Southern Nevada Water Authority
Water Smart Landscapes Rebate Program
($1,000,000)

Applicant:
Southern Nevada Water Authority

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1. Technical Proposal: Executive Summary

Date: January 20, 2016
Applicant: Southern Nevada Water Authority
Location: 1001 South Valley View Boulevard
Las Vegas, NV 89153 (Clark County)

Project Overview:
As severe and sustained drought conditions in the Colorado River Basin continue to threaten water supplies and delivery systems, water conservation has become a critical tool in helping to ensure a safe and reliable drinking water supply for Southern Nevada. Since 1991, the Southern Nevada Water Authority (SNWA) and its member agencies have implemented one of the most comprehensive and aggressive water conservation programs in the United States. Conservation initiatives have helped to save billions of gallons of water annually, extending the availability of Nevada's 300,000 acre-feet per year (AFY) Colorado River water appropriation. Within the SNWA's member agencies' service areas, nearly all water used meets municipal demands.

This project proposal seeks $1,000,000 from the Bureau of Reclamation (Reclamation) WaterSMART Water and Energy Efficiency Grants to support Southern Nevada's continued water conservation efforts. Funding will support a portion of the SNWA's Water Smart Landscapes Rebate Program (WSL Program) for three years (2016/2017, 2017/2018, and 2018/2019). The SNWA will provide a minimum matching contribution of $10 million ($3,333,333 per year for three years) for a total project cost of $11 million. This project will result in an estimated recurring annual savings of 1,082 AFY by converting 6,321,839 square-feet of lawn to water-efficient landscaping. Over the life of the improvement (50 years), the cumulative recurring impact of this project is estimated to result in a savings of approximately 54,100 AF.

Task Area:
The proposed project fits within grant Task Area A, *Water Conservation – projects resulting in quantifiable and sustained water savings*. The SNWA's WSL Program provides a financial incentive for property owners to replace lawn with water-efficient landscaping. The program has proven to be the region's most effective way to achieve significant and lasting conservation gains, providing water savings that directly extend the region's existing supplies.

In addition to meeting the objectives of Task Area A, the water conserved through this program supports the goals of Task Area B by providing quantifiable reductions in energy consumption and Task Area D through resultant contributions to existing water banks in California, Arizona and Southern Nevada.

Length of Time and Estimated Completion Date
The proposed project encompasses landscape conversion rebates that will be distributed under the SNWA's WSL Program during fiscal years 2016/2017 (July 1, 2016–June 30, 2017); 2017/2018 (July 1, 2017-June 30, 2018); and 2018/2019 (July 1, 2018-June 30, 2019). All project work will be completed by June 30, 2019.

2. Technical Proposal: Background Data

The SNWA was formed in 1991 by a cooperative agreement among the following water and wastewater agencies in Southern Nevada:

- Big Bend Water District
- City of Boulder City
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County Water Reclamation District
- Las Vegas Valley Water District

Together, these seven agencies provide water and wastewater service to 2 million residents in the cities of Boulder City, Henderson, Las Vegas and North Las Vegas, and areas of unincorporated Clark County (the service area is shown in the map included as Appendix A). As their wholesale water provider, the SNWA is responsible for wholesale water treatment and delivery, as well as acquiring and managing the region's short and long-term water resources. Since its inception, the SNWA has worked to seek new water resources, manage existing and future water resources, construct and manage regional water facilities, and promote conservation.

The severe drought conditions on the Colorado River underscores the critical role of conservation in helping to meet current and future demands. If drought conditions continue, Southern Nevada may be subject to declared Colorado River shortages as early as 2017—making Southern Nevada's conservation efforts even more important. In addition, further declines in Lake Mead's water level could result in additional shortages, which would further stress the ability of water supply facilities to meet water demands. Water conservation will help to mitigate these concerns.

The SNWA and its member agencies depend on the Colorado River for approximately 90 percent of the community's drinking water needs. The SNWA's primary resource is its share of Nevada's consumptive-use apportionment of 300,000 AFY of Colorado River water. In addition to this apportionment, the SNWA also has access to groundwater rights in the Las Vegas Valley, purchased/leased rights along the Muddy and Virgin rivers, and Coyote Spring Valley groundwater rights, which can be conveyed to the Colorado River for Intentionally Created Surplus (ICS) credit.

