Mojave Water Agency
13846 Conference Center Drive
Apple Valley, CA 92307

January 2016

Mojave Water Agency

CII TURF REPLACEMENT PROGRAM

WaterSMART: Water and Energy Efficiency Grants for FY 2016
Funding Opportunity Announcement No. R16-FOA-DO-004
Location: San Bernardino County, CA

Mojave Water Agency
CII Turf Removal Project

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Project Location
Mojave Water Agency
San Bernardino County, CA

Applicant
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January 19, 2016

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5.1 Executive Summary

Date: January 20, 2016
Applicant Name: Mojave Water Agency (MWA or Agency)
City, County, State: Apple Valley, San Bernardino, California

Summary of Benefits to Achieve FOA Goals

	Time	Acre-Feet
Estimated Water Conserved (after full implementation)	Annual Average	400
	Life of Project (10 years)	4,000

	Time	kWh
Estimated Energy Conserved (after full implementation)	Annual Average	2,226,400
	Life of Project (10 years)	22,264,000

The Mojave Water Agency (MWA or Agency) is requesting federal funding to assist the Agency in continuing implementation of its highly successful Commercial, Industrial and Institutional (CII) Turf Replacement Program (Program). The CII Program was developed by expanding and refining the MWA's long standing *Cash for Grass Program* and was initiated with funding support from a 2015 WaterSMART grant. The Agency's request for funding from the 2016 WaterSMART program seeks to enlarge the rebate pool to $2,362,500 to support turf replacement by CII water users in the MWA service area. The expanded program will increase the Agency's capacity to fund turf replacement projects and enable the Agency to continue to serve CII users unable to enroll in the *Cash for Grass Program* due to conditions placed on the applicants. If WaterSMART funding is awarded to support this Program, the Agency anticipates a two-year schedule with activity beginning in November of 2016 and completion in October of 2018.

As shown in the summary table above, the Program will generate important water conservation benefits. In addition, water conservation within the MWA service area results in significant savings in embedded energy due to the power required to deliver water from the California Bay-Delta for groundwater replenishment and the energy needed to extract groundwater for delivery to users. The Program will achieve the objectives mentioned above by:

- ✓ Sharing with participating CII users the cost of removing and replacing lawns,
- ✓ Assisting participating CII users in planning and execution of their turf replacement projects to ensure that the process does not generate environmental impacts and that the replacement landscape meets program standards,
- ✓ Increasing water conservation awareness, community support and participation in water conservation programs, and
- ✓ Performing long-term monitoring of converted areas to confirm that the new landscapes perform adequately and that the conditions of the cost sharing agreement are satisfied.

The Agency views development of a thoughtful conservation culture as its most powerful resource management tool and as being vastly preferable to enforcement of water use restrictions. To this end, implementation of the *CII Turf Replacement Program* is valuable because it links the water and energy conservation benefits of turf replacement with the aesthetic attributes of model landscaping and encourages awareness that the price of prudent stewardship of water need not be loss of vibrant surroundings.

As the *CII Turf Replacement Program* is an effort that builds upon on-going initiatives, the Agency is fully prepared to proceed with implementation of the Program. A summary of the proposed applicant cost share and Reclamation contribution is provided below. Both the Agency and federal contributions to the grant program would be used exclusively to fund the rebate pool. All costs for program administration, advertising, monitoring, reporting and environmental compliance would be borne by the Agency and are excluded from both the funding requested from Reclamation and the Agency's cost share.

Funding Summary

Funding Source	Cost Share	Percentage
MWA (Prop 84 – Drought Grant funds)	$900,000	87%
MWA (Prop 84 – IRWM funds)	$650,000	
MWA (internal funds)	$350,000	
MWA (Prop 84 IRWM match)	$162,500	
Reclamation	$300,000	13%
Total	**$2,362,500**	**100%**

5.2 Background Data

The Mojave Water Agency was established in 1959 by an act of the California Legislature and was activated by a vote of the residents in 1960 to manage declining groundwater levels in the Mojave Basin Area, the Lucerne Valley and the El Mirage Basin. The Morongo Basin and Johnson Valley areas were annexed in 1965. MWA covers over 4,900 square miles spread over a hydrologically diverse region facing a unique set of water management issues.

Essentially all water used within the MWA service area is pumped from the local groundwater basins. Groundwater adjudication proceedings were initiated to control the impacts of rapid population growth on the local basins resulting in the Warren Valley Basin Judgment and the Mojave Basin Area Judgment, rulings that required that additional surface water be imported into both basins to balance groundwater extractions.

