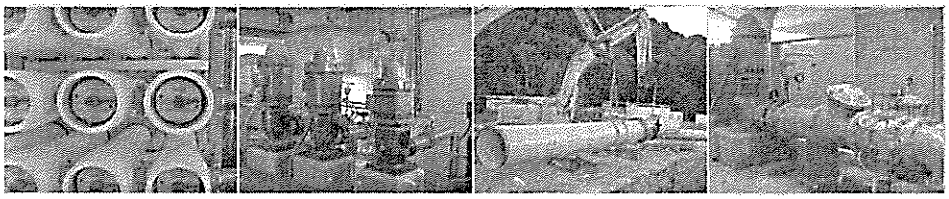
APPLICATION

WaterSMART
Water and Energy Efficiency Grants
for FY 2015

Arlington Basin Water Quality Improvement Project

Riverside County, California



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List of Acronyms

AF	Acre-feet
AFY	Acre-feet per year
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
FCWCD	Flood Control and Water Conservation District
FERC	Federal Energy Regulatory Commission
IRWMP	Integrated Regional Water Management Plan
IS/MND	Initial Study/Mitigated Negative Declaration
MCL	Maximum Contaminant Level
Metropolitan	Metropolitan Water District of Southern California
mgd	million gallons per day
mg/L	milligrams per liter
MSHCP	Multi-Species Habitat Conservation Plan
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
RCTC	Riverside County Transportation Commission
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
UWMP	Urban Water Management Plan
Western	Western Municipal Water District

Proposal Contents (cont'd)

Appendices

A Resolution to Execute Cooperative Agreement with the United States Bureau of Reclamation

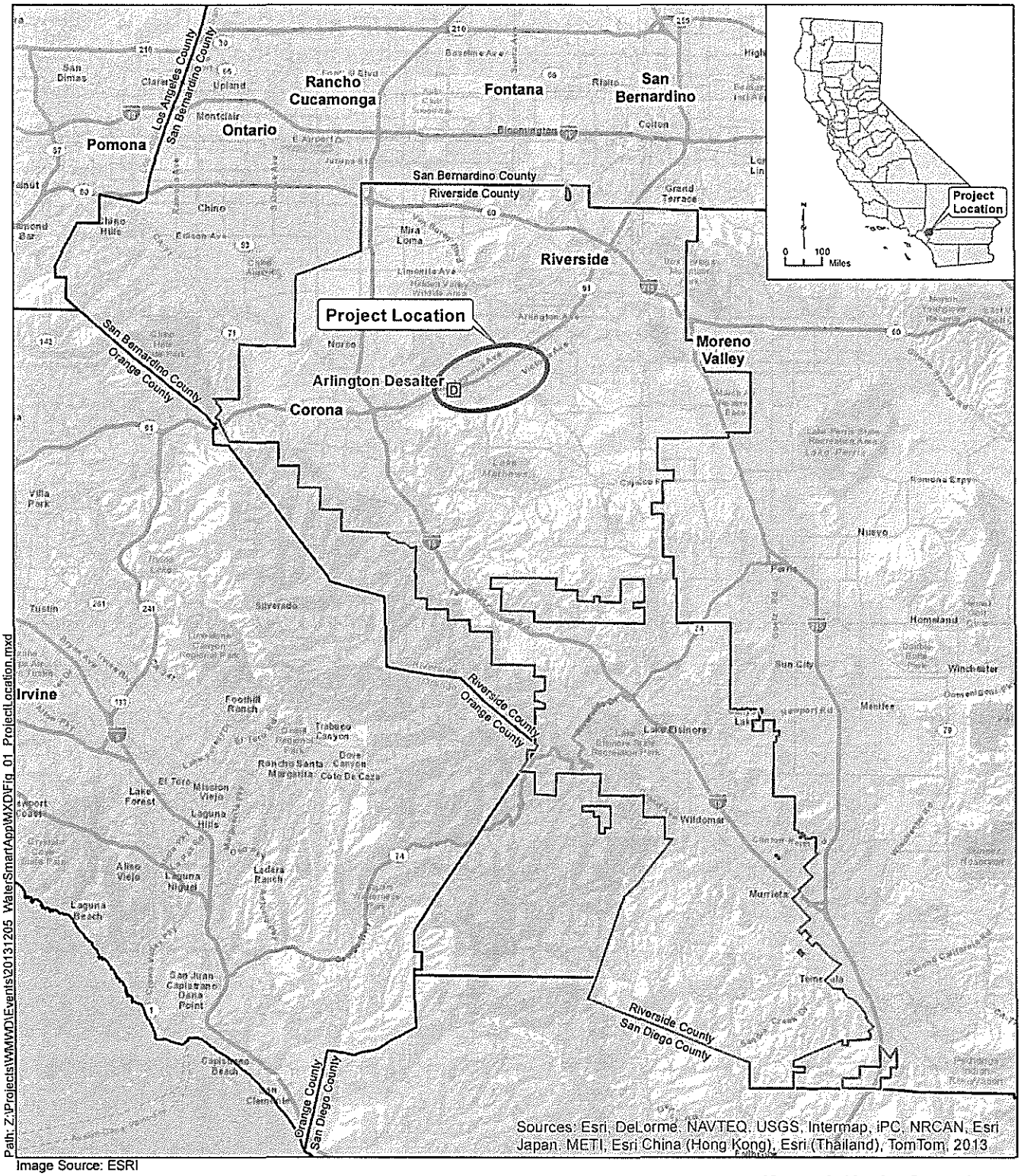
B Letter of Commitment from Riverside County Flood Control and Water Conservation District

Section 1: Technical Proposal and Evaluation Criteria

1.1 Executive Summary

Date:	January 22, 2015
Applicant:	Western Municipal Water District
Applicant City, County, State:	City of Riverside, County of Riverside, California
Project Location:	City of Riverside, County of Riverside, California
Project Name:	Arlington Basin Water Quality Improvement Project

Western Municipal Water District (Western) is seeking grant funding for the Arlington Basin Water Quality Improvement Project as a primary means of expanding potable water production at the Arlington Desalter and improving overall water management within the Arlington Basin. The proposed project consists of the construction of a recharge basin and monitoring well, an extraction well, and a raw water pipeline connecting the extraction well with the Arlington Desalter. The project will facilitate recharge of currently unused or underutilized local water resources, including stormwater and dry-weather flows. The additional groundwater recharge will allow increased extraction and treatment at the Arlington Desalter while providing the facilities for prudent conjunctive management of sustainable and reliable groundwater levels. The proposed extraction well, in the eastern portion of the Arlington Groundwater Basin, will prevent groundwater spill from the Arlington Groundwater Basin and provide additional groundwater yield. Additionally, the capture of Stormwater and urban runoff and prevention of spill will reduce water quality impacts to Reach 3 of the Santa Ana River. Together, the proposed project components will increase available potable water supplies by up to 1,800 acre-feet per year (AFY). The proposed project is consistent with Reclamation's goal of achieving water savings and improved water management by installing groundwater recharge facilities. The proposed project will directly address Adaptation Strategies identified in the Santa Ana Watershed Basin Study (USBR 2013). Additional groundwater supplies created by this project will also help offset energy-intensive imported water demands, thereby contributing to increased energy efficiency in water management. Approximately 20 percent of Western's water comes from the Colorado River and this project will help reduce demands on that system. No project facilities are located within a Federal facility. Figure 1 provides a general overview of the project location; Figure 2 illustrates the location of the proposed recharge basin, extraction well and raw water pipeline. Project design has begun, construction is anticipated by June 2016 and the project will be complete by June 2018.



Path: Z:\Projects\WMWD\Events\20131205_WaterSmartApp\MXD\Fig_01_ProjectLocation.mxd

Image Source: ESRI

Legend

- [D] Arlington Desalter
- Project Location
- WMWD Service Area

N

0 5

Miles

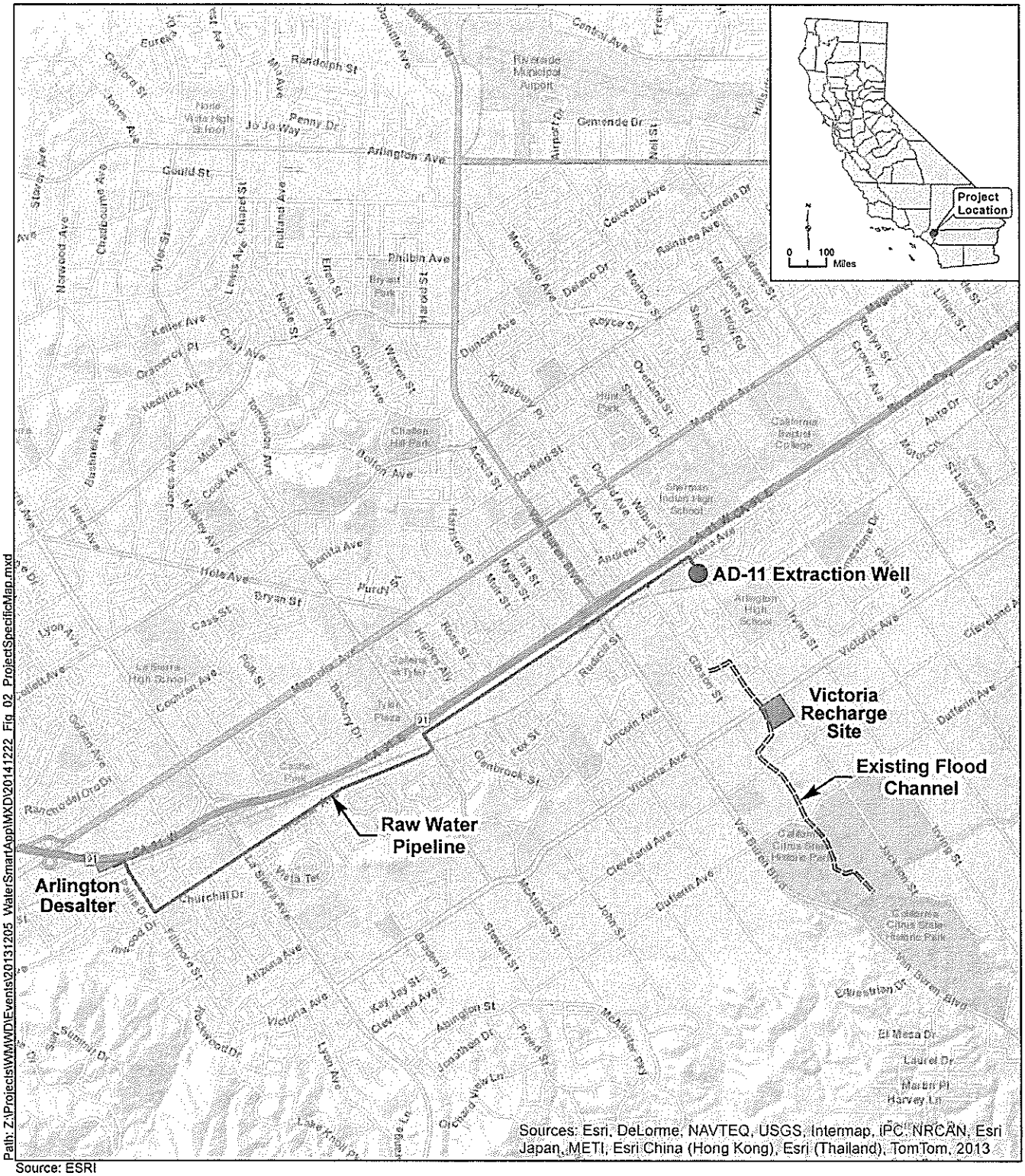
Kennedy/Jenks Consultants

Western Municipal Water District
(System ID 3310049)

Project Location

K/J 1289033*00
December 2013

Figure 1



Path: Z:\Projects\WMWD\Events\20131205_WaterSmartApp\MXD\20141222_Fig_02_ProjectSpecificMap.mxd

Source: ESRI

Legend

- AD-11 Extraction Well
- Existing Flood Channel
- Raw Water Pipeline
- Existing Arlington Desalter
- Proposed Recharge Basin

N

0 3,500

Feet

Kennedy/Jenks Consultants

Western Municipal Water District
(System ID 3310049)

Project Specific Map

K/J 1444225*00
December 2014

Figure 2

1.2 Background Data

Description of Applicant

Western supplies retail and wholesale water supplies to a 527 square-mile service area in western Riverside County, encompassing a population of over 860,000. Western is the supplemental wholesale water supplier for 13 water purveyors: Box Springs Mutual Water Company, City of Corona, Eagle Valley Mutual Water Company, Elsinore Valley Municipal Water District, Home Gardens County Water District, Jurupa Community Services District, Lee Lake Water District, the City of Norco, Rancho California Water District, City of Riverside, Riverside Highland Water Company, Rubidoux Community Services District, and the Santa Ana River Water Company. Western also serves water directly to approximately 23,000 domestic and 130 irrigation connections in its retail service area.

