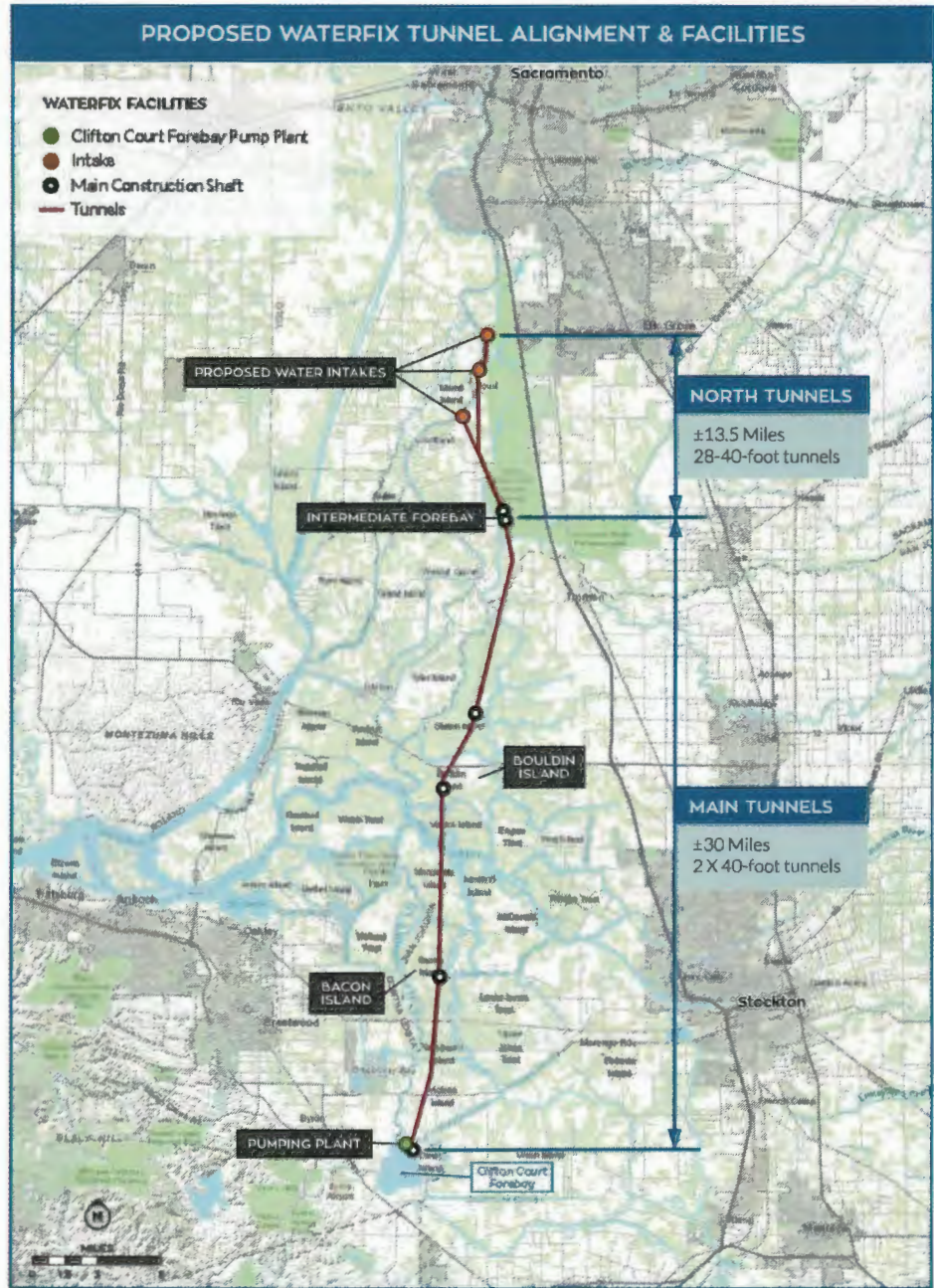


Figure 5: Tunnel alignment

forebay will consist of earthen embankments and tunnel shaft structures, with the shaft structures allowing water to enter at the forebay's north end and exit at the forebay's south end.

**CLIFTON COURT FOREBAY**

Clifton Court has served as the intake point for the SWP and will require a new adjacent forebay to divert supplies via WaterFix. To achieve the dual goal of isolating delivery of water diverted from the Sacramento River to the pumps at the south end of the Delta while maintaining the existing pumping capability of the SWP and CVP, the existing Clifton Court Forebay will be separated into the North Clifton Court Forebay (NCCF) and the South Clifton Court Forebay (SCCF) (see **Figure 6**). Water will be pumped or flow by gravity from the tunnels into NCCF. South delta diversions would enter SCCF through the existing Old River gate structure.

The new SCCF will be expanded by creating an additional storage area to the south of the existing levees, as shown in **Figure 6**. Separating the existing forebay into two sections allows fish-screened water from the north Delta intakes to be isolated from other waters throughout the delivery system. Additional new canals, control gate structures and flow meters will be constructed so water from the North and South Clifton Court Forebays can be conveyed to the existing Banks and Jones pumping plants.<sup>2</sup>

**PUMPING STATION AT CLIFTON COURT FOREBAY**

WaterFix will construct a single pumping station on state land in the southern Delta, rather than three tall structures on private lands in the northern Delta, to minimize the project footprint and to allow water to flow via the tunnel pipelines by gravity until reaching the pumping station. This new 9,000 cfs pumping station will be constructed at the northeast corner of the Clifton Court Forebay to pump water from the Main Tunnels into the NCCF. The pumping station will consist of two pumping plants, each rated at 4,500 cfs capacity. Each pumping plant will be



Figure 6: Clifton Court Forebay, including proposed modifications

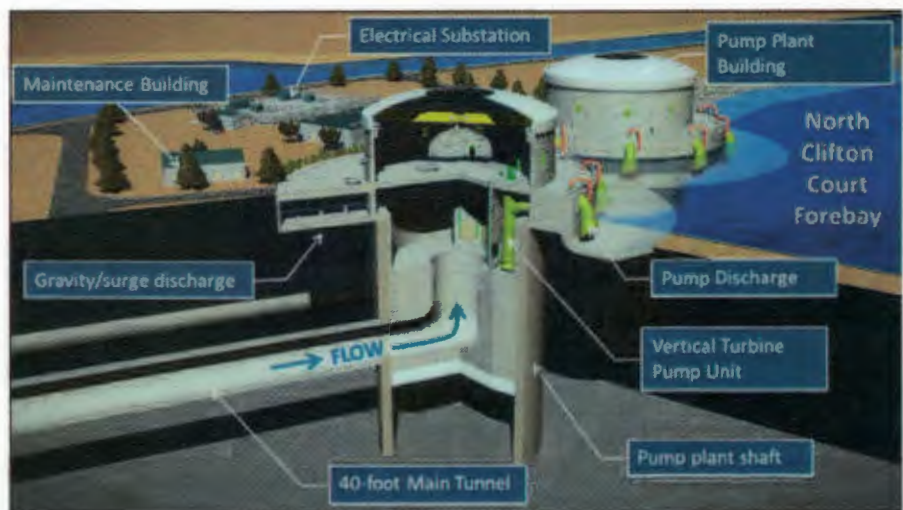


Figure 7: Pumping plant at Clifton Court Forebay

<sup>2</sup> This is one of the changes being considered in the Draft Public Supplemental EIR/EIS.

located directly above the end of the Main Tunnels (see **Figure 7**). Water flowing south in the Main Tunnels will fill up a pumping well in the bottom of each pump plant allowing vertical turbine pumps to lift the water into NCCF. Under certain hydraulic conditions in the Sacramento River, water can flow by gravity from the Sacramento River into NCCF without using the pumping station. In these conditions, the pumps will be shut off and water will flow directly from the Main Tunnels through the surge channel in the pump plant and into NCCF.

In the event of a power outage at the pump plant, hydraulic surge waves will be dissipated at the pump station by allowing water to flow over the surge channel and into NCCF.

## SUPPORTING INFRASTRUCTURE

In addition to the major components of the project, construction of supporting infrastructure will be required for the operation of the new facilities and as a prerequisite for construction activities. Some of the required permanent and temporary infrastructure includes:

- ▶ High voltage electrical power lines to run the TBMs and operate the pumping facilities;
- ▶ Initial site grading and site preparation work;
- ▶ Access roadways and barge landings at key work sites;
- ▶ Improvements to existing municipal/private roads to support anticipated construction traffic;
- ▶ Restoration of public and private roads used to support project activities to pre-construction conditions once the project is complete;
- ▶ Improvements around critical infrastructure, including levees, to ensure stability during subsequent work; and
- ▶ Removal/relocation of existing gas and water wells that could conflict with tunnel or intake construction.

Completing these activities prior to the major construction work will ensure that the overall program schedule and budgets are maintained.

### 5. Describe the project's purpose (including quantitative or qualitative details on public benefits the project(s) will achieve).

#### RESPONSE

#### PUBLIC BENEFITS

The two foundational water policies for California, as established by state legislation in 2009, are to provide a reliable water supply for California and to restore the Delta while protecting the Delta's culture and community. WaterFix seeks to advance these Co-Equal Goals. The fundamental purpose in pursuing the project is to make physical and operational improvements to the infrastructure in the Delta that are necessary to restore and protect water supplies of the SWP and CVP south of the Delta and water quality within a stable regulatory framework, and to protect ecosystem health, consistent with state and federal statutes and contractual obligations.

WaterFix seeks to improve and protect the reliability of the public water supplies that are vital to California's economy. Water from the SWP and CVP flows through the channels of the Delta and is delivered to a current population of 27 million Californians and 3 million acres of irrigated land in the Bay Area, San Joaquin Valley, Central Coast, and Southern California. Twenty-nine local public water agencies known collectively as SWP contractors rely on DWR to deliver water from the SWP; 24 of the contractors will be able to directly access the benefit of receiving water via the Delta through WaterFix facilities. Public water agencies that receive water from the CVP are not currently participating in WaterFix, but may do so at a later date. WaterFix is sized

to accommodate the water supply demands of the CVP water agencies, and the U.S. Bureau of Reclamation (Reclamation) continues to pursue the water right authorization for the CVP, if and when the CVP agencies decide to participate in the project.

Numerous studies over time have quantified both the economic and environmental benefits. As examples:

- ▶ Compared to a future with continued environmental decline in the Delta and resulting pumping restrictions, WaterFix could restore and protect approximately 1.3 million acre-feet of water supply in an average year. That is roughly equivalent to the entire Delta supply for MWD and the 19 million residents in its six-county service area.
- ▶ WaterFix will create more than 100,000 jobs during the construction period.
- ▶ WaterFix will protect an estimated 750,000 jobs by preventing severe water shortages that would cause statewide economic disruption.
- ▶ By increasing diversions from the new northern diversion sites and decreasing pumping from the existing southern facilities, WaterFix can re-establish natural flow patterns in the southern Delta that will complement restoration efforts throughout the estuary.

The current water delivery system in the Delta, with its 700-mile web of waterways, sloughs, canals, and islands, supported by about 1,100 miles of earthen levees, is unsustainable. Threats of earthquakes, floods, subsidence, climate change, rising sea levels, and increasing regulatory constraints on water operations, as well as other risks and uncertainties in the Delta, are contributing to a decline in the ecosystem, fish population, and water supply reliability. Under the effects of climate change and other environmental stressors, the Delta's ecosystem and water deliveries will continue to decline unless action is taken.

