



Attachment 6

*Monitoring, Assessment,
and Performance Measures*

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Monitoring, Assessment, and Performance Measures

Attachment 6 consists of the following item:

✓ **Performance Measures**

The purpose of this attachment is to describe the monitoring, assessment, and performance measures that will be used to evaluate each proposed project. These measures will ensure that this proposal meets its intended goals, achieves measurable outcomes, and provides value to the Region and the State of California.

For each project in this *Coachella Valley IRWM Implementation Grant Proposal – Round 2*, specific performance measures and monitoring approaches have been developed to assess project performance on an ongoing basis. The purpose of this attachment is to provide a discussion of the monitoring system to be used to verify project performance with respect to the project benefits or objectives identified. For each proposed project, listed below, this attachment will identify data collection and analysis to be used.

This attachment will also discuss how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Coachella Valley IRWM Plan. Each project applicant has prepared a Project Performance Measures Table (included in this attachment) that includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the project
- Performance indicators – measures to evaluate change that is a direct result of the project being built
- Measurement tools and methods – to effectively track performance



Project 1: Non-Potable Water Use Expansion

The purpose of the *Non-potable Water Use Expansion Program* is to reduce groundwater overdraft by providing non-potable water supply for agricultural and golf course irrigation in lieu of groundwater, which would reduce groundwater extraction and associated overdraft. The program will increase the number of golf courses using untreated Colorado River water and recycled water for irrigation in the Coachella Valley. It will increase the utilization of recycled water from the Mid-Valley Pipeline, which has the capacity to serve 50 golf courses though only 14 are currently connected to the system.

Program Goals

The goals listed below are an elaboration on the goals explained for the project in Attachment 3 of this proposal. As such, the goals are organized and lettered in accordance with the IRWM Plan Objectives, and include additional project components necessary to verify project performance with respect to the objectives identified in Attachment 3.

A. Provide reliable water supply: The program will help to provide a reliable water supply for commercial/tourism needs (the golf course industry) via the provision of non-potable water consisting of Canal water and recycled water. Connections to existing non-potable infrastructure will allow golf courses to use non-potable water as a reliable source of irrigation, as current groundwater overdraft calls for a sustainable alternative for future irrigation demands. Engineering and construction records will document where these connections are made. Customer use records for non-potable water will provide data that demonstrate the use pattern of this more sustainable supply for golf course irrigation. Coachella Valley Water District (CVWD) will submit construction records and water purchase data for the system expansion.

B. Manage groundwater levels: Replacing groundwater with non-potable water supply for irrigation will reduce the current groundwater demand, thus prevent overdraft and subsidence in the project region. Substituted groundwater demand will be computed from non-potable water purchase data, assuming the irrigation demands for groundwater and non-potable water are equivalent. As a performance measure, CVWD will compile water usage record and calculate reduced groundwater pumping.

C. Secure reliable imported water supply: By maximizing the capacity of non-potable water infrastructure, this project will offset the need to import additional State Water Project (SWP) water to the Region, and will therefore reduce net diversions from the SWP. This will help to improve the reliability of SWP water by reducing regional demands for this water source for non-potable uses. Engineering and construction records will document non-potable connections. Customer use records for non-potable water will provide data that demonstrate the amount of SWP water that is offset.

D. Maximize local supply opportunities: By expanding non-potable water service (including recycled water and Canal water), the project will provide local non-potable water for purposes of source substitution. Engineering and construction records will document where these connections are made. Customer use records for non-potable water will demonstrate this objective is achieved.

I. Optimize conjunctive use: Construction of this project will enhance the region's ability to match water quality with use. Using non-potable water for irrigation purpose will preserve the groundwater resource for domestic demand. Preserved potable groundwater resources will be documented by non-potable water billing data.

J. Maximize stakeholder involvement: This project will involve direct coordination between CVWD and non-potable water customers, and will help to provide education and awareness for source substitution and the ability to use non-potable water for irrigation. Therefore, the project will help assist with increasing stewardship in water resource management through education and awareness. Meetings will be



held to coordinate directly with the golf course operators. CVWD will submit outreach records to keep track of stakeholder participation.

K. Address water-related needs of Tribes: Expansion of the non-potable system will preserve the groundwater resource to be used by tribal communities for their domestic and cultural needs. CVWD will calculate substituted groundwater demand based on non-potable water billing data.

L. Address water and sanitation needs of DACs: Using non-potable water for golf course irrigation will preserve the groundwater resource to be used by DAC communities for their needs. CVWD will calculate substituted groundwater demand based on non-potable water billing data.

M. Maintain affordability of water: The project will reduce irrigation cost of golf course. Current operation requires pumping groundwater which is every energy and capital intensive. Replacing with non-potable infrastructure will provide a more sustainable resource at a lower cost. The comparison of irrigation cost will be documented to demonstrate improved affordability.

Monitoring System

As project sponsor for the *Non-potable Water Use Expansion Program*, CVWD will provide 1) engineering and construction records, 2) customer billing data for non-potable water, and 3) stakeholder outreach records. CVWD will provide the calculated preserved groundwater from non-potable water usage data and cost comparison between potable and non-potable purchases.