Water Supplies and Demand

Since 1995, total water demand within Western's retail area has been increasing, with demands nearly tripling between 1995 and 2010. As of 2010, total water demand for Western's supplies, for retail and wholesale areas, was at approximately 84,000 AFY, with retail making up approximately 30 percent. By year 2035, demand on Western's supplies is forecasted to increase by approximately 80 percent and by buildout, around the year 2040, total demands of retail and wholesale together are projected to be double the current demands, at approximately 164,400 AFY. Retail water usage includes residential, commercial, industrial and agricultural. Among those uses, residential makes up nearly 70 percent and agriculture makes up approximately 7 percent.

Water resources available to Western come from three existing sources: groundwater, imported water and recycled water. Planned supplies include new groundwater production and expanded recycled water use. Approximately 90 percent of Western's total supply comes from imported water from the Metropolitan Water District (Metropolitan). Of these imported supplies purchased by Western, about one quarter comes from the Colorado River Aqueduct and about three quarters comes from the State Water Project (SWP). Though Colorado River water makes up 25 percent of Western's *imported* supplies, it makes up approximately 20 percent of Western's *overall* supplies. Western's local water supplies come from groundwater in the Arlington, San Bernardino Basin Area, and Murrieta basins, as well as recycled water from Western's own water recycling facility. Groundwater produced at the Arlington Desalter makes up the largest proportion of local supplies and with planned delivery infrastructure improvements will meet up to 20 percent of Western's retail demand.

Water supplies are anticipated to be adequate in all water year types (normal, wet, and dry years), based on existing and planned water supplies. Planned supplies that will contribute to meeting future water demands include expanded local supplies,

such as new groundwater production and expanded recycled water use. In addition to developing supplies, Western has an active water conservation program for both its wholesale and retail customers.

1.2.1 Past Working Relationship with Reclamation

Western has received grant funds from various Reclamation grant programs in the past.

In June, 2007 Western received Challenge Grant funding for its Water Conservation Demonstration Project. This grant consisted of two projects aimed at reducing outdoor water demand. One project focused on reducing commercial, institutional, and industrial outdoor water by retrofitting high water users identified in Western's Murrieta retail area with high-efficiency sprinkler nozzles and weather-based irrigation controllers. The other project resulted in the creation of "Gardening for the Inland Empire," a user-friendly CD-ROM for residential customers.

In March 2009, President Barack Obama signed a bill authorizing the Bureau of Reclamation to participate in the design and construction of the Riverside-Corona Feeder. The Riverside-Corona Feeder is a project intended to provide new groundwater pumping capacity and new delivery pipeline capacity. The new pumping and delivery capacity will enable new water supplies from local runoff and excess imported water to be stored safely in local groundwater basins by providing the means to control water tables. When pumped, the water will be delivered to communities in western Riverside County. The project will include 20 wells and 28 miles of pipeline capable of moving 40,000 AFY of groundwater in and out of storage in the San Bernardino Basin Area.

In 2013, a WaterSMART Water and Energy Efficiency Grant was awarded to Western to fund the High Efficiency Urinal Flush-Valve Upgrade Project. Under this direct install program, an estimated 123 AFY of water will be conserved through the installation of 2,000 high-efficiency flush valves throughout Western's wholesale service area.

1.3 Technical Project Description

1.3.1 Project Description and Background Information

Project Need

Western has been experiencing significant demand increases within its service area over the last decade and, despite aggressive conservation programs, projected demands are anticipated to double within the next 30 years. Water supplies available to Western include groundwater, imported water and recycled water. Imported water makes up the largest proportion at 90 percent of total water supplies.

Western recognizes that developing local water supplies is a critical component for increasing water supply reliability, is necessary to meet projected water demands, and to reduce dependence on energy-intensive and increasingly unreliable imported water supplies. Western's plans to increase local supply reliability include the proposed project. The Arlington Basin Water Quality Improvement Project is aimed at improving water quality while increasing yield from the Arlington Basin. The proposed project would enhance groundwater production by integrating currently unused or underutilized runoff from stormwater, dry-weather flows, and raw water. The proposed recharge basin will also facilitate possible future recycled water recharge, providing a beneficial use for recycled water when demands for direct delivery of recycled water are low. Implementation of the project will further Adaptation Strategies identified in the Santa Ana Watershed Basin Study (USBR 2013), by increasing water supply and improving water quality.

Background

Groundwater produced at the Arlington Desalter makes up the largest proportion of local supplies and can meet up to 20 percent of Western's retail demand. The Arlington Basin, a subsection of the Riverside-Arlington Groundwater Basin, is not adjudicated and has not been identified or projected to be in overdraft (California Department of Water Resources 2003). The Arlington Basin is identified as a high-priority basin as part of the California Statewide Groundwater Elevation Monitoring (CASGEM) program. A basin is listed as "high priority" based on:

- Overlying population
- Projected growth of overlying population
- Presence of public supply wells
- Total number of wells
- Overlying irrigated acreage
- Reliance on groundwater as a water supply
- Impacts on groundwater including overdraft and groundwater quality degradation

Water quality of the Arlington Basin is generally poor with high total dissolved solids concentrations (on the order of 1,000 mg/L) and nitrate-nitrogen concentrations (on the order of 80 mg/L). The Arlington Desalter, which began operation in 1990, is a reverse-osmosis groundwater treatment facility at the western end of the Arlington Basin that produces potable supplies from five nearby production wells. A portion of the pumped groundwater bypasses the treatment process and is blended with the treated water. Treatment at the Desalter enables provision of a reliable source of potable water, in addition to helping decrease the subsurface outflow of poor quality groundwater to the nearby Temescal Basin.

Western has evaluated various alternatives to expand the treated product water capacity at Arlington Desalter from 6.3 million gallons per day (mgd) to up to 10 mgd. Western is concerned that expanding the Arlington Desalter could cause excessive drawdown of groundwater levels leading to reduced yields at existing Desalter wells and subsequently reduced production at the Desalter. Western is also concerned about drawdown impacts on other producers within the Arlington Basin and neighboring basins including Riverside and Temescal basins.

Starting in 2006, investigations were conducted regarding the feasibility of expanding the Arlington Desalter, which concluded that expansion would require additional groundwater recharge. During subsequent studies, Western investigated the possibility of using artificial recharge in the Arlington Basin and performed groundwater modeling to identify potential recharge sites. Investigations evaluated potential recharge sites for stormwater, urban runoff, recycled water, and non-potable water. Artificial recharge has the benefits of increasing the yield of the Arlington Basin, and avoiding a decline in water levels that could occur with increased pumping. Based on these investigations and analyses, three sites were identified as optimal for artificial recharge, with the Victoria Basin selected as the preferred site and included in this proposal.

Hydrologic modeling also showed that operational yield of the Arlington Basin could be increased by extracting groundwater in the eastern portion of the basin, where water is currently lost to spillage out of the basin. Studies identified rising areas of shallow groundwater in the eastern portion of the basin that outflows primarily to Hole Lake in the northeast. On average, 532 acre-feet (AF) outflows from the Arlington Basin to Hole Lake each year (WRIME 2011). With additional pumping in this area, spillage could be captured to provide additional groundwater yield. Studies concluded that increased recharge and the proposed extraction well would result in stabilization of basin groundwater levels and allow expansion of production at the Arlington Desalter.

1.3.2 Project Description, Activities and Implementation Schedule

The project proposed for funding consists of the construction of a recharge basin with monitoring well, an extraction well, and a raw water pipeline. The project will enable a total of 2,140 AFY additional groundwater to be extracted, by facilitating groundwater recharge of 1,875 AFY (675 AF stormwater and 1,200 AF new supplies from an adjacent groundwater basin) and capture of an additional 265 AFY groundwater that would otherwise spill to Hole Lake. This additional groundwater extraction will increase potable water supplies from the Desalter by up to 1,800 AFY.

The anticipated availability of potable water supplies is based on the following:

- Approximately 21% of pumped water bypasses treatment and is blended with treated water (0.21*2,140 = 450 AFY).

- The remaining 79% pumped water (0.79*2,140 = 1,690 AFY) is treated at the desalter. Desalter recovery is conservatively 80% (meaning 80% of the water treated becomes potable water) (0.8* 1,690 = 1,350 AFY).
- Bypassed water in addition to treated water results in 1,800 AFY of potable water (450 AFY + 1,350 AFY = 1,800 AFY).

Implementation of the proposed project will help develop local groundwater sources for use in the Western service area and reduce reliance on imported water, while improving groundwater level management, flood control, groundwater quality, and enhancing the salt management function of the Arlington Desalter.

The project is part of a Cooperative Agreement between the City of Riverside and Western to beneficially manage the Arlington and Riverside groundwater basins. Specifically, this project will include partnership with the City of Riverside to increase beneficial use of stormwater runoff. During high storm events, the City of Riverside is forced to release water from Mockingbird Lake into a nearby storm channel for flood control purposes. The proposed project will utilize releases from Mockingbird Lake for groundwater recharge.

The project furthers water quality efforts of the Riverside County Municipal Separate Storm Sewer System (MS4) permit. Pollutants in stormwater and dry-weather flows captured by the project would otherwise enter Reach 3 of the Santa Ana River. The Santa Ana River Reach 3 is impaired by high bacterial loads; urban runoff/dry-weather flows are a known contributor to fecal coliform. In addition, artificial recharge will improve water quality in the Arlington Basin by diluting the poor quality groundwater with water that has lower concentrations of total dissolved solids (TDS) and nitrate.

Anticipated benefits of project implementation are:

- **Quantifiable Water Savings**. The project will increase available Arlington Basin groundwater supplies through recharge of stormwater and urban runoff, and prevention of basin spillage. The volume of Arlington Desalter product water will increase by 1,800 AFY, resulting in savings of imported water.
- **Improved Water Supply Reliability**. The project will increase local water supply reliability and reduce dependence on imported water supplies.
- **Improved Water Management**. The project will enhance water quality and preserve a relatively low-cost source for areas served by the Arlington Desalter, including the Cities of Corona and Norco.
- **Increased Energy Efficiency in Water Supplies.** The project will develop local water supplies that require less energy and hence fewer greenhouse gas emissions compared to imported water supplies.

Figure 3 provides a detailed schedule of project activities. For the purposes of this schedule, it is assumed that notification of a grant award will occur in June 2015 and that a financial assistance agreement will be in place by September 2015.

Recharge Basin and Monitoring Well

One artificial recharge basin is proposed. The site, located in the immediate vicinity of the Arlington Desalter in the City of Riverside, is commonly referred to as the Victoria Basin (see Figure 2).

The Victoria Basin consists of an approximately 10 acre large undeveloped parcel of property located on Victoria Avenue near Jackson Street, in the southeast part of the Arlington Basin. The site is located along an existing stormwater channel connected to Mockingbird Reservoir. An inlet structure will direct the entire storm flow from the stormwater channel into the Victoria Basin. The site is also in close proximity (~500 feet) from the Riverside Canal. The Riverside Canal will be used to convey new water from the Riverside Groundwater Basin to the Victoria Basin for recharge. Approximately 500 feet of 8 inch diameter pipeline will convey water from Riverside Canal in Cleveland Street to the Victoria Basin. Western is currently in the process of finalizing purchase of the Victoria Basin site. Construction of the Victoria Basin will involve the following elements (all are approximate, final amounts will be determined after surveying and final design):

- 2,600 linear feet of fencing
- 1,300 linear feet of landscaping
- 27,300 cubic yards of rough grading/ embankment
- 8.1 acres precise grading
- 7,000 linear feet, 12 inch diameter conveyance pipeline
- 500 linear feet, 8 inch diameter pipeline
- Inlet structure

The Victoria Basin is anticipated to be operational in Dec 2016.

Extraction Well and Pipeline

Water percolated in the Victoria Basin will flow northwest and be intercepted by the proposed extraction well, AD-11, as well as the existing Arlington Desalter well field. Well AD-11 will be located in the eastern portion of the Arlington Basin, at the southwest corner of Jackson Street and Paddington Drive in Riverside (see Figure 2). The well will consist of a variable frequency drive pump and will be drilled to a depth of approximately 400 feet. Groundwater production from this well is projected to be 1,250 gallons per minute, about 1,600 AFY.