WaterFix provides improvements to the water conveyance system that are needed to respond to increased demands on the system and risks to water supply reliability, water quality, and the aquatic ecosystem. Improvements also are needed because sea water intrusion from sea level rise causes more need for Delta outflow, which results in impacts to water supply. Operational flexibility can be increased to provide improved water supply reliability and minimize and avoid adverse effects on listed species.

## PROJECT FEATURES AND BENEFITS

WaterFix would include the following features and benefits:

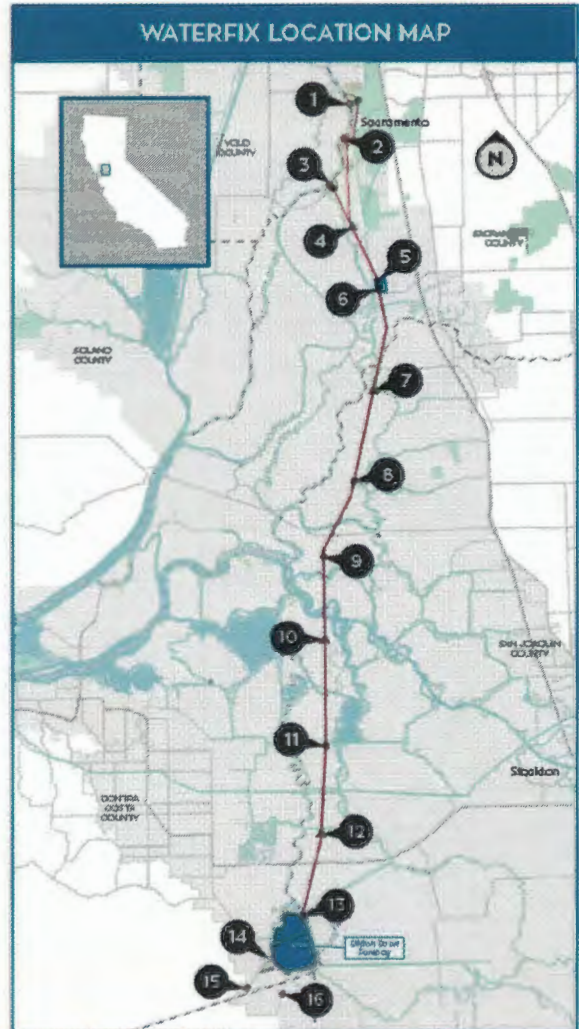
- A. Isolated Deliveries:** Delivers water directly from the Sacramento River in the north Delta to pumping plants in the south Delta. This greater flexibility improves protections for fish when they are present and improves water quality.
- B. Operational Flexibility:** Continues coordinated operation of the existing CVP and SWP south Delta delivery system, with diversions from the existing water intakes in the south Delta facilities, or from one system or the other.
- C. Operational Efficiency:** Allows for water deliveries to occur entirely by gravity flow under certain hydraulic conditions. Using gravity to make deliveries simplifies overall operations and reduces long-term system operation, maintenance and energy costs.
- D. Modernized Facilities:** Upgrades a 50-year old system with new facilities, equipment, and technologies that would improve and modernize operations.
- E. Use of Public Lands:** Maximizes the use of public lands, reducing the impact to agriculture and other Delta resources. This also reduces the time and cost associated with purchasing private property, easements or rights of way.

- F. Reduced Environmental Footprint:** Minimizes above-ground facilities by 1) using tunnels instead of canals to convey the water through the system, and 2) incorporating a number of refinements made during the design phase, such as eliminating the pumping stations at each of the three new intakes and reducing the size of the intermediate forebay.
- ▶ **Other Environmental Considerations:** Allows for a more natural direction of water flow during fish-sensitive periods in the Delta to protect and benefit sensitive native fish species.
  - ▶ Provides the flexibility to divert water while complying with state and federal laws and regulations that protect sensitive fish species.
- G. Water Supply Reliability:** Safely and reliably captures water during periods of heavy rain and high Delta flows to refill reservoirs and replenish groundwater basins, with the flexibility to reduce pumping in dry periods, which would reduce impacts to sensitive fish species.
- H. Emergency Preparedness:** Ensures that more water is available for drought and emergency needs, including an earthquake or other natural disaster that collapses Delta levees or otherwise disrupts the current system.
-

**6. Describe the location of the project(s). Include a project map, if available, and/or latitude and longitude details.**

**RESPONSE**

WaterFix focuses on the heart of the statewide water delivery system. The new facilities will start approximately 12.3 miles southwest of downtown Sacramento and extend approximately 42 miles to just south of Clifton Court at the connections to existing SWP, Banks pumping plant canal and CVP, Jones pumping plant canal, see **Figure 3** and the corresponding **Figure 8** shows latitude and longitude coordinates for features along the WaterFix alignment.



	FEATURE	LOCATION	LATITUDE	LONGITUDE
1	INTAKE	Intake 2	38.405398	-121.514474
2	INTAKE STRUCTURE	Intake 3	38.382020	-121.51991
3	INTAKE STRUCTURE	Intake 5	38.350567	-121.532998
4	VENTILATION/ACCESS SHAFT	Lambert Rd	38.322519	-121.513853
5	MAIN CONSTRUCTION SHAFT	Begin Intermediate Forebay	38.285390	-121.492502
6	MAIN CONSTRUCTION SHAFT	End Intermediate Forebay	38.279386	-121.491722
7	VENTILATION/ACCESS SHAFT	Staten North	38.211880	-121.497511
8	MAIN CONSTRUCTION SHAFT	Staten South	38.149701	-121.515598
9	MAIN CONSTRUCTION SHAFT	Bouldin	38.099235	-121.543016
10	VENTILATION/ACCESS SHAFT	Mandeville	38.042536	-121.542979
11	MAIN CONSTRUCTION SHAFT	Bacon	37.970720	-121.543579
12	VENTILATION/ACCESS SHAFT	Victoria	37.911070	-121.548635
13	MAIN CONSTRUCTION SHAFT	Clifton Court Forebay	37.851700	-121.564399
14	CANAL START	Clifton Court Forebay	37.829959	-121.592351
15	CANAL END	California Aqueduct	37.816661	-121.602816
16	CANAL END	Delta-Mendota Canal	37.813696	-121.577529

Figure 8: Project location, latitude and longitude

**7. County(s) project(s) will serve:**

**RESPONSE**

COUNTY	POPULATION (Attachment 9)	FARMLAND (Attachment 10)
SANTA CLARA	1,956,598	60,610
ALAMEDA	1,660,202	51,369
KINGS	151,662	596,571
SAN LUIS OBISPO	288,101	411,175
KERN	905,801	1,502,337
SANTA BARBARA	453,457	385,494
VENTURA	859,073	160,768
LOS ANGELES	10,283,729	53,824
SAN BERNARDINO	2,174,938	37,367
ORANGE	3,221,103	56,201
RIVERSIDE	2,415,955	275,638
SAN DIEGO	3,337,456	156,573
TULARE	457,834	906,448
<b>TOTALS*</b>	<b>28,157,919</b>	<b>4,654,375 acres</b>

\* Not all residents in each county will receive water from WaterFix. Not all acres of farmland in each county will receive water from WaterFix. These values are provided for context only.

**8. Population served by the project(s):**

**RESPONSE**

Approximately 27 million

**9. Total population served by system:**

**RESPONSE**

Approximately 27 million

**10. Type of project delivery method (i.e., design-build, construction manager at-risk, design-bid-build) that is planned for this project(s):**

**RESPONSE**

Design-Bid-Build, Design-Build, Construction Manager at Risk and Engineer Procure and Construct may all be available to the project. A decision on which delivery method to use will be made prior to issuance of requests for qualifications/proposals according to legal requirements and the circumstances of the work to be performed. The Construction Authority will choose a delivery method that is best able to meet the schedule of construction, reduce the costs of work, and protect the health and safety of workers and communities.



**11. Present the overall project schedule in the provided table. Provide the detailed project schedule(s) as an attachment.**

**RESPONSE**

PHASE	START DATE	END DATE
PLANNING	1/2/2009	12/19/2016
DESIGN	4/1/2014	7/2/2021
PERMITTING	10/6/2006	12/14/2018
CONSTRUCTION	12/15/2018	10/15/2033

(see *Attachment 11*)

**12. Provide any analysis (i.e. preliminary engineering reports, feasibility studies, preliminary designs, siting studies, project plans, etc.) completed in support of the project(s). List referenced documents below and provide as attachments.**

**RESPONSE**

Please refer to the following attachments:

- ▶ Conceptual Engineering Report dated July 1, 2015 (*Attachment 12*)
- ▶ Final EIR/EIS (*Attachment 13*)

**13. Present the findings of any alternatives analysis or business cases conducted, if available. Describe the project alternatives considered and the rationale (i.e., lowest capital cost, greater ease of operation, most reliable, fewest environmental impacts, etc.) for the selected alternative; this description should include the technical, managerial, financial, environmental, operational and local decision-making rationale for the selected approach. Provide any referenced documents as attachments.**

**RESPONSE**

The 11-plus-year WaterFix planning and environmental review process has examined more than 100 different physical solutions to the Delta’s water supply challenges before identifying the final project, and numerous cost-benefit analyses of different proposals over time. The final project resulted from a lengthy screening process and after an extensive environmental review of 18 action alternatives; each differing in the location, design, and operation of conveyance facilities and improvements. Economic analyses have found WaterFix to be cost-effective for urban users as well as for many farming entities based on the availability of favorable financing.

As a tidal estuary spanning some 700,000 acres, the Delta has many potential locations to divert water supplies. Continued use of the existing intakes in the southern Delta was one option that was closely examined. So were alternatives that have been suggested over the decades, such as salinity control barriers. The screening process resulted in identifying five potential new intake locations in the northern Delta and multiple conveyance alignments to transport the supplies to the existing aqueducts.

As an example of how findings have been analyzed by participating agencies over time, MWD in 2007 established six benchmarks from which to review any potential water infrastructure solution: Providing water supply reliability; improving export water quality; advancing flexible pumping operations in a dynamic fishery environment, enhancing fishery habitat, reducing seismic risks and preparing for climate change.

Continued reliance on the existing southern Delta intakes does not achieve any of these six benchmarks.

Relying on fortified levees, as another example, does not enhance fishery habitat or prepare for climate change or improve export water quality. WaterFix is unique in how it addresses all the dimensions of the Delta resource challenge.

To review the economic rationale of WaterFix, various proposals over the years have undergone cost-benefit analysis by Dr. David Sunding<sup>3</sup>, a professor at the University of California, Berkeley, in partnership with DWR. Dr. Sunding's analyses began while the process was seeking to advance a comprehensive habitat conservation plan, known as the Bay Delta Conservation Plan, to couple both ecosystem and water system improvements. These efforts bifurcated into separate, but coordinated, paths in April 2015.

Dr. Sunding's most recent cost-benefit analysis, in February of 2018, examined the benefits of accessing a federal low-interest loan program such as WIFIA. He found WaterFix has a positive cost-benefit ratio for urban and agriculture agencies served by the SWP and by the CVP. He also found potential benefit in using a market approach to trading water among the participating agencies to better align benefits and costs. Sunding estimated the benefits of protecting water supplies via the project, water quality benefits, earthquake reliability and climate change preparedness. While the benefits to the urban sector are greater, his work has provided an economic rationale for the investing agencies as they move forward.

