

RECLAMATION

Managing Water in the West

Water Infrastructure Improvements for the Nation Act of 2016 (Pub. L. 114-322), Title I Water Resources Development Section 4009(a):

Desalination Project Feasibility Study Review Findings

September 2018

Prepared for

United States Congress

Prepared by

**U.S. Department of the Interior
Bureau of Reclamation**

Mission Statements

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Eligible Projects

This is the first report being provided in accordance with Water Infrastructure Improvements for the Nation (WIIN) Act of 2016 (Pub. L. 114-322), Title I Water Resources Development Section 4009(a). The purpose of this report is to provide a summary of each of the review findings for ocean or brackish water desalination project feasibility studies that have been reviewed and found to meet the established requirements as defined in the Bureau of Reclamation (Reclamation) Manual Directives and Standards WTR-11-01 and section 4009(a) of the WIIN Act. The following list of completed feasibility studies is provided:

- City of Antioch (California), Antioch Brackish Water Desalination Project
- City of Oceanside (California), Mission Basin Groundwater Purification Facility Expansion
- El Paso Water Utilities Public Service Board (Texas), Kay Bailey Hutchison Expansion
- Olivenhain Municipal Water District (California), San Dieguito Valley Groundwater Desalination Project
- South Coast Water District (California), Doheny Desalination Project

Summary of Results

This report includes a brief one page summary of the results of each feasibility study review under WTR 11-01, including the following determinations:

- The feasibility study report meets the requirements of a feasibility study as defined under WTR 11-01, and complies with applicable Federal laws and regulations.
- The project is technically and financially feasible and provides a Federal benefit in accordance with the reclamation laws.

Project specific reports are provided to summarize the results of each feasibility study review, provide a brief project description, and identify conditions

City of Antioch

Project Sponsor: City of Antioch

Location: Antioch, California and Pittsburg, California

Project: Antioch Brackish Water Desalination Project

Total Estimated Project Cost: \$62,000,000

Review Completed: August 30, 2018

Project Description: The City of Antioch (City) provides potable drinking water to approximately 103,000 people within a 28.8 square mile service area in Contra Costa County, California. The City considered the feasibility of developing a brackish surface water desalination project. The recommended project includes replacement of the existing San Joaquin River intake pump station, construction of a desalination facility and pipelines for the conveyance of source water and brine concentrate. The City's main potable water source is the San Joaquin River which has high salinity levels during summer and fall, especially during times of drought. During these periods of high salinity the City must purchase potable water from another water district. This project will allow the City to continue to use San Joaquin River water even when salinity levels are high.

Feasibility Study Review Finding: The feasibility study report meets the requirements of a feasibility study as defined under WTR 11-01. The feasibility study, and the process under which the study was developed, each comply with Federal laws and regulations applicable to feasibility studies of desalination projects. The project is technically and financially feasible and provides a Federal benefit in accordance with the reclamation laws.

Funding Conditions:

- Reclamation will include the City of Antioch's project on a publicly available list of projects that have a completed feasibility study that has been determined to meet program requirements. The list will be available on the Reclamation website.
- The project sponsor is eligible to apply for funding through an annual competitive funding opportunity announcement, but the total Federal funding received towards the planning, design, and construction of this project may not exceed 25 percent of the total cost of the project or \$20 million, whichever is less.
- Planning, design, and construction activities completed prior to the enactment of the WIIN Act on December 16, 2016 or that are outside of the scope of the project described in the completed feasibility study are not eligible for funding.
- Prior to receiving Federal funding the project must comply with all applicable environmental laws, including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).
- Prior to receiving Federal funding the project sponsor must demonstrate that it is financially capable of funding the non-Federal portion of project construction costs and all necessary project operation, maintenance, and replacement costs, pursuant to Reclamation Manual Directives and Standards WTR-11-02.
- Prior to receiving Federal funding the project sponsor will provide documentation that the project is included in a State approved plan as part of its application for funding.