Table 6-1 summarizes performance measures for this project.



Table 6-1: Performance Measures Table
Non-Potable Water Use Expansion Program

Benefit Type	Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
A. Provide Reliable Water Supply	Provide non-potable water for golf course irrigation	Connect to golf courses to non-potable water supply system for irrigation purposes	Allow golf courses to use non-potable water as a reliable source of irrigation	1. Use of non-potable supply 2. LF of pipeline	1. Engineering/ construction records 2. Non-potable water billing data
B. Manage Groundwater Levels	Reduce groundwater overdraft and minimize subsidence	Substitute groundwater with non-potable water for golf course irrigation	Reduced groundwater usage in golf course irrigation	1. MGD of non-potable used 2. MGD of groundwater use reduced	Calculated substituted groundwater demand from non-potable water billing data
C. Secure Reliable Imported Water Supply	Provide non-potable water for golf course irrigation, thereby reducing SWP demands and improving SWP reliability	Connect to golf courses to non-potable water supply system for irrigation purposes	Allow golf courses to use non-potable water instead of SWP water	1. Use of non-potable supply 2. LF of pipeline	1. Engineering/ construction records 2. Calculated SWP offset based on non-potable water billing data
D. Maximize Local Supply Opportunities	Provide local non-potable water for golf course irrigation	Connect to golf courses to non-potable water supply system for irrigation purposes	Allow golf courses to use non-potable water as a reliable source of irrigation	1. Use of non-potable supply 2. LF of pipeline	1. Engineering/ construction records 2. Non-potable water billing data
I. Optimize Conjunctive Use of Water Resources	Match quality with use and optimize usage of available water resources	Connect golf courses to non-potable water supply system	Use untreated canal water for non-potable use such as golf course irrigation	MGD of non-potable water demand	Calculated groundwater preserved based on non-potable water billing data
J. Maximize Stakeholder Involvement and Stewardship	Increase stakeholder awareness and involvement in the project area	1. Hold stakeholder meetings during system planning and design 2. Distribute informative flyers about the project	Improved stakeholder awareness and enhanced involvement	1. Golf course outreach meetings 2. Distributed project information	1. Meeting record 2. Information distribution record
K. Address Water-related Needs in Tribal Culture	Reserve available domestic water resource for tribal community	Substitute groundwater with non-potable water for golf course irrigation	Increased groundwater reserve for tribal usage	MGD of groundwater use avoided	Calculated groundwater preserved based on non-potable water billing data
L. Address Water and Sanitation Needs for DAC	Reserve available potable water resource for DAC	Reduce groundwater usage by applying non-potable water for golf course irrigation	Increased groundwater reserve for DAC community	MGD of groundwater use avoided	Calculated groundwater preserved based on non-potable water billing data
M. Maintain Affordability of Water	Provide less costly water for irrigation use	Replace groundwater supply with non-potable water for golf course irrigation	Reduced irrigation water cost	Lower cost for golf course irrigation	Cost comparison between non-potable supply and pumping costs



Project 2: Coachella Valley Salt and Nutrient Management Program

The purpose of *Coachella Valley Salt and Nutrient Management Program* is to develop a Salt and Nutrient Management Plan (SNMP) for the Coachella Valley Basin to meet the requirements of the State of California’s Recycled Water Policy. This is the second phase of a three-phase project, and builds on the work completed during Phase I’s initial SNMP scoping and work plan development. Below is a list of project goals and their corresponding monitoring methods. As the Coachella Valley Regional Water Management Group (CVRWMG) representative administering the *Coachella Valley Salt and Nutrient Management Program*, CVWD is listed as the responsible entity in the goals and monitoring activities described below.

Project Goals

The goals listed below are an elaboration on the goals explained for the project in Attachment 3 of this proposal. As such, the goals are organized and lettered in accordance with the IRWM Plan Objectives, and include additional project components necessary to verify project performance with respect to the objectives identified in Attachment 3.

A – Provide reliable water supply: Development of the Salt and Nutrient Management Plan will help to ensure that the Region can continue to use recycled water, which is a reliable, local, drought-proof water supply. Because the development of future recycled water projects is dependent on this program, it is critical that the CVRWMG and stakeholders fully implement the work plan contained in this funding application. CVWD will submit the Final SNMP and projected recycled water system expansion opportunities based on the SNMP outcomes as part of grant contract compliance.

B – Manage groundwater levels: This program will facilitate the permitting and use of recycled water, which will help the Region to continue to manage groundwater overdraft via source substitution with recycled water. Source substitution helps to reduce localized groundwater pumping, which could potentially help manage land subsidence. Because the development of future recycled water projects (and therefore source substitution with recycled water) is dependent on this program, it is critical that the CVRWMG and stakeholders fully implement the work plan contained in this funding application. CVWD will submit the Final SNMP and projected recycled water system expansion opportunities based on the SNMP outcomes as part of grant contract compliance.