See for reference:

- ▶ Appendix A: Identification of Water Conveyance Alternatives, CM1 (**Attachment 14**)
- ▶ Economic Analysis of Stage 1 of California WaterFix, *Costs and Benefits to Urban and Agricultural Participants* (**Attachment 15**)

**14. If available, provide a copy of the system master plan or like document and list referenced document below.**

**RESPONSE**

**SYSTEM MASTER PLAN**

Department of Water Resources (DWR) Bulletin 132-2016 (**Attachment 16**) is the document most responsive to this question.

Chapter 1 of Bulletin 132-2016 provides an overview of the SWP from the "system" level. WaterFix will be an integrated part of the SWP. It is expected that WaterFix will be financed using the existing contracts and repayment methods used since the 1960s to finance the SWP's existing facilities, or it may be financed directly by many of the same local public agencies that currently fund the existing SWP facilities. As such, financing will be repaid directly or indirectly by these public water agencies. Once constructed it will be operated by DWR as an integrated part of the SWP.

**15. Briefly discuss any other issues that may affect the development and financing of the project(s), such as community support, pending legislation, permitting, or litigation.**

**RESPONSE**

Perspectives on WaterFix reflect the varying views on California water issues and reflect the very different water rights of regions within the state and multitude of positions on resource politics. The varying levels of support and opposition to WaterFix are consistent with these perspectives. WaterFix has widespread support from Southern California and Silicon Valley business interests, yet faces opposition by members of the environmental community and local interests in the Delta.

<sup>3</sup> Dr. David Sunding, professor and Department Chair, University of California, Berkeley Department of Agriculture and Resource Economics.

Over the past 6 years, polling has been done to assess the level of public support for WaterFix by the project's proponents, opponents and by disinterested third parties like the Public Policy Institute of California (PPIC). The PPIC is a non-profit, non-partisan think tank dedicated to informing and improving public policy in California. The PPIC has included a question about California's water supply in its statewide polling since 2012. In 2017 and 2018 the PPIC standardized its water supply question by asking: "How important is this proposal [WaterFix] for the future quality of life and economic vitality of California?" In 2017, 77% of all adults polled felt WaterFix was very (51%) or somewhat (26%) important. In 2018, 78% of all adults polled felt WaterFix was very (48%) or somewhat (30%) important.

WaterFix is currently the subject of 23 lawsuits, primarily focused on the Notice of Determination under the California Environmental Quality Act (CEQA), the Biological Opinions under the Federal Endangered Species Act, and a validation action filed by DWR to confirm its authority to issue revenue bonds.

It is likely that additional lawsuits may be filed in the future with respect to the project. The current lawsuits challenge multiple aspects of the project and, if DWR is unsuccessful in any of these actions, it could cause delays, increase the cost of the project, change the scope of the project and/or mitigation, or potentially cancel the project. Actions taken by local public water agencies in connection with participation in the project could also be the subject of litigation.

There is no pending state or federal legislation related to WaterFix and no legislation is required to proceed with the project. However, there is pending legislation this year which, if passed by the California Legislature and signed by the governor would require WaterFix to comply with a new state regulation. Assembly Bill 2543 would require all public projects with a cost of more than \$100 Million to notify the public anytime the project has more than a 10% increase in cost or a schedule delay that results in more than a 10% increase in duration. If signed into law in its current form, Assembly Bill 2543 would have no negative impact on WaterFix and is generally viewed as "good government" legislation.

The California Legislature passed the Sacramento-San Joaquin Delta Reform Act of 2009 (Delta Reform Act) that includes several provisions describing how various California state agencies are involved in developing and reviewing WaterFix (**Attachment 17**). The purpose of the legislation was to establish the Legislature's expectations for WaterFix. Since 2009, WaterFix has moved forward, consistent with the guidelines of the Delta Reform Act.

Permitting for WaterFix is underway and nearly complete. The necessary documentation for National Environmental Policy Act (NEPA) compliance has been completed and the Record of Decision is drafted and waiting signature at the Department of the Interior. The Endangered Species Act (ESA) biological opinions from the U.S. Fish and Wildlife Service and the National Marine Fisheries Service were issued on June 26, 2017. The Notice of Determination required by CEQA is complete and was issued on July 21, 2017. The 2081 incidental take permit required under the California Endangered Species Act (CESA) is complete and was issued on July 27, 2017. (see **Table 1** in the response to Question B17).

**16. Describe the authorizing actions (e.g., local vote, board vote, ordinance) that would need to occur in order to enter into a loan agreement with the WIFIA program.**

**RESPONSE**

The Finance Authority is the prospective borrower. Any loan agreement would be executed by the president of the Finance Authority board or its executive director. The Finance Authority board of directors is made up of its current members which are listed in the response to Question D4. Entering into a loan agreement will require a vote of the Finance Authority board. Each of the Finance Authority members will also be required to approve an installment purchase agreement to guarantee repayment of the loan.

**17. Present the environmental review plan and status of such for the project(s). Describe the status of any additional permits and approvals that the project(s) may require.**

**RESPONSE**

Development of the WaterFix project requires compliance with a variety of state - and federally - administered laws and regulations. Some regulatory actions are closely linked with project development while others are tied to construction activities. WaterFix has undergone extensive environmental review under CEQA and NEPA. The Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) prepared in compliance with CEQA/NEPA was issued in December 2016. WaterFix has also been evaluated under both state and federal endangered species acts. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service have both issued Biological Opinions for the project and the California Department of Fish and Wildlife (CDFW) has issued a CESA Incidental Take Permit. It has been determined by the fishery agencies that construction and operation of WaterFix will not jeopardize the continued existence to any protected species and any potential impacts of take listed species have been fully mitigated.

Work is continuing to finalize several permits typically processed after project approval including: Clean Water Act section 404 permit issued by the Corps of Engineers; Water Rights Change in Point of Diversion and Clean Water Act section 401 permits issued by State Water Resources Control Board; Streambed Alteration Agreement issued by CDFW; and The Delta Plan Consistency Determination.

Additional construction-related permits will be obtained as more detailed design is completed.

**Table 1** below lists the environmental reviews and permits already issued for the project and those permits expected to be issued in 2018.

PERMITS IN-HAND		
PERMIT	ISSUED	ISSUER
CAL. ENV. QUALITY ACT (CEQA) (Attachments 18, 19 and 20)	7/21/2017	Cal. Dept. of Water Resources
CAL. ENDANGERED SPECIES ACT (CESA SEC. 2018 ITP) (Attachment 21)	7/26/2017	Cal. Dept. of Fish and Game
ESA SEC. 7 BIOP (Attachment 22)	6/23/2017	U.S. Fish and Wildlife Service
ESA SEC. 7 BIOP (Attachment 23)	6/16/2017	National Marine Fisheries Service
NATIONAL HISTORIC PRESERVATION ACT (SEC. 106) (Attachment 24)	2/28/2017	U.S. Army Corps of Engineers & State Historic Preservation Office

PERMITS EXPECTED IN 2018		
PERMIT	ISSUED	ISSUER
NEPA ROD	Late Fall 2018	Reclamation
CWA SEC. 401 CERTIFICATION	December 2018	Cal. State Water Res. Control Board
CWA SEC. 404	Early 2019	U.S. Army Corp of Engineers
DELTA PLAN CONSISTENCY DETERMINATION	December 2018	Cal. Delta Stewardship Council
CHANGE IN POINT OF DIVERSION PERMIT	December 2018	Cal. State Water Res. Control Board

Table 1: Status of environmental permits required for California WaterFix

**18. If applicable, describe community outreach efforts conducted to date and planned for the project(s).**

**RESPONSE**

The California Natural Resources Agency has been working with state and federal agencies, public water agencies, stakeholders, tribes, and the public on WaterFix since 2006. An unprecedented level of public review, comment, and scientific input has helped refine and improve the project. In 2013, significant changes to the proposed water facilities and operations reduced the overall project footprint by one-half of its original size to minimize community impacts. In 2014, the water facilities were further refined to address engineering improvements and public feedback received during the public comment period. Since then, additional changes have been made or have been proposed to reduce impacts and improve operations.

Over the past 11 years, more than 600 public meetings, workshops, working groups, and stakeholder briefings have been held to gather community feedback, more than 16,000 public comment letters have been received and responded to during several environmental review periods, and hundreds of multilingual fact sheets and brochures, presentations, maps, web-based educational videos, animation sequences, and other informational materials have been distributed statewide to key stakeholders, the media, elected officials, and the general public. In addition, a multilingual hotline has been available to help answer questions and provide project information.

Over the past decade, the California Legislature held several informational hearings on various aspects of WaterFix. Legislative hearings on the scope of the project, its costs and benefits, and the management and oversight of WaterFix have provided opportunities for the project to benefit from the insights of many different legislators and their constituents.

As the project moves from planning to construction, WaterFix will continue to engage the public through frequent website updates, including enhanced web-based features with real-time construction updates, landowner and in-Delta community outreach to communicate and resolve property and construction-related impacts, the development of a local visitor's center to highlight project features, site tours, and continued briefings to elected officials, media, and key stakeholders. Project progress will be highlighted in ongoing fact sheets, brochures, videos, and the public will continue to have access to a 24-hour toll free, multilingual hotline.

**19. Indicate if the project is located in, close to, or could impact the 100-year floodplain.**

**RESPONSE**

- Located in 100-year floodplain
- Close to 100-year floodplain
- Could impact 100-year floodplain
- None of the Above

## SECTION C: PROJECT OPERATIONS AND MAINTENANCE PLAN

1. Provide the estimated useful life of the project(s) and describe the underlying assumptions. In determining the useful life of the project(s), please consider the useful economic life of the asset(s) to be financed.

### RESPONSE

The design life of the project is 100 years. This is estimated based on the design life of similar projects from around the world. WaterFix plans on establishing rigorous design standards, criteria, specifications and quality assurance/quality control procedures during the design phase. The program also will ensure that the specifications are followed through strong enforcement of its construction management and inspection program for all equipment fabrication and testing, vendor oversight, and field construction inspection. The program will have a real-time auditing team (see organization chart, **Figure 2**) to ensure that program owner staff, consultants and construction contractors are following standards, procedures and all established protocols.

The useful life of WaterFix in part will depend on long-term maintenance protocols. WaterFix will be owned, operated and maintained by DWR. As the owner of the SWP, DWR designed, constructed, and has operated and maintained the SWP for more than 50 years.

The funding to support the long-term operation and maintenance of WaterFix will come from the participating agencies.

DWR has the maintenance expertise and funding necessary for long-term maintenance of WaterFix. It is likely that the planned 100-year useful life of the project will be exceeded, based on DWR's successful maintenance of the existing SWP facilities over the past 50 years.

The useful economic life of the project also will be determined by California's demand for water and the ability to charge water users for water deliveries to a population of 27 million Californians and up to 3 million acres of farmland. California's population is expected to increase from 39.4 million in 2016 to 51.1 million by 2060 (**Attachment 25**).

Water supply reliability is vital for this increased population. In 2014 California enacted the Sustainable Groundwater Management Act (SGMA) (**Attachment 26**) which mandates that areas that depend upon groundwater achieve sustainability by 2040. Meeting the requirements of SGMA will mean a net reduction in groundwater overdraft of about 2 million acre-feet per year in California's San Joaquin Valley basins, which means alternative water supply from surface sources will be critical for these areas (**Attachment 27**). Because of increasing populations and increasing demand for surface water to support farming operations, reliance on WaterFix is expected to increase during its useful life.