In Southern Nevada, the SNWA serves as a regional water wholesaler, which eliminates the need for direct marketing between municipalities. Instead, unused Colorado River resources are stored for the community's future use in water banks located in Southern Nevada, California and Arizona. The Southern Nevada water bank, established in 1987, has approximately 337,000 acre-feet (AF) of credits, excluding 17,378 AF of water banked for the Las Vegas Valley Groundwater Management Program. The SNWA's California water bank has accumulated 205,225 AF of credits, while Arizona's bank has accumulated 601,041 AF since the inception of Nevada Interstate Banking in 2001. SNWA's water conservation gains have helped further its banking efforts. Through 2014, water-efficiency programs have helped the SNWA to contribute approximately 334,000 AF of unused Nevada Colorado River water toward interstate banking efforts.

In the event that Colorado River shortages are implemented, the SNWA intends to utilize banked resources to help temporarily offset supply availability. Conservation improves the ability to respond to shortages both by directly reducing demand and freeing up resources that can be banked for times of emergency.

Program Description
Since its creation in 1991, the SNWA has implemented a number of conservation programs focused on reducing water use. While the SNWA actively promotes indoor conservation, in Southern Nevada the greatest opportunity for water conservation lies in curbing outdoor water use. According to consolidated data provided by SNWA member agencies, residents account for approximately 66 percent of SNWA water use. Approximately 60 percent of Southern Nevada's total annual water supply is used consumptively, meaning it is used just once—commercial and residential landscape irrigation is collectively the single largest consumptive use.

The SNWA has realized significant water savings as part of its lawn conversion program. As a measure of success, since 2002 Southern Nevada's consumptive water use has declined by approximately 32 billion gallons annually, despite the addition of over 500,000 new residents and millions of annual visitors. In addition, total water use stated in gallons per capita per day (GPCD) has been reduced from 314 GPCD in 2002 to 205 GPCD in 2014 and significant recent progress has been made toward the community's conservation goal of 199 GPCD by 2035. Achieving this goal is estimated to save up to 260,000 AFY by 2035.

Prolonged drought has underscored the importance of an effective conservation program. When drought conditions became evident in 2002, the Authority took immediate action to effect water use reductions. What began as a Drought Plan has paved the way for a culture of conservation in the community, facilitated by a nationally-recognized conservation program. The Water Smart Landscapes (WSL) Rebate Program is the SNWA's most successful conservation program, offering rebates to convert high-consumption turf to water-efficient landscapes. Since 1999, the SNWA has expended more than $200 million on the WSL program, resulting in the removal of more than 176 million square-feet of turf. This represents a cumulative savings of approximately 270,000 AF and annual recurring savings of more than 30,163 AFY.

Despite the program's success, a significant amount of ornamental lawn remains that could be eligible for the WSL Program. Based on program feedback, the barriers to program participation largely remain the time and cost to convert landscapes. Since 2009, the WSL Program has offered up to $1.50 for each square foot converted. In 2007, the Board of Directors authorized a promotional increase to $2.00 per square foot of conversion, which doubled participation in the WSL Program from the previous year. To again stimulate greater participation, the SNWA Board of Directors voted in July 2015 to again increase the WSL Rebate to $2.00 per square foot as a temporary promotional measure. The increased rebate took effect September 22, 2015.

Reclamation's WaterSMART Water and Energy Efficiency Grants will provide an important contribution to continuing the impact and capacity of this program.

System Overview
The SNWA manages the Southern Nevada Water System's (SNWS) regional pumping, treatment and delivery facilities. SNWS diverts and treats raw Colorado River water from Lake Mead and delivers potable water to Southern Nevada's municipal water purveyors (Las Vegas Valley Water District, City of Henderson, City of North Las Vegas and City of Boulder City).

Water is extracted via three 600 million gallons per day (MGD) raw water intakes submerged within Lake Mead (located at elevation 1,050 and 1,000 feet above mean sea level, respectively). Water collected at these diversion points is transported to and treated at one of the SNWA's two water treatment facilities. These facilities treat and deliver an annual average of approximately 360 MGD and have a maximum capacity of 900 MGD to reliably meet peak demands. Treated water is delivered to the municipal water purveyors through more than 160 miles of large diameter pipeline, which traverse the Las Vegas Valley

and connect to purveyor systems. SNWA facilities support water distribution to more than 500,000 customer accounts and nearly 2 million residents in Southern Nevada.

In 2015, the SNWA put a third drinking water intake into service. The new intake is capable of drawing upon Colorado River water at lake elevations below 1,000 feet above sea level and helps ensure system capacity if lake levels fall low enough to render SNWA's existing intake system inoperable. It also protects municipal water customers from water quality issues associated with declining lake levels.

Preparations are now under way to complete construction on a low lake level pumping station, which will allow the SNWA to pump water from Lake Mead from an elevation as low as 875 feet above sea level. The low lake level pumping station is expected to be operational in 2020.