City of Oceanside

Project Sponsor: City of Oceanside

Location: City of Oceanside, California

Project: Mission Basin Groundwater Purification Facility Well Expansion and Brine Minimization Project

Total Estimated Project Cost: \$11,750,000

Review Completed: August 22, 2018

Project Description: The City of Oceanside evaluated the feasibility of increasing the local supply of potable water by adding new groundwater extraction wells and brine minimization to the existing Mission Basin Groundwater Purification Facility. The proposed project is expected to increase the production of the facility by 881 acre feet per year, which is an increase of 32% over the average annual production. The existing Mission Basin Groundwater Purification Facility (MBGPF) is a drinking water treatment facility that treats brackish groundwater from the Mission Basin using reverse osmosis (RO), greensand filters, and granular activated carbon (GAC). The project will improve water supply reliability, water rate stability, and drought resiliency.

Feasibility Study Review Finding: The feasibility study report meets the requirements of a feasibility study as defined under WTR 11-01. The feasibility study, and the process under which the study was developed, each comply with Federal laws and regulations applicable to feasibility studies of desalination projects. The project is technically and financially feasible and provides a Federal benefit in accordance with the reclamation laws.

Funding Conditions:

- Reclamation will include the City of Oceanside’s project on a publicly available list of projects that have a completed feasibility study that has been determined to meet program requirements. The list will be available on the Reclamation website.
- The project sponsor is eligible to apply for funding through an annual competitive funding opportunity announcement, but the total Federal funding received towards the planning, design, and construction of this project may not exceed 25 percent of the total cost of the project or \$20 million, whichever is less.
- Planning, design, and construction activities completed prior to the enactment of the WIIN Act on December 16, 2016 or that are outside of the scope of the project described in the completed feasibility study are not eligible for funding.
- Prior to receiving Federal funding the project must comply with all applicable environmental laws, including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).
- Prior to receiving Federal funding the project sponsor must demonstrate that it is financially capable of funding the non-Federal portion of project construction costs and all necessary project operation, maintenance, and replacement costs, pursuant to Reclamation Manual Directives and Standards WTR-11-02.
- Prior to receiving Federal funding the project sponsor will provide documentation that the project is included in a State approved plan as part of its application for funding.

El Paso Water Utilities Public Service Board

Project Sponsor: El Paso Water Utilities Public Service Board

Location: El Paso County, Texas

Project: Kay Bailey Hutchison Expansion

Total Estimated Project Cost: \$121,498,700

Review Completed: February 15, 2018

Project Description: El Paso Water Utilities Public Service Board (EPWU) is exploring water supply options to serve the City of El Paso, Fort Bliss and customers throughout El Paso County. EPWU conducted a feasibility study for an expansion of the Kay Bailey Hutchison Desalination Facility. Additional supply wells would be constructed near the existing well field, which would pump naturally-impaired groundwater and feed into the desalination facility. The expansion is expected to increase potable water supply by 13,400 acre-feet per year.

Feasibility Study Review Finding: The feasibility study report meets the requirements of a feasibility study as defined under WTR 11-01. The feasibility study, and the process under which the study was developed, each comply with Federal laws and regulations applicable to feasibility studies of desalination projects. The project is technically and financially feasible and provides a Federal benefit in accordance with the reclamation laws.

Funding Conditions under the Competitive Grant Program:

- Reclamation will include EPWU's project on a publicly available list of projects that have a completed feasibility study that has been determined to meet program requirements. The list will be available on the Reclamation website.
- The project sponsor is eligible to apply for funding through an annual competitive funding opportunity announcement, but the total Federal funding received towards the planning, design, and construction of this project may not exceed 25 percent of the total cost of the project or \$20 million, whichever is less.
- Planning, design, and construction activities completed prior to the enactment of the WIIN Act on December 16, 2016 or that are outside of the scope of the project described in the completed feasibility study are not eligible for funding.
- Prior to receiving Federal funding the project must comply with all applicable environmental laws, including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).
- Prior to receiving Federal funding the project sponsor must demonstrate that it is financially capable of funding the non-Federal portion of project construction costs and all necessary project operation, maintenance, and replacement costs, pursuant to Reclamation Manual Directives and Standards WTR-11-02.
- Prior to receiving Federal funding the project sponsor will provide documentation that the project is included in a State approved plan as part of its application for funding.