This increasing demand for water is expected to support the useful economic life of WaterFix. Economic analysis performed by Dr. David Sunding for WaterFix shows a positive cost benefit ratio for all urban and agricultural sectors served by WaterFix. Dr. Sunding's analysis assumed a 100-year life of the project with varying amounts of low-interest federal financing, but for a smaller sized WaterFix. The analysis found that the cost benefit ratio ranged from 1.08 for agricultural water users in the CVP service area to 1.33 for municipal water users receiving WaterFix water supplies through the SWP. These positive cost benefit ratios indicate the project's useful economic life on day one of operation is positive. The current trend of decreasing surface and groundwater supplies coupled with increasing demand for water in the foreseeable future is reasonably expected to drive the cost benefit ratios higher during the life of the program.

- 2. Provide the project(s)'s operation and maintenance plan, including sources of revenue to finance those activities, any performance guarantees, and major maintenance reserves. A preliminary or draft plan is acceptable.**

**RESPONSE**

WaterFix will be operated in an integrated manner with the existing SWP and governed by the Coordinated Operations Agreement. The existing SWP O&M program will be expanded to accommodate the O&M necessary for WaterFix. The SWP O&M plan is summarized in the Department of Water Resources Bulletin 132 (**Attachment 16**), Management of the California State Water Project, which is published annually.

The revenue source for ongoing operations and maintenance of WaterFix will come from the participating water agencies.

- 3. Describe any contractual arrangements that may impact the operation of the project(s).**

**RESPONSE**

Currently there is only one contractual arrangement that might affect operation of WaterFix. Several agreements have been under negotiation during the planning phase to address issues raised by entities that are not participating in WaterFix, and it is likely some lawsuits will be resolved through settlement agreements. Each of these are discussed below.

The Coordinated Operations Agreement (COA) (**Attachment 28**) was executed in November 1986 between DWR and the United States of America through Reclamation for the coordinated operation of the SWP and CVP. The agreement was entered into pursuant to an act of Congress (P.L. 99-546) with the purpose of describing how the SWP and CVP are operated to maximize water supplies while meeting the water rights obligations of each project. The COA has been in place for 32 years and is expected to continue in force for the life of WaterFix. By its terms, the COA allows for the reanalysis of the obligations of the SWP and the CVP and that reanalysis could positively or negatively affect operations of WaterFix. However, based on the past 32 years of experience it is not expected the COA would impact WaterFix in ways that would impact its operational viability.

An agreement currently is being negotiated between DWR and Reclamation to establish the criteria under which WaterFix will avoid possible impacts to CVP water operations. At this time, the agreement is in the negotiation stage. However, it is intended to make clear how impacts, if any, to the CVP caused by WaterFix may be avoided or mitigated. With or without the agreement, WaterFix's operational viability is expected to remain largely unchanged.

There are a variety of other agreements that have been entered into during planning phases of WaterFix to protect non-participating water districts from perceived or potential impacts of the program. None of these agreements are expected to affect the operational viability of WaterFix.

It is possible that agreements could be entered into to resolve litigation related to WaterFix compliance with CEQA or other environmental laws. The most likely outcome of these settlement agreements is the requirement to perform additional analysis, but no impact to construction, operations or operational viability is expected.

## SECTION D: FINANCING PLAN

### 1. Estimated total eligible project costs (in dollars):

#### RESPONSE

Total eligible project costs are currently estimated to be approximately \$19.9 billion, including anticipated cost inflation from the time the initial cost estimates were developed in 2014 through the expected [16-year] construction period of WaterFix. This amount represents the construction costs for the WaterFix conveyance system only (i.e. excludes environmental mitigation costs), including three intakes with total capacity of 9,000 cfs, two pumping stations and two tunnels and related facilities.

Initial cost estimates were developed in 2014 dollars and at that time estimated to be \$14.9 billion. The cost estimates were developed by DWR and rigorously analyzed by industry professionals. In 2017, MWD published a white paper titled *Modernizing the System: California WaterFix Finance & Cost Allocation (Attachment 29)*. For that white paper, the cost estimates were converted to 2017 dollars based on an annual escalation rate of 3%. In 2017 dollars, the capital cost for WaterFix was estimated to be \$16.3 billion, excluding mitigation costs.

For purposes of deriving estimated eligible project costs, the capital costs, including contingencies, have been inflated 1.5% per annum throughout the expected duration of the construction period. Applying this cost escalation factor results in total capital costs of approximately \$19.9 billion.

In addition to the capital costs identified above, various state and federal contractors, DWR and Reclamation have contributed funds over the past decade for the planning phase of WaterFix. These prior expenditures total approximately \$271 million. The Financing Authority recognizes that planning costs incurred prior to the submission of a WIFIA loan application are eligible for reimbursement under the WIFIA statute on a case-by-case basis. Accordingly, 49% of the prior planning costs are included in the loan request. It is anticipated that the remainder of the planning costs not reimbursed by WIFIA may be reimbursed through conventional tax-exempt borrowing.

### 2. Requested amount of the WIFIA loan (in dollars):

#### RESPONSE

As described above, the total escalated cost of WaterFix is \$19.9 billion. Estimated eligible costs under WIFIA are about \$9.5 billion. WIFIA credit assistance of this magnitude would help ensure completion of WaterFix in the most cost effective manner.

The initial loan request is for \$1.6 billion. The Finance Authority and its members would welcome the opportunity to discuss other creative ways to secure WIFIA credit assistance up to 49% of total eligible costs, including the use of a "Master Credit Agreement" to secure funding over the construction period. In addition, the Finance Authority would be open to self-funding or use of the Supplemental Fee to expand the WIFIA loan capacity.

As discussed below, we have included two pro-forma models to illustrate the benefits of incorporating various levels of WIFIA credit assistance in the WaterFix capital structure. The Finance Authority goal is to maximize the amount of WIFIA credit assistance in the capital structure. However, the capital structure of the project can be adjusted based on the amount of WIFIA credit assistance that is made available to the project.

As shown in the table below, the Finance Authority would like to discuss alternatives to the standard WIFIA loan approach that increase the amount of WIFIA funding available for the WaterFix project. Use of a Master Credit Agreement or use of the Supplemental fee structure can increase the amount of WIFIA funding available to the project to 49% of the total eligible project costs (\$9.5B) The Finance Authority understands that the use of a Master Credit Agreement over multiple years would be subject to congressional



appropriations in future years. This approach is shown below as Scenario #1 in the response to Question D3.

As shown in the accompanying construction spend-down schedules, the Finance Authority has the capacity to utilize well in excess of \$1.6 billion (up to \$9.5 billion) and similarly an amount of credit assistance equal to the Finance Authority's \$1.6 billion request will benefit the project by lowering the cost of WaterFix to local public water agency ratepayers for the first phase of design and construction. This approach is shown below as Scenario #2 in the response to Question D3.

**3. Provide sources and uses of funds table for the construction period(s), including the proposed WIFIA assistance. Note any ineligible project costs. More information about eligible costs is available in the WIFIA program handbook.**

**RESPONSE**

The table below provides a summary of the estimated sources and uses of funds during the construction of WaterFix under two scenarios:

- ▶ **Scenario 1: Maximum Assistance.** Assumes approximately \$9.5 billion of credit assistance in multiple tranches over the course of the construction period.
- ▶ **Scenario 2: Initial 2018 Request.** Assumes \$1.6 billion of WIFIA credit assistance.

SOURCES CATEGORY	SCENARIO #1	SCENARIO #2
	ESTIMATED DOLLAR VALUE	ESTIMATED DOLLAR VALUE
1. WIFIA LOAN	\$9,535,641,776	\$1,600,000,000
2. REVENUE BONDS (INCL. NET OIP/OID)	\$10,386,096,682	\$18,321,738,458
3. SRF LOAN		
4. BORROWER CASH		
5. OTHER (PLEASE SPECIFY)		
<b>TOTAL SOURCES</b>	<b>\$19,921,738,458</b>	<b>\$19,921,738,458</b>
USES CATEGORY		
1. CONSTRUCTION	\$14,765,913,012	\$14,765,913,012
2. DESIGN		
3. PLANNING		
4. LAND ACQUISITION	\$170,214,940	\$170,214,940
5. OTHER CAPITAL COSTS		
6. CONTINGENCY	\$4,266,365,468	\$4,266,365,468
7. TOTAL CAPITAL COSTS	\$19,202,493,420	\$19,202,493,420
8. OTHER (PREVIOUSLY INCURRED PLANNING COSTS)	\$271,000,000	\$271,000,000
9. INELIGIBLE COSTS (ENVIRONMENTAL MITIGATION)	\$461,245,038	\$461,245,038
<b>TOTAL SOURCES</b>	<b>\$19,934,738,458</b>	<b>\$19,934,738,458</b>

4. Provide a narrative describing the project(s) plan of finance. This should include a discussion of the proposed financial structure and any existing ratings on the security pledged for repayment of the WIFIA loan (if available) or a description of how the senior debt obligations will garner an investment-grade rating(s). Note availability and credit terms of other project funding sources. Include any preliminary revenue projections and explain underlying assumptions.

If the prospective borrower is a pool of eligible borrowers and projects, discuss the existing ratings and repayment schedules of the underlying borrowers and attach supporting documentation as available. Confirm that there will be a single revenue pledge securing the WIFIA debt.

**RESPONSE**

The Finance Authority is a single purpose financing joint powers agency composed of the following water agencies:

- ▶ Metropolitan Water District (AAA/Aa1/AA+)
- ▶ Alameda County Water District (Aa2/AAA)
- ▶ Santa Clara Valley Water District (AA+/Aa1/AA-)
- ▶ Alameda County Flood Control & Water Conservation District, Zone 7 (AA+/AA)
- ▶ San Geronio Pass Water Agency (Not Rated)

It is anticipated over the next several months that additional public water agencies will join the Finance Authority. The public water agencies that are members of the Finance Authority have agreed to pay, or have passed resolutions stating their intention to provide financial support, for WaterFix. The financing plan for WaterFix includes a double-barreled pledge of revenues from DWR and net revenues from installment purchase agreements that the Finance Authority is developing with its member agencies. DWR revenue bonds are currently rated (AAA/Aa1).

In early 2018, the CVP water agencies decided not to participate in WaterFix at this time. In July 2018, MWD agreed to cover the costs of this portion of the project so that the entire 9,000 cfs twin tunnel alternative could move forward to construction. As a result of these events, the current cost allocation framework for WaterFix contemplates the public water agencies of the SWP including MWD being allocated 67% of the costs and benefits of WaterFix and the remaining 33% of the project being allocated to MWD. This portion of the capacity of the project would likely be sold or transferred to CVP water agencies after construction of the project is complete. The current cost allocation is shown in the following table:

USES CATEGORY	CAPITAL COST (\$ 2017)	PERCENT
<b>PUBLIC WATER AGENCIES</b>	<b>\$11.2 bn</b>	<b>67%</b>
MWD	\$5.3 bn	32%
All Other Participating Water Agencies	\$5.9 bn	35%
<b>MWD PURCHASE OF CVP SHARE</b>	<b>\$5.5 bn</b>	<b>33%</b>
<b>TOTAL</b>	<b>\$16.7 bn</b>	<b>100%</b>

Contracts between the Finance Authority, the public water agencies and DWR will ensure payment of debt service, including repayment of the WIFIA loan. The revenue pledge to secure repayment of the WIFIA credit assistance will be made from the Finance Authority. This revenue pledge is based on the installment purchase agreements expected to be executed between the Finance Authority members and the Finance Authority. It is also anticipated the contracts between DWR and the Finance Authority will provide that DWR will receive revenue in amounts equal to the members' commitments under the installment purchase agreement.

