

*Introduction*

The following sections include detailed project specific information about the three projects within this Proposal.

Proposal Work Plans
1. Mojave Region Commercial, Industrial and Institutional (CII) Turf Phase II Removal Program
2. Hi-Desert Sewer Collection System Program Phase 1A
3. Leak Detection Services for Mojave Region 100% Disadvantaged Community (DAC) Small Water Systems Phase 1 Program

*Mojave Region Commercial, Industrial and Institutional (CII) Turf Phase II Removal Program*

**IMPLEMENTING AGENCY:** Mojave Water Agency (MWA)

**PROJECT DESCRIPTION:** This Project is a continuation (Phase II) of the Region’s successful rebate program that promotes turf (i.e., grass lawn) removal by CII water users to conserve water in the Mojave Integrated Regional Water Management (IRWM) Region. The Mojave Region CII Turf Phase II Removal Program provides incentives to water users to reduce their per capita consumption by eliminating irrigated turf grass with partial replacement of drought tolerant and desert adaptive landscaping. This water conservation Project provides immediate demand reduction by removing about 900,000 square feet of turf. CII turf replacement rebates for Phase II are planned to be dispersed on a first-come-first-served basis over the twenty-four-month Project implementation period.

This Project will decrease potable demand by promoting turf removal on commercial, industrial, and institutional landscapes (and potentially large residential users). As shown in Attachment 2, water savings are estimated at 55.8 gallons per square foot of turf removed and up to approximately 154 acre feet per year (afy). The Project will build on the success of the existing commercial and residential Cash for Grass program. With about 60% of regional water use utilized for landscape irrigation, and the State focusing on this as the "next step" for conservation programs, implementation of this water conservation Project is a vital complement to ongoing water demand reduction efforts in the Region.

MWA is already funding multiple other water conservation efforts for its 25 retail water agencies along with the Alliance for Water Awareness and Conservation (AWAC), a collaborative group of over twenty agencies whose goal is to promote conservation within the MWA service area and to implement water savings measures, including outreach, education and customer incentives. MWA has had great success in using AWAC as a marketing tool to spread key rebate program information via the water purveyors and also to coordinate with the AWAC and other retail water providers regarding operational and implementation issues.

Below is a summary of the tasks necessary to complete the Mojave Region CII Turf Phase II Removal Program.

**TABLE 3-1: WORK PLAN FOR MOJAVE REGION CII TURF PHASE II REMOVAL PROGRAM**

**Category (a): Direct Project Administration**

**Task 1: Administration:** Manage grant agreement including compliance with grant requirements, and preparation and submission of supporting grant documents and coordination with IRWM regional manager, Mojave Water Agency. Prepare invoices including relevant supporting documentation for submittal to the California Department of Water Resources (DWR) via Mojave Water Agency. This task also includes administrative responsibilities associated with the project such as coordinating with partnering agencies, and managing consultants/contractors.

Deliverables:

- Environmental Information Form (EIF)
- Financial Statements
- Invoices
- Other Applicable Project Deliverables

Completion Status: 0% complete

**Task 2: Labor Compliance Program:** The proposed project involves planning and administration work and does not include work or trades subject to labor compliance, nor will contractors be hired as part of this effort due to the landowners themselves being required to complete the turf replacement. Therefore, this task is not applicable.

Deliverables:

- NA

**Task 3: Reporting:** Prepare and submit quarterly progress reports detailing work completed during reporting period to DWR per the Prop 84 Guidelines. Prepare draft Final Project Completion Report and submit to DWR via Mojave Water Agency for DWR Project Manager’s comment and review no later than 90 days after project completion. Prepare Final Report addressing DWR’s comments. The report shall be prepared and presented in accordance with the provision of the Prop 84 Guidelines.

Deliverables:

- Quarterly Project Progress Reports
- Draft and Final Project Completion Report

Completion Status: The Reporting task is approximately 5% complete.

### Category (b): Land Purchase/Easement

**Task 4 – Land Purchase:** Not Applicable. No land purchases or right-of-way easements are required.

Deliverables:

- NA

### Category (c): Planning/Design/Engineering/Environmental Documentation

**Task 5: Assessment and Evaluation:** Water savings estimates for the proposed program are based on projections and savings experienced in similar programs throughout the West and from experience with the existing MWA Cash for Grass commercial and residential turf replacement program. The technical feasibility of turf replacement programs is well documented and a key element to the "New Normal in California landscapes", which promotes an integrated approach to landscaping and is supported by DWR and the California Urban Water Conservation Council. No additional design reports or investigations are required.

Deliverables:

- 2014 Mojave IRWM Plan.