ID	Task Name	Duration	Start	Finish
0	**Arlington Water Quality Improvement Project**	**1691 days**	**Mon 1/2/12**	**Mon 6/25/18**
1	Estimated Grant Award/WaterSMART	0 days	Tue 9/1/15	Tue 9/1/15
2	**Task 1. Environmental Documentation**	**935 days**	**Wed 2/1/12**	**Tue 9/1/15**
3	CEQA	0 days	Wed 2/1/12	Wed 2/1/12
4	NEPA	88 days	Fri 5/1/15	Tue 9/1/15
5	**Task 2. Preliminary Design**	**976 days**	**Mon 1/2/12**	**Mon 9/28/15**
6	Victoria Basin	97 days	Mon 1/2/12	Tue 5/15/12
7	**AD-11 Well Drilling Recommendations**	20 days	Tue 9/1/15	Mon 9/28/15
8	**Raw Water Pipeline Preliminary Design**	47 days	Mon 6/1/15	Tue 8/4/15
9	**Task 3. Land Acquisition**	**261 days**	**Mon 9/1/14**	**Mon 8/31/15**
10	Victoria Site Acquisition	196 days	Mon 9/1/14	Mon 6/1/15
11	Well AD-11 Site Acquisition	109 days	Wed 4/1/15	Mon 8/31/15
12	**Task 4. Final Design**	**580 days**	**Tue 9/29/15**	**Mon 12/18/17**
13	Victoria Basin and Monitoring Well Plans and Specs	80 days	Tue 9/29/15	Mon 1/18/16
14	Well AD-11 Equipping Specifications	30 days	Tue 9/12/17	Mon 10/23/17
15	Raw Water Pipeline Plans and Specs	70 days	Tue 9/12/17	Mon 12/18/17
16	**Task 5. Permitting**	**680 days**	**Tue 6/30/15**	**Mon 2/5/18**
17	City of Riverside Encroachment Permit	60 days	Tue 9/26/17	Mon 12/18/17
18	Southern California Rail Authority Encroachment Permit	60 days	Tue 9/26/17	Mon 12/18/17
19	Co. of Riverside Well Drilling Permit	20 days	Tue 6/30/15	Mon 7/27/15
20	Amendment to DDW Domestic Water Supply Permit	30 days	Tue 12/26/17	Mon 2/5/18
21	**Task 6. Construction and Startup**	**635 days**	**Tue 1/19/16**	**Mon 6/25/18**
22	Bidding and Construction Contracting Victoria Basin	45 days	Tue 1/19/16	Mon 3/21/16
23	Victoria Basin Construction	110 days	Tue 3/22/16	Mon 8/22/16
24	Bidding and Construction Contracting Raw Water Pipeline	45 days	Tue 4/10/18	Mon 6/11/18
25	Bidding and Construction Contracting AD-11 Drilling	30 days	Tue 6/6/17	Mon 7/17/17
26	AD-11 Drilling	40 days	Tue 7/18/17	Mon 9/11/17
27	Bidding and Construction Contracting AD-11 Equipping	45 days	Tue 10/24/17	Mon 12/25/17
28	AD-11 Equipping	40 days	Tue 12/26/17	Mon 2/19/18
29	Raw Water Pipeline Construction	60 days	Tue 2/20/18	Mon 5/14/18
30	Victoria Basin Start-Up Testing	30 days	Tue 8/23/16	Mon 10/3/16
31	AD-11 Production Well Start-Up	30 days	Tue 2/20/18	Mon 4/2/18
32	Raw Water Pipeline Start-Up	30 days	Tue 5/15/18	Mon 6/25/18

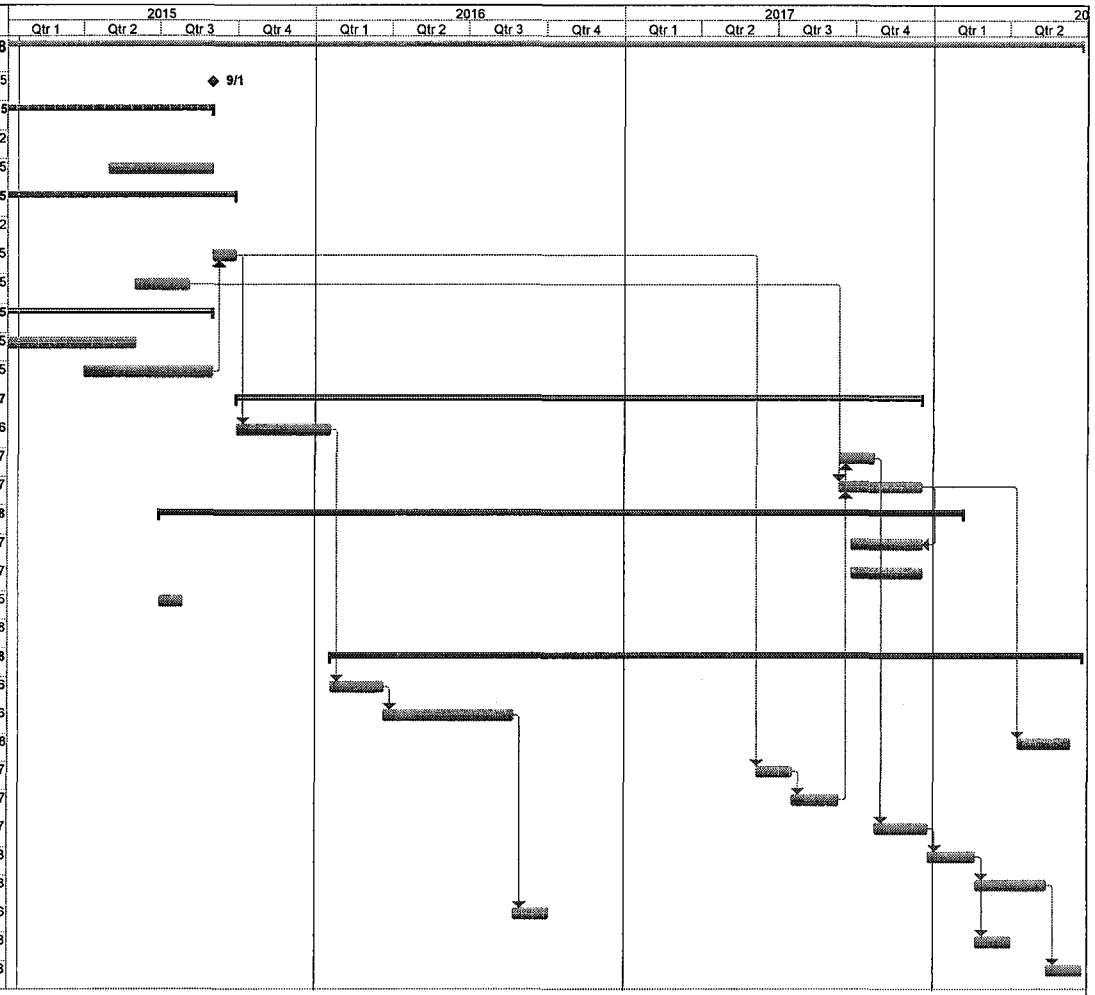


Figure 3. Schedule
Project: Arlington Water Quality Improvement Project
January 2015

Task | Milestone | Summary | Project Summary

An 18,500 foot raw water pipeline will be constructed to convey groundwater from the AD-11 extraction well to the Arlington Desalter. The raw water pipeline will consist of 12 inch diameter PVC pipe and will primarily be located within Indiana Avenue (see Figure 2).

Sources of Recharge Water

There are three primary sources of new water that will be recharged at the Victoria Basin:

- Capture of Stormwater – the Victoria Basin will receive stormwater from the adjacent Arlington Channel. Estimates of stormwater that could enter the Victoria Basin are from the Rainfall, Runoff, Router, and Root Zone Model (R4 Model) that was developed in 2009 as part of the Phase 2 Feasibility Study for Expansion of the Arlington Desalter System (this report is described in greater detail below). The Arlington Channel also conveys dry-weather/urban runoff and this will also be delivered to the Victoria Basin for recharge.

- Stormwater Releases from Mockingbird Reservoir – during high storm events the City of Riverside releases water from Mockingbird Reservoir, which then flows down the Arlington flood control channel where it can be sent to the Victoria Basin. The City of Riverside estimates that an average of 500 AFY of Mockingbird Reservoir releases could be diverted to the Victoria Basin.

- Raw Water from the Riverside Basin – Multiple entities overlying the Riverside Groundwater Basin are undertaking projects that have and will enhance stormwater recharge to this basin. An example is the Seven Oaks Dam/Santa Ana River project. The construction of Seven Oaks Dam has made it possible to store stormwater and then release this water in a manner to facilitate recharge, including recharge of the Riverside Groundwater Basin. Western has rights to the "new" water and will use existing infrastructure (e.g., the Riverside Canal) to move this raw water from the Riverside Groundwater Basin to the Victoria Basin. In essence, this raw water that will be delivered to the Victoria Basin is actually stormwater that would otherwise be shunted through flood control facilities and discharged to the ocean.

In the future, recycled water may be recharged at the Victoria Basin, but that is not a part of this proposed project.

Arlington Desalter

The Arlington Desalter is an existing facility. No modifications to the Desalter are necessary to utilize the additional groundwater production made possible by the proposed project.

Completed Work

Several technical studies have been completed to assess feasibility of additional production from the Arlington Desalter and artificial recharge.

- *Arlington Desalter Expansion Phase 2 Project Initial Study/Mitigated Negative Declaration (IS/MND).* Western completed California Environmental Quality Act (CEQA) evaluation for the Victoria recharge basin, the AD-11 extraction well and the raw water pipeline in 2012.
- *Arlington Basin Groundwater Flow Model Report, April 2008.* Western developed a numerical computer-simulation groundwater flow model to predict the hydrological impacts of an expanded Arlington Desalter. The impacts that can be evaluated include drawdown at the Desalter wells, change to basin inflows and outflows, and sustainability of aquifer utilization. The model results were analyzed to determine the feasibility of the Desalter expansion.
- *Phase 2 Feasibility Study for the Expansion of the Arlington Desalter System Report, October 2009.* Western developed several groundwater scenarios by using the Arlington Basin Groundwater Flow Model developed in 2008. The scenarios include future groundwater pumping from the Arlington Desalter wells and artificial recharge at Victoria Basin and other proposed sites. The results indicate that a combination of artificial recharge and construction of new production wells can increase the yield of the Arlington Basin, and minimize subsurface inflow and outflows from other surrounding basins.
- *Hydrogeological Investigation for Potential Recharge Sites in the Arlington Basin, May 2012.* Western has conducted a hydrogeological investigation at five proposed sites in the Arlington Basin including the Victoria Basin. The goal was to evaluate the subsurface conditions of the proposed sites for enhanced recharge and to determine if the surrounding area has been exposed to contamination that would impact the ability to recharge water.

Upcoming Work

The following tasks will be conducted as part of the Project proposed in this grant:

Task 1 – Environmental Documentation/National Environmental Policy Act Compliance
Task 2 – Preliminary Design
Task 3 – Land Acquisition
Task 4 – Final Design
Task 5 – Permitting
Task 6 – Construction and Startup

See Figure 3 for a schedule of activities.

Task 1 – Environmental Documentation/National Environmental Policy Act Compliance

CEQA for the Victoria Basin, the AD-11 extraction well and the raw water pipeline was completed in February of 2012 as part of the *Arlington Desalter Expansion Phase 2 Project IS/MND.* The CEQA document will form the basis for completing necessary National Environmental Policy Act (NEPA) documents. Based on the findings of the CEQA document, it is anticipated the NEPA document would be an Environmental Assessment/Finding of No Significant Effect. Information and documentation needed for NEPA compliance will be prepared upon notice of grant award and will be completed by September 2015.

Task 2 – Preliminary Design

Preliminary design for the recharge basin is largely complete. Western has evaluated the hydrogeologic conditions of the site, has identified the potential recharge volumes, and has determined the basic basin configuration.

Design for drilling and equipping of the AD-11 extraction well has not yet begun. Well drilling recommendations should be complete by December 2015.

The raw water pipeline is currently in the conceptual design phase. Preliminary design of the raw water pipeline should be complete by August 2015.

Task 3 – Land Acquisition

Land acquisition will be necessary for both the Victoria Basin and the AD-11 Well site. Western is in the process of acquiring the recharge site. Land acquisition for the recharge basin is anticipated to be completed in June 2015. Western anticipates purchasing land for the AD-11 Well site by September 2015.

Task 4 – Final Design

The selected engineering consultant(s) will prepare plans and specifications for the Victoria Basin including embankments, overflow structures, and inlet piping. A consultant will prepare plans and specifications for the well drilling. Following well drilling and testing, Western will solicit bids for the well equipping and raw water pipeline design.

Final design of the recharge basin will be completed by April 2016. Final design of well equipping cannot be completed until drilling and testing of the well has occurred. Final design of the raw water pipeline also depends on well production data. Well equipping design will be completed by the end of October 2017 and the raw water pipeline plans and specifications are anticipated in December 2017.

Task 5: Permitting

The raw water pipeline will be constructed in street rights-of-way, which will require acquisition of an encroachment permit from the City of Riverside. In addition, the

pipeline will cross the Metrolink right-of-way at Tyler Street, which will require an encroachment permit from the Southern California Regional Rail Authority. Encroachment permits will be obtained prior to construction in late 2017.