Olivenhain Municipal Water District

Project Sponsor: Olivenhain Municipal Water District
Location: San Diego County, California
Project: San Dieguito Valley Groundwater Desalination Project
Total Estimated Project Cost: \$30,370,000
Review Completed: August 27, 2018

Project Description: The Olivenhain Municipal Water District (District) provides water, wastewater, and recycled water service in north San Diego County. The District evaluated the feasibility of the San Dieguito Valley Groundwater Desalination Project, which would treat brackish water from the San Dieguito Valley Groundwater Basin to produce 1,120 acre feet per year of potable water. The project includes construction of a well field, raw water pipeline, brackish water desalination plant, product water pipeline, and brine pump station and pipeline.

Feasibility Study Review Finding: The feasibility study report meets the requirements of a feasibility study as defined under WTR 11-01. The feasibility study, and the process under which the study was developed, each comply with Federal laws and regulations applicable to feasibility studies of desalination projects. The project is technically and financially feasible and provides a Federal benefit in accordance with the reclamation laws.

Funding Conditions under the Competitive Grant Program:

- Reclamation will include Olivenhain Municipal Water District's project on a publicly available list of projects that have a completed feasibility study that has been determined to meet program requirements. The list will be available on the Reclamation website.
- The project sponsor is eligible to apply for funding through an annual competitive funding opportunity announcement, but the total Federal funding received towards the planning, design, and construction of this project may not exceed 25 percent of the total cost of the project or \$20 million, whichever is less.
- Planning, design, and construction activities completed prior to the enactment of the WIIN Act on December 16, 2016 or that are outside of the scope of the project described in the completed feasibility study are not eligible for funding.
- Prior to receiving Federal funding the project must comply with all applicable environmental laws, including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).
- Prior to receiving Federal funding the project sponsor must demonstrate that it is financially capable of funding the non-Federal portion of project construction costs and all necessary project operation, maintenance, and replacement costs, pursuant to Reclamation Manual Directives and Standards WTR-11-02.
- Prior to receiving Federal funding the project sponsor will provide documentation that the project is included in a State approved plan as part of its application for funding.

South Coast Water District

Project Sponsor: South Coast Water District

Location: Dana Point, California

Project: Doheny Desalination Project

Total Estimated Project Cost: \$102,055,800

Review Completed: August 27, 2018

Project Description: The South Cost Water District (District) evaluated the feasibility of an ocean water desalination facility in Dana Point, California that would produce approximately 5,600 acre feet per year. The project includes construction of a subsurface ocean water intake system, raw water conveyance pipeline, desalination facility, brine disposal system, and product water storage tank and distribution system. The project would provide water supply reliability for the District and local water agencies, providing a high-quality, locally controlled, drought-proof water supply. The desalination facility would also provide emergency water supplies for the District, should an earthquake, system shutdown, or other event disrupt the delivery of imported water to the area.

Feasibility Study Review Finding: The feasibility study report meets the requirements of a feasibility study as defined under WTR 11-01. The feasibility study, and the process under which the study was developed, each comply with Federal laws and regulations applicable to feasibility studies of desalination projects. The project is technically and financially feasible and provides a Federal benefit in accordance with the reclamation laws.

Funding Conditions under the Competitive Grant Program:

- Reclamation will include South Coast Water District's project on a publicly available list of projects that have a completed feasibility study that has been determined to meet program requirements. The list will be available on the Reclamation website.
- The project sponsor is eligible to apply for funding through an annual competitive funding opportunity announcement, but the total Federal funding received towards the planning, design, and construction of this project may not exceed 25 percent of the total cost of the project or \$20 million, whichever is less.
- Planning, design, and construction activities completed prior to the enactment of the WIIN Act on December 16, 2016 or that are outside of the scope of the project described in the completed feasibility study are not eligible for funding.
- Prior to receiving Federal funding the project must comply with all applicable environmental laws, including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).
- Prior to receiving Federal funding the project sponsor must demonstrate that it is financially capable of funding the non-Federal portion of project construction costs and all necessary project operation, maintenance, and replacement costs, pursuant to Reclamation Manual Directives and Standards WTR-11-02.
- Prior to receiving Federal funding the project sponsor will provide documentation that the project is included in a State approved plan as part of its application for funding.