Completion Status: 100%

**Task 6: Design/Engineering:** The Mojave Region CII Turf Removal Program Phase II will replace 900,000 square feet of turf with low-water-using landscaping, providing rebates of \$1/square foot of turf replaced. The program is designed for consistency with the "New Normal". Design requirements include: 1) the converted landscape must replace at least 25 percent of the area of turf removed with desert adaptive and/or drought tolerant plants; 2) landscapes must be configured to minimize stormwater runoff and maximize percolation to groundwater; 3) landscape size must range between 20,000 and 500,000 square feet; 4) project is applicable to the entire Mojave IRWM Plan Region; 5) project is geared toward commercial, industrial and institutional uses but large residential uses may also be included.

Any construction and on-site work is the responsibility of the rebate applicant; no engineering or design work is required on the part of MWA for implementation of the rebate program. Pre-inspection services and customer support will be provided by the local retail agencies under the oversight of the MWA Project Manager.

**Advertising, Public Outreach:** MWA will advertise the Phase II Turf Removal Program and perform public outreach (including placing print and broadcast media ads and attending community functions to distribute multi-lingual application materials), focusing on large landscape customers.

Deliverables:

- Outreach Materials

Completion Status: 80%

**Task 7: Environmental Documentation:** The Project incentivizes landscape conversions from high-water-using turf to desert and drought adaptive plants. The project falls under CEQA Categorical Exemption Class 4(b) - (section 15304(b)). A Notice of Exemption was filed for this program with the San Bernardino County Clerk in 2011.

Deliverables: Notice of Exemption

Completion Status: 100%

**Task 8: Permitting:** Based on MWA's experience with similar projects, permits are not required.

Deliverables:

- NA

**Task 9: Project Performance Monitoring Plan:** Develop and submit a Project Performance Monitoring Plan. Along with the Project Performance Measures Table provided by DWR project manager, the Project Performance Monitoring Plan will include baseline conditions, a brief discussion of monitoring systems to be used, methodology of monitoring, frequency of monitoring, and location of monitoring points.

Deliverables:

- Project Monitoring Plan

Completion Status: 0%

**Category (d): Construction/Implementation**

**Task 10: Contract Services:** Contract Services do not apply to this project.

Deliverables:

- NA

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**Task 11: Construction Administration:** MWA will administer the Turf Removal Program. Activities include tracking costs, maintaining financial records and rebating payments to program participants. Also, staff will assist with implementation and provide Program auditing support.

Deliverables:

- Summary of rebates to participants

Completion Status: 0% complete.

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**Task 12: Construction/Implementation:** Work with commercial, industrial and large residential customers to write contracts for reimbursing \$1 per square foot of turf removal.

Site designs and plans must be pre-approved before work commences, and applicants must agree to a post-conversion inspection to ensure project compliance. Participants contact their local water providers to request an application. Pre-inspections and approval of existing landscapes will be conducted by participating local water districts. Photos of the existing turf will be taken during the landscape pre-inspection. The application must be pre-approved before removing any turf and beginning a conversion.

Once the landscape conversion project is finished, the landowner is responsible for notifying MWA of completion. The post-conversion inspection includes taking photos of the converted landscape, obtaining converted landscape area measurements, irrigation system inspection, plant eligibility review for program compliance and rebate eligibility verification. If the converted landscape or irrigation system fails inspection, the landowner is allowed 60 days (or the remainder of the one-year period, whichever is greater) to fully comply with the program conditions.

Since the current residential rebate program imposes a limit of 20,000 square feet, rebates of \$1 per square foot will be offered to customers, focusing on large landscape users (over 20,000 square feet). Customer support will be provided by local retail agencies under the oversight of MWA. Post-inspection services will be conducted by MWA. MWA will perform all rebate processing, with information provided by its local retailers.

Deliverables:

- Contracts for up to 900,000 square feet of permanent turf removal over two years
- Documentation and processing of applications
- Photographic documentation

Completion Status: 0%.

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### *Hi-Desert Sewer Collection System Phase 1A*

**IMPLEMENTING AGENCY:** Hi-Desert Water District (HDWD)

**PROJECT DESCRIPTION:** Currently, septic systems are the predominate method by which wastewater is disposed of within the District’s entire service area. However, a small number of package treatment plants have been installed to treat commercial wastewater flow under individualized discharge permits issued by the California Regional Water Quality Control Board, Colorado River Basin Region (the “Regional Board”).

The District's primary water source is groundwater from the Warren sub-basin of the Morongo Groundwater Basin. In a 2003 study, the United States Geological Survey (USGS) reported that an imbalance between natural groundwater recharge and pumping caused groundwater levels in the Warren sub-basin to decline by as much as 300 feet from the late 1940s through 1994. The District implemented an artificial recharge program in February 1995 using SWP water as the source of recharge to alleviate the declining groundwater levels. The artificial recharge program resulted in water-level recoveries; however, nitrate concentrations in some wells also increased from a background concentration of 10 milligrams per liter (mg/L) to more than the US Environmental Protection Agency (USEPA) maximum contaminant level (MCL) of 45 mg/L (10 mg/L as nitrogen). The 2003 study also reported that the primary cause of the nitrate pollution was septic tank effluent from households, commercial, and industrial facilities within (and surrounding) the Town of Yucca Valley.