Construction of the monitoring well and the AD-11 extraction well will require acquisition of, and compliance with, terms of the County of Riverside Department of Environmental Health well drilling permit. Concurrent with drilling and equipping of AD-11, an amendment to the existing domestic water supply permit will need to be prepared. This document will be submitted to the State Water Resources Control Board Division of Drinking Water (formerly Department of Public Health) and must be approved before the well can supply water to the Arlington Desalter.

For applicable construction activities, it will be necessary to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Construction Permit.

Task 6 – Construction and Start-Up

Construction of the recharge basin will begin after completion of the final design. Bidding and construction contracting will occur through a competitive bidding process, after which the selected contractor(s) will construct the recharge basin according to final plans and specifications. Construction of the Victoria Basin is anticipated to be complete by November 2016.

Drilling and equipping of the extraction well is anticipated to be completed by February 2018 and the well is anticipated to become operational soon thereafter.

The pipeline will be built after the recharge basin and extraction well and is projected to be completed in May 2018.

1.4 Evaluation Criteria

Descriptive narratives addressing how the proposed project meets grant criteria are provided in the following subsections. The evaluation criteria, as described in the Funding Opportunity Announcement, are presented first in *italics*, followed by specific information on the proposed project.

1.4.1 Evaluation Criterion A: Water Conservation

1.4.1.1 Subcriterion No. A.1 – Quantifiable Water Savings

Describe the amount of water saved. *For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project. Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal (please note, the following is* ***not*** *an exclusive list of eligible project types. If your proposed project*

does not align with any of the projects listed below, please be sure to provide support for the estimated project benefits, including all supporting calculations and assumptions made).

Groundwater Recharge: *Groundwater recharge can provide savings when surface water storage evaporation is reduced and/or surface runoff is intercepted for recharge. Applicants proposing groundwater recharge projects should address the following:*

- *How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.*
- *Describe the source of the water to be used for recharge and what percentage of the recharged water is going to be available for use and how it will be used. Describe how this supply of water will offset other supplies.*
- *If water savings are based on reduced surface water storage evaporation, provide calculations for reduced evaporation losses.*
- *If water savings are based on recharge from existing surface runoff, provide calculations quantifying the estimated increased deep percolation amount.*
- *How will actual water savings be verified upon completion of the project?*

Implementation of this project will allow for an increase in product water at the Arlington Desalter in a long-term sustainable manner. The artificial recharge at the proposed basins and groundwater extraction in the eastern portion of the Arlington Basin will increase yield while avoiding drawdown impacts.

For purposes of this application, the amount of water saved or considered to be better managed with implementation of this project is equal to the total anticipated amount of additional product water at the Arlington Desalter. Based on the ratio of pumped water to product water at the Arlington Desalter, total additional product water is 1,800 AFY.

This volume of additional Arlington Desalter product water is supported by:

- 175 AFY additional groundwater recharge with stormwater
- 500 AFY additional recharge from stormwater releases from Mockingbird Reservoir
- 1,200 AFY additional recharge of raw water from the Riverside Basin
- Capture of 265 AFY groundwater spillage

Groundwater Recharge with Stormwater

The Victoria Basin will receive stormwater from the surrounding area, as well as releases from Mockingbird Reservoir. Table 1 shows total recharge volumes by source.

Table 1
Total Recharge Volumes by Source (AFY)

Basin	Stormwater[(a)]	Mockingbird Stormwater Release	Raw Water from Riverside Basin	Total Recharge
Victoria	175	500	1,200	1,875

[(a)] Includes stormflows and dry-weather flow

Flood control infrastructure within the City and County of Riverside includes a network of inlets, storm drains, and channels that convey stormwater directly out of the Arlington Basin. Major existing facilities associated with the proposed project include the Mockingbird Reservoir with associated flood control channel and the Arlington Channel. Stormwater estimates are primarily based on an R4 Model developed as part of the 2009 feasibility report (WEI 2009), which was used to calculate surface water runoff and stormwater flow at specific stormwater infrastructure facilities. Resulting values were then used to estimate runoff that would be available at Victoria Basin.

In addition to stormwater from the surrounding area, Mockingbird Reservoir will provide stormwater-related supplies to the Victoria Basin. During high storm events, the City of Riverside is forced to release water from Mockingbird Reservoir into a nearby storm channel for flood control purposes. These flow releases will be diverted to the Victoria Basin for recharge. Based on communication between Western and the City of Riverside, a minimum of 500 AFY can be assumed to be available from this source.

Groundwater Recharge with Riverside Groundwater Basin Water

As described earlier, Western will take advantage of additional stormwater recharge occurring in the Riverside Groundwater Basin. Using existing facilities, Western will move 1,200 AFY of Riverside Groundwater Basin water to the Victoria Basin for recharge.

Resulting Recharge

Estimates of the volume of recharge facilitated by this project are based on site-specific recharge capacities and the availability of specified source waters at the Victoria Basin. The maximum recharge capacity determines the maximum amount of

recharge that can occur given sufficient supplies. The recharge capacity was determined based on groundwater modeling and hydrogeological investigations (WEI 2009 and Todd Engineers 2012). The parameters determined were total area, effective recharge area, percolation rate and total number of days recharge could occur. The effective recharge area of a site is generally about 70 percent of the site's total area (WEI 2009). This percentage was used for our calculations.

Percolation rates were based on hydrogeologic data, obtained as part of a 2012 hydrogeologic investigation (Todd Engineers 2012). The WEI 2009 study assumes that two months per year is generally required for basin maintenance and that recharge is possible during the remaining ten months, approximately 300 days. It is estimated that the Victoria site will receive enough stormwater to recharge 120 days a year; when stormwater is not being recharged, raw water from the Riverside Groundwater Basin water will be delivered for percolation, allowing for an additional 180 days of recharge.

Individual values and the calculated maximum recharge capacity is shown in Table 2. Table 2 demonstrates that recharge capacity will be more than sufficient to accommodate anticipated recharge water (Table 1) and be sufficient to accommodate additional artificial recharge in the future (e.g., if and when recycled water is available).

Table 2
Recharge Basin Maximum Recharge Capacities

Basin	Area (acres)	Effective Rech. Area (acres)	Days of Recharge	Percol. Rate (ft/day)	Max. Recharge Capacity (AFY)
Victoria	10	7	300	2.3	4,830

As identified in Reclamation's *Climate Change Analysis for the Santa Ana River Watershed* (August 2013), in the future greater storm intensity and greater stormwater runoff are anticipated. This makes stormwater capture an important basin management and water supply strategy.

Groundwater Spillage Capture

In addition to groundwater recharge, increased groundwater extraction is made possible through construction of the AD-11 extraction well. Currently, elevated water levels in the eastern portion of the Arlington Basin are resulting in groundwater exiting the basin as spillage. Outflows from the Arlington Basin have been described in numerous studies and model results indicated that pumping in the eastern portion of the basin would increase yield to the Arlington Basin by reducing rising groundwater outflow to nearby Hole Lake (WEI 2009). In a 2011 groundwater flow model, these outflows were estimated to average 532 AFY (WRIME 2011).

With construction of the AD-11 extraction well, which is designed with a pumping capacity of 1,250 gpm, it is estimated that approximately 375 AFY of these flows can be intercepted and captured before exiting the basin.

Supply Offsets

Without this proposed increase in product water at the Arlington Desalter, the next available increment of water available to Western is imported water from the Metropolitan Water District, made up of California State Water Project and Federal Colorado River water. Hence, the additional 1,800 AFY of product water from the Arlington Desalter would offset an equal amount in imported water supplies.

Actual water savings will be verified through groundwater monitoring efforts that will ensure that the Arlington Basin is being sufficiently replenished and water levels maintained to enable expanded production at the Arlington Desalter. The proposed monitoring well that will be installed at the Victoria Basin will provide data for these efforts. Water savings will also be monitored by evaluating Arlington Desalter production before and after implementation of the project.

In addition, all applicants should be sure to address the following:

- *What is the applicant's average annual acre-feet of water supply?*
- *Where is that water currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground, etc.)?*
- *Where will the conserved water go?*

Total existing supplies available to Western as of 2014 amount to approximately 85,000 AFY. Sources of this water supply include imported water, groundwater and recycled water. Currently, stormwater and dry-weather flows that could recharge the Arlington Basin are not being captured and exit the basin by means of channels and other conveyance facilities. In addition, groundwater is being lost to the system due to rising groundwater outflow from the basin. The 1,800 AFY in additional potable supplies that will become available through better management of these water resources will be used to meet the demands of Western's service area customers. These local supplies will offset an equal amount in imported water supplies.

1.4.1.2 Subcriterion No. A.2 – Percentage of Total Supply

Provide the percentage of total water supply conserved: State the applicant's total average annual water supply in acre-feet. Please use the following formula:

$$\frac{\textit{Estimated Amount of Water Conserved}}{\textit{Average Annual Water Supply}}$$

Total average annual water supplies amount to approximately 85,000 AFY. The groundwater recharge occurring with this proposed project constitutes new additional in-basin supplies not accounted for in existing available water supplies. The additional expected supply is added to existing available supplies. Water savings amount to approximately 2 percent of total supplies. Using the value of total water savings equal to the estimated amount of product water available at the Arlington Desalter (1,800 AFY), the calculation would be as follows:

$$\frac{1,800}{85,000+1,800} = 2.1\%$$

1.4.2 Evaluation Criterion B: Energy-Water Nexus

1.4.2.1 Subcriterion No. B.1 – Implementing Renewable Energy Projects Related to Water Management and Delivery

The proposed project does not include implementation of renewable energy components, but will increase energy efficiency by offsetting more energy-intensive water imports. Please see Subcriterion No. B.2.

1.4.2.2 Subcriterion No. B.2. – Increasing Energy Efficiency in Water Management

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water management project (e.g., reduced pumping).

- *Please provide sufficient detail supporting the calculation of any energy savings expected to result from water conservation improvements. If quantifiable energy savings are expected to result from water conservation improvements, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.*
- *Please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements?*
- *Please indicate whether you energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.*
- *Does the calculation include the energy required to treat the water?*
- *Will the project result in reduced vehicle miles driven, in turn reducing carbon emissions? Please provide supporting details and calculations.*

- *Describe any renewable energy components that will result in minimal energy savings/production.*

The proposed project will allow up to 1,800 AFY of additional potable water supplies to be produced at the Arlington Desalter, which has a lower energy use requirement than the alternative. Imported water from Metropolitan Water District is the next available increment of water available to Western. The additional product water will offset an equal amount of energy-intensive imported water.

The California Energy Commission and Bureau of Reclamation estimate that it requires approximately 3,324 kWh per AF of water conveyed, treated and delivered in Southern California (CEC 2005; Reclamation 2013). In comparison, the proposed project requires approximately 1,817 kWh per AF for delivery from the Arlington Desalter. This energy requirement encompasses operation of wells, treatment and pumping. The resulting net reduction in energy consumption is 1,507 kWh per AF. Given that the proposed project will enable production of 1,800 AFY, implementation of this project results in an annual reduction of over 2.71 million kWh.

3,324 kWh/AF – 1,817 kWh/AF = 1,507 kWh/AF saved

1,507 kWh/AF x 1,800 AFY = 2.71 million kWh saved annually

Data from the California Climate Action Registry (as cited in Reclamation 2013) estimates energy use in the Santa Ana Watershed Basin generates 4.171×10^{-4} metric tons of CO2 per year per kWh. Based on calculations using 4.171×10^{-4} metric tons of carbon dioxide per year per kWh, approximately 1,131 metric tons of carbon dioxide release will be avoided annually.

2.71 million kWh x 4.171×10^{-4} tons CO2/year/kWh = 1,131 tons CO2 avoided annually

Changes in vehicle miles driven are not significant in the reduction of carbon emissions.

The proposed project does not include implementation of renewable energy components.