These contracts and agreements are being negotiated and are expected to include appropriate provisions and reserves to support a strong credit rating commensurate with the ratings of the Finance Authority members. At such time that all members of the Finance Authority have executed contracts, the Finance Authority financing team will obtain ratings from at least two rating agencies.

**5. Describe the proposed credit terms of the WIFIA assistance including the security pledge, the lien position, maturity date (term), and amortization structure (e.g. straight-line or sculpted). State whether the WIFIA loan will be issued on a senior or subordinate lien.**

**RESPONSE**

**Security Pledge:** As noted above, the repayment of debt service on bonds issued by the Finance Authority, including the WIFIA credit assistance, will be secured directly or indirectly by its members through installment purchase agreements or DWR. The contracts securing payment will be in the form of installment purchase agreements under which participating contractors would be obligated to pay regardless of whether any water is delivered through the WaterFix project.

**Lien Position:** Subordinate

**Maturity Date:** 35 years from substantial completion

**Amortization:** Sculpted to wrap around tax-exempt revenue bond debt service

**Debt service:** Principal deferred until 5 years after substantial completion; option to capitalize interest

**6. Describe the prospective borrower's financial condition.**

**RESPONSE**

The Finance Authority is a conduit financing agency set up for the purpose of issuing debt on behalf of the members to finance WaterFix, by securing DWR obligations. As the largest participant in the WaterFix project and the Finance Authority, MWD's financial condition is the underpinning of the security structure for the WIFIA loan. MWD is rated AAA by S&P Global Ratings, Aa1 by Moody's Investors Service and AA+ by Fitch Ratings. MWD wholesales supplemental water to 26 member agencies in Southern California over a 5,200 square mile service area. The member agencies in turn sell water to a population of nearly 20 million with a collective GDP that would rank in the top 12 of the world's countries. MWD supplies between 40% and 60% of the total annual water use in the service area and member agencies have varying reliance on their annual water supplies.

MWD's financial results for FY2017 included debt service coverage of all senior and subordinate debt of 1.57x. MWD expects debt service coverage to decline to 1.50x in FY2018 as a result of lower than budgeted water transactions before increasing above its 2.0x coverage target by FY2021. MWD maintains a strong liquidity position, which helps to mitigate variable water transactions. MWD ended FY2017 with approximately \$400 million in unrestricted cash, equivalent to approximately 325 days' cash on hand. In addition to unrestricted cash and investments, MWD maintains access to two liquidity facilities totaling \$400 million, which facilities can be drawn for any purpose.

DWR maintains among the highest investment grade credit ratings and will additionally secure the payments made by the Finance Authority to repay the WIFIA loan. DWR is rated Aa1 by Moody's and AAA by S&P. The credit strength of DWR reflects the underlying credit strength of the 29 public water agencies it serves, the largest of which is MWD, which was responsible for almost 54% of DWR's water supply revenues in FY2017, and the strong take-or-pay nature of the water supply contracts between DWR and the public water agencies.

In addition to the audited financials, recent credit rating reports for MWD and DWR are included as **Attachment 30**.

- 7. Provide the year-end audited financial statement for the past three years, as available as an attachment. Provide the financial statement filenames in the text box.**

**RESPONSE**

The Financing Authority is a newly formed joint powers authority and therefore does not have audited financial results at this time. Since the Finance Authority is a conduit entity, and its credit is based on the members and DWR payments, audited financials from MWD and DWR have been provided for reference in **Attachment 31**.

**Attachment 31** includes audited financials for MWD for fiscal Years 2015 through 2017 and of DWR for Fiscal years 2015 through 2017.

- 8. Attach a financial pro forma which presents key revenue, expense, and debt repayment assumptions for the revenue pledged to repay the WIFIA loan through the final maturity of the proposed WIFIA debt, including up to three years of historical data, as available. The pro forma should be provided in an editable Microsoft Excel format, not in PDF or "values" format. The pro forma should include at a minimum the following:**

- a. Sources of revenue
- b. Operations and maintenance expenses
- c. Dedicated source(s) of repayment
- d. Capital expenditures
- e. Debt service payments and reserve transfers, broken down by funding source and including the WIFIA credit assistance
- f. Projected debt service coverage ratios for total existing debt and the WIFIA debt
- g. The project's or system's debt balances broken down by funding sources
- h. Equity distributions, if applicable

If available, include sensitivity projections for pessimistic, base and optimistic cases. A sample financial pro forma is available at <https://www.epa.gov/wifia/wifia-application-materials-and-resources>. Provide the financial pro forma filename in the textbox.

**RESPONSE**

Pro-Forma\_Scenario 1 (**Attachment 32**)

Pro-Forma\_Scenario 2 (**Attachment 32**)

- 9. Has the prospective borrower consulted with the applicable State Revolving Fund (SRF) program to procure SRF funding? If so, indicate whether it is applying for the SRF funding and where it is in the application process.**

**RESPONSE**

WaterFix has not applied for funding from the State Revolving Loan Fund (SRF) and does not anticipate applying for SRF funding in the future.

## SECTION E: SELECTION CRITERIA

For each selection criterion, provide a response explaining the extent to which the project seeking the WIFIA loan relates to the criterion. When applicable, reference attachments. Detailed definitions for each selection criteria are provided in the WIFIA program handbook available at [www.epa.gov/wifia](http://www.epa.gov/wifia).

- 1. National or regional significance: Describe the extent to which the project is nationally or regionally significant, with respect to the generation of economic and public benefits, such as (1) the reduction of flood risk; (2) the improvement of water quality and quantity, including aquifer recharge; (3) the protection of drinking water, including source water protection; and (4) the support of international commerce.**

### RESPONSE

WaterFix is a critical piece of California's water supply infrastructure and is necessary to modernize the infrastructure delivering water to 27 million people and 3 million acres of farmland, and supporting California's \$2 trillion economy. WaterFix is also a necessary tool to address the effects of climate change and protect the ecosystem of the Delta, the heart of California's water landscape and the most important estuary on the Pacific coast.

WaterFix is nationally significant because the major economic centers of California – the South Bay, Silicon Valley, the Central Valley, and Southern California – depend upon the SWP and the CVP for delivery of essential water supplies. The areas of California served by these state and federal water projects generate over \$1 trillion in household income annually and support over 15 million jobs.

California farms irrigated with water from the SWP and CVP literally feed the nation. These farms produce more than 400 agricultural commodities, and California is virtually the sole producer of 13 major fruits, nuts and vegetables. California produces 78% of the nation's lettuce crop, more than a fifth of its dairy products and provides more than 90% of the nation's fresh fruits and vegetables. The top four counties in agricultural sales in the U.S. are all located in California, three of them are in the WaterFix service area (Fresno, Tulare, and Kern counties). These counties receive approximately 23% to 90% of their surface water from the Delta.

Stabilizing Delta water supplies with WaterFix is expected to increase California's farm output and benefit consumers through reduced food prices, primarily for fresh fruits, nuts and vegetables. The food price reductions resulting from improved conveyance are especially large in light of California's restriction on groundwater overdraft. WaterFix is anticipated to provide annual consumer benefits of \$78 million in the form of reduced food prices. Most of these benefits come as a result of stabilizing SWP deliveries at roughly their current levels. In present value terms, WaterFix provides over \$1.7 billion in consumer benefits over the life of the project. For certain SWP agricultural contractors, the consumer benefits of WaterFix are nearly as large as the benefits to California's farmers.

The national significance of WaterFix is not limited to agriculture. Between 60% and 75% of the water supply benefits provided by WaterFix will meet municipal and industrial needs in Southern California and parts of the Silicon Valley and the San Francisco Bay Area. Water deliveries secured by WaterFix will meet the needs of more than 22 million residents of Southern California and more than 5 million residents in the South Bay and Silicon Valley. The rise of Silicon Valley has generated over 400,000 new jobs for California and the nation and has spearheaded the growth of innovation in the country.

The regional significance of WaterFix can be seen best by the value of agriculture to the Central Valley region. Agriculture is the main source of employment throughout the Valley from Tracy to Bakersfield. A recent University of California study concluded that California agriculture generates 7.3% of all private sector jobs in California. Agricultural receipts in the Central Valley account for the majority of the total economic output of the counties in the Valley, which makes it a significant contributor to local school systems, police departments, fire departments and social services.

**2. New or innovative approaches: Describe the extent to which the project uses new or innovative approaches.**

**RESPONSE**

There are significant innovations built into the WaterFix design related to pumping stations, sedimentation basins, and carbon-free power sources.

**PUMPING STATIONS**

While original concepts called for a pump station at each intake, design innovations to the configuration allow for the water to flow by gravity to a single pump station at the terminus of the tunnels. The benefits of this configuration are 1) ability to divert from the river and transport entirely by gravity without the need to utilize the pumping station under certain conditions, 2) reducing internal pressures in the tunnels and thereby reducing the potential for leakage to near-zero, and 3) more cost effective design/construction of the tunnel itself. When water levels in the Sacramento River are sufficiently elevated, up to one half of the system's overall 9,000 cfs of delivery capacity can be delivered by gravity to Clifton Court Forebay, without using the pumping station. This gravity fed system capability was not achievable under the previous system configuration, and will serve to save significant amounts of energy over the life of the program. Finally, the innovation of an entirely gravity fed system, removes three industrial-like pump stations from a sensitive environmental setting, relocating those pumps 30+ miles to the south, in a less environmentally sensitive portion of the Delta.

**SEDIMENTATION BASINS**

Another area of significant innovation is in the design of the sedimentation basins adjacent to each of the intakes. The purpose of the sedimentation basin is to allow the diverted water sufficient detention time to allow specified sediment to drop out of suspension before the water is sent to the tunnel system. This minimizes sediment buildup inside the tunnel and reduces the need to routinely shutdown the tunnel system for cleaning. Traditional designs for these basins created a number of challenges to construction logistics, schedule, cost and environmental concerns related to air quality and noise and transportation. The innovation called for simplifying the design of the basins by using earth fill instead of concrete. This design minimizes the use of concrete, rebar and imported fill materials. Building the embankments can be done using conventional earthwork equipment. This design reduces the construction logistics, schedule and cost. The simplified basin design also reduces environmental noise impacts due to elimination of more than 5,000 piles, reduces air emissions due to the elimination of 750,000 cubic yards of batched concrete and reduction of trucking for concrete deliveries and delivery and installation of 240 million pounds of reinforcing steels.

**ELECTRIC SEMI-TRUCKS AND HYBRID HEAVY EQUIPMENT**

Lastly, another significant innovation planned by WaterFix is the potential use of electric semi-trucks and hybrid heavy equipment to replace the diesel engine equipment that is standard for programs.

- ▶ Electric semi-trucks are expected to hit roads in 2019. Their energy costs are half those of diesel and with fewer systems to maintain, some electric semi-trucks provide \$200,000+ in fuel savings and approximately two-year payback period.
- ▶ Hydraulic-hybrid excavators use hydraulic regenerative braking, which converts kinetic energy into hydraulic energy and stores the pressure to be used during an energy-saving mode, reducing energy, and fuel costs.
- ▶ Electric-hybrid technology uses an electric motor or generator to move the excavator arm which acts as a generator when the swing arm is slowed or stopped. During the braking process, the motor is reversed, which allows the motor to generate electricity; and this electrical energy is then stored in a battery or capacitor and later released to help the swing arm's acceleration.