In 2007, the Regional Board adopted a resolution identifying the Town of Yucca Valley as a top priority for eliminating the use of septic systems. The resolution led to an amendment to the Regional Board’s Water Quality Control Plan (Basin Plan) which was adopted on May 19, 2011. The amendment imposed a septic tank prohibition on new and existing septic systems within the Town of Yucca Valley, which takes effect on specific dates following a phased approach identified as Phase 1, 2, and 3. The Phase 1 prohibition is currently scheduled to take effect on May 19, 2016 with Phase 2 and 3 prohibitions taking effect on May 19, 2019 and May 19, 2022 respectively. Following the prohibition dates, property owners will be required to cease discharging waste through their septic systems. Should property owners continue to discharge; the Regional Board will begin enforcement actions that include issuing Cease and Desist Orders and/or fines for non-compliance. As the local sewerage agency, the District has responded to the threat septic tank discharges have had on the Basin and the prohibition by fast-tracking the design and construction of its Project.

The Project provides a solution that is a comprehensive, community-wide approach toward meeting the State’s requirements and protecting the community’s groundwater resources for generations to come. The Project will collect residential and commercial wastewater discharges and apply a level of treatment that is suitable for discharging back into the District’s aquifer for future extraction.

The Project consists of:

- Wastewater collection system that will collect wastewater currently being discharged via septic systems (Phase 1A only, which includes 25, or about 1/3, out of the total 78 miles of sewer pipelines required for the Phase 1 system and the Paxton and Barron Pump Stations, is included in this grant application. The remaining portion of Phase 1 is NOT included in this grant application);
- The wastewater treatment plant, referred to as the Wastewater Reclamation Facility (WRF) will initially be capable of treating Phase 1 flow of up to 1.0 million gallons per day (MGD) using membrane bioreactors, expandable to meet future Phase 2 and 3 flow (NOT included in this grant application) and;
- Water reclamation recharge pond(s) that will receive the treated effluent on-site, returning Title 22 water to the local aquifer for future extraction (NOT included in this grant application).

Though the District has made extensive progress toward the completion of the Project, critical path objectives such as the collection system design have been achieved through available grant funding. The District’s current financial position is not able to support continued progress without additional funding, which is needed to complete the design and begin construction of the treatment facility and the construction of the collection system. The District has applied for a State Revolving Fund (SRF) loan that has been secured through the formation of an Assessment District (AD). HDWD announced May 13, 2015 that 72 percent of weighted votes supported the formation of an Assessment District that has secured a one percent loan from the State and will fund construction of the Phase 1 Wastewater Collection System and WRF. The AD’s formation attaches a special lien on properties within the Phase 1, 2, and 3 boundaries. Property owners will pay off the lien through installments included on their property taxes over a 30-year period at a low interest rate.

Tasks necessary to complete the Project Phase 1A, with current status of completion, are discussed below in Table 3-2.

**TABLE 3-2: WORK PLAN FOR  
HI-DESERT SEWER COLLECTION SYSTEM PHASE 1A**

**Category (a): Direct Project Administration Costs**

**Task 1: Administration:** Manage grant agreement including compliance with grant requirements, and preparation and submission of supporting grant documents and coordination with IRWM regional manager, Mojave Water Agency (MWA). Prepare invoices including relevant supporting documentation for submittal to DWR via MWA. This task also includes administrative responsibilities associated with the project such as coordinating with partnering agencies, and managing consultants/contractors.

Deliverables:

- Environmental Information Form (EIF)
- Financial Statements
- Invoices
- Other Applicable Project Deliverables

Completion Status: 0%

**Task 2: Labor Compliance Program:** Take all measures necessary to ensure compliance with applicable California Labor Code requirements, including, preparation and implementation of a labor compliance program or including any payments to the Department of Industrial Relations under Labor Code Section 1771.3.

Deliverables:

- Proof of labor compliance upon request

Completion Status: 0%

**Task 3: Reporting:** Prepare progress reports detailing work completed during reporting period as outlined in the DWR Prop 84 Guidelines. Submit reports to MWA for review and inclusion in a progress report to be submitted to DWR. Prepare draft Final Project Completion Report and submit to DWR via MWA for DWR Project Manager’s comment and review no later than 90 days after project completion. Prepare Final Report addressing DWR’s comments.

Mojave Water Agency will be responsible for compiling quarterly progress reports for submittal to DWR. Mojave Water Agency will coordinate with project proponent staff to retain consultants as needed to prepare and submit Quarterly Progress Reports and Final Project Completion Reports for each project, as well as the Grant Completion Reports.