D – Maximize local supply: This program will assist Valley water purveyors in continuing and expanding use of recycled water supplies by achieving compliance with the State Water Resources Control Board’s Recycled Water Policy. Because the development of future recycled water projects is dependent on this program, it is critical that the CVRWMG and stakeholders fully implement the work plan contained in this funding application. CVWD will submit the Final SNMP and projected recycled water system expansion opportunities based on the SNMP outcomes as part of grant contract compliance.

E – Protect groundwater quality: This program will assist Valley water purveyors in managing salt and nutrient loading to the groundwater basin in order to preserve the beneficial uses identified for the basin. Data collected from baseline condition assessment and anti-degradation process will be an important deliverable that then allows stakeholders to develop effective management strategies for inclusion in the Final SNMP. All of this data will be made publicly available through the CVRWMG website.

J – Maximize stakeholder involvement: The State requires that SNMPs be developed in a cooperative and collaborative manner among water and wastewater agencies and other salt/nutrient stakeholders. This program will continue the collaborative stakeholder process established in Phase I to characterize groundwater basins, identify salt/nutrient loading and trends, identify water management goals and strategies, and draft a SNMP. This project will involve water and wastewater agencies, the golf industry, agricultural industry, and tribes. An outreach process will be utilized to collect data, understand



stakeholder concerns, and reach consensus on a final plan. To document the breadth of involvement garnered during the SNMP process, CVWD will compile and submit stakeholder and technical team lists, workshop records (agendas and meeting notes), and comments submitted on the draft SNMP.

K – Address water-related needs of Tribes: Salt and nutrient management is a concern to the tribes who also utilize the groundwater supply. Collaboration with the tribes to address groundwater quality will improve relations among stakeholders in the Valley. To document that tribal interests were considered, CVWD will compile tribal member participation and comments submitted on the draft SNMP.

L – Address Water and Sanitation Needs for DACs: This program will serve to protect groundwater quality in communities throughout the Region, including DACs. It will also provide evaluation of management strategies for salt and nutrient loading, which may reduce future conflicts over permitting and potential violations. Having a clear set of standards and management strategies in place will make it easier for communities to make planning decisions, and has the potential to make growth easier and more attractive for DACs. To document that DAC interests were considered, CVWD will compile tribal and DAC group member participation and comments submitted on the draft SNMP.

M – Maintain affordability of water: This project will facilitate continued use and expansion of recycled water supplies. Recycled water is generally provided to customers at a reduced rate to maximize incentives for using this water. Therefore, the program will help to maintain the affordability of water by facilitating the current and future use of a less-costly water supply source (recycled water). The comparison of recycled water vs. potable water costs will be documented to demonstrate improved affordability.

Monitoring System

As the CVRWMG representative administering the *Coachella Valley Salt and Nutrient Management Program*, CVWD will compile and submit 1) all TM deliverables during the SNMP process, 2) the Final SNMP, and 3) projected recycled water system expansion opportunities based on the SNMP outcomes. To document a robust and collaborative stakeholder involvement process, CVWD will also submit stakeholder and technical team lists, workshop records (agendas and meeting notes), and comments and responses on the draft SNMP.

Table 6-2 summarizes the project monitoring for this project.



Table 6-2: Performance Measures Table
Coachella Valley Salt and Nutrient Management Program

Benefit Type	Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
A. Provide reliable water supply	Comply with the adopted Recycled Water Policy for future recycled water system expansion	Achieve compliance with the State Water Resources Control Board's Recycled Water Policy	Facilitate streamlining the permitting of recycled water system expansion	Adopt Salt and Nutrient Management Plan to achieve compliance with Recycled Water Policy	1. Final SNMP 2. Projected recycled water system expansion opportunities based on SNMP outcomes
B. Manage groundwater levels	Comply with the adopted Recycled Water Policy for future recycled water system expansion and ability to expand source substitution policies	Achieve compliance with the State Water Resources Control Board's Recycled Water Policy	Facilitate streamlining the permitting of recycled water system (source substitution) expansion	Adopt Salt and Nutrient Management Plan to achieve compliance with Recycled Water Policy	1. Final SNMP 2. Projected recycled water system expansion/source substitution opportunities based on SNMP outcomes
D. Maximize Local Supply Opportunities	Comply with the adopted Recycled Water Policy for future recycled water system expansion	Achieve compliance with the State Water Resources Control Board's Recycled Water Policy	Facilitate streamlining the permitting of recycled water system expansion	Adopt Salt and Nutrient Management Plan to achieve compliance with Recycled Water Policy	1. Final SNMP 2. Projected recycled water system expansion opportunities based on SNMP outcomes
E. Protect Ground Water Quality	Improve groundwater quality via development SNMP for each groundwater basin	1. Baseline condition 2. Loading trends and management strategies 3. Anti-degradation process 4. Adopted SNMP	Develop and adopt SNMP that will address current groundwater quality issues while protecting critical beneficial use	1. Salt and nutrient load reduction 2. Finalized SNMP	1. Data collected from baseline condition assessment and anti-degradation process 2. All TM deliverables 3. Final SNMP
J. Maximize Stakeholder Involvement and Stewardship	Maximize stakeholder and technical group involvement and stewardship in SNMP development	Conduct stakeholder workshops and conference calls to facilitate development of SNMP	1. Identify additional stakeholders/technical team members 2. Hold stakeholder workshops 3. Review and provide comments on technical TM	1. Additional stakeholders/technical team member contacted 2. No. of workshops/calls 3. TM review comments	1. List of stakeholders and technical team members 2. Workshop records 3. Draft SNMP comments and responses