In implementing these judgments, the Agency serves as the Watermaster for the Mojave Basin Area Judgment and is the contractor for State Water Project (SWP) water delivered from the Bay-Delta to the Agency's service area. MWA has an annual contract for up to 82,800 acre-feet from the SWP, a quantity that includes 25,000 acre-feet of annual entitlement purchased from Berrenda-Mesa Water District in 1998. Water imported from the California Bay-Delta is introduced into the MWA's extensive groundwater recharge facilities to replenish groundwater pumped by individuals and by retail water suppliers.

While delivery of water from the SWP is essential for balancing groundwater extractions, concerns over the SWP's future ability to supply water to MWA and other contractors have brought into clear relief the need to augment on-going water conservation programs. To place MWA's water conservation actions into perspective, since the baseline year of 2000, water usage has dropped within the Agency's service area from an average of 250 gallons per capita per day (gpcd) to a current rate of 165 gpcd, a 34 percent reduction that exceeds the 20 percent reduction mandated by California's Water Conservation Bill of 2009. Although the conservation achieved by the Agency has already exceeded the legislative target, the Agency's Urban Water Management Plan anticipates further reductions in per capita usage due to regional conservation programs. The reduction in water use that has already been achieved and the ongoing investment in water conservation programs illustrate the Agency's commitment to good stewardship of water.

Geographic Location – The Agency is located in the California High Desert Area of San Bernardino County approximately 90 miles northeast of downtown Los Angeles. The area lies on the northeastern flanks of the San Bernardino and San Gabriel mountains which separate the High Desert from the coastal basins and inland valleys of the greater Los Angeles area. The Mojave River is the main surface water feature within the MWA service area. Municipalities within the Agency's boundaries include Adelanto, Apple Valley, Barstow, Hesperia, Victorville and Yucca Valley. Interstate 15 is the central east-west artery running through the Agency while US 395 is the main north-south highway. Because of its focus on CII users, the proposed Program would be concentrated mainly in developed areas within the Agency. The Project Location Map (Figure 5-1) shows the location of the Agency within the state of California. Figure 5-2 shows the Agency's boundaries.

Water Supply and Rights – Average rainfall within the lower-lying areas of the Mojave Basin Area and the Morongo Basin/Johnson Valley Area is roughly five inches per year, and the annual native water supply recharging the region's groundwater aquifers is estimated to average 54,000

acre-feet per year. Figure 5-3 shows the distribution of average annual precipitation in the Agency's service area.

The Agency's water supply imported from the California Bay-Delta rests on a contractual entitlement of up to 82,800 acre-feet of SWP Table A (primary) allocation. Of this allocation, the Agency has received 30,600 acre-feet per year on average over the past decade. This water is brought into the Agency through various conveyance facilities and then distributed throughout the service area for groundwater recharge. At the current level of reliability, water supply shortages could occur by 2030 or sooner, depending on the success of the MWA's conservation programs in reducing the Agency's reliance on imported water. As described above, the Mojave Basin area and the Warren Groundwater Basin are adjudicated, and the *CII Turf Replacement Program* is in compliance with this adjudication.

Water Use – Water imported and recharged by the Agency is pumped by individuals and retail water purveyors within the Agency's service area. Major water purveyors and the number of connections each serves are listed below.

Retail Purveyor	Number of Connections
Apple Valley Foothills CWD	235
Apple Valley Heights CWD	307
Apple Valley Ranchos WC	20,597
Apple Valley View MWC	81
Bar H MWC	60
Barlen MWC	39
Bighorn Desert View WD	1,935
Center WC	50
Chamisal MWC	23
City of Adelanto WD	8,165
County Special Districts	7,911
Daggett CSD	185
Desert Dawn MWC	24
Desert Springs MWC	65
Golden State Water - Barstow	12,291
Golden State W - Lucerne Valley and Apple Valley	3,255
Gordon Acres WC	39
Helendale CSD	2,808
Hesperia WD	28,210
Hi-Desert MWC	32
Hi-Desert WD	10,970
Indian Wells Valley WD	---
Joshua Basin CWD	5,719

Jubilee MWC	171
Juniper Riviera CWD	268
Lucerne Valley MWC	70
Lucerne Vista MWC	32
Mariana Ranchos CWD	420
Navajo MWC	80
Phelan CSD	6,783
Rancheritos MWC	131
Rand Communities WD	---
Sheep Creek WC	1,380
Thunderbird CWD	325
Victorville WD	33,833
West End MWC	54
Yermo CSD	329
Total	146,877