Deliverables:

- Quarterly Project Progress Reports
- Draft and Final Project Completion Report

Completion Status: 0%

**Category (b): Land Purchase/Easement**

**Task 4: Land Acquisition:** While collector and main alignments are configured to follow the topography and utilize public rights-of-way (r/w) wherever possible, including pipe storage, excavation, spoils, and compaction activities, the *Hi-Desert Water District Assessment District No. 2014-1 Engineer’s Report* (Webb, 2015) (HDWD Assessment District Report) identified several utility easements or r/w that will need to be acquired to maintain the alignment proposed for the sewer collection facilities. The types of easements include several roadways that do not have any identified r/w dedication and several easements necessary for the alignments that cross residential and commercial property.

Estimates for the cost to obtain easements were broken into different categories: easements across vacant properties, residential properties, commercial properties, industrial properties, Other Retail/Service properties, and schools. Currently, HDWD has a list of required easements for the entire Phase 1 Project. The figure to the right presents graphically the necessary easements as provided by the Design Engineer (Atkins). The highlighted green easements are necessary for the Phase 1A Project and have “agreed” to the easement terms as of the writing of this grant application.



The Paxton Pump Station (PS) will be located on property owned by HDWD on the southwest corner of the Paxton Drive and Balsa Road intersection as shown on Figure 3 (Attachment 2). The property is 100 feet by 100 feet (approximately 0.23 acre) in size.

The Barron PS is also to be located on HDWD owned property at the northwest corner of Yucca Mesa Road and Barron Drive (see Figure 3). HDWD owns two properties in the vicinity with a combined boundary of 300 feet by 450 feet. The fenced area for the pump station is 65 feet by 61 feet or about 0.09 acres.

#### Deliverables:

- Documentation supporting property value (if purchased)
- Legal opinion for SRF Loan stating that all required easements/land acquisition have been acquired

Completion Status: 55%

### Category (c): Planning/Design/Engineering/Environmental Documentation

**Task 5: Assessment and Evaluation:** The District's 2009 Sewer Master Plan (SMP) was completed by Montgomery Watson Harza (MWH) and the design of the Phase 1A sewer collection system builds upon the previous engineering work provided by MWH in the SMP.

#### Deliverables:

- MWH 2009 Sewer Master Plan

Completion Status: 100%

**Task 6: Design/Engineering:** The Design Engineer (Atkins) is currently under contract with HDWD to provide design for 78 miles of pipeline – this is for the entire Phase 1 Sewer Collection System. However, the Phase 1 Collection System is planned to be released for construction in four (4) packages. The construction packages have been designated into east, central and west. It is proposed to move from east to west in phasing, since the location of the WRF is located in the eastern portion of the Town. In addition, in an effort to maximize efficiencies and reduce contractor markup, the portions of work related to the removal and replacement of asphalt streets due to the impact of the installation of the Sewer, have been separated as a standalone bid package.

The first of the four packages is designated as Phase 1A and is the subject of the grant application. Phase 1A includes 25 miles of pipelines (sewer mains, trunk sewers, and force mains) primarily in the eastern third of the HDWD service area from the proposed WRF site (intersection of Barron Drive and Martin Drive) east to Balsa Avenue. Also, the Project includes two pump stations – Paxton PS and Barron PS.

The collection system's sewer mains and collectors will be comprised of SDR-35 Polyvinyl chloride (PVC) pipeline ranging in size from eight (8) inches to twenty-one (21) inches in diameter. The system's 21-inch trunk sewer main will be installed along the community's primary flood control channel to avoid paralleling Caltrans right-of-way along State Route 62.

Although design for the WRF has not yet begun, based on the flow projections it is anticipated that the initial capacity will be approximately 1.0 MGD. Assuming that the facility will be built with multiple treatment trains for ease of operation and maintenance, having start-up flow in the 0.25 MGD range would allow for relatively simple initial facility start-up. Lower flow will impact the ability for the facility to adequately treat and dispose of the effluent. The start-up flow does not need to be present in the first day, but for the best development of the biological portion of the facility, it would be most effective to have the start-up flow within a short window of one to two weeks.

Start-up of the pump stations requires sufficient flow to be able to adequately test the pumps and motors and there should not be long retention times that can lead to odor issues or problems with treatment. Pump stations can have what is called "makeup water" at the start of operation to ensure that pumps cycle and that there is sufficient flow. "Makeup water" is generally potable water, so due to the cost of water, it is not desirable to utilize it for long-term operation of a pump station but it can assist in short-term start-up situations.

The HDWD's approach to construction packaging is:

1. Minimizing the number of repeat impacts to residents by constructing in one zone at a time,
2. Providing the minimum 0.25 MGD required for start-up of the WRF (the anticipated flow for the Phase 1A sewer collection system is estimated at 0.29 MGD), and
3. Sizing the packages to maximize competition during bidding.

The Design Engineer reviewed the proposed collection system under Phase 1 and 1A flow conditions. Pump stations will be

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phased to accommodate Phase 1 flow, but the pipe diameters are sized for build-out flow. Under Phase 1 peak flow conditions, the modeled trunk sewers flow approximately half-full, which will provide adequate cleansing velocities and minimize operational concerns.