Energy Efficiency
Water treatment and delivery is energy intensive. Each acre-foot of water saved will result in an estimated 2,118 kilo-Watt hours (kWh) energy reduction. As a result of the WSL Program, the SNWA saves an estimated 57,000 megawatt hours (MWH) annually.

The SNWA obtains energy from a number of sources. In 2014, these included 800,000 MWH from the Silverhawk Power Station (77 percent), 118,311 MWH hydropower generated at Hoover Dam and purchased from Reclamation (12 percent), 20,263 MWH market purchases (2 percent), and small quantities of power purchased from NV Energy (78,942 MWH) or generated by SNWA solar and hydropower projects (11,047 MWH). The energy conserved as a result of the proposed project allows the SNWA to reduce its non-renewable market purchases.

Relationship with Bureau of Reclamation
The SNWA has established long-standing relationships with Reclamation, and has coordinated on a number of initiatives including the Brock Reservoir System Efficiency Project and the Yuma Desalting Plant Pilot Project; development and implementation of interstate water banking agreements with Arizona and California; Colorado River accounting and procedures for return-flow credits; a Xeriscape Conversion Study; and environmental restoration and stabilization initiatives in the Las Vegas Wash. The SNWA also has received two grants in support of the WSL program in FY 2015—$300,000 was awarded by the WaterSMART: Water and Energy Efficiency Grants Program with an additional $100,000 being awarded through the Water Conservation Field Services Program.

3. Technical Proposal: Technical Project Description

Water Smart Landscapes Program Overview:
In Southern Nevada, nearly all water used indoors is recovered, treated and returned to the Colorado River system for return-flow credits. The recycling of Colorado River water used in Southern Nevada is accrued according to the 1984 U.S. Bureau of Reclamation "Procedure for Determining Return-Flow Credits to Nevada from Las Vegas Wash" and subsequent administrative updates authorized by Reclamation. This process extends Nevada's Colorado River water supply by nearly 70 percent. As a result, the SNWA's conservation efforts emphasize reducing outdoor water use, which cannot be recovered through return-flow credits.

The WSL Program is a key component in the SNWA's efforts to meet its conservation goals. The WSL Program encourages property owners to convert lawn by providing a financial incentive to offset a portion of the cost associated with the conversion. The program rebates $2.00 per square-foot for the first 5,000 square-feet converted per property, and $1.00 per square-foot for each additional square-foot converted. The maximum award for any property in a fiscal year is $300,000. Based upon a joint Reclamation/SNWA research project conducted from 1995 to 2000, every square-foot of grass replaced

with desert landscaping saves an average of 55.8 gallons of water per year (see Subcriteria No.1(a) for scientific basis of estimate).

Since 1999, the WSL Program has supported the removal of more than 176 million square-feet of lawn– resulting in cumulative conservation savings of more than 270,000 AF of total water, and an annual recurring savings of more than 30,163 AFY.

The SNWA will contribute $10 million in matching contributions over three years to the proposed project, which will be derived from SNWA budgeted 2016/2017, 2017/2018, and 2018/2019 WSL Program funding. At current budget levels, this project will result in the conversion of 6.3 million square-feet of turf and will save an additional 1,082 AFY.

Water Smart Landscapes Program Process:
The following details the general process that applicants to the WSL program follow to qualify for and receive landscape conversion rebates:

1. **Application** - Single-family property owners must submit an application to the WSL Program via mail or internet. Commercial and institutional properties contact a Programs Coordinator directly.

2. **Pre-conversion site inspection** – All properties must meet eligibility requirements. At the pre-conversion site inspection, SNWA staff document the existing landscape, determine eligibility to participate in the program and explain the program requirements to the property owner or agent.

   (**Step 1-2 Duration: 14 days)**

3. **Six month performance period** – After SNWA deems the property eligible for participation, the property owner is given up to six months to complete a landscape conversion. Subject to SNWA approval, participants may be granted up to six additional months.

   (Step 3 Duration: Customer dependent up to 6 months)

4. **Post-conversion site inspection** – Upon notice from the applicant that a conversion is complete, SNWA will inspect the landscape to ensure it meets minimum requirements and to determine the square footage eligible for rebate. If program requirements are not met, the applicant is given an additional 60 days or the remainder of the six-month time period to take corrective action.

5. **Rebate issuance** – Following a successful post-conversion site inspection, the customer is notified of the rebate amount. The customer acknowledges the amount by signing a form and returning it. A rebate check is then processed and mailed.

   (Step 4-5 Duration: 21 days)

   On average, this entire process takes approximately 3 to 4 months from initial customer request.