Table 6-2: Performance Measures Table
Coachella Valley Salt and Nutrient Management Program

Benefit Type	Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
K. Address Water-related Needs in Tribal Culture	Addressing issues with existing groundwater resource for tribal community	<ol style="list-style-type: none"> 1. Salt/Nutrient loading and trends analysis 2. Anti-Degradation process 	Improve groundwater quality for tribal community	<ol style="list-style-type: none"> 1. Additional stakeholders/technical team member contacted 2. Salt and nutrient load reduction 3. Projected groundwater quality improvements from SNMP strategies 	<ol style="list-style-type: none"> 1. List of tribal stakeholders 2. Workshop records 3. Draft SNMP comments and responses
L. Address Water and Sanitation Needs for DAC	Addressing issues with existing groundwater resource for DAC	<ol style="list-style-type: none"> 1. Salt/Nutrient loading and trends analysis 2. Anti-Degradation process 	Improve groundwater quality for DAC area	<ol style="list-style-type: none"> 1. Salt and nutrient load reduction 2. Projected groundwater quality improvements from SNMP strategies 	<ol style="list-style-type: none"> 1. List of tribal and DAC stakeholders 2. Draft SNMP comments and responses
M. Maintain Affordability of Water	Comply with the adopted Recycled Water Policy for future recycled water system expansion to provide recycled water, which is less costly, for irrigation and other applicable uses	Achieve compliance with the State Water Resources Control Board's Recycled Water Policy	Facilitate streamlining the permitting of recycled water system expansion	Adopt Salt and Nutrient Management Plan to achieve compliance with Recycled Water Policy	<ol style="list-style-type: none"> 1. Final SNMP 2. Projected recycled water system expansion opportunities based on SNMP outcomes 3. Cost comparison between expanding the water system with recycled water vs. potable water supplies



Project 3: Groundwater Quality Protection Program – Subarea D2

The purpose of the *Groundwater Quality Protection Program-Subarea D2* is to 1) extend the Mission Springs Water District (MSWD) municipal wastewater collection system to Subarea D2 in Assessment District 12, 2) eliminate the need for on-site septic systems in the project area, and 3) comply with State law and an MSWD ordinance that require customers to connect to the wastewater collection system once it is available to their property.

The project will expand wastewater collection systems, enhance water quality by protecting drinking water supply, and reduce septic tank density. Each project goal will be complimented by a monitoring or assessment program to quantify and verify overall project performance.

Project Goals

The goals listed below are an elaboration on the goals explained for the project in Attachment 3 of this proposal. As such, the goals are organized and lettered in accordance with the IRWM Plan Objectives, and include additional project components necessary to verify project performance with respect to the objectives identified in Attachment 3.

A. Provide reliable water supply: The program will help to provide a reliable water supply for MSWD customers by contributing flows to the Horton Wastewater Treatment Plant (HWWTP) for future recycled water use. Volume of wastewater collected from sewer expansion will be obtained from the influent flow records at HWWTP. The influent flows will reveal water supply increases from septic tank abatement. Monthly reports will also identify new sewer connections which will indicate local supply increases.

B. Manage groundwater levels: This project will help to manage groundwater levels by capturing flows currently lost to the non-potable Desert Hot Springs Subbasin and reusing them within the potable Mission Creek subbasin. This will help to manage groundwater levels in the Mission Springs subbasin through recharge (percolation) and through source substitution (recycled water use).

D. Maximize local supply opportunities: This project indirectly maximizes local supplies by capturing septic effluent that is currently lost to the Desert Hot Springs Subbasin for possible future recycled uses. The sewer flows captured via new customer connections to the MSWD collection system will be treated for future groundwater recharge in the basin. This will alleviate the current overdraft in the region's groundwater basin and prevent potential subsidence.

Volume of wastewater collected from sewer expansion will be obtained from the influent flow records at Horton Wastewater Treatment Plant (HWWTP). The influent flows will reveal water supply increases from septic tank abatement. Monthly reports will also identify new sewer connections which will indicate local supply increases.

E. Protect groundwater quality: Expansion of MSWD's municipal wastewater collection system will eliminate the need for on-site septic systems in the project area. This will reduce septic tank densities in the region and prevent potential negative impact to Mission Creek and Desert Hot Springs groundwater aquifers from improperly functioning septic systems. In addition, this project protects hot mineral water sources from contamination by septic systems, thus preserving the primary industry of the local economy of a DAC.