The design of the plans and specifications is 98% complete and HDWD had been waiting for the Assessment District to get approved by the property owners. On May 13, 2015, Yucca Valley property owners delivered decisive support to secure funding to construct Phase 1 of the Sewer Collection System.

Now that the Assessment District has been approved, the Design Engineer is finalizing the various bid packages with bid documents expected to be available in November 2015.

Deliverables:

- Updated Project Cost Estimate
- 100% Design Documents

Completion Status: 98%

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**Task 7: Environmental Documentation:** Hi-Desert Water District Resolution No. 09-16 adopting the Mitigated Negative Declaration for the project was adopted August 5th, 2009. A copy of the resolution is attached as “Att3\_2015IRWM\_WorkPlan\_2of2.pdf”, which also includes the proof of submittal for the two signed addendums.

Deliverables:

- Copy of 2009 Mitigated Negative Declaration
- Copy of 2013 Addendum
- Copy of 2014 Addendum

Completion Status: 100%

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**Task 8: Permitting:** For Phase 1A construction, permits are required from the following three agencies: (1) Caltrans, (2) Town of Yucca Valley, and (3) Mojave Desert Air Quality Management District.

*Caltrans, District 8.* Caltrans maintains State Highway 62, Twenty-nine Palms Highway, and State Highway 247, Old Woman Road. An encroachment permit is required for the proposed sewer crossings off Highway 62 and the crossing at Highway 247. All the proposed crossings are transverse crossings and are anticipated to be included in one permit. Caltrans permit negotiations are progressing and are expected to be completed by August 2015. Caltrans waives the permit fee for public agencies; however, the Contractor is required to pay the associated permit inspection fees.

*Town of Yucca Valley.* An encroachment permit is required by the Town for all work within public right-of-way. The Contractor will obtain this permit prior to the start of construction. Discussions with the Town started after the 30 percent submittal to detail any specific requirements to assure the plans and specifications include anticipated requirements and that the contractor has a solid basis for costs. Additional permits from the Town may be required for the disturbance of Joshua Trees or the Town may request building permits be obtained for the pump stations and WRF. The collection system has been designed such that no impacts to Joshua Trees are anticipated; however, it is possible that changes during construction required to address an unforeseen field condition, could require the removal of a Joshua Tree and trigger the need for the permit. The Town has reviewed the plans and will work with the District and its contractors to issue any required permits in a timely manner.

*Mojave Desert Air Quality Management District.* The purchase of a generator for the Paxton Pump Station requires the acquisition of a Mojave Desert Air Quality Management District (MDAQMD) Permit. This permit is tied directly to the exact model installed and therefore cannot be finalized until the Project is in construction. Coordination with the supplier of the generator will be required. Atkins (design engineer) is working with the MDAQMD to confirm that the specified models are in conformance with the current standards and once the specific model is determined the final permit application will be completed.

Deliverables:

- All required permits

Completion Status: 80%

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**Task 9: Project Performance Monitoring Plan:** Develop and submit a Project Performance Monitoring Plan. The Project Performance Monitoring Plan will include baseline conditions, a brief discussion of monitoring systems to be used, methodology of monitoring, frequency of monitoring, and location of monitoring points.

Deliverables:

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- Project Monitoring Plan
- Completion Status: 0%

#### Category (d): Construction/Implementation

**Task 10: Contract Services:** Activities necessary to secure a contractor and award the contract include: develop bid documents, prepare advertisement and contract documents for construction contract bidding, conduct pre-bid meeting, bid opening and evaluation, selection of the contractor, award of contract, and issuance of notice to proceed.

Deliverables:

- Bid documents
- Proof of Advertisement
- Award of contract

Completion Status: 0%

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**Task 11: Construction Administration:** This task includes managing contractor submittal review, answering requests for information, and issuing work directives. A full-time engineering construction observer will be on-site for the duration of the project. Construction observer duties include: documenting of pre-construction conditions, daily construction diary, preparing change orders, addressing contractor's questions on site, reviewing/ updating project schedule, reviewing contractor submittals and pay requests, forecasting cash flow, notifying contractor if work is not acceptable.

Deliverables:

- Notice of Completion

Completion Status: 0%

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**Task 12: Construction/Implementation:** Construction activities are outlined below to complete Phase 1A (about 1/3 of the entire Phase 1 system ) for the Sewer Collection System which includes primarily the eastern third of the HDWD's service area near the proposed WRF as shown on Figure 3 (see Attachment 2).