4. Technical Proposal: Evaluation Criteria

Criteria A - Water Conservation

Subcriteria No. 1(a) — Quantifiable Water Savings:

The total project cost for this funding request is $11,000,000. Since the increased rebate took effect on September 22, 2015, the average rebate has been $1.74 per square foot. Based on this cost, the SNWA estimates that 6,321,839 square-feet of turf grass will be removed through this program during fiscal years 2016-2017, 2017-2018, and 2018-2019 (during the grant performance period).

Total Square Feet Converted $\frac{\$11,000,000}{\$1.74/\text{square-foot}}$ = 6,321,839 square-feet

In 1995, a multi-year Xeriscape Conversion Study was implemented as a result of a cooperative agreement between SNWA and Reclamation. Funded in part by Reclamation, the draft final report finished in 2005. This research involved hundreds of participants that were divided into three treatment groups: Xeric Study, Turf Study, and control groups. Data on both household water consumption and water consumption through irrigation submeters was collected. Submeters were installed to determine per-unit area water application for both xeric- and turf grass-dominated landscapes. The per-unit area savings of xeric- versus turf dominated landscapes as revealed by the submeter data was found to be 55.8 gallons per square-foot per year. This results in a significant savings of 76.4 percent when considered in the context of all available residential water conservation measures.

Based on the data gathered from the Xeriscape Conversion Study, SNWA is able to determine the water savings realized from landscape conversion projects completed through the WSL Program. The number of square feet of lawn converted to Xeriscape under the requirements of the WSL program will determine the number of gallons of water saved.

Based on the results of the joint SNWA and Reclamation research, this project will result in a 1,082 AFY savings per year.

Total AFY Saved $\frac{55.8 \text{ gal x } 6,321,839 \text{ square-feet}}{325,851 \text{ gal/AF}}$ = 1,082 AFY

The SNWA estimates the expected life of the improvements to be 50 years. Over the life of the improvement, the cumulative recurring impact of this portion of the WSL Program (3 years) is estimated to result in the savings of approximately 54,100 AF.

Cumulative Recurring Impact 1,082 AFY x 50 years = 54,100 AF

The SNWA and its member agencies depend on the Colorado River for approximately 90 percent of the community's water resource needs. The SNWA's primary resource is its share of Nevada's consumptive-use apportionment of 300,000 AFY of Colorado River water. SNWA's member agencies also have groundwater rights in Las Vegas Valley totaling 46,830 AFY. In addition, the SNWA has a right to purchased/leased rights along the Muddy and Virgin rivers and Coyote Spring Valley groundwater rights, which can be conveyed to the Colorado River for Intentionally Created Surplus (ICS) credit. These resources have a total consumptive use of approximately 32,000 AF expected to be available during 2015. Total water use in 2014 was approximately 491,000 AF, including groundwater, Colorado River water diversions and direct reuse.

In Southern Nevada, the SNWA serves as a regional water wholesaler, which eliminates the need for direct marketing between municipalities. Instead, unused Colorado River resources are stored for future use in water banks located in Southern Nevada, California and Arizona. The Southern Nevada water bank, established in 1987, has approximately 337,000 AF of credits, excluding water banked for the Las Vegas Valley Groundwater Management Program. The SNWA's California water bank has accumulated approximately 205,225 acre-feet of credits, while Arizona's bank has accumulated 601,041 acre-feet since the inception of Nevada Interstate Banking in 2001. SNWA's water conservation gains have helped further its banking efforts. Through 2014, water-efficiency programs have helped the SNWA to contribute approximately 334,000 AF of unused Nevada Colorado River water toward interstate banking efforts.

In the event that Colorado River shortages are implemented, the SNWA intends to utilize banked resources to help offset supply availability. Conservation improves the ability to respond to shortages both by directly reducing demand, and by freeing up resources that can be banked for times of emergency. The proposed project will yield a recurring annual water savings of 1,082 AFY, resulting in a cumulative 54,100 AF available for banking over the life of the project.

Subcriteria No. 2 — Percentage of Total Supply:
According to the SNWA's 2015 Water Budget, member agency customer water use in 2014 was approximately 491,000 AF, including groundwater, Colorado River water diversions (allocation and return-flow credits) and direct reuse. The SNWA meters its Colorado River diversions at all SNWA diversion points in Southern Nevada, including diversions through SNWS Intakes 1, 2 and 3. Return-flow credits are based on measured flows at gauges in the Las Vegas Wash. The SNWA reports Colorado River diversions to Reclamation, and the Colorado River Commission of Nevada reports return-flow credits to Reclamation. Nevada Colorado River water diversions, return-flow credits, and consumptive use are reported by Reclamation annually in its Colorado River Accounting and Water Use Report.