- ▶ Diesel-electric equipment converts mechanical energy into electrical energy. The diesel-electric equipment eliminates the need for traditional torque converters, transmissions and drive trains for generators and drive motors. Additionally, the diesel engine powers a generator, which in turn produces electrical energy to power the drive motors, hydraulic pumps and other electrical operating systems. This technology is currently used in excavators, crawler dozers, wheel loaders, and asphalt pavers.

The fleet of electric semi-trucks could be used for hauling of equipment, machinery, raw materials, and other construction items. Heavy equipment such as the electric-hybrid wheel loader may be used to move, blend and grade raw materials and the hybrid excavator will likely be used in activities such as site grading, access road construction, forebay embankment construction, tunnel shaft construction, and stockpiling of excavated tunnel materials.

Replacing off-road construction equipment with electric and/or hybrid-electric equipment and on-road haul trucks with electric trucks would result in local, regional, and global atmospheric benefits, because exhaust pipe emissions from the equipment would be eliminated with fully electric equipment and partially reduced with hybrid-electric equipment. Similarly, electric and hybrid-electric equipment would reduce emissions of criteria air pollutants and greenhouse gases into the atmosphere as compared to diesel-powered equipment. For fully electric equipment, according to the California Air Pollution Control Officers Association, criteria air pollutants emissions would be reduced by 100%, while greenhouse gas emissions would be reduced by approximately 73% in the service territory of Pacific Gas and Electric. Reduced criteria air pollutant emissions would lead to less ozone formation and would impact the air quality management districts' efforts of meeting state and national ambient air quality standards for pollutants that are considered non-attainment (not meeting the standards). The reduction in greenhouse gas emissions relative to diesel equipment would be consistent with the state's greenhouse gas reduction efforts and would result in a lower cumulative contribution to the causes of global warming.

### CARBON-FREE POWER

The SWP is both a major producer and consumer of carbon-free power. The SWP power portfolio consists of 65% carbon-free resources, increasing to 75% by 2030 and 95% by 2050. The permanent power for the California Water Fix pumps will be supplied from this increasingly carbon free power supply. The SWP power supply is among the least carbon intensive of any of the major utilities in California and will remain so into the foreseeable future. The blueprint for the progressive carbon reduction is the DWR Climate Action Plan. This Plan shows how DWR will make substantial reductions in its greenhouse gas emissions in the near-term (present to 2020) and how it will continue to reduce emissions beyond 2020 to achieve its long-term (2050) GHG emissions reduction goals.

- 
3. Protection against extreme weather events: **Describe the extent to which the project (1) protects against extreme weather events, such as floods or hurricanes, or (2) helps maintain or protect the environment.**

### RESPONSE

Consistent with the 2009 Delta Reform Act, DWR studied the ability of WaterFix to function under several climate change scenarios. The results of these studies are included in the project's EIR/EIS. The likely effects of sea level rise on the project were evaluated based on modeling simulations. The simulations found significant inundation, increased salinity (which affects the availability of freshwater), and greater tidal variation, each of which will affect the existing SWP facilities. The simulations demonstrated the benefits of WaterFix in combating these effects. WaterFix is designed and will be constructed to address the effects of sea level rise. As an example, "[t]he location of the north Delta diversion facility [the tunnel intakes] is further inland making it less vulnerable to salinity intrusion. Even with substantial sea level rise...salinity could be repelled from this location." (**Attachment 13, Vol. 1, at 29-21**) The placement of the intakes is specifically designed to provide a freshwater supply from the Sacramento River, through the Delta and into existing SWP and CVP facilities under the expected conditions of sea level rise.

The other major “extreme weather event” possible in the project area is the likelihood of an earthquake strong enough to collapse the levees that protect the Delta from flooding and salt water intrusion. In the San Francisco Bay Region the U.S. Geological Survey estimates there is a 62% probability for at least one magnitude 6.7 or greater earthquake from 2003 to 2032. **(Attachment 33)** If such an event were to occur, WaterFix “...would provide additional adaptability to catastrophic failure of Delta levees. By providing an alternate conveyance route around the Delta, [WaterFix] provides a mechanism to continue making water deliveries to...” **(Attachment 13, Vol. 1. at 29-22)** 27 million Californians and 3 million acres of farmland.

WaterFix is designed to protect against extreme weather events including climate change and catastrophic earthquakes. WaterFix will help ensure a continued water supply to 27 million Californians and 3 million acres of farmland under the IPCC’s anticipated range of sea level rise or in the event of flooding due to catastrophic levee failure caused by an earthquake of magnitude 6.7 or greater.

**4. Serves energy exploration or production areas: Describe the extent to which a project serves regions with significant energy exploration, development, or production areas.**

**RESPONSE**

WaterFix will significantly improve the water supply availability to Kern County and its oil production centers. In 2016, California produced 186.7 million barrels (MMbl) of oil accounting for 5.7% of the Nation’s oil production that year. Most of California’s oil production (72%) is centered in Kern County, which is home to more than 20 different oil fields. From 2007 through 2013 Kern County produced between 165 MMbls and 134 MMbls of oil annually. The U.S. Department of the Interior reports that in 2016 Belridge South Field in Kern County produced 22.6 MMbls, ranking it 9th among the top 100 oil fields nationally. The California Department of Conservation reports that four of the five largest oil fields in California are in Kern County **(Attachment 34)**.

Kern County receives about 25% of its water supply through the SWP. Unfortunately, that supply is becoming less reliable. Water supplies from the SWP have decreased over time and are expected to continue to decrease under the effects of climate change and future environmental regulations. WaterFix would improve the reliability of Kern County’s SWP water supplies and support its energy industry.

A significant amount of oil production also comes from Southern California. The Wilmington and Inglewood oil fields produce 16 million barrels of oil annually, and while they constitute a small amount of the local Southern California economy, they are a significant contribution to California’s overall oil production.

Improving the reliability of water supplies to Kern County and Southern California improves the reliability of energy production in California.

**5. Serves regions with water resource challenges: Describe the extent to which a project serves regions with significant water resource challenges, including the need to address (1) water quality concerns in areas of regional, national, or international significance; (2) water quantity concerns related to groundwater, surface water, or other resources; (3) significant flood risk; (4) water resource challenges identified in existing regional, state, or multistate agreements; and (5) water resources with exceptional recreational value or ecological importance.**

**RESPONSE**

California, with the most variable weather in the United States, has significant water resource challenges that are well documented. Cyclical drought has evolved into constant drought briefly punctuated by one or two normal or above normal years of rainfall. The most recent drought began in 2007 was briefly interrupted in 2011 by a wet year, in 2017 by a record wet year, but a return to the new normal of drought in 2018. Recent polling by the Public Policy Institute of California found that 68% of all adults and 77% of likely voters across all regions of California



believe drought is a “big problem” or “somewhat of a problem” in their part of California.

On January 17, 2014, normally the wettest month of the year in California and following a period of 6 dry years that began in 2007, Governor Jerry Brown declared a drought state of emergency. In response to the drought state of emergency California’s State Water Resources Control Board imposed mandatory water restrictions on all Californians. The governor’s drought emergency declaration remained in place for more than three years and changed the way Californian’s understand their water supply.

According to the Public Policy Institute of California (PPIC) the most recent drought severely impacted California’s environment, its agricultural communities and its cities. The PPIC estimates that agricultural communities reduced acreage and paid higher costs for water and feed leading to nearly \$2 billion in farm losses. In 2015 urban areas were under a statewide mandate to conserve water and responded by conserving almost 25% of their water supply when compared to 2013. In many rural areas where domestic water systems are small and isolated more than 2,000 domestic wells ran dry (**Attachment 35**). Water supplies for the environment in California also suffered. The PPIC summarizes the environmental situation succinctly:

*Low flows and high water temperatures are threatening California’s native fish. As many as 18 species—including most salmon and steelhead runs—are at risk of extinction if the drought continues. Wildlife refuges that provide vital habitat for migratory birds and other species have also faced shortfalls. And dry, dense forests are at increased risk of extreme wildfire. More generally, the state is facing difficult tradeoffs, such as whether to retain cold water in reservoirs to maintain endangered salmon or release this water to protect smelt in the Delta or to support wildlife refuges.*

On May 31, 2018 Governor Brown made California’s permanent state of drought official by signing into law two bills that require cities, water districts and large agricultural water districts to set strict annual water budgets and potentially face fines of \$1,000 per day if they don’t meet them, which is raised to \$10,000 per day during drought emergencies. These state laws establish a per person, indoor water use goal of 55 gallons until 2025 and 50 gallons beginning in 2030.

Cities and farms also face limits in the future availability of groundwater. In 2014, the state Legislature passed, and Governor Brown signed the Sustainable Groundwater Management Act (SGMA). While some urban and agricultural areas have been formally managing their groundwater basins for decades, SGMA will require communities in the San Joaquin Valley to create new government entities that will identify long-term sustainable groundwater yields. The reduction in groundwater availability is currently not known but will be significant. In addition, reduced rainfall in Southern California since 2000 has reduced groundwater production in managed basins. WaterFix provides a high-quality supplemental supply to these basins and is considered essential to meet targeted levels of groundwater production.

WaterFix is designed to address California’s regional and statewide water resources challenges. Water quantity concerns regarding diminishing surface water supplies and groundwater resources will be addressed by the increased ability to move water through the WaterFix conveyance system during wet years for immediate surface water use and for long-term groundwater replenishment. Water quality concerns will be addressed by the new ability to divert water at the tunnel intakes on the Sacramento River which will significantly reduce organic carbon, bromide and nitrate concentrations in drinking water supplies. WaterFix also address the significant flood risk posed by catastrophic levee failure due to earthquakes on the scale predicted by the USGS of at least one 6.7 magnitude earthquake between 2003 and 2032. Finally, WaterFix represents the first comprehensive approach to rebuilding California’s statewide water infrastructure in a way that reduces the conflict between California’s need to use the Delta as a water supply and its need to provide better protection for the Delta’s endangered species.

**6. Addresses identified priorities: Describe the extent to which the project addresses identified municipal, state, or regional priorities.**

**RESPONSE**

WaterFix is one of the governor’s key state priorities as outlined in the California Water Action Plan. The Water Action Plan is the Governor’s comprehensive approach to transform California’s water supply system by building new water supply facilities including WaterFix. The Water Action Plan also includes improving water laws and regulations such as the Sustainable Groundwater Management Act (passed in 2014), improving drinking water quality, and protecting important ecosystems.

The Water Action Plan is the governor’s blueprint for statewide water polices and provides guidance for all state agencies to follow when addressing California’s water issues. WaterFix is referred to in the Water Action Plan as a priority for protecting “... fish and wildlife in the Delta and improving the reliable operation of California’s two largest water delivery projects.” (*Attachment 36*)

WaterFix is a long-term regional priority for all six Southern California counties from Ventura to San Diego including the cities of Los Angeles, Long Beach and San Diego served by MWD. The Regional Urban Water Management Plan for MWD projects the water demands of Southern California and compares those projected demands to water supplies it expects to have available in the future to meet those demands. In addition to extensive water conservation efforts, desalination, water recycling and improving local water supplies MWD identifies WaterFix as essential to meeting its water supply demands beginning in 2030. MWD’s Regional Urban Water Management Plan “...targets an average of 984 TAF of SWP supplies in the near-term [before WaterFix] and 1.2MAF of supplies on average starting in 2030 when the long-term Delta solution [WaterFix] is assumed to be in place.” (*Attachment 37*)

**7. Repair, rehabilitation, or replacement: Describe the extent to which the project addresses needs for repair, rehabilitation or replacement of a treatment works, community water system, or aging water distribution or wastewater collection system.**

**RESPONSE**

As its name reflects, WaterFix fundamentally addresses water supply reliability and environmental challenges resulting from a delivery system designed more than a half-century ago. An existing system that relies exclusively on intakes in the southern Delta will be supplemented with three new intakes in the northern Delta. WaterFix is not replacing the existing system entirely, but is replacing the exclusive levee system with a modern “dual system” that includes the new intakes and tunnels. WaterFix will provide two very different locations from which to divert water and utilize the newest technology possible, such as state-of-the-art fish screens in front of the new intakes, to advance both water supply and environmental objectives.