The sewer collection system for Phase 1A (this grant project) is approximately 25 miles extending from the proposed WRF on the west side of the 29 Palms Highway and running west along the 29 Palms Highway to Balsa Ave. A number of sewage collectors throughout the sewer system discharge flow into pipelines that run west to east through the sewer service area. The sewer collection system, including trunk and sewer lines, will consist of approximately 5,400 linear feet (LF) of 6-inch diameter pipe, 115,000 LF of 8-inch diameter pipe, 2,400 LF of 10-inch diameter pipe, 6,800 LF of 12-inch diameter pipe, and 4,900 LF of 21-inch diameter pipe. In addition, there are 410 manholes, clean outs, appurtenances as necessary and two pump stations, including the Barron and the Paxton Pump Stations. All proposed sewer improvements will be constructed pursuant to existing HDWD specifications and standards.

HDWD wanted to provide local contractors the opportunity to compete for the available work provided by this Project, either as the prime contractor or as subcontractors. Construction phasing will be implemented to require completion of one area prior to starting on the next. This will minimize community disruptions and facilitate effluent flow. It is important however, not to constrain every detail of the contractors' work, which can increase costs, but to include enough requirements as necessary to minimize community disruptions.

Deliverables:

- Photographic documentation
- Engineers Certification

Completion Status: 0%

*Leak Detection Services for Mojave Region 100% Disadvantaged Community (DAC) Small Water Systems Phase 1 Program*

**IMPLEMENTING AGENCY:** Mojave Water Agency

**PROJECT DESCRIPTION:** This Leak Detection Program will be Phase 1 of a two-phase Capital Improvement Plan (CIP); this Phase 1 Program identifies leaks throughout the twenty-six (26) small water systems in the Mojave Integrated Regional Water Management (IRWM) Region that are 100% DAC. Phase 2 will take place when the leaks found in Phase 1 are corrected via the CIP program. The plan is to apply for Proposition 1 grant monies to fund Phase 2 of this Program. Many of the small water systems in the Mojave Region were constructed in the 1960s and 70s, with the originally installed pipes still being used today, well beyond their typical expected life span of 30-40 years.

The Program’s scope of work includes reaching out to various qualified DAC small water systems (26 in total) and discussing what the unaccounted water loss is estimated to be for each system. The method for determining the leaks is discussed in the Work Plan in more detail. With each interested system, we will discuss the benefits a leak detection analysis can provide in terms of reducing system water losses. An additional non-quantifiable benefit of this Program is that MWA will further develop relationships with the staff of these small water systems (which are typically understaffed, or one person is doing all the necessary jobs) and will also gather data from these systems to help the Region gain a clearer picture of its overall water status.

The California Department of Water Resources (DWR) defines a disadvantaged community (DAC) as a municipality, including, but not limited to a city, town or county, or a reasonably isolated and divisible segment of a larger municipality, that has an average median household income (MHI) that is less than 80 percent of the statewide annual MHI. In California, a MHI of less than \$48,875 meets this threshold based on 2009 US Census Bureau (USCB) data. A community with an MHI of less than 60 percent of the statewide annual MHI is deemed a severely disadvantaged community. As shown on Figure 4, by area, approximately 65 percent of the 40 small water systems in the Mojave IRWM Region qualify as disadvantaged with over one-half of these DAC systems considered severely disadvantaged (or having a MHI of less than \$36,656).

From MWA’s preliminary design work for evaluating the need and feasibility of the Leak Detection Services Program (for a pilot study type case for, early indications show that most of the small water systems are in the 8%-20% water loss category (with the assumption that anything greater than 10% should be reduced per industry standard (American Water Works Association (AWWA) Manual M36 Water Distribution System Audit). With this grant application Project (Phase 1 Program), we will complete Phase 1 (Leak Detection for the DAC small water systems) and for Phase 2 (the CIP program), we will apply for Proposition 1 grant funding to correct the leaks found in Phase 1.

When both phases are complete, the Program will assist the small water system DACs in meeting their critical water supply needs through infrastructure renovations to public water supply systems that are necessary to assure continued reliability of the minimum quality and quantity of water. The Program will also result in reduced water losses in the Region assisting in achieving water conservation goals and increasing the water supply.

Phase 1 of the Program is to be implemented as an umbrella grant program, which puts the decision- making in the hands of MWA (local experts) to do the best for the community. Many of these small DAC water systems are run by 1-3 people and they don’t have the time and in certain cases the knowledge on how to apply for a grant. Putting that decision-making power in the hands of an “umbrella agency” (MWA) that has the resources and communication with the small water systems to understand their needs, helps the entire community and the small water systems. In this case, leak detection is relevant to every water system in the Mojave Region.

Below is a summary of the tasks necessary to complete the Leak Detection Services for Mojave Region 100% DAC Small Water Systems Phase 1 Program.