Water savings resulting from the proposed project is 1,082? AFY. While this represents only a small fraction of the total water supply (0.2 percent), the WSL Program is a long-term conservation strategy and cannot be viewed as a single year effort. Although the incremental gains of each year are small, the cumulative impact of the program has been significant—when considering all projects under this program completed since inception, the WSL Program has achieved an annual recurring savings of more than 30,163 AFY. Additional funding is critical to continue the program's momentum, adding year by year incremental gains to the more than 6 percent to the overall savings that the program has achieved to date.

Subcriteria No. 3 — Reasonableness of Costs:
Calculating a 50-year improvement life, the cost of investment is $203 per acre-foot.

$$\textbf{Cost of Investment} \quad \frac{\$11{,}000{,}000}{1{,}082 \text{ AFY} \times 50 \text{ years}} \quad = \$203 \text{ per acre-foot}$$

Criteria B- Energy-Water Nexus
Subcriteria No.2 — Increasing Energy Efficiency in Water Management
Under the proposed project, each acre-foot of water saved will yield an estimated 2,118 kilo-Watt hours (kWh) of energy conserved. These savings are estimated by calculating the power required to treat and deliver one acre-foot of water to the average customer (includes wholesale and purveyor power uses).

Through this three-year portion of the WSL Program, the region will save an estimated 2.3 million kWh each year, with a total savings of more than 115 million kWh through the life of the project.

Annual Energy Savings	1,082 AFY x 2,118 kWh	= 2,291,676 kWh
Total Energy Savings	1,082 AFY x 2,118 kWh x 50 years	= 114,583,800 kWh

The SNWA is committed to conserving energy and utilizing renewable resources when possible. The SNWA voluntarily committed to meet 25 percent of its energy needs through renewable resources by 2025, which parallels Nevada's Renewable Energy Portfolio Standards. At present, more than 14 percent of energy used by the SNWA is generated through renewable resources. The savings generated by the proposed project will allow the SNWA to reduce its non-renewable market purchases, increasing the emphasis on renewable energy.

Criteria C- Benefits to Endangered Species

The Colorado River watershed contains a number of sensitive and protected species, including four endangered fish, four endangered birds and one endangered invertebrate. In 1994, the U.S. Fish and Wildlife Service designated 1,980 miles of river as "critical habitat" for the four listed fish within the Colorado River Basin. The presence of these listed species makes Endangered Species Act (ESA) compliance a major component of resource planning along the Colorado River and its tributaries.

Management of the river's resources is key to protecting these species and their habitats. Although the conversion of urban turf landscaping provides no direct benefits to threatened or endangered species, water conservation achievements can indirectly increase Reclamation's flexibility in managing Lake Mead and Colorado River water resources.

Construction activities associated with the conversion of lawn will not harm or negatively impact any of Southern Nevada's threatened or endangered species. All landscape conversions will be completed by private parties and implemented on private land within previously developed residential and commercial areas in Southern Nevada.

Criteria D- Water Marketing

Water conservation efforts in Southern Nevada directly correlate with regional water banking initiatives. Water conserved through the WSL Program has allowed SNWA to bank substantial quantities of Nevada's unused Colorado River apportionment in the Southern Nevada Water Bank, California Water Bank and Arizona Water Bank. The act of storing conserved water provides greater surety of supply to meet demands particularly during times of drought and possible water shortage.

In 2004, the SNWA and Colorado River Commission of Nevada (CRC) entered into initial agreements with the Metropolitan Water District of Southern California (MWD) and Reclamation to bank unused Nevada Colorado River water in Southern California until it is needed. The agreement with MWD and subsequent amendments provide additional terms and conditions for storage and recovery. The agreement provides California with improved versatility to manage water quality and supply while diversifying Southern Nevada's resource portfolio. Under the agreements, Nevada can recover up to 30,000 AF per year from the storage account during normal water supply conditions with a potential for additional recovery during shortage conditions. To date, the SNWA has banked 205,225 AF in California and can recover up to 30,000 AFY during normal and shortage conditions, subject to agreement terms. California water banking is a regionally significant initiative, providing resource managers in both states with flexibility.

Beginning in 2001, the SNWA, the Arizona Water Banking Authority (AWBA), the Arizona Department of Water Resources, Central Arizona Water Conservation District and the CRC entered into agreements for the SNWA to establish a bank of storage credits in Arizona for future use. In 2013, the SNWA approved an amendment to the 2001 water banking agreement with the Arizona Water Banking Authority. Based on the amended agreement, SNWA has stored 601,041 AF of Colorado River water underground in Arizona's aquifers for SNWA's future use. Additional water can be banked on a pay-as-you-go basis up to 1.25 million acre-feet. As part of the agreement, SNWA can recover 40,000 AFY of consumptive use during a normal Colorado River water supply year with advanced notice, as well as the opportunity to recover additional water from Arizona to make up for reductions in Nevada's basic apportionment during Colorado River shortages. The SNWA has directed approximately 61,000 AF of unused Nevada Colorado River water to AWBA for banking on SNWA's behalf. The SNWA's conservation efforts directly contributed toward making this water available for banking in the Arizona Water Bank.