Existing water diversions are heavily reliant on supplies passing between hundreds of miles of Delta levees, many of them initially constructed more than a century ago. While improved over time, some levees remain constructed with peat soils or sit atop sandy soils subject to liquefaction in a large seismic event. By transporting supplies from the northern Delta in twin tunnels to the existing aqueducts rather than through levees, WaterFix addresses a singular reliance on supplies passing through this aging levee system.

In addition, planned expansion of the Clifton Court Forebay to receive and transport WaterFix supplies will complement plans to repair and rehabilitate the existing forebay.

As part of WaterFix the Clifton Court Forebay is planned to be both repaired and rehabilitated. Built as part of the SWP in 1969. Clifton Court currently covers a surface area of approximately 2,500 acres, has approximately 8 miles of perimeter levees which contain a potential water volume of approximately 29,000 acre-feet. The perimeter levees are deficient under current seismic standards and not adequate for future sea level rise conditions and therefore must be upgraded or retrofitted. The levees were also built on a

substandard foundation. The inlet gate recently failed and was dislodged. The structure holding the gate is about to exceed its 50-year useful life. The flow velocities through the gate are so large that it has scoured a hole at the entrance to the forebay. Sediment has built up at the bottom of the forebay that it has reduced the forebay capacity.

As described in Section B of this document, the forebay is an important part of WaterFix in that it will be reconfigured and upgraded to provide water not only to the SWP but also the CVP. The existing Clifton Court Forebay will be separated into the North Clifton Court Forebay (NCCF) and the South Clifton Court Forebay (SCCF) (see **Figure 6**). Water will be pumped or flow by gravity from the tunnels into NCCF. South delta diversions would enter SCCF through an upgraded Old River gate structure.

**8. Economically stressed communities: Describe the extent to which the project serves economically stressed communities, or pockets of economically stressed rate payers within otherwise non-economically stressed communities.**

**RESPONSE**

Economically stressed communities ranging from Los Angeles and Riverside counties in Southern California to cities throughout the Central Valley will benefit from WaterFix. In California the greatest concentration of economically stressed communities occurs in the agricultural Central Valley and Los Angeles, Riverside and San Bernardino counties. In Southern California, economically stressed communities in South Central Los Angeles, Riverside County, and San Bernardino County will see the benefits of WaterFix in terms of a more reliable water supply at lower cost than other alternatives. In the Central Valley migrant farm worker communities like Avenal and Delano will see the benefits of reliable water supplies for the farms in Tulare and Kern counties where they work.

Perhaps the best way to illustrate how WaterFix will serve economically stressed communities is to view the interactive map and database of economically stressed communities maintained by the State of California. The interactive map may be viewed at: <https://gis.water.ca.gov/app/dacs/>.

The interactive map shows the disadvantaged and severely disadvantaged communities throughout the state. WaterFix does not serve the entire state but does serve a majority of the economically stressed communities on the map. By clicking on the map's "County Boundaries" layer it can be seen that economically stressed communities occur in 12 of the 13 counties served by WaterFix, with the majority of California's economically stressed communities located in Los Angeles, San Bernardino and Riverside counties.<sup>4</sup>

Providing safe, cost-effective water supplies is particularly important for economically stressed communities. For urban areas served by the SWP, WaterFix represents a far less expensive approach to securing future water supplies than to allow SWP reliability to deteriorate and replace this supply with local alternatives alone. WaterFix, in tandem with more conservations and new local supplies to meet the demands of population growth, is the most cost-effective urban water strategy for the affected communities in the state.

As an example, MWD conducted an analysis of average household cost impacts within its service area and found that WaterFix, with assumptions representing the maximum cost exposure, would add up to \$4.80 per household per month. Providing a similar level of water supply reliability with recycled water or seawater desalination would add up to \$7 per month to those same households.

<sup>4</sup> See the response to Question B7 for a complete list of the counties served by WaterFix.

**9. Reduces exposure to lead: Describe the extent to which the project reduces exposure to lead in the nation's drinking water systems or ensures continuous compliance with contaminant limits.**

**RESPONSE**

The California WaterFix Final EIR/EIS evaluates the potential impacts of the project on trace metal concentrations, including lead. Lead is a metal found in natural deposits as ores with other elements. Sources of lead contamination include natural deposits, mining, and smelting operations. Lead is sometimes used in household plumbing materials or in water distribution systems. Lead is regulated in drinking water systems via the USEPA's Lead and Copper rule. WaterFix would not result in substantial increases in trace metal concentrations in the water exported from the Delta or diverted from the Sacramento River through the proposed conveyance facilities, and, as a result, there is not expected to be substantial changes in trace metal concentrations in the SWP water supplies. WaterFix project effects on lead concentrations in SWP water supplies are expected to be negligible.

WaterFix would improve SWP export water quality for drinking water supplies. Municipal water supply agencies that receive SWP supplies are concerned with levels of salinity, bromide, organic carbon and nutrients in their water supplies. These concerns are related to meeting state and federal drinking water regulations to protect human health, preventing taste and odor complaints, and enhancing local water management programs. Organic carbon (total and dissolved) and bromide are precursors for the formation of disinfection by-products (DBPs) such as trihalomethanes (THMs), haloacetic acids (HAAs), bromate, chlorite, and nitrosamines at treated drinking water treatment processes. These DBPs are of concern because they are known or suspected human carcinogens when consumed at elevated concentrations over many years and are regulated in drinking water. In addition, elevated nutrient concentrations can affect municipal water suppliers that store diverted Delta water in reservoirs. Elevated nutrient levels contribute to algae growth and affect the taste and odor of treated water, filter clogging at WWTPs, and increased levels of organic carbon. Increased salinity concentrations also can alter the taste of finished drinking water and can affect the ability to implement water management programs such as water recycling.

WaterFix would also improve SWP water quality through the use of the dual intake system. This is because water quality on the Sacramento River at the proposed intakes is generally lower in salinity, bromide, organic carbon and nitrate as compared to the water quality in the south Delta at the SWP Banks pumping plant. Modeling studies completed for the California WaterFix Final EIR/EIS show lower levels of salinity (17-22% improvement), bromide (31-43% improvement), organic carbon (2-11% improvement), and nitrate (5-27% improvement). With these improvements in SWP water quality, WaterFix will ensure continuous compliance with drinking water standards for disinfection by-products and will improve human health protection.

**10. Readiness to proceed: Describe the readiness of the project to proceed toward development, including a demonstration by the prospective borrower that there is a reasonable expectation that the contracting process for construction of the project can commence by not later than 90 days after the date on which a Federal credit instrument is obligated for the project.**

**RESPONSE**

The Construction Authority has been formed. An Executive Director has been named, temporary offices have been established, contract and accounting systems are in place, and the Construction Authority will be fully "business ready" by the end of August. RFQs for critical path efforts such as real estate acquisition, geotechnical investigations, and preliminary design have been received and are undergoing the review and award process. In addition, an initial shaft site work package has been prepared and right of way secured for start of construction. This package will be advertised consistent with the timing of obtaining necessary permits. Agreements for temporary power have been negotiated and are awaiting Construction Authority board approval. The Construction Authority is well underway in the contracting processes needed to commence construction.

- 11. Enables project to proceed earlier: Describe the likelihood that assistance under WIFIA would enable the project to proceed at an earlier date than the project would otherwise be able to proceed.**

**RESPONSE**

The likelihood that WIFIA assistance will allow WaterFix to proceed at an earlier date is high. WaterFix is currently scheduled to begin detailed design in the fall of 2018. However, to fully move the project forward will require sufficient participation by the public water agencies expected to provide the funding for WaterFix. To successfully fund the project the agricultural water agencies among those local public water agencies must have strong support from as many of their farmers as possible. However, the size and complexity of WaterFix make its affordability cost prohibitive for some growers. In the past two years the project has made several changes that reduce the cost of the project in an effort to increase participation by the agricultural water agencies and the farmers they serve. Significantly reducing the cost of financing and cash flow during construction is the last remaining piece of the funding puzzle that can make the project more attractive to these agencies.

The WIFIA program is the most cost-effective financing program available that can also restructure the financing costs enough to maximize the participation of agricultural water agencies in the project. WIFIA is the most viable finance tool that provides certainty with an interest rate lock and deferral of debt service payment option. At this time, it is not known if WaterFix is affordable for farmers in the agricultural water agencies. But it is certain that by reducing financing costs, agricultural water districts will be more successful at attracting participation from their farmers.

- 12. Financing plan: Describe the extent to which the project financing plan includes public or private financing in addition to assistance under WIFIA.**

**RESPONSE**

All non-WIFIA funding for the project will come from the participating agencies who benefit from the project. It is expected the Finance Authority will issue revenue bonds and those will be the primary source used by the participating agencies to pay for the project either repayed via their SWP contracts or directly. The revenue bonds will be backed by installment purchase agreements supported by water agency revenues. Upon successful resolution of DWR's validation action, financing would be obtained by DWR, whose revenues are secured by long-term water supply contracts with the public water agencies.

- 13. Reduction of Federal assistance: Describe the extent to which assistance under WIFIA reduces the contribution of Federal assistance to the project.**

**RESPONSE**

The SWP has been financed exclusively by the State Water Contractors (public water agencies) and the State of California, without federal assistance. The CVP – whose contractors may ultimately participate in and benefit from the project – does receive federal assistance in the form of interest rate reductions related to the construction of the federal CVP. However, WaterFix would be paid by local public water agencies using revenues derived from their customers. Currently, there is no federal contribution to the project and, as a result, there is no federal contribution to reduce.

## SECTION F: CONTACT INFORMATION

### 1. Primary point of contact:

#### RESPONSE

Name: Brian Thomas  
Title: Interim Executive Director  
Organization: Delta Conveyance Finance Authority  
Street Address: 1121 L Street, Suite 1045  
City/State/Zip: Sacramento, California 95814  
Phone: (916) 447-7357 (ext. 212)  
Email: brianthomas@dcfinanceauthority.org

### 2. Secondary point of contact:

#### RESPONSE

Name: Roger K. Patterson  
Title: Assistant General Manager, Strategic Water Initiatives  
Organization: Metropolitan Water District of Southern California  
Street Address: 700 North Alameda Street  
City/State/Zip: Los Angeles, CA 90012  
Phone: (213) 217-5786  
Email: rpatterson@mwdh2o.com

## SECTION G: CERTIFICATIONS

Please sign in the appropriate space and submit a scanned version of the signature page to EPA with your electronic Letter of Interest submission.