**TABLE 3-3: WORK PLAN FOR LEAK DETECTION SERVICES FOR MOJAVE REGION 100% DAC SMALL WATER SYSTEMS PHASE 1 PROGRAM**

**Category (a): Direct Project Administration Costs**

**Task 1: Administration:** Manage grant agreement including compliance with grant requirements, and preparation and submission of supporting grant documents and coordination with IRWM regional manager, Mojave Water Agency. Prepare invoices including relevant supporting documentation for submittal to DWR via Mojave Water Agency. This task also includes administrative responsibilities associated with the project such as coordinating with partnering agencies, and

# Mojave Region Proposition 84 IRWM Round 3 Grant

## Attachment 3 – Work Plan



managing consultants/contractors.

### Deliverables:

- Environmental Information Form (EIF)
- Financial Statements
- Invoices
- Other Applicable Project Deliverables

Completion Status: 0%

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**Task 2: Labor Compliance Program:** The proposed project involves planning and administration work and does not include work or trades subject to labor compliance, nor will contractors be hired as part of this effort. Therefore, this task is not applicable.

### Deliverables:

- NA

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**Task 3: Reporting:** Prepare and submit quarterly progress reports detailing work completed during reporting period to DWR per the Prop 84 Guidelines. Prepare draft Final Project Completion Report and submit to DWR via Mojave Water Agency for DWR Project Manager’s comment and review no later than 90 days after project completion. Prepare Final Report addressing DWR’s comments. The report shall be prepared and presented in accordance with the provision of the Prop 84 Guidelines.

### Deliverables:

- Quarterly Project Progress Reports
- Draft and Final Project Completion Report

Completion Status: 5%

## Category (b): Land Purchase/Easement

**Task 4 – Land Purchase:** Not Applicable. No land purchases or right-of-way easements are required.

### Deliverables:

- NA

## Category (c): Planning/Design/Engineering/Environmental Documentation

**Task 5: Assessment and Evaluation:** The Mojave IRWM Plan identified the following objective as one of the three (3) listed in their highest prioritized list: *Provide support and assistance to disadvantaged communities (DACs) and help facilitate projects and programs that benefit those communities.*

The Small Water Systems and Disadvantaged Communities Sub-Committee (SWS/DAC) was formed specifically by the Mojave IRWM Project Team to focus on the needs of small water systems which include any agency involved in water resources (small systems) and economically disadvantaged communities (DACs) systems. The Project Team subsequently became the Implementation Support Team which now oversees the SWS/DAC. The inclusion and participation of DACs is considered essential to the Mojave IRWM Region, as more than 75% of the Region qualifies as disadvantaged. DACs within the IRWM planning region included both rural and urban areas. However, not all small systems are in DAC communities.

The SWS/DAC operates under a Charter (currently funded by MWA) which outlines the purpose, representation, and duties of the subcommittee. Annually, the Subcommittee develops a Work Plan and Budget that define the intended outcomes, active tasks, and associated roles and responsibilities. For the past year, the Work Plan included limited funding for evaluating the SWS/DACs common and urgent needs.

To assist in meeting the IRWM Plan objective, MWA teaming with other agencies, including California Rural Water Association (CRWA), experienced with supporting DACs, is helping the Region with this Phase 1 Program. MWA has already invested funds to set up a working relationship with CRWA since CRWA is included in the SWS/DAC Subcommittee that currently is providing technical assistance to the SWS (serving a population of 10,000 or fewer) in the Mojave Region.

CRWA is currently teaming with MWA under a separate program to provide technical support and training in the region on Technical, Managerial and Financial capacity. This support is targeted to DACs that are considered Hard to Reach (HTR’s) This is key as relationships are established with many of these small water systems.

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Based upon initial review under the current technical assistance program, preliminary review and information gathered indicate a majority of small water systems in the Region have aging infrastructure and life expectancies outside of federal guidelines, in turn which makes them susceptible to leaking distribution systems. This program would identify and lead to next steps in resolving these critical water loss issues.

CRWA has over 20 years of water loss accountability experience and has conducted hundreds of surveys in leak detection assisting rural communities throughout the state.

Deliverables:

- 2014 Mojave IRWM Plan

Completion Status: 100%

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**Task 6: Design/Engineering:** While it is common knowledge that on both sides of customer meters, water leakage presents a key opportunity to reduce water waste and, by extension, reduce energy usage; this Project only focuses on the water supplier side of the meter. Emerging approaches to leak detection offer new techniques to pinpoint water leaks with a high degree of accuracy and prioritize remediation efforts. This Program is intended to gather data on several important areas:

- (1) Assist SWS/DAC in meeting the Technical, Managerial, and Financial (TMF) capacity;
- (2) Assist in the preliminary engineering and facilitation of pre-applications for state and federal funding; and
- (3) Assist SWS/DAC having significant problems complying with the state or federal minimum water supply requirements or having other significant problems.

In MWA's service area, there are forty DACs with 26 of those considered 100% DACs and included in this Program. Despite their small size and limited funding, costs (including energy costs) can be a significant driver, with many agencies paying thousands of dollars per year in electricity costs. This Program will focus on leak detection services for these 26 agencies. To ensure Program objectives are met, CRWA will work with MWA to develop prioritization metrics for identifying eligible DACs, with factors that may include location, water supply, and system characteristics. These metrics will be used to target or prioritize agencies for participation in this Phase 1 Program.