The SNWA manages the Southern Nevada Water Bank within the Las Vegas Valley Groundwater Basin. Since the program's inception in 1987, unused Colorado River water has been artificially recharged into the Las Vegas Valley aquifer. This resource is a critical tool in managing summer peak-use demands and is an important component in the SNWA water resource portfolio. To date, Southern Nevada has stored 337,000 AF of water in the local groundwater basin for future use, with an additional 17,378 AF banked in the Las Vegas Valley available for the benefit of the Las Vegas Valley Groundwater Management Program (LVVGMP). As opportunities arise and circumstances warrant, this water bank will continue to be utilized for water-banking initiatives. The water banked on behalf of the LVVGMP will remain in storage, and it is not intended to be used by SNWA in the future use.

Agreements and related permits are in place in support of the described actions. No known legal constraints limit the described water marketing/banking initiatives. Reclamation regulations permit all of the above-mentioned activities.

Criteria E- Other Contributions to Water Supply Sustainability

The intent of the WSL Program is to make more water available to respond to the challenges of meeting demands, climate change and drought. The program is a direct effort to establish a more efficient and sustainable water supply for Southern Nevada. The water that will be conserved through this initiative is currently being used consumptively for landscape irrigation. Water conserved by the establishment of more efficient landscaping approaches will, in the short-term, reduce system demands and allow for Nevada's unused Colorado River apportionment to be used for other purposes, including banking initiatives in California, Arizona and Southern Nevada, which provide for greater security during times of drought and shortages. Long-term, Southern Nevada's population is projected to be 2.78 million by 2035 and 3.11 million by 2050. Conservation efforts extend Southern Nevada's water resources and secure future banked resources to meet the increased water demands and offset potential supply shortages.

Criteria F- Implementation and Results

Subcriteria No. 1 — Project Planning:

The SNWA has developed a number of planning documents that guide the management, acquisition and conservation of its water resources. To help plan for the future, the SNWA has developed and maintains a comprehensive Water Resource Plan (available at http://www.snwa.com/ws/resource_plan.html). This document includes a 50-year planning horizon where future water resources are assessed against projected demands. The plan considers both water conservation initiatives and banking arrangements as important goals and resources. The WSL Program is specifically highlighted as an important conservation tool, which extends the region's water resources.

In addition, and in accordance with Reclamation requirements for Section 210(b) of the Reclamation Reform Act of 1982, the SNWA maintains a regional water conservation plan that identifies water conservation strategies and goals to protect and extend Southern Nevada's available water resources (available at http://www.snwa.com/assets/pdf/about_reports_conservation_plan.pdf). The SNWA works closely with its member agencies to refine conservation strategies and programs that are appropriate for the community. The 2014-2018 SNWA Conservation Plan is currently on file with Reclamation. This plan sets a new target goal of 199 GPCD by 2035. The Conservation Plan identifies the WSL Program as a critical tool in achieving this conservation goal.

Subcriteria No. 2 — Readiness to Proceed:

Estimated Project Schedule:
As a customer rebate program, the WSL Program is dependent upon customer demand. Historically, rebate issuance has remained relatively steady through the fiscal year. If approved, SNWA will be able to proceed as soon as an agreement is entered. By quarter, expenditures for this portion of the FY 2016/2017 WSL Program are anticipated to track the following estimated forecast:

Year One **Fiscal Year 2016-2017**	**Percent**	**Landscape Converted**	**Rebate Issuance**
Q1 - July 1 – September 30	25	526,819.75 square-feet	$916,666.50
Q2 - October 1 – December 31	25	526,819.75 square-feet	$916,666.50
Q3 – January 1 – March 31	25	526,819.75 square-feet	$916,666.50
Q4 - April 1 – June 30	25	526,819.75 square-feet	$916,666.50
Total	100	2,107,279 square feet	$3,666,666

Year Two **Fiscal Year 2017-2018**	**Percent**	**Landscape Converted**	**Rebate Issuance**
Q1 - July 1 – September 30	25	526,820 square-feet	$916,666.75
Q2 - October 1 – December 31	25	526,820 square-feet	$916,666.75
Q3 – January 1 – March 31	25	526,820 square-feet	$916,666.75
Q4 - April 1 – June 30	25	526,820 square-feet	$916,666.75
Total	100	2,107,280 square feet	$3,666,667