MSWD will compile construction records for the municipal system expansion and customer connections that document local residences have connected to the system. MSWD will also provide groundwater monitoring data adjacent to the project area as a measurement of program success. The water quality data will demonstrate the success of diverting the septic tank effluent through long term trends in groundwater nitrate levels, thus demonstrating protection of the groundwater quality.



J. Maximize stakeholder involvement: This project will involve coordination with residents within Sub Area D-2 of Assessment District 12 within MSWD’s service area. As residents within this area are required to connect to the sewer system once it is in place, these residents are considered primary stakeholders and will be made aware of the project, its schedule, and its benefits to the Region.

Records of communication with residents, including public notices and flyers, will be documented and reported as a performance measure.

L. Address water and sanitation needs of DACs: Connection to MSWD wastewater collection system will help a local DAC meet their water and sanitation needs by providing for expansion of the municipal wastewater collection system and providing means for connection to the collection system. Removal of the septic systems will avoid any potential unsanitary conditions resulting from future system failures at residences. Potential nitrate and pathogen contaminations of the Desert Hot Springs aquifer will be eliminated via abatement of septic system. Hot mineral water will also be secured to continue supporting the local spa and hotel economy.

MSWD will compile construction records for the municipal system expansion and customer connections that document local residences have connected to the system. These records will document that the sanitation needs of the Desert Hot Springs DAC have been met through IRWM grant funding.

M. Maintain affordability of water: Protecting groundwater quality indirectly helps maintain the affordability of water. Eliminating the potential for nitrate contamination in water supplies will help project proponents avoid costly mitigation measures. It is, therefore, imperative that continual monitoring for nitrates in MSWD’s potable wells be implemented in order to achieve this project goal. Tests will ensure that nitrate levels remain below the MCL and costly treatments remain unnecessary.

MSWD will provide groundwater monitoring data on nitrates and pathogens.

Monitoring System

As project sponsor for *Groundwater Quality Protection Program- Subarea D2*, MSWD will compile and submit 1) construction records, 2) list of customer connections, 3) groundwater level and quality monitoring data, and 4) HWWTP influent records. MSWD will use the HWWTP influent records to calculate the amount of treated wastewater available for future recycled use.

Table 6-3 summarizes performance measures for this project.



Table 6-3: Performance Measures Table
Groundwater Quality Protection Program – Subarea D2

Benefit Type	Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
A. Provide Reliable Water Supply	Capture wastewater and recharge to the Mission Creek subbasin either directly or indirectly via source substitution (water recycling)	Increase the reliability of the Region's water supply by capturing and recharging water to the Mission Creek subbasin and providing additional flows for future recycled water	Provide additional water for recharge or for recycled water	Volume wastewater collected from new connections	Volume of wastewater collected from influent flow records
B. Manage Groundwater Levels	Capture wastewater and recharge to the Mission Creek subbasin either directly or indirectly via source substitution (water recycling)	Manage groundwater levels via source substitution or direct recharge	Provide additional water for recharge or for in lieu groundwater recharge (recycled water)	Volume wastewater collected from new connections	Volume of wastewater collected from influent flow records
D. Maximize Local Supply Opportunities	Capture wastewater and recharge to the Mission Creek subbasin for future use	Capturing and recharging water to the Mission Creek subbasin	Provide treated wastewater to be recharged in the Mission Creek subbasin	Volume wastewater collected from new connections	Volume of wastewater collected from influent flow records
E. Protect Groundwater Quality	Improve groundwater quality from eliminating septic system and recharge with treated wastewater	Eliminate septic systems in the project area and connect customers to wastewater collection system	Septic tank abatement and reduce potential groundwater contamination	1. # of septic tanks abated 2. # of customers connected 3. Reduced groundwater nitrate and pathogen levels	1. Construction records 2. List of customer connections 3. Groundwater nitrate and pathogen monitoring data
J. Maximize Stakeholder Involvement	Enhanced stakeholder awareness and stewardship	Distribute information about the project and its benefit to local stakeholders	Improved awareness of the project	Distributed information	Flyers, notices, and other materials about the project and distribution record
L. Address Water and Sanitation Needs for DAC	Provide reliable sewer conveyance and treatment for DAC area	Expand municipal wastewater collection system and connect to DAC area	Eliminate pollutant discharge from on-site septic systems in DAC area	1. LF of sewer pipe 2. # of customers connected	1. Construction record 2. List of customer connections
M. Maintain Affordability of Water	Maintain affordability by reducing and preventing contamination of local groundwater	Maintain groundwater quality to prevent additional treatment requirements	Eliminate the potential for nitrate removal systems to be installed at potable wells	No substantial or sustained long term trend in increased of nitrate and pathogen levels in potable wells	1. Volume of wastewater collected 2. Groundwater nitrate and pathogen monitoring data



Project 4: San Antonio del Desierto DAC Sewer Extension Project

The purpose of the *San Antonio del Desierto DAC Sewer Extension Project* is to replace the existing on-site wastewater treatment system at the San Antonio del Desierto (St. Anthony) Mobile Home Park with a sewer connection. The project proposes the installation of a gravity sewer pipeline, lift station, and a sewer force main pipeline that will collect wastewater from the St. Anthony Mobile Home Park, which has an approximate population of 400 people. The project will provide sewer service to the residents and convey the wastewater to the CVWD Water Reclamation Plant No. 4 (WRP-4).