1.4.3 Evaluation Criterion C: Benefits to Endangered Species

For projects that will directly benefit federally-recognized candidate species, please include the following elements:

1. *What is the relationship of the species to water supply?*
2. *What is the extent to which the proposed project would reduce the likelihood of listing or would otherwise improve the status of the species?*

For projects that will directly accelerate the recovery of threatened or endangered species or address designated critical habitats, please include the following elements:

1. *How is the species adversely affected by a Reclamation project?*
2. *Is the species subject to a recovery plan or conservation plan under the Endangered Species Act?*
3. *What is the extent to which the proposed project would reduce the likelihood of listing or would otherwise improve the status of the species?*

The proposed project will benefit endangered species by reducing water demand on imported water supply systems. Any additional local, in-Basin water supplies, such as the 1,800 AFY accommodated by the project proposed for funding, can help to replace demand for water from the Sacramento-San Joaquin Delta pumped through the State Water Project and the Colorado River, which could lead to improved habitat conditions for non-listed species in those systems. As such, this project is consistent with the following efforts to improve the status of endangered species:

- The Bay-Delta Conservation Plan (State Water Project). There are more than seven fish species listed under the Federal Endangered Species Act that occur in the Delta. In addition, there are more than 53 plant species, nine mammal species, 10 bird species, and 23 amphibian, reptile, and invertebrate species considered to be sensitive species in the Delta (Calfed Bay-Delta Program calwater.ca.gov/delta/species/index.html). The Bay Delta Conservation Plan seeks to improve the health of the Delta as a whole (rather than on a species by species basis). The Bay-Delta Conservation Plan contemplates a suite of activities designed to improve the health of natural communities. Primary plan activities include habitat restoration actions, water conservation, and modifying the placement and operation of major water pumping and diversion facilities.
- The Lower Colorado River Multi-Species Habitat Conservation Plan. The Lower Colorado River Multi-Species Conservation Program is a plan that contains general and species-specific conservation measures for twenty-six covered species and five evaluation species. Covered species are species included under the Endangered Species Act incidental take authorization and are either currently listed or proposed for listing as threatened or endangered under Federal Endangered Species Act or are protected under Arizona, California, or Nevada law; or may become listed during the 50 year plan term. Species covered under the Lower Colorado River Multi-Species Habitat Conservation Plan include four fish, twelve birds, four mammals, two reptiles, one amphibian, one insect, and two plants.

Locally, this project will improve water quality in the Arlington Basin and decrease the subsurface outflow of poor quality groundwater to the Temescal Basin, which may have implications to locally connected surface waters and sensitive species

dependent upon these waters. The proposed project will indirectly benefit endangered species in Reach 3 of the Santa Ana River. Endangered species in the Reach 3 include the Arroyo Chub (*Gila orcutti*), Santa Ana speckled dace (*Rhinichthys osculus*), and Santa Ana sucker (*Catostomus santaanae*). The change in discharge from Hole Lake and urban runoff flows to the Santa Ana River will be minor, but these changes will mean less nitrogen, perchlorate, total dissolved solids and fecal coliform loads will enter the river.

1.4.4 Evaluation Criterion D: Water Marketing

Briefly describe any water marketing elements included in the proposed project. Include the following elements:

- *Estimated amount of water to be marketed*
- *A detailed description of the mechanism through which water will be marketed (e.g., individual sale, contribution to an existing market, the creation of a new water market, or construction of a recharge facility)*
- *Number of users, types of water use, etc. in the water market*
- *A description of any legal issues pertaining to water marketing (e.g., restrictions under Reclamation law or contracts, individual project authorities, or State water laws)*
- *Estimated duration of the water market*

1,800 AFY of additional water will be made available through this project from the Arlington Desalter. This supply will augment the local water supplies currently available for use within the Western service area and will offset an 1,800 AFY of imported water supplies that would otherwise be needed to meet local needs. The existing uses and distribution of the Arlington Desalter supplies will not change. Offsetting demands on imported water from Metropolitan Water District, however, may have other water market implications. Within the Metropolitan service area, any decrease in use in imported water by one member agency can be made available to another member agency.

1.4.5 Evaluation Criterion E: Other Contributions to Water Supply Sustainability

1.4.5.1 Subcriterion No. E.1. – Addressing Adaptation Strategies in a WaterSMART Basin Study

Proposals that provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed Basin Study (i.e., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes) may receive maximum points under this criterion. Applicants should provide as

much detail as possible about the relationship of the proposed project to the adaptation strategy identified in the Basin Study, including, but not limited to, the following:

- *Identify the specific WaterSMART Basin Study where this adaptation strategy was developed. Describe in detail the adaptation strategy that will be implemented through this WaterSMART Grant project, and how the proposed WaterSMART Grant project would help implement the adaptation strategy.*
- *Describe how the adaptation strategy and proposed WaterSMART Grant project will address the imbalance between water supply and demand identified by the Basin Study.*
- *Identify the applicant's level of involvement in the Basin Study (e.g., cost-share partner, participating stakeholder, etc.).*
- *Describe whether the project will result in further collaboration among Basin Study partners.*

Implementation of the proposed project will directly help address Adaptation Strategies identified in the Santa Ana Watershed Basin Study (USBR 2013), including "Increase Water Supply" and "Improve Water Quality". Specific activities to Increase Water Supply, as outlined in the Basin Study, which are addressed by the proposed project include efforts to "Promote conjunctive management and groundwater storage" and "Identify watershed supply sources and increase storage capacity, and improve surface water operating efficiencies." Among the activities outlined in the Basin Study to "Improve Water Quality" that are addressed by the proposed project, include efforts to "Improve Stormwater capture practices and "address ... urban runoff management."

The Arlington Basin Water Quality Improvement Project integrates improving water quality with increasing yield from the Arlington Basin in a sustainable manner. The project will facilitate capture and recharge of approximately 1,875 AFY currently unused or underutilized local water resources, which include stormwater and dry-weather flows. In addition, the proposed extraction well will help capture an additional 265 AFY groundwater spillage that would otherwise exit the Arlington Basin. By better managing these resources the yield of the Arlington Basin can be increased to create 1,800 AFY in additional potable water supplies, while avoiding drawdown impacts in the basin. In addition, the proposed recharge basins will facilitate possible future recycled water recharge when demands for direct delivery of recycled water are low. As a result, this project will provide additional options for increasing local water supplies.

Implementation of this project will also help improve water quality in local groundwater and surface water systems. Water quality of the Arlington Basin is generally poor, with high total dissolved solids concentrations (on the order of 1,000 mg/L) and nitrate concentrations (on the order of 80 mg/L). Enhanced groundwater recharge will improve water quality in the Arlington Basin by diluting the poor quality groundwater with runoff that typically has lower concentrations of TDS and nitrate.

Additionally, the proposed groundwater extraction well, in the eastern portion of the Arlington Groundwater Basin, will prevent subsurface outflow of the poor quality groundwater, which spills into Hole Lake.

Stormwater and dry-weather flows are major contributors to nonpoint source pollution in surface waters. By facilitating capture of these runoff sources, this project will help reduce water quality impacts to surface waters, particularly the Santa Ana River, which is the ultimate receiving body of these local flows.

Ensuring an adequate water supply to meet the future demands of the Santa Ana River Watershed is a top priority and concern highlighted in the Basin Study. By implementing the Arlington Basin Water Quality Improvement Project, which will address the adaptation strategies of increasing water supplies and improving water quality, local water supply reliability will be enhanced to help bring water supplies and demand into balance.

With respect to water supply, the Basin Study highlights numerous vulnerabilities in the face of climate change, which include insufficient local water supply, increased dependence on imported supply, instability to meet water demand during droughts, and shortage in long-term operational water storage capacity. The proposed project will help address these vulnerabilities by making additional water available to support existing and future water demands particularly in the Western service area, thereby resulting in:

- improved supply reliability for Western's service area
- insulation from uncertainty of imported water supplies
- reduction in imported water demands (and potentially increased availability to the Region)
- enhancement of local groundwater resources

Western provides retail and wholesale water supplies to a service area that encompasses a population of over 860,000 people and the population is continuously growing. By year 2035, Western's forecasted demand will increase by approximately 90 percent as population increases and agricultural lands are converted for municipal/industrial uses (Western 2011). At buildout, estimated sometime around year 2040, total demands on Western water supplies are projected to be almost double the current demands. As a result, meeting water demands is becoming increasingly challenging and requires a diverse water portfolio for enhanced supply reliability.

Water resources currently available to Western consist of imported water, local groundwater and recycled water with imported SWP and Colorado River water currently making up approximately 90 percent of the total supply. Increasing local demands and environmental pressures are being felt in the service area. Regionally and statewide, pressures on both the State Water Project and the Colorado River

Aqueduct are threatening the reliability of imported water supplies throughout California and the western United States. The Colorado River has experienced over a decade-long drought and available water has been over-apportioned. Reclamation and the Colorado River Basin States completed the *Colorado River Basin Water Supply and Demand Study* in December 2012. The study confirmed both current and future imbalances in Colorado River supply and demand. A range of strategies are identified by the study to resolve these imbalances, including reducing demand – which would be accomplished by the proposed project by increasing local supplies.

In recent years, SWP deliveries have been reduced in order to protect several endangered species and are impacted by climate variability. In 2014, the allocation for State Water Project supplies was finally raised to five percent after an initial estimate of zero.

By enhancing the use of local water supplies to meet future water demands, Western can reduce its demand on imported water from Metropolitan while increasing local supply reliability. In turn, Metropolitan can utilize its enhanced imported water locally to buffer against droughts and other unexpected water supply shortages.

The proposed project also enhances local groundwater supplies which tend to be more resilient during periods of drought. Climate change projections include more intensive and frequent droughts; groundwater, however, is generally less sensitive to drought conditions than surface water supplies and is considered to be a reliable source into the future. The Arlington Basin has not been identified to be in overdraft nor is overdraft projected for this basin. By implementing groundwater recharge, this project promotes long-term sustainability and enables expanded use of local resources to better ensure that water demands continue to be met.

The proposed project also contributes to water supply reliability by improving salinity management in the watershed. The brine concentrate resulting from the reverse osmosis process at the Arlington Desalter is disposed of via the Santa Ana Regional Interceptor. Through this disposal mechanism, concentrated salts and nitrates removed from the treated groundwater are conveyed out of the watershed.

Through treatment and brine disposal, it is estimated that the increased production at the Arlington Desalter, facilitated through the proposed project, will result in an additional removal of 1,929 tons per year of salt and 142 tons per year of nitrate from the watershed. This is based on the following:

- 1,690 AFY will be treated at the Arlington Desalter
- The incremental change in TDS concentration after treatment is 840 mg/L, based on a raw water concentration of 1,190 mg/L in the Arlington Basin and finished water concentration of 350 mg/L at the Arlington Desalter.

- The incremental change in nitrate concentration after treatment is 62 mg/L, based on a raw water concentration of 87 mg/L in the Arlington Basin and finished water concentration of 25 mg/L at the Arlington Desalter.

The Arlington Basin Water Quality Improvement project will contribute to improved regional integration and coordination through the widespread benefits that the surface runoff capture and Arlington Basin recharge provide. As a result, this project may facilitate future collaboration among Basin Study partners to further address issues outlined in the Basin Study.

1.4.5.2 Subcriterion No. E.2. – Expediting Future On-Farm Irrigation Improvements

This subcriterion is not applicable to this project.

1.4.5.3 Subcriterion No. E.3. – Building Drought Resiliency

If the proposed project will make water available to alleviate water supply shortages resulting from drought, please address the following:

- *Explain in detail the existing or recent drought conditions in the project area. Describe the severity and duration of drought conditions in the project area. Describe how the water source that is the focus of this project (river, aquifer, or other source of supply) is impacted by drought.*

- *Describe the impacts that are occurring now or are expected to occur as a result of drought conditions. Provide a detailed explanation of how the proposed WaterSMART Grant project will improve the reliability of water supplies during times of drought. For example, will the proposed project prevent the loss of permanent crops and/or minimize economic losses from drought conditions? Will the project improve the reliability of water supplies for people, agriculture, and/or the environment during times of drought?*

Drought conditions experienced within the Santa Ana River Watershed, similar to those experienced in most parts of the state, are resulting in critical declines in regional and local water resource availability and increasing concerns for adequately meeting ongoing water demands. Water supplies and groundwater storage across the Santa Ana River Watershed have been depleted to historic low levels and several basins are threatened by overdraft conditions due to reduced recharge under the existing drought conditions. In the Western service area, natural recharge to the local groundwater basins has significantly declined as rainfall has reached annual levels of 4 to 6 inches over the last 3 years, compared to a normal annual average of 13 inches. As a result, these local basins have experienced an overall decline in groundwater storage of 165,800 AF.

In addition, as mentioned above, Western is reliant on imported water to supplement local water supplies and meet water demands, but drought conditions have resulted in supplies from the State Water Project being curtailed to a 2014 supply allocation of merely 5 percent. The loss in imported supply has implications on overall water

supply availability, but also on groundwater use. Less imported water results in less water being available for blending purposes in order to leverage local groundwater supplies. With the uncertainty regarding the length of the current drought, enhancing use of local water supplies and improving local supply reliability in a sustainable manner is crucial for ongoing water resource management.