Year Three **Fiscal Year 2018-2019**	**Percent**	**Landscape Converted**	**Rebate Issuance**
Q1 - July 1 – September 30	25	526,820 square-feet	$916,666.75
Q2 - October 1 – December 31	25	526,820 square-feet	$916,666.75
Q3 – January 1 – March 31	25	526,820 square-feet	$916,666.75
Q4 - April 1 – June 30	25	526,820 square-feet	$916,666.75
Total	100	2,107,280 square feet	$3,666,667

Total Project	**Percent**	**Landscape Converted**	**Rebate Issuance**
Year One (2016-2017)	33.33	2,107,279 square-feet	$3,666,666
Year Two (2017-2018)	33.33	2,107,280 square-feet	$3,666,667
Year Three (2018-2019)	33.33	2,107,280 square-feet	$3,666,667
Total	100	6,321,839 square feet	$11,000,000

As a non-construction program, the implementation of this project does not require issuance of any permits.

Subcriteria No. 3 — Performance Measures:

Performance measures for this program will be calculated in *rebates issued, turf converted* and *water saved*. Total program performance measures include the issuance of $11,000,000 in rebates, 6,321,839 square-feet of turf converted and the recurring annual conservation of 1,082 AFY. As described in the table below, Reclamation's $1,000,000 contribution to this program will result in the conversion of approximately 632,184 square-feet of lawn and the recurring annual conservation of 108 AFY. The number of rebates issued will be available upon project completion.

Agency	Contribution	Turf Converted (square feet)	Water Conserved (AFY)
SNWA	$10,000,000	5,689,655	974
Reclamation	$1,000,000	632,184	108
Total	$11,000,000	6,321,839	1,082

Conservation progress is measured by annually comparing the community's actual water use to the expected water use without conservation measures in effect. To measure conservation, the SNWA uses an explanatory regression model to determine the variables that influenced Southern Nevada's water use during the preceding year. Although the model has identified a substantial number of relevant variables, the most significant are related to population, weather and economic indicators. This data is obtained from other agencies on an annual basis.

To track and monitor the effectiveness of the WSL Program, the SNWA developed the Water Efficiency Incentive and Rebate Database (WEIRD). Designed in-house and launched in September 2004, the WEIRD database tracks all participants, processes and results related to the WSL Program. Important features include individual participant tracking, Clark County Assessor property record information, rebate application information, site assessment information, converted square footage, and rebate amounts. Other functions include the ability to run various reports on program participation, to track quality assurance performed on staff work, and to run queries on numerous tracking and enrollment options. All of these functions allow the database to serve as the primary method for tracking performance measures. Information regarding results of the program can be made available to Reclamation as needed, or quarterly through progress reporting processes. At project completion, Reclamation will be provided with a report summarizing the number of square feet converted, rebates issued, acre-feet per year saved and other relevant program information.

Criteria G- Connection to Reclamation Project Activities

Reclamation is a critical partner in SNWA's water management and conservation efforts. The SNWA diverts 90 percent of its water supply from the Reclamation managed Colorado River system. The SNWA receives delivery of Colorado River water from Reclamation under several contracts held by the SNWA or its member agencies, as listed below:

SNWA Contracts:

- Contract Number 2-07-30-W0266, Contract with the Southern Nevada Water Authority, Nevada for the Delivery of Colorado River Water, as amended
- Contract Number 7-07-30-W0004, Contract between the United States and the State of Nevada for the Delivery of Water and Construction of Project Works, as amended

SNWA Member Agency Contracts:

- Contract Number 14-06-300-978, "Boulder Canyon Project Arizona-California-Nevada Contract for the Delivery of Water," City of Boulder City, as supplemented

- Contract Number 0-07-30-W0246, Contract for Delivery of Water to City of Henderson, as amended
- Contract Number 14-06-300-2130, "Boulder Canyon Project Contract for Delivery of Water to Las Vegas Valley Water District", as amended
- Contract Number 2-07-30-W0269, "Boulder Canyon Project Contract with the Big Bend Water District, Nevada, for the Delivery of Colorado River Water," as amended

The water delivered by SNWA under these contracts is diverted at Reclamation approved diversion points in the Colorado River at Lake Mead and below Hoover Dam. This includes delivery of water through the Robert B. Griffith Water Project (formerly the Southern Nevada Water Project) constructed by Reclamation, as authorized by an Act of the United States Congress.