The project will protect groundwater quality, improve sanitation in a disadvantaged community (DAC), and facilitate permitting compliance for the mobile home park, which will help to ensure that residents can remain in their homes and are not displaced. Each project goal will be complimented by a monitoring or assessment program, as described below, to quantify and verify overall project progress.

Project Goals

The goals listed below are an elaboration on the goals explained for the project in Attachment 3 of this proposal. As such, the goals are organized and lettered in accordance with the IRWM Plan Objectives, and include additional project components necessary to verify project performance with respect to the objectives identified in Attachment 3.

A. Provide reliable water supply: This project will help to provide a reliable water supply by connecting the St. Anthony Mobile Home Park to a municipal sewer system, thereby transferring wastewater to a water reclamation plant for future water reuse. Volume of wastewater collected from sewer expansion will be obtained from the influent flow records at WRP-4. The influent flows will reveal water supply increases from connecting the St. Anthony Mobile Home Park to the municipal wastewater system.

D. Maximize local supply opportunities: This project indirectly maximizes local supplies by capturing wastewater lagoon effluent that is currently lost to the shallow aquifer, and ultimately the Salton Sea for future recycled uses at CVWD's WRP-4. Wastewater that is sent to WRP-4 is currently discharged to the Coachella Valley Stormwater Channel (CVSC) after undergoing secondary treatment. While these flows are not currently beneficially reused, CVWD intends to upgrade WRP-4 to tertiary treatment to produce recycled water for beneficial reuse. This will maximize local supply opportunities by providing additional flows for recycled water, which will alleviate groundwater pumping via source substitution.

Volume of wastewater collected from sewer expansion will be obtained from the influent flow records at WRP-4. The influent flows will reveal water supply increases from connecting the St. Anthony Mobile Home Park to the municipal wastewater system.

E. Protect groundwater quality: The St. Anthony Mobile Home Park utilizes an on-site wastewater facility that is inadequate, does not meet current minimum standards, and is in need of replacement. The presence of a high groundwater table and poor percolation rates in the vicinity can negatively impact the operation of the onsite wastewater lagoons. The project will connect to CVWD's wastewater collection system and will protect public health, preserve valuable water resources, and diminish the possibility for groundwater contamination.

Pueblo Unido CDC, in coordination with CVWD, will compile construction records for the municipal system expansion. CVWD will also provide groundwater monitoring data adjacent to the project area as a measurement of program success. The water quality data will demonstrate the success of capturing wastewater flows through long term trends in groundwater nitrate levels.

F. Preserve and improve surface water quality: The existing on-site wastewater facilities consist of anaerobic wastewater lagoons. The majority of the existing on-site wastewater system is in immediate need of replacement and has a history of overflow, spills, and leaks. Existing groundwater levels are very



close to ground surface and may result in subsurface flow of water from the lagoons to adjacent agricultural drains.

CVWD will provide surface water monitoring data for agricultural drains and demonstrate successful nitrate and pathogen reduction in surface drainage channels.

G. Preserve local environment: This project will divert flows from onsite wastewater lagoons to the CVWD municipal water system. Therefore, the project will divert untreated wastewater from flowing into the Salton Sea or to the Torres-Martinez wetlands located adjacent to the Salton Sea. Wastewater from the project will be treated to tertiary levels and reused as recycled water, assuming that WRP-4 is upgraded to tertiary treatment by 2015. Therefore, the project will improve the quality of wastewater before it is discharged to the local environment.

Volume of wastewater collected from sewer expansion will be obtained from the influent flow records at WRP-4. The influent flows will reveal the amount of wastewater that is diverted to WRP-4, and will therefore reveal the amount of wastewater that is diverted from entering the local environment prior to treatment.

J. Maximize stakeholder involvement: The project is a community-driven project supported by CVWD. This constitutes a true testimony of community involvement. The community has expressed serious interest in replacing the existing wastewater lagoons that have been adversely impacted by the high water table and poor percolation in the area for many years. This has resulted in the formulation of this project, which will ensure better living conditions and new opportunities for future generations.

Distribution records will be documented and reported as a performance measure.

L. Address water and sanitation needs of DACs: Connection to the CVWD wastewater collection system will help a local DAC meet their water and sanitation needs by providing for expansion of the municipal wastewater collection system and providing means for connection to the collection system. Removal of the wastewater lagoon system will avoid any potential unsanitary conditions resulting from future system failures. Potential nitrate and pathogen contaminations of the shallow aquifer will be eliminated via abatement of the lagoons.