1. **National Environmental Policy Act:** The prospective borrower acknowledges that any project receiving credit assistance under this program must comply with all provisions of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.)
2. **American Iron and Steel:** The prospective borrower acknowledges that any project receiving credit assistance under this program for the construction, alteration, maintenance, or repair of a project may only use iron and steel products produced in the United States and must comply with all applicable guidance.
3. **Prevailing Wages:** The prospective borrower acknowledges that all laborers and mechanics employed by contractors or subcontractors on projects receiving credit assistance under this program shall be paid wages at rates not less than those prevailing for the same type of work on similar construction in the immediate locality, as determined by the Secretary of Labor, in accordance with sections 3141-3144, 3146, and 3147 of Title 40 (Davis-Bacon wage rules).
4. **Lobbying:** Section 1352 of Title 31, United States Code provides that none of the funds appropriated by any Act of Congress may be expended by a recipient of a contract, grant, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, or an employee of a Member of Congress in connection with the award or making of a Federal contract, grant, loan, or cooperative agreement or the modification thereof. The EPA interprets this provision to include the use of appropriated funds to influence or attempt to influence the selection for assistance under the WIFIA program.

WIFIA prospective borrowers must file a declaration: (a) with the submission of an application for WIFIA credit assistance; (b) upon receipt of WIFIA credit assistance (unless the information contained in the declaration accompanying the WIFIA application has not materially changed); and (c) at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any declaration previously filed in connection with the WIFIA credit assistance.

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.
4. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

- 5. Debarment:** The undersigned further certifies that it is not currently, nor has it been in the preceding three years: 1) debarred, suspended, or declared ineligible from participating in any Federal program; 2) formally proposed for debarment, with a final determination still pending; 3) voluntarily excluded from participation in a Federal transaction; or 4) indicted, convicted, or had a civil judgment rendered against it for any of the offenses listed in the Regulations Governing Debarment and Suspension (Governmentwide Nonprocurement Debarment and Suspension Regulations: 2 C.F.R. Part 180 and Part 1532.
- 6. Default/Delinquency:** The undersigned further certifies that neither it nor any of its subsidiaries or affiliates are currently in default or delinquent on any debt or loans provided or guaranteed by the Federal Government.
- 7. Other Federal Requirements:** The prospective borrower acknowledges that it must comply with all other federal statutes and regulations, as applicable. A non-exhaustive list of federal cross-cutting statutes and regulations can be found at: [www.epa.gov/wifia](http://www.epa.gov/wifia).
- 8. Signature:** By submitting this letter of interest, the undersigned certifies that the facts stated and the certifications and representations made in this letter of interest are true, to the best of the prospective borrower's knowledge and belief after due inquiry, and that the prospective borrower has not omitted any material facts. The undersigned is an authorized representative of the prospective borrower.

Signature:



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Name: Brian Thomas  
Title: Interim Executive Director  
Organization: Delta Conveyance Finance Authority  
Street Address: 1121 L Street  
City/State/Zip: Sacramento, California 95814  
Phone: (916) 447-7357 (ext. 212)  
Email: [brianthomas@dcfinanceauthority.org](mailto:brianthomas@dcfinanceauthority.org)



## SECTION H: NOTIFICATION OF STATE INFRASTRUCTURE FINANCING AUTHORITY

Please sign in the appropriate space and submit a scanned version of the signature page to EPA with your electronic Letter of Interest submission.

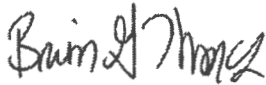
By submitting this letter of interest, the undersigned acknowledges that EPA will (1) notify the appropriate State infrastructure financing authority in the State in which the project is located that the prospective borrower submitted this letter of interest; and (2) provide the submitted letter of interest and all source documents to that State infrastructure financing authority.

Prospective borrowers that do not want their letter of interest and source documents shared with the State infrastructure financing authority in the state in which the project is located may opt out by initialing here

\_\_\_\_\_

If a prospective borrower opts out of sharing a letter of interest, EPA will still notify the State infrastructure financing authority within 30 days of receiving a letter of interest.

Signature:



\_\_\_\_\_  
Name: Brian Thomas  
Date Signed: July 27, 2018

## LIST OF ATTACHMENTS

**Attachment 1 - Overview Section:** 2018-05, A Modern Infrastructure Upgrade Fact Sheet

**Attachment 2 - Overview Section:** 2017-08, California WaterFix Benefits Animation Video

**Attachment 3 - Overview Section:** 2017-08, Tunnel Construction Overview and Project Description Animation

**Attachment 4 - Section A, Question 10:** 2018-07-03, Delta Conveyance Finance Authority Joint Powers Agreement

**Attachment 5 - Section A, Question 10:** 2018-05-14, The Delta Conveyance Design and Construction Joint Powers Authority Joint Powers Agreement

**Attachment 6 - Section A, Question 10:** 2018-05, WaterFix: Creating a Model Organization Fact Sheet

**Attachment 7 - Section A, Question 10:** 2018-05-11, Department of Water Resources Organizational Structure Memo

**Attachment 8 - Section B, Question 4:** 2017-07, Mitigation Monitoring and Reporting Program for California WaterFix

**Attachment 9 - Section B, Question 7:** January 2017-2018, E-1 Population Estimates for Cities, Counties and the State

**Attachment 10 - Section B, Question 7:** 2012, Quick Stats, National Agricultural Statistics Service, U.S. Department of Agriculture, Data for 2012, the most recent year for which data is available

**Attachment 11 - Section B, Question 11:** 2018-05-23, California WaterFix 9000 CFS Conveyance Facilities Modified Schedule

**Attachment 12 - Section B, Question 12:** 2015-07-01, Conceptual Engineering Report-CCO

**Attachment 13 - Section B, Question 12:** Folder – 2016-12, Final EIR-EIS

Sub Folder - Final EIR-EIS - Volume I (Executive Summary - Chapter 35)

1. Introduction thru Chapter 35
2. Appendix 1A thru 5A
3. Appendix 5B thru 32C
4. Figures
5. Mapbooks

Sub Folder - Final EIR-EIS - Volume II

Response to Comments

Sub Folder - Final EIR-EIS - Volume II, Appendix A

Appendix A-1 DEIRS Comment Letters - 1 through 1567

Appendix A-1 DEIRS Comment Letters - 1567 through 2024

Appendix A-2 Comment Letters – Attachments

Appendix A-2 RECIRC Comment Letters - 1 through 2993

Appendix A-2 RECIRC Comment Letters - 2294 through 6325

**Section E, Question 3:** Vol. 1. at 29-21

**Section E, Question 3:** Vol. 1. at 29-22

**Attachment 14 - Section B, Question 13:** 2013-11, Public Draft BDCP EIR/EIS Appendix 3A - Identification of Water Conveyance Alternatives, Conservation Measure 1

**Attachment 15 - Section B, Question 13:** 2018-02-12, California WaterFix Economic Analysis Final

**Attachment 16 - Section B, Question 14:** 2016-06, Department of Water Resources Bulletin 132-2016

**Section C, Question 2:** 2016-06 Department of Water Resources Bulletin 132-2016

**Attachment 17 - Section B, Question 15:** 2009, Sacramento-San Joaquin Delta Reform Act of 2009, California Water Code §85000 et seq

**Attachment 18 - Section B, Question 17:** 2017-07, CEQA Findings of Fact and Statement of Overriding Considerations

**Attachment 19 - Section B, Question 17:** 2017-07-21, Decisions Regarding the BDCP/California WaterFix Final EIR

**Attachment 20 - Section B, Question 17:** 2017-07-21, Notice of Determination

**Attachment 21 - Section B, Question 17:** 2017-07-26, California WaterFix California Endangered Species Act Incidental Take Permit No. 2081-2016-055-03

**Attachment 22 - Section B, Question 17:** 2017-06-23, U.S. Fish and Wildlife Service Biological Opinion for California WaterFix

**Attachment 23 - Section B, Question 17:** 2017-06-16, National Marine Fisheries Service Biological Opinion for California WaterFix

**Attachment 24 - Section B, Question 17:** 2017-03-21, California WaterFix Programmatic Agreement

**Attachment 25 - Section C, Question 1:** 2018, California Water Action Plan

**Attachment 26 - Section C, Question 1:** 2016-01-15, Sustainable Groundwater Management Act

**Attachment 27 - Section C, Question 1:** 2018-04, Public Policy Institute of California Report: Replenishing Groundwater in the San Joaquin Valley

**Attachment 28 - Section C, Question 3:** 1986-11-24, Coordinated Operations Agreement for the Stater Water Project and Central Valley Project, Department of Water Resources and U.S. Bureau of Reclamation

**Attachment 29 - Section D, Question 1:** 2017, Modernizing the System: California WaterFix Finance and Cost Allocation Whitepaper

**Attachment 30 - Section D, Question 6:** Folder – Credit Rating Reports for Metropolitan Water District and Department of Water Resources

1. 2017-02-24 Mdy Metropolitan Water District of Southern California
2. 2017-11-27 Mdy Department of Water Resources CA Central Valley Proj
3. 2018-03-07 S&P California Department of Water Resources CA Wtr&Swr

4. 2018-05-29 S&P Metropolitan Water District of Southern California
5. 2018-06-01 Fitch Metropolitan Water District of Southern California

**Attachment 31 - Section D, Question 7:** Folder – Audited Financials for Metropolitan Water District and Department of Water Resources

1. DWR 2015 CAFR
2. DWR 2016 CAFR
3. DWR 2017 CAFR
4. MWD 2015 CAFR
5. MWD 2016 CAFR
6. MWD 2017 CAFR

**Attachment 32 - Section D, Question 8:** Folder – Pro-Forma / Scenarios 1 & 2

1. 2018-07-17 WIFIA LOI Model 1.6b
2. 2018-07-17 WIFIA LOI Model Full

**Attachment 33 - Section E, Question 3:** 2011-01-28, Seismic Hazard in the Sacramento-San Joaquin Delta, U.S. Geological Survey, David Schwartz, J. Fletcher, R. Graymer, Presentation to the Delta Stewardship Council

**Attachment 34 - Section E, Question 4:** 2015, U.S. Energy Information Administration, Top 100 U.S. Oil and Gas Fields

**Attachment 35 - Section E, Question 5:** 2016-07, Public Policy Institute of California - Latest Drought

**Attachment 36 - Section E, Question 6:** 2016, Final California Water Action Plan

**Attachment 37 - Section E, Question 6:** 2016-06, MWD Regional Urban Water Management Plan, The Metropolitan Water District of Southern California; Pg 2-13

## ACRONYMS AND TRUNCATED NAMES INDEX

- CEQA:** California Environmental Quality Act
- CESA:** California Endangered Species Act
- COA:** Coordinated Operations Agreement
- Construction Authority:** Delta Conveyance Design and Construction Joint Powers Authority
- CVP:** Central Valley Project (federally-owned infrastructure)
- Delta:** Sacramento-San Joaquin Delta
- Delta Reform Act:** Sacramento-San Joaquin Delta Reform Act of 2009
- DWR:** California Department of Water Resources
- EIR/EIS:** Environmental Impact Report/Environmental Impact Statement
- ESA:** Endangered Species Act
- Finance Authority:** Delta Conveyance Finance Authority
- MWD:** Metropolitan Water District of Southern California
- NCCF:** North Clifton Court Forebay
- NEPA:** National Environmental Policy Act
- O&M:** Operations and Maintenance
- PPIC:** Public Policy Institute of California
- Reclamation:** U.S. Bureau of Reclamation
- SCCF:** South Clifton Court Forebay
- SGMA:** Sustainable Groundwater Management Act
- SRF:** State Revolving Loan Fund
- TBM:** Tunnel Boring Machine
- SWP:** State Water Project (state-owned infrastructure)
- WaterFix:** California WaterFix
- WIFIA:** Water Infrastructure Finance and Innovation Act