In addition, the SNWA has established long-standing relationships with Reclamation, and has coordinated on a number of initiatives including funding for the Brock Reservoir System Efficiency Project and the Yuma Desalting Plant Pilot Project; development and implementation of interstate water banking agreements with Arizona and California; Colorado River accounting and procedures for return-flow credits; a Xeriscape Conversion Study; and environmental restoration and stabilization initiatives in the Las Vegas Wash.

The SNWA also has received two grants in support of the WSL program in FY 2015—$300,000 was awarded through the WaterSMART: Water & Energy Efficiency Grant Program with an additional $100,000 being awarded through the Water Conservation Field Services Program.

Section F. Performance Measure for Quantifying Post-Project Benefit

As further described in Criteria F, Subcriteria No. 3 performance measures for this program will be calculated in *rebates issued, turf converted* and *water saved*.

Section G. Environmental Compliance

(1) Will the project impact the surrounding environment?
The elements of this proposal are not anticipated to have any environmental impacts that would require consideration under NEPA or NHPA. Work will be implemented on private land, within urbanized Southern Nevada communities, all of which have been previously disturbed.

(2) Impact on listed or candidate species?
The Colorado River watershed contains a number of sensitive and protected species. Management of the river's resources is key to protecting these species and their habitats. Although conversion of turf landscaping provides no direct benefits to threatened or endangered species, water conservation achievements can indirectly increase Reclamation's flexibility in managing Lake Mead and Colorado River water resources.

Construction activities associated with the conversion of lawn will not harm or negatively impact any of Southern Nevada's threatened or endangered species. All landscape conversions will be completed by private parties and implemented on private land within previously developed residential and commercial areas in Southern Nevada.

(3) Wetlands or other surface waters inside the project boundaries?
Not applicable.

(4) When was the water delivery system constructed.
The majority of the SNWA and its member agencies water system has been constructed over the

past 40 years. This project is not anticipated to impact any infrastructure that might be classified as historic.

(5) Modification to individual features of an irrigation system?
System modifications are made to individual property owner's residential and commercial irrigation systems. The exact date of construction can vary widely but typically does not exceed 30 years.

(6) Are there any buildings, structures or features listed or eligible for listing on the National Register of Historic Areas?
The potential project area includes private residences and commercial residences throughout a large section of Southern Nevada, all of which have been previously impacted. There are a number of historic properties or candidate sites throughout the area. However, it is not anticipated that any of these sites will be candidate projects for the issuance of rebates.

(7) Are there any known archaeological sites in the proposed project area?
The potential project area includes private residences and commercial residences throughout a large section of Southern Nevada, all of which have been previously impacted. There are a number of archaeological areas throughout the area. However, it is not anticipated that any of these sites will be candidate projects for the issuance of rebates.

(8) Will the project have a disproportionally high and adverse effect on low income or minority populations?
No.

(9) Will the project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?
No.

(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?
Not applicable.

Section H. Required Permits or Approvals

As a non-construction program, it is not anticipated that the implementation of this project will require the issuance of any permits. Property owners of exceptionally large projects may be required to seek permits applicable to the size and scope of work being performed. However, acquisition of such a permit would be the responsibility of the property owner. Such an occurrence is an exception and is not reflective of the standard landscape conversation project.

Section I. Funding Plan and Letters of Commitment

The SNWA has five key funding sources, which include wholesale delivery rates, quarter-cent sales tax, connection fees, commodity fees and reliability charges. These revenue sources provide the organization with a mix of funding sources, which help to ensure the financial stability and capacity of the organization. Matching contributions for the WSL Program will be derived from bond proceeds currently held in the SNWA Enterprise Fund.

The SNWA's Fiscal Year 2016/2017 tentative budget contains adequate funding to support project activities and matching requirements in Year One. It is anticipated that the SNWA's Fiscal Year

2017/2018 and 2018/2019 budgets will also contain adequate funding to support project activities and matching requirements in years two and three. Prior to the economic downturn, the SNWA was budgeting nearly $35 million annually for conservation programs. Due to diminished revenue streams driven by current economic conditions, the SNWA necessarily scaled back the WSL Program's annual budget. Reclamation funding will provide an important contribution to continuing the impact and capacity of this program. The proposed work will not result in operations and maintenance obligations in future calendar years.

No in-kind contributions are incorporated into this proposal. In addition, no funding will be provided by a source other than the applicant.

In addition to this request, a complementary request for $300,000 has been submitted under the same program. Necessary match funding is available for both program grants.

Section J. Official Resolution

An official resolution authorizing the submission of this proposal and confirming the subject matching requirements was approved by the SNWA Board of Directors on January 21, 2016. It will be submitted under separate cover.

Appendix A – SNWA System