Additional water supplies made available through implementation of this project significantly helps improve the reliability of potable water supplies in the Western service area and mitigates other drought-related water supply reductions. Groundwater, which is the main focus of this project, is also generally less sensitive to drought conditions than surface water supplies and may be a more reliable source into the future. However, reduced availability of surface waters significantly increases dependence on groundwater resources. By implementing groundwater recharge, this project promotes long-term sustainability of the Arlington Basin and enables expanded use of these local groundwater resources to improve local water supply reliability during drought conditions and future shortages. The proposed project will increase local potable water supplies by up to 1,800 AFY thereby also enabling Western to reduce reliance on imported water from Metropolitan. In turn, Metropolitan can utilize its available imported water locally to further buffer against droughts and other unexpected water supply shortages.

1.4.5.4 Subcriterion No. E. 4. – Other Water Supply Sustainability Benefits

- *Will the project make water available to address a specific concern? For example:*
  - *Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?*
  - *Describe how the water source that is the focus of this project (river, aquifer, or other source of supply) is impacted by climate variation.*
  - *Will the project help to address an issue that could potentially result in an interruption to the water supply if unresolved?*

As described above, under Subcriterion No. E.1 and E.3, existing local water supplies are limited due to ongoing drought conditions while an intensely growing population is resulting in increasing water demands. Groundwater resources are currently impacted by significantly reduced recharge and limited availability of alternative water sources, including imported water supplies. This project will replenish and enhance groundwater resources to enable expansion of groundwater production from the Arlington Basin, in a sustainable manner. With this project, up to 1,800 AFY additional potable water supplies will be available to meet ongoing and future water demands.

- *Will the project make additional water available for Indian tribes?*

N/A

- *Will the project make water available for rural or economically disadvantaged communities?*

The Arlington Basin Water Quality Improvement Project will increase potable water availability in the Western service area, which based on American Community Survey Census Data, is made up of nearly 30% disadvantaged communities (communities where the median household income is less than 80% of the California statewide median household income). The additional water made available through this project will equally benefit all customers receiving water from the Arlington Desalter.

- *Does the project promote and encourage collaboration among parties?*
  - *Is there widespread support for the project?*
  - *What is the significance of the collaboration/support?*
  - *Will the project help to prevent a water-related crisis or conflict?*
  - *Is there frequently tension or litigation over water in the basin?*
  - *Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?*

The Western service area is encompassed within the Santa Ana River Watershed, which shares an Integrated Regional Water Management guiding document, the One Water One Watershed Plan. The proposed project was included on the list of prioritized implementation projects. These factors increase the likelihood of collaboration and broader support for this project.

The Arlington Basin Water Quality Improvement Project will contribute to improved regional integration and coordination through the widespread benefits that the surface runoff capture and Arlington Basin recharge provide. The capture and recharge of dry-weather flow and stormwater would not only increase the yield of the groundwater basin, but also benefit the Riverside County Flood Control and Water Conservation District (FCWCD) by improving runoff management. Additionally, in the case of capturing dry-weather flow, the project would provide downstream water quality benefits in the Santa Ana River and its tributaries, as well as adjacent basins impacted by Arlington Basin outflows.

Western is collaborating on this project with the Riverside County FCWCD and the City of Riverside (who operates the Mockingbird Reservoir). This collaboration will benefit from the completion of this project, rewarding and enhancing local cooperation and successfully leading to planning, design and construction of additional regional water management projects in the future.

By making up to 1,800 AFY additional potable supplies available, this project will help improve local water supply reliability and contribute to preventing mandatory water use restrictions. Additionally, increased local groundwater supplies can offset and potentially free up alternative available supplies, such as imported water, to help prevent water shortage conflicts from arising.

Limited water storage in the Arlington Basin has not been a significant source of tension, in part because the basin is not currently considered to be in a state of overdraft. Increasing recharge through implementation of this project will help maintain healthy basin conditions. Water quality issues do exist as a result of subsurface outflow of poor quality Arlington Basin groundwater, which spills into Hole Lake. This project will help reduce this spillage and reduce water quality impacts to nearby water resources. Implementation of this project will thereby help eliminate sources of potential tension, conflict or litigation in the future.

This project will result in water savings through the capture of water supplies that would otherwise exit the Arlington Basin, including stormwater and dry-weather runoff, as well as subsurface spillage. With increasing needs to improve local water supply reliability, this project has the potential to serve as an example for similar projects throughout the watershed.

- *Will the project increase awareness of water and/or energy conservation and efficiency efforts?*
    - *Will the project serve as an example of water and/or energy conservation and efficiency within a community?*
    - *Will the project increase the capability of future water conservation or energy efficiency efforts for use by others?*
    - *Does the project integrate water and energy components?*

The proposed project is a crucial step towards increasing the use of local water supplies and reducing dependence on energy-intensive imported water supplies. While the proposed project does not directly promote energy efficiency, the ability to offset demands on imported water will result in a decrease in water-related energy consumption in the Western service area. As described under Evaluation Criterion B, based on estimates by the California Energy Commission, implementation of the proposed project would result in an annual energy savings of approximately 2.71 million kWh and annual avoidance of 1,131 metric tons of carbon dioxide emissions.

1.4.6 Evaluation Criterion F: Implementation and Results

1.4.6.1 Subcriterion No. F.1. – Project Planning

Does the project have a Water Conservation Plan, System Optimization Review (SOR), and/or district or geographic area drought contingency plans in place? Does the project relate/have a nexus to an adaptation strategy developed as part of a WaterSMART Basin Study)?

Please self-certify, or provide copies of these plans where appropriate, to verify that such a plan is in place.

Provide the following information regarding project planning:

1. *Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Basin Study, or other planning efforts done to determine the priority of this project in relation to other potential projects.*

The project directly addresses adaptation strategies outlined in the 2013 Santa Ana Watershed Basin Study (USBR 2013), including to "Increase Water Supply" and "Improve Water Quality", as described under Evaluation Criterion E.

The One Water One Watershed 2.0 Plan (OWOW Plan) includes the Arlington Basin Water Quality Improvement Project in its list of prioritized implementation. The OWOW Plan is the watershed planning framework for the Santa Ana River Watershed, which was developed through facilitated efforts by the Santa Ana Watershed Project Authority (SAWPA) to guide water resource managers for the immediate future through the year 2035. Plan goals aim to, among other things, provide reliable water supply, promote sustainable water solutions, ensure high quality water for all users, and manage rainfall as a resource. Out of 152 projects received for review during plan development, 22 projects, including the proposed project, were given priority based on their merits to address the watershed goals and objectives.

The Arlington Desalter expansion, of which the proposed project is a component, was identified in Western's water supply reliability program, developed through the multi-agency Integrated Regional Water Management Plan (IRWMP). The Western IRWMP was updated in 2008 to address long term water quantity, quality, and environmental planning needs. The plan identifies water management strategies that are critical in improving water supply reliability by developing local water supplies, which would reduce the dependence on imported water. Among these management strategies is the expansion of the Arlington Desalter. The project directly aligns with or contributes to meeting three of the four IRWMP objectives: 1) new water supply, 2) basin water quality, and 3) operational flexibility of potable water supplies. The project is also described in Western's 2010 Urban Water Management Plan (UWMP) among the planned water supply projects and programs. A portion of the anticipated total yield is accounted for in the planned water supplies available to Western through 2035 and beyond. Additional planning studies, involving engineering and design work performed in support of the proposed project, have been prepared and are described below.

2. *Describe how the project conforms to and meets the goals of any applicable planning efforts, and identify any aspect of the project that implements a feature of an existing water plan(s).*

As mentioned above the proposed project will help address adaptation strategies outlined in the Santa Ana River Watershed Basin Study, particularly strategies to increase water supply and improve water quality. Details on how this will occur are described under Evaluation Criterion E.

The proposed project will help attain numerous watershed goals outlined in the OWOW Plan, including the following select goals to: provide reliable water supply, promote sustainable water solutions, ensure high quality water for all users, and manage rainfall as a resource. The proposed project will use rainfall as a resource by capturing stormwater runoff to recharge the groundwater basin. Groundwater levels will also be improved by preventing spillage and capturing available dry-weather runoff. As a result, groundwater production can be increased in a sustainable manner to provide additional potable water supplies and improve supply reliability. Water quality benefits will result from managing runoff to reduce nonpoint source pollution, recharging the basin with water of comparatively higher quality, and preventing spillage of poor quality water out of the basin.

Similarly, the proposed project will help meet the water supply reliability goals identified in Western's IRWMP, including 1) new water supply, 2) basin water quality, and 3) operational flexibility of potable water supplies.

The Arlington Basin Water Quality Project is one of the strategies essential to meeting Western's future water demands, which are anticipated to increase by approximately 90 percent by 2035. Therefore, a portion of the anticipated total yield of this proposed project has been accounted for in the planned water supplies described in Western's 2010 UWMP.

The proposed project also directly aligns with numerous resource management strategies outlined in the California Water Plan to help meet the water resource management needs of the Western service area and State, as well as the Colorado River Basin Study recently completed by Reclamation and the Basin States. These strategies include: increasing water supply through conjunctive management of groundwater and desalination, improving water quality through drinking water treatment and distribution, pollution prevention, salt and salinity management, and urban runoff management.

1.4.6.2 Subcriterion No. F.2. – Readiness to Proceed.

Describe the implementation plan of the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Please explain any permits that will be required, along with the process for obtaining such permits. Identify and describe any engineering or design work performed specifically in support of the proposed project.

The overall project schedule is provided in Figure 3 and project activities are described in Section 1.3.2. Upon notice of grant award, implementation of the project will proceed with preparation of appropriate NEPA documentation. The project will be fully operational by June 2018.

Permits to be obtained include: well drilling permits from the County of Riverside Department of Environmental Health for the monitoring well and the extraction well, and encroachment permits from the City of Riverside and the Southern California

Regional Rail Authority for the pipeline. Compliance with NPDES/General Permit for Discharge of Storm Water associated with Construction Activity will be necessary for construction of all applicable components of the project.

The construction contractor(s) will be required to obtain necessary drilling permits. This is generally a ministerial permit and takes less than one month to obtain. The design contractor will acquire necessary encroachment permits. These permits cannot be applied for until design is underway and generally take two to three months to obtain. The selected contractor(s) will be required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (part of the NPDES program). The contractor will be required to develop and follow a plan to prevent erosion and reduce sediment and other pollutants in stormwater discharge.

Before the new raw water from the AD-11 well can be delivered to the Arlington Desalter, Western will need to obtain an amendment to the existing domestic water supply permit from the Division of Drinking Water. Western will apply for this permit following well drilling, concurrent with well equipping activities.

The expansion of the Arlington Desalter, of which the proposed project is a component, has been evaluated in and supported by numerous studies. The studies have provided an understanding of the dynamics and conditions of the Arlington Basin itself, estimated impacts and benefits of implementing the expansion program and supported implementation of the proposed recharge basins and extraction well, as a means of ensuring that desalter operations will occur under sustainable conditions.

In 2006, Wildermuth Environmental, Inc. was contracted to conduct a feasibility study for the desalter expansion. The activities performed included hydrogeologic investigations, groundwater and surface water monitoring programs, and development of a numerical groundwater-flow model of the Arlington Basin aquifer system, which has been used in further analyses. The feasibility study included analysis of the recharge water sources, including their availability, and the recharge capacity of identified recharge basins. In addition, model results indicated that new extraction in the eastern portion of the basin would provide additional yield to the Arlington Basin by reducing rising groundwater outflow to Hole Lake. Results of these investigations were the 2008 *Arlington Basin Groundwater Flow Model* and the 2009 *Phase 2 Feasibility Study for the Expansion of the Arlington Desalter System* (WEI 2008 and 2009).

A 2010 report titled, *Groundwater Flow Modeling of the Arlington Basin to Evaluate Management Strategies for Expansion of the Arlington Desalter Water Production*, reported results from model simulations of various groundwater management scenarios, under the desalter expansion program, over the 30-year life of the facility. These scenarios showed the impacts of the desalter expansion and improvements that could be obtained through implementation of additional facilities in association

with the expansion, including new groundwater wells and recharge basins (Manghi, et al. 2010). An additional report was published in 2011 on the *Riverside-Arlington Flow Model – Model Development and Scenarios*. This report provided a detailed analysis of the Arlington Basin annual groundwater budget, including safe yield and outflow estimates, as well as results of future potential management scenarios. The model enabled simulation of reduced outflow of rising groundwater with extraction in the eastern portion of the basin (WRIME 2011).

Additionally, Todd Engineers conducted a hydrogeological investigation in 2012 to evaluate subsurface conditions of proposed recharge sites and potential for enhancing recharge. An extensive field program was implemented as part of this investigation enabling conclusions to be made on the recharge volumes that could be accommodated at the proposed sites including the Victoria Basin. This report includes the preliminary recharge basin design.

1.4.6.3 Subcriterion No. F.3. – Performance Measures.

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved, marketed, or better managed, or energy saved). For more information calculating performance measure, see Section VIII.A.1. "FY2015 WaterSMART Water and Energy Efficiency Grants: Performance Measures".