**Advertising, Public Outreach:** MWA will advertise the Leak Detection Services for the Mojave Region SWS/DAC Phase 1 and perform public outreach (including placing print and broadcast media ads and attending community functions to distribute multi-lingual application materials), focusing on the SWS/DAC. This activity can be completed concurrently with the prioritization of agencies.

Deliverables:

- Matrix of participating DACs as defined by identified metrics
- Outreach Materials

Completion Status: 80%

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**Task 7: Environmental Documentation:** Based on MWA's experience with similar projects, permits are not required.

Deliverables:

- NA

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**Task 8: Permitting:** Based on MWA's experience with similar projects, permits are not required.

Deliverables:

- NA

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**Task 9: Project Performance Monitoring Plan:** Develop and submit a Project Performance Monitoring Plan. The Project Performance Monitoring Plan will include baseline conditions, a brief discussion of monitoring systems to be used, methodology of monitoring, frequency of monitoring, and location of monitoring points.

The primary performance objectives shall include: (1) estimates of total system leakage; (2) estimated costs and leakage rates at specific locations; (3) estimated costs (including staff time) of leak detection activities; and (4) potential observed savings and costs for leak repair projects.

Deliverables:

- Project Monitoring Plan

Completion Status: 0%

**Category (d): Construction/Implementation**

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**Task 10: Contract Services:** Contract Services does not apply to this project.

Deliverables:

NA

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**Task 11: Construction Administration:** MWA will administer the Leak Detection Program. Activities include tracking costs, maintaining financial records and managing Project partner CRWA. Also, staff will assist with implementation, work with the small water system staff, and provide Program auditing support.

Deliverables:

Notice of Completion

Completion Status: 0%

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**Task 12: Construction/Implementation:** Work with DAC small water systems in the Mojave Region to implement and conduct leak detection services throughout their existing distribution system. CRWA staff will conduct water system leak surveys, with estimated leakage rates, locations, remediation strategies, and costs reported to MWA.

The MWA's Phase 1 Leak Detection Program involves seven steps for determining the leaks in each small water system:

- 1) Meet with water system operators in each small system, to identify system needs and areas of concern.
- 2) Obtain maps of each system to locate lines, valves, and other potential leak sources.
- 3) Locate distribution pipes in the field and record GPS coordinates of pipe locations.
- 4) Install data loggers on system valves in areas of concern, to download leak sounds and use GPS and GIS to identify general areas where leaks may exist.
- 5) Conduct leak survey acoustic correlation analysis, using two acoustic sensors and a correlation algorithm that provide more specific information about leak locations.
- 6) Using acoustic leak detection results, physically pinpoint leaks in the field and record exact leak locations with GPS coordinates.
- 7) Prepare a summary report of the locations and sizes of identified leaks in each small water system.

CRWA will:

- 1) Provide staff to conduct leak detection using portable computer-technology equipment; provide audit report to each entity with corrective measures and next steps; assist each entity with resources to resolve any detected water loss issues; provide follow-up assistance to ensure problems are corrected.
- 2) Provide travel for staff to conduct onsite leak detection at each location.

CRWA will work with the target water systems with the option of using data loggers to identify specific locations within their systems that are problematic for leaks and prioritize those locations for in depth leak detection audits.

Deliverables:

Leak survey reports, including individual leak flow rates and estimated remediation costs

Completion Status: 0%

(NEXT TASK IS NOT included in this Grant Project but is included for the next Phase of this Program or FUTURE Phase)

**Phase 2: Leak Repair and Verification:** Existing Leak Detection Surveys. CRWA will provide information on all previously funded water system leak surveys that they conducted in Phase 1 of the Program and identify prior leak detection surveys that are appropriate for further analysis. CRWA will compile a summary of survey date, survey cost, total system estimated leakage rate, and leak flowrates from specific leaks identified. CRWA will contact these water agencies to determine the extent to which follow-up actions were taken to mitigate leaks, and detail 1) what identified leaks have been fixed, 2) the source of funds used to implement the corrective measures and the costs of repair, 3) the volume of water that was saved from fixed leaks, and 4) the status of the remaining identified leaks (for those leaks that they are still planning to address, the estimated correction date and source of funding).

CRWA will work with MWA and participating DACs to identify funding sources and provide technical expertise and recommendations to implement projects to mitigate high-priority leaks identified. Ongoing Program tracking will identify successes or challenges and document any water savings achieved as a result of this phase of the Program.

Deliverables:

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# Mojave Region Proposition 84 IRWM Round 3 Grant Attachment 3 – Work Plan



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Working draft of costs and savings from Phase 1 Program Leak Detection recipients (NOT applicable for this GRANT Application).

Completion Status: 0%

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