Pueblo Unido CDC, in coordination with CVWD, will compile construction records for the municipal system expansion. These records will document that the sanitation needs of the St. Anthony DAC have been met through IRWM grant funding.

M. Maintain affordability of water: Protecting groundwater quality indirectly helps maintain the affordability of water. Eliminating the potential for nitrate contamination in water supplies will help project proponents avoid costly mitigation measures. It is, therefore, imperative that continual monitoring for nitrates in CVWD's potable wells be implemented in order to achieve this project goal. Tests will ensure that nitrate levels remain below the MCL and costly treatments remain unnecessary.

CVWD will provide groundwater monitoring data on nitrates and pathogens.

Monitoring System

As project sponsor for *San Antonio del Desierto DAC Sewer Extension Project*, Pueblo Unido CDC will work with CVWD to compile and submit 1) construction records, 2) groundwater quality monitoring data, 3) agricultural drain water quality monitoring, and 4) WRP-4 influent records. Pueblo Unido CDC will also prepare distribution records for the community information flyer.

CVWD will use the WRP-4 influent records to calculate the amount of treated wastewater available for future recycled use.

Table 6-4 summarizes performance measures for this project.



Table 6-4: Performance Measures Table
San Antonio del Desierto DAC Sewer Extension Project

Benefit Type	Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
A. Provide Reliable Water Supply	Capture treated wastewater for future recycled water opportunity	Increase the reliability of the Region's water supply by providing additional supplies for future recycled water	Provide additional treated wastewater for recycled water	Volume wastewater collected from new connections	Volume of wastewater collected from influent flow records
D. Maximize Local Supply Opportunities	Capture treated wastewater for future recycled water opportunity	Increased future recycled water supply	Provide additional treated wastewater for recycled water	Volume wastewater collected from new connections	Volume of wastewater collected from influent flow records
E. Protect Groundwater Quality	Improve groundwater quality and reduce sewage contamination	Connect mobile home park to municipal wastewater collection systems	Lagoon abatement and eliminated groundwater contamination	1. Acreage of lagoons abated 2. Confirm municipal sewer connection 3. Reduced groundwater nitrate concentration	1. Construction record 2. Groundwater nitrate and pathogen monitoring data
F. Preserve Surface Water Quality	Protect surface water from lagoon subsurface and surface overflow, spills, and leaks	Replace failing lagoon system with sewer connection	Prevent lagoon contamination via shallow groundwater transport	Reduced nitrate and pathogen level in surface water body	Surface water monitoring data for agricultural drains
G. Preserve Local Environment	Protect the local environment from sewage contamination	Replace failing lagoon system with sewer connection	Prevent contaminated water from entering the local environment	Volume wastewater collected and treated, and not discharged to the local environment	Volume of wastewater collected from influent flow records
J. Maximize Stakeholder Involvement and Stewardship	Enhanced stakeholder awareness and stewardship	Distribute flyers about project and its benefit to local stakeholders	Improved awareness of the project	Distributed information	Informative flyer on project and distribution record
L. Address Water and Sanitation Needs for DAC	Provide reliable sewer conveyance and treatment for DAC and eliminate potential public health problems	Replace failing lagoon system with sewer connection	Eliminate pollutant discharge from lagoon systems in DAC area	1. Confirm municipal sewer connection 2. MGD of sewer collected	1. Construction record 2. Volume wastewater collected from influent flow records
M. Maintain Affordability of Water	Maintain affordability by reducing and preventing contamination of local groundwater	Maintain groundwater quality to prevent additional treatment requirements	Eliminate the potential for nitrate removal systems to be installed at potable wells	No substantial or sustained long term trend in increased of nitrate and pathogen levels in potable wells	1. Volume of wastewater collected 2. Groundwater nitrate and pathogen monitoring data



Project 5: Torres-Martinez Avenue 64 Water Supply Connection Project

The *Torres-Martinez Avenue 64 Water Supply Connection Project* would provide a safer and more reliable supply of water and require much less direct operations and maintenance from the Torres-Martinez Desert Cahuilla Indians (DCI). Once implemented, this project will resolve the water outages and improve the health and safety issues associated to the residents and the operators of the system. It will also restore the fire protection service, which has been inoperable since 2004.

This project will provide engineering services to design the extension of the existing CVWD regional water supply system and connect it to the Torres-Martinez DCI domestic water and fire water supply system at Avenue 64. The existing Torres-Martinez DCI wells, storage tanks, and pressure stations would be physically disconnected from the water supply system.

This project is a critical component of the concrete actions that the Torres-Martinez DCI is taking to resolve water system deficiencies within the Avenue 64 Subdivision. Torres-Martinez DCI is actively pursuing U.S. Department of Agriculture (USDA) funding for construction activities (Phase II), but does not have the financial or technical means to complete engineering and design work that are required prior to construction in order to be eligible for funding from USDA. As such, this project would meet the critical water supply needs of a tribal DAC by including work necessary to lead to a construction project that would permanently resolve water supply and associated public health issues within the Avenue 64 Subdivision by connecting the subdivision to the CVWD municipal water supply system.