Western has developed specific Performance Measures that will be used to evaluate the actual performance of the proposed project and water recharge benefits.

Groundwater elevation will be a crucial parameter to be measured during project implementation, in order to verify that the enhanced groundwater recharge is replenishing the aquifer as anticipated and extraction at Well AD-11 is having intended effects. The monitoring well, installed at the Victoria Basin as part of this proposed project will be connected to Western's existing SCADA system and will provide real-time monitoring of groundwater levels. Comparisons will be made between baseline groundwater elevations established through recent modeling and groundwater elevations measured during and after project implementation.

Details on project Performance Measures are provided in Section 2 of this Application.

1.4.6.4 Subcriterion No. F.4. – Reasonableness of Costs.

Please include information related to the total project cost, annual acre-feet conserved, energy capacity, or other project benefits and the expected life of the improvement(s).

For all projects involving physical improvements, specify the expected life of the improvement in number of years and provide support for the expectation (e.g., manufacturer's guarantee, industry accepted life-expectancy, description of corrosion

mitigation for ferrous pipe and fittings, etc.). Failure to provide this information may result in a reduced score for this section.

The proposed project is a highly cost-effective alternative for improving water management and increasing local supply reliability through the enhancement of local groundwater supplies. The additional groundwater made available through this project offsets a like amount of more costly water supplies. The alternative water source available to the project region is imported water from the Metropolitan Water District. Effective January 2015, the cost of treated imported water from the Metropolitan Water District is $923 per AF.

As detailed in the Project Budget discussion, the estimated project cost for the proposed project is $8,287,115. The amount of water conserved is 1,800 AFY, which for purposes of this application, is equal to the additional product water available at the Arlington Desalter with implementation of this project.

The minimum estimated life of the proposed project is based on an operational life of 30 years of the Arlington Desalter. The 30 year estimate is based on the fact that the Arlington Desalter has been in operation for approximately 20 years and treatment plants have a typical useful life of up to 50 years (US EPA 2012). The proposed recharge basins will undergo regular maintenance to maintain optimal infiltration rates throughout the operational life of the Arlington Desalter project.

1.4.7 Evaluation Criterion G: Additional Non-Federal Funding

State the percentage of non-Federal funding provided.

The majority of project costs will be funded by local match from Western, approximately 88 percent. The ratio of non-federal funding to total project cost is shown below:

$$\frac{\$7,287,115 \text{ (Non-Federal Funding)}}{\$8,287,115 \text{ (Total Project Cost)}} = 88\%$$

1.4.8 Evaluation Criterion H: Connection to Reclamation Project Activities

1. *How is the proposed project connected to Reclamation project activities?*

The proposed project will be implemented within southern California which is within the area that receives water from the Lower Colorado River/Boulder Canyon Project. Approximately 20 percent of Western's imported supplies, purchased from Metropolitan Water District, consist of Colorado River water. The project will also help to reduce reliance on water from the State Water Project diverted from the Sacramento-San Joaquin Delta region, any benefits of which could accrue to the general health of the Bay Delta as well as the continued operation of Reclamation's Central Valley Project.

2. *Does the applicant receive Reclamation project water?*

Approximately 20 percent of Western's imported water purchases come from the Colorado River via the Colorado River Aqueduct.

3. *Is the project on Reclamation project lands or involving Reclamation facilities?*

The proposed project would not directly involve Reclamation project lands or involve Reclamation facilities.

4. *Is the project in the same basin as a Reclamation project or activity?*

The proposed project will be implemented within Western's service area, in the City of Riverside. This region is within Reclamation's Lower Colorado Region and is served by Reclamation's Boulder Canyon Project.

5. *Will the proposed work contribute water to a basin where a Reclamation project is located?*

The proposed project will reduce demands for water in southern California. This in turn will reduce demands for both Colorado River Water (Reclamation's Boulder Canyon Project) and Sacramento-San Joaquin Delta water (Reclamation's Central Valley Project).

6. *Will the project help Reclamation meet trust responsibilities to Tribes?*

The proposed project will not provide direct benefits to federally recognized Indian tribes.

Section 2: Description of Performance Measures

The objective of the proposed project is to increase Arlington Basin groundwater supplies to expand product water capacity at the Arlington Desalter without the negative impacts from groundwater drawdown. For the evaluation of post-project benefits, efforts similar to those conducted prior to initiation of the project will be conducted.

Numerous studies have been conducted to evaluate the feasibility of the Arlington Desalter Expansion, of which the proposed project is a component. These studies have been described earlier in this application (see response to subcriterion F.2) and provide an understanding of the dynamics and conditions of the Arlington Basin itself, the appropriate locations for recharge sites for the desalter expansion, and the estimated impacts and benefits of implementing the expansion program. These existing studies will be essential for establishing a pre-project baseline.

A crucial parameter to be measured during project implementation will be groundwater elevation, in order to verify that the enhanced groundwater recharge is replenishing the aquifer as anticipated and the AD-11 extraction well is having the intended basin effects. Levels will be measured through real-time monitoring at wells and through groundwater elevation modeling. Comparisons will be made between baseline data on groundwater elevations from recent studies and groundwater elevations measured and modeled during and after project implementation. The monitoring well installed at the Victoria Basin as part of this proposed project will provide essential groundwater elevation data for these evaluations.

Additionally, as a mitigation measure listed in the 2012 CEQA document, Western is required to:

> *"implement a groundwater monitoring program at and adjacent to the proposed recharge basins to determine the depths to groundwater that occur with implementation of the recharge program."*

While this monitoring program is focused on ensuring that liquefaction potential is not being exacerbated by the project, the data will inform the performance evaluation.

The results of the observations and analyses will allow Western to assess the water management assumptions included in this proposal and refine the volumes of additional product water that can be sustainably produced at the Arlington Desalter.

Section 3: Environmental and Cultural Resources Compliance

As part of the WaterSMART grant application, Reclamation is requesting a discussion of the probable environmental and cultural resources impacts associated with the proposed project. The majority of the discussion on project impacts is based on the 2012 *Final Mitigated Negative Declaration and Initial Study (IS/MND) for the Western Municipal Water District's Arlington Desalter Expansion Phase 2 Project.* The evaluation included the Victoria recharge site, the raw water pipeline and AD-11 extraction well as components of project alternatives.

The following discussions relate to all components of the proposed project.

(1) Will the project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

The project will consist of construction activities related to implementation of a recharge basin and associated facilities, raw water pipeline and extraction well. Construction activities may result in potential impacts to the surrounding environment.

Air quality impacts from the proposed project are anticipated to be less than significant with implementation of mitigation measures. The "Air Quality Impact Analysis Arlington Desalter Project" (2009) evaluated the potential air emissions associated with construction and operation of this project. Potential short-term air quality impacts attributable to the facilities proposed for funding as part of this application may result from excavation and construction of recharge basins, installation of the raw water pipeline, drilling and equipping of the extraction well and associated activities. However, the IS/MND found that regional air quality impacts associated with construction equipment activity during typical activities would be less-than-significant for every air pollutant even if all construction phases were to occur simultaneously. Long-term emissions may result from operations and maintenance of the proposed facilities; however, they are not anticipated to result in substantial air emissions. Mitigation measures will be implemented to ensure that potential impacts are less than significant and that project activities will not exceed South Coast Air Quality Management District significance thresholds. Mitigation measures will include the following:

- Using best available control measures during soil disturbance

- Limit allowable idling to 5 minutes for trucks and heavy equipment before shutting the equipment down
- Utilizing equipment that will minimize diesel-related air quality impacts

The project, overall, will have positive impacts on water quantity and quality, by contributing to increased groundwater basin yield and improving water quality through enhanced stormwater and urban runoff management. Additionally, reduced outflows of poor quality Arlington Basin groundwater will provide downstream water quality benefits.

Construction activities will be conducted in compliance with local and state stormwater laws, including the County of Riverside stormwater program, which will minimize potential stormwater quality impacts resulting from project activities. Coverage under the General Permit for Discharge of Storm Water associated with Construction Activity will be obtained. Regardless, as specified in the 2012 IS/MND, Western will be required to prepare and implement a stormwater pollution prevention plan (SWPPP) which will specify best management practices to prevent construction activities to cause offsite water quality impacts. Changes to inflow and outflow of groundwater in the Arlington Basin are not anticipated to affect known sensitive biological resources.

The proposed project is located within already disturbed areas and there are no anticipated impacts on animal habitat within the project area. The proposed project is primarily located within an area designated Urban and Built-Up Land, according to the City of Riverside General Plan. Such areas are not considered to contain any significant native habitat or sensitive biological resources.

Biological surveys were conducted to identify the presence or absence of special status species identified in the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) and California National Diversity Data Basin (CNDDB). No sensitive species or species of concern were found to occur within the project area, nor is there appropriate habitat present for any species found in the MSHCP or CNDDB search.

There are no significant effects on biological resources related to this project and therefore no mitigation measures are necessary.

(2) Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

As mentioned above, the project will be implemented in areas that are already developed or disturbed, where sensitive biological resources have not been identified. As such, construction activities are not anticipated to affect species that are listed or proposed for Federal listing.

(3) Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "waters of the United States?" If so, please describe and estimate any impacts the project may have.

The IS/MND evaluated potential impacts to wetland areas, including reduced flow to Hole Lake. The IS/MND concluded that no "waters of the United States" will be affected; no wetlands or riverine riparian habitat exist within the project area.

Water conveyance facilities within the project site are major Riverside County flood control channels that include the Arlington Channel, Arizona Channel and the La Sierra Channel. Any channel modification or potential impacts to these channels will be done in compliance with applicable permits and laws.

(4) When was the water delivery system constructed?

The Arlington Desalter, which the proposed project is associated with, began operation in 1990. It was initially constructed for basin salt management and to reduce the subsurface outflow of poor quality groundwater from the Arlington Basin. Since 2004, when the Desalter was approved by the California Department of Public Health as a potable water supply, the Desalter has been delivering potable water supplies within the Western service area.

(5) Will the project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

The proposed project will not result in any modification of or effects to, individual features of an irrigation system.

(6) Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

Victoria Avenue in Riverside, between Arlington Avenue and Boundary Lane was listed on the National Register of Historic Places in 2000 (No. 00001267). While, Victoria Avenue runs through the project site, the portion of Victoria Avenue listed on the National Register is located outside of the project boundaries and therefore will not receive any direct impact from project activities.

(7) Are there any known archeological sites in the proposed project area?

There are no known archaeological sites in the proposed project area. A study of the area of potential effect was conducted as part of the project initial study. Results indicated that while five historical/archaeological sites were previously identified

within or adjacent to portions of the project area, Victoria Avenue, described above, is the only site existing or still eligible for such designation.

(8) Will the project have a disproportionately high and adverse effect on low income or minority populations?

The project will not have a disproportionately high or adverse effect on low income or minority populations. The project will equally benefit all customers receiving water from the Arlington Desalter.

(9) Will the project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

It is not anticipated that the proposed project will limit access to, or ceremonial use of, Indian sacred sites or tribal lands. A sacred lands record search failed to identify any Native American cultural resources within the project area. Correspondence with local Native American groups did not result in additional concerns.

(10) Will the project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

The proposed project is not anticipated to contribute to the introduction, continued existence, or spread of, noxious weeds or non-native invasive species.

Section 4: Required Permits and Approvals

As described in the project activities in previous sections, the proposed project will require several permits:

- Well drilling permits for the monitoring well and AD-11 well from the County of Riverside Department of Public Health
- Encroachment permits from the City of Riverside and Southern California Regional Rail Authority for pipeline installation
- An amendment to the existing domestic water supply permit for use of a new well in the Arlington Desalter system from the Division of Drinking Water
- Documentation of compliance with the General Permit for Discharges of Storm Water Associated with Construction Activity

The proposed project does not include a renewable energy component subject to FERC permitting or a Reclamation Lease of Power Privilege.

The construction contractor(s) will be required to obtain necessary drilling permits. This is generally a ministerial permit and takes less than one month to obtain. The design contractor will acquire necessary encroachment permits. These permits cannot be applied for until design is underway and generally take two to three months to obtain. The selected contractor(s) will be required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (part of the NPDES program). The contractor will be required to develop and follow a plan to prevent erosion and reduce sediment and other pollutants in stormwater discharge.

Before the new raw water from the AD-11 well can be delivered to the Arlington Desalter, Western will need to obtain an amendment to the existing domestic water supply permit from the State Water Resources Control Board Division of Drinking Water (formerly California Department of Public Health). Western will apply for this permit following well drilling, concurrent with raw water pipeline construction.

Section 5: Official Resolution

The Board of Directors for the Western Municipal Water District adopted Resolution 2896 which authorizes Western to apply for a WaterSMART grant and to execute a Cooperative Agreement with Reclamation for implementation of the proposed project. The resolution agrees to use the funds identified in this funding plan for the proposed project. Resolution 2896 is provided in Appendix A.

Section 6: Project Budget

6.1 Funding Plan and Letters of Commitment

(1) How you will make your contribution to the cost share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).

The estimated project cost for the proposed project is $8,287,115. With this application, Western is requesting approximately 12 percent of the total project costs, $1,000,000. Western proposes to fund the proposed project using Reclamation funding, $1,000,000 in state of California grants, its own funding, and funds from the Riverside County FCWCD ($1,000,000). Western proposes its cost share come from Capital Improvement Plan funds that are made up of revenue from Western's rate structure.

(2) Describe any in-kind costs incurred before the anticipated project start date that you seek to include as project costs. Include:

(3) What project expenses have been incurred

a) How they benefitted the project

b) The amount of the expense

c) The date of cost incurrence

Western has already completed extensive feasibility studies and environmental documentation related to the project (at a cost of approximately $300,000), but this work was completed before July 1, 2014. Since July 2014 Western has:

- prepared the request for proposals for basin design services. This cost, $1,102, was incurred in July 2014.
- addressed issues and concerns raised by the City of Riverside on the California Environmental Quality Act documentation. This cost, $900, was incurred in August and September 2014.

Prior to grant execution Western will acquire both the Victoria Recharge Basin site and the Well AD-11. These costs, approximately $1,663,200 will occur between June and September 2015.

(4) Provide the identity and amount of funding to be provided by funding partners, as well as the required letters of commitment.

As stated in the commitment letter found in Appendix B, the Riverside County FCWCD is a funding project partner and has committed $1,000,000 of the project costs.

(5) Describe any funding requested or received from other Federal partners. Note: other sources of Federal funding may not be counted towards your 50 percent cost share unless otherwise allowed by statute.

No funding has been requested or received from other Federal partners.

(6) Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.

There are no other outstanding funding requests.

Table 3 below summarizes non-Federal and Federal funding sources for the proposed project.

TABLE 3
SUMMARY OF NON-FEDERAL AND FEDERAL FUNDING SOURCES

Funding Sources	Funding Amount
Non-Federal Entities	
1. Western Municipal Water District – CIP Fund	$5,287,115
2. Riverside County FCWCD	$1,000,000
3. State of California, Proposition 84	$1,000,000
Non Federal Subtotal:	*$7,287,115*
Other Federal Entities	N/A
Requested Reclamation Funding:	$1,000,000
Total Project Funding:	$8,287,115

The proposed project falls under Funding Group II. Therefore, the following table (Table 4) has been included to summarize the Federal funding request by year.

TABLE 4
FUNDING GROUP II FUNDING REQUEST

Funding Group II Request			
	Year 1 (FY 2015)	**Year 2 (FY 2016)**	**Year 3 (FY 2017)**
Funding Requested	$60,000	$340,000	$600,000

6.2 Budget Proposal

Funding sources for the proposed project currently include funding from Western, State of California, Riverside County FCWCD, and the requested funding from Reclamation. Of the $8,287,115 total project cost, requested Reclamation funding will cover approximately 12 percent. See Table 5.

TABLE 5
FUNDING SOURCES

Funding Sources	Percent of Total Project Cost*	Total Cost by Source
Western Funding (Recipient)	64%	$5,287,115
Riverside County FCWCD (Project partner)	12%	$1,000,000
State of California Proposition 84 Grant	12%	$1,000,000
Reclamation Funding	12%	$1,000,000
Other Federal Funding	0%	$0
Totals	**100%**	**$8,287,115**

*Percentages are rounded up.

The Project Budget will consist of costs associated with the construction of the proposed project, including equipment, supplies, materials, contractual/construction, environmental and regulatory compliance, and reporting. The budget proposal is provided in Table 6. The budget items included in Table 6 are described below.

6.2.1 Salaries, Wages, and Fringe Benefits

The majority of project work will be conducted by specialized contractors. For this reason, Western will not be seeking reimbursement for Western staff time spent on the Arlington Basin Water Quality Improvement Project.

6.2.2 Travel

Consultant costs for travel are included in the line item for "Contractual". Western staff anticipate visiting the recharge sites periodically during construction, but travel within the Western service area is a part of normal activity for Western staff and no reimbursement or match for staff travel is being sought.

6.2.3 Equipment, Materials, and Supplies

It is anticipated that the Victoria Basin will require approximately 2,600 linear feet of fencing, costing approximately $75 per linear foot or $195,000. Other supplies include 12 inch PVC piping, 8 inch piping, outlet works, landscaping supplies, and a monitoring well (see Table 6). All supplies are related to construction.

TABLE 6
BUDGET PROPOSAL

Budget Item Description	Computation		Quantity Type	Total Cost
	$/Unit	Quantity	(hours/days)	
Salaries and Wages				
Not Applicable		0	hrs	$ -
Fringe Benefits				
Not Applicable		0	hrs	$ -
Travel				
Not Applicable		0	hrs	$ -
Equipment, Supplies, and Materials				
Fencing/Steel	$ 75	2,600	Linear Feet	$ 195,000
12" PVC piping	$ 120	7,000	Linear Feet	$ 840,000
Outlet Works	$ 300,000	1	L.S.	$ 300,000
8" PVC piping	$ 80	500	Linear Feet	$ 40,000
Monitoring Well	$ 37,000	1	Each	$ 37,000
Landscaping	$ 30	1,300	Linear Feet	$ 39,000
Contractual/Construction				
NEPA Consultant	Vendor Estimate			$ 10,000
Basin Design Consultant	20% construction cost			$ 314,800
Well Design Consultant	15% construction cost			$ 120,000
Well Equipping Consultant	20% equipping cost			$ 110,000
Raw Water Pipeline Design Consultant	20% construction cost			$ 488,030
Victoria Basin Contractor	Engineers Estimate			$ 1,574,000
AD-11 Drilling Contractor	Engineers Estimate			$ 800,000
AD-11 Equipping Contractor	Engineers Estimate			$ 550,000
Raw Water Pipeline Contractor	Engineers Estimate			$ 2,440,150

Table 6. cont.

Budget Item Description	Computation		Quantity Type	Total Cost
	$/Unit	Quantity	(hours/days)	
Construction Management/ Administration	Engineers Estimate			$ 429,135
Total Direct Costs				**$ 8,287,115**
Indirect Costs				0
Total Project Costs				**$ 8,287,115**

6.2.4 Contractual/Construction

Contractual/Construction work to be performed by contractors is described in section 1.3.2 of this application. Contractors are anticipated to be used to perform preliminary and final design, assist with land purchases and easements, construct the Victoria Basin, install the monitoring well, design and equip Well AD-11, and design and construct the raw water pipeline. A contractor will also be utilized as an independent construction manager, who will also have responsibility for labor compliance during construction. Cost estimates for contractors are based on past experience with other projects in the same geographic area and are considered fair and reasonable.

6.2.5 Environmental and Regulatory Compliance Costs

As described in Section 3, Western has evaluated the potential environmental impacts of increased groundwater extraction as well as the construction of proposed recharge basins (*Final Mitigated Negative Declaration and Initial Study for the Western Municipal Water District's Arlington Desalter Expansion Phase 2 Project)*. The evaluation included the Victoria recharge site, the raw water pipeline, and the AD-11 extraction well as components of project alternatives. The cost to prepare the IS/MND was approximately $40,000.

Western will hire a contractor to take information in the CEQA document and demonstrate compliance with the Clean Water Act, Endangered Species Act, National Historic Preservation Act, and to undertake any needed consultation with tribes and the State Historic Preservation Office. Based on the findings of the CEQA document, no new major work or technical studies are anticipated as being necessary to complete NEPA documentation. The costs for NEPA are expected to be approximately $10,000.

6.2.6 Reporting

Western anticipates regular, quarterly reporting on project activities. Reporting activities are within Western's regular operations and practice. During construction, reporting will be the responsibility of the Construction Administration Consultant.

6.2.7 Indirect Costs

Fringe benefits are not included in the overall project budget. No indirect costs are included in the proposed budget.

6.3 Total Cost

The total cost of the proposed project is $8,287,115. Western is requesting $1,000,000 in funding from the Bureau of Reclamation to fund the proposed project. This represents 12 percent of the total project costs. No other Federal funding has been requested or received for the Arlington Basin Water Quality Improvement Project.

Section 7: References

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APPENDIX A

Resolution to Execute Cooperative Agreement with the United States Bureau of Reclamation

RESOLUTION 2896

A RESOLUTION OF THE BOARD OF DIRECTORS OF WESTERN MUNICIPAL WATER DISTRICT AUTHORIZING WESTERN MUNICIPAL WATER DISTRICT'S APPLICATION FOR THE BUREAU OF RECLAMATION WATERSMART: WATER AND ENERGY EFFICIENCY GRANT FOR THE ARLINGTON BASIN WATER QUALITY IMPROVEMENT PROJECT

WHEREAS, the Western Municipal Water District of Riverside County ("Western") is a municipal water district established pursuant to Section 71000 et seq. of the California Water Code; and

WHEREAS, Western's imported water supply is facing a growing list of challenges associated with a prolonged drought, cutbacks on the State Water Project deliveries, Delta instability, climate change, aging infrastructure, and growing population; and

WHEREAS, Western, by way of adoption by the Board of Directors of their Integrated Regional Water Management Plan in December of 2008, has affirmed the importance of projects that address long range water quantity, quality, and environmental planning; and

WHEREAS, the United States Department of the Interior, Bureau of Reclamation ("Reclamation") under WaterSMART: Water and Energy Efficiency Grants Fiscal Year 2015, Funding Opportunity Announcement #R15AS00002 program, will make funding available to qualifying applicants; and

WHEREAS, the Board of Directors of the Western Municipal Water District identified a project that exemplifies the objectives of the WaterSMART Grant in the Arlington Basin Water Quality Improvement Project; and

WHEREAS, Western agrees to the administration and cost sharing requirements of the WaterSMART Grant criteria.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Directors of the Western Municipal Water District as follows:

Section 1. Western Municipal Water District is hereby authorized to receive, if awarded, the WaterSMART Grant Program: Water and Energy Efficiency Grant funding in the amount of up to $1,000,000 and will make a good faith effort to enter into a cooperative agreement with Reclamation for the receipt and administration of said funds.

Section 2. The General Manager, John V. Rossi, or his designees, Craig Miller, Jeff Sims, and Derek Kawaii, are hereby authorized to take any and all action necessary for the completion and execution of the project agreement and to take any and all other action necessary for the receipt and administration of the grant funding in accordance with the requirement of the Bureau of Reclamation.

Section 3. This resolution officially becomes a component part of Western Municipal Water District's grant application.

Section 4. The Board of Directors has reviewed and supports the application submitted.

Section 5. Western Municipal Water District is capable of providing the amount of funding and/or in-kind contributions specified in the grant application funding plan.

Section 6. This Resolution shall be effective as of the date of adoption.

ADOPTED, this 7th day of January, 2015.

BRENDA DENNSTEDT
President

January 7, 2015

I HEREBY CERTIFY that the foregoing is a full, true and correct copy of Resolution 2896 adopted by the Board of Directors of Western Municipal Water District of Riverside County at its regular meeting held January 7, 2015.

S.R. "AL" LOPEZ
Secretary-Treasurer

APPENDIX B

Letter of Commitment from the Riverside County Flood Control and Water Conservation District

WARREN D. WILLIAMS
General Manager-Chief Engineer

1995 MARKET STREET
RIVERSIDE, CA 92501
951.955.1200
FAX 951.788.9965
www.rcflood.org

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

January 21, 2015

Ms. Michelle Maher
Bureau of Reclamation - Financial
Assistance Management Branch
Mail Code: 84-27810
Post Office Box 25007
Denver, CO 80225

Dear Ms. Maher:

Re: Letter of Commitment – Arlington Basin Water Quality Improvement Project

The Riverside County Flood Control and Water Conservation District ("District") will take to its Board on January 27, 2015, an agreement for consideration, whereby, the District will contribute up to $1,000,000, depending on construction costs toward the Arlington Basin Water Quality Improvement Project (Project), consistent with the District's approved budget.

The Arlington Basin Water Quality Improvement Project consists of the construction of recharge facilities, an extraction well, and a raw water pipeline connecting the extraction well to the existing Arlington Desalter. The Project will percolate currently unused or under-utilized local water resources, including stormwater and dry weather flows, and improve water quality by reducing outflow from rising groundwater that currently impacts the Santa Ana River. The Project will enhance water supplies within District Zones 1 and 2.

If you have any questions on this funding commitment, feel free to call Art Diaz at 951.955.8602.

Very truly yours,

WARREN D. WILLIAMS
General Manager-Chief Engineer

c: Western Municipal Water District
Attn: Mr. Fakhri Manghi
Ms. Karly Gaynor

AD:cw
P8/167614