Project Goals

The goals listed below are an elaboration on the goals explained for the project in Attachment 3 of this proposal. As such, the goals are organized and lettered in accordance with the IRWM Plan Objectives, and include additional project components necessary to verify project performance with respect to the objectives identified in Attachment 3.

A. Provide reliable water supply: This project will connect the Avenue 64 Subdivision to the current CVWD water distribution system, which will provide safe and reliable domestic water and fire suppression services to the community. The project will allow the Torres-Martinez DCI to disconnect their exiting well system, which experiences frequent outages and poses a risk to human health and safety. Engineering drawings produced through this project will be reviewed and approved by CVWD for use during Phase II.

B. Manage groundwater levels: This Project will allow the Torres-Martinez DCI to disconnect their current well system and eliminate local groundwater pumping in the community, which is located in the eastern Coachella Valley. Reduced local groundwater extraction in this portion of the Coachella Valley will help to manage the perched water aquifer. Engineering drawings produced through this project will be reviewed and approved by CVWD for use during Phase II.

J. Maximize stakeholder involvement: By partnering with adjacent agencies and doing outreach to local residents, along with CVWD, this project will optimize stakeholder involvement in extension of municipal services to a disadvantaged tribal community. Flyers containing project information will be produced and distributed to local stakeholders by Torres-Martinez DCI.

K. Address water-related needs of Tribes: This project is designed to address the critical drinking water supply needs of the Torres-Martinez DCI tribe, and provides reliable and safe drinking water directly to a tribal community located on tribal lands. In addition, operations and maintenance (O&M) requirements will be reduced for the local tribal operator. Engineering drawings produced through this project will be reviewed and approved by CVWD for use during Phase II.

L. Address water and sanitation needs of DACs: This project will provide for a more reliable and safer water source for a DAC. With the elimination of the existing groundwater wells, this will project will reduce the risks to human health and safety that are posed by the community's current water system. By



connecting to the CVWD potable water system, the project will also provide a long-term solution to addressing water-related needs of a DAC. Engineering drawings produced through this project will be reviewed and approved by CVWD for use during Phase II.

M. Maintain affordability of water: Residents currently need a periodic provision of bottled water supplies for potable consumption during frequent outages in their current water supply system. This project will eliminate the need for costly bottled water provisions to the community. The project will also greatly reduce the operations and maintenance needs and costs associated with the existing onsite potable water system. Cost comparison between bottled water and municipal water supply will be provided by Torres-Martinez DCI to demonstrate the economic advantage.

Monitoring System

As the project sponsor for the *Torres-Martinez Avenue 64 Water Supply Connection Project*, the Torres-Martinez DCI staff will provide 1) engineering drawings, 2) informational flyer for distribution to tribal residents, and 3) cost comparison of bottled water vs. municipal service based on the systems' design capacity. CVWD will review and approve the engineering drawings for use during Phase II.

Table 6-5 summarizes performance measures for the *Torres-Martinez Avenue 64 Water Supply Connection Project*.



Table 6-5: Performance Measures Table
Torrez Martinez Avenue 64 Water Supply Connection Project

Benefit Type	Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
A. Provide Reliable Water Supply	Design a CVWD water connection to eliminate supply outages and improve potable water quality in the Avenue 64 Subdivision	Connect the Avenue 64 Subdivision to CVWD municipal water infrastructure to provide a safe and reliable domestic water supply	Safe and reliable water supply	100% design completed for CVWD water supply connection	Engineering drawings
B. Manage Groundwater Levels	Design a CVWD water connection to manage the shallow (perched) aquifer by eliminating tribal groundwater pumping	Connect the Avenue 64 Subdivision to CVWD municipal water infrastructure to reduce groundwater extraction for potable use	Replace local groundwater pumping from the shallow aquifer with CVWD municipal water supply	100% design completed for CVWD water supply connection	Engineering drawings
J. Maximize Stakeholder Involvement and Stewardship	Enhanced stakeholder awareness and stewardship	Inform tribal residents about the project and its benefit to local stakeholders	Improved awareness of the project	Distributed information	Informative flyer on project
K. Address Water-related Needs in Tribal Culture	Reduce outages and improve potable water quality in tribal land	Connect the tribal community to CVWD to provide a safe and reliable water supply for potable use and fire suppression	Safe and reliable water supply	100% design completed for CVWD water supply connection	Engineering drawings
L. Address Water and Sanitation Needs for DAC	Improve water supply reliability and water quality for DAC	Connect the tribal community to CVWD and reduce O&M burden for the tribal water operator	Safe and reliable water supply	100% design completed for CVWD water supply connection	Engineering drawings
M. Maintain Affordability of Water	Eliminate the need for bottle water supply due to frequent water outages and poor water quality	Connect the tribal community to CVWD which provides reliable high quality water at a lower cost	Reduced potable water supply costs	Projected drinking water cost pre- and post-project completion	Cost comparison between bottled water and CVWD water based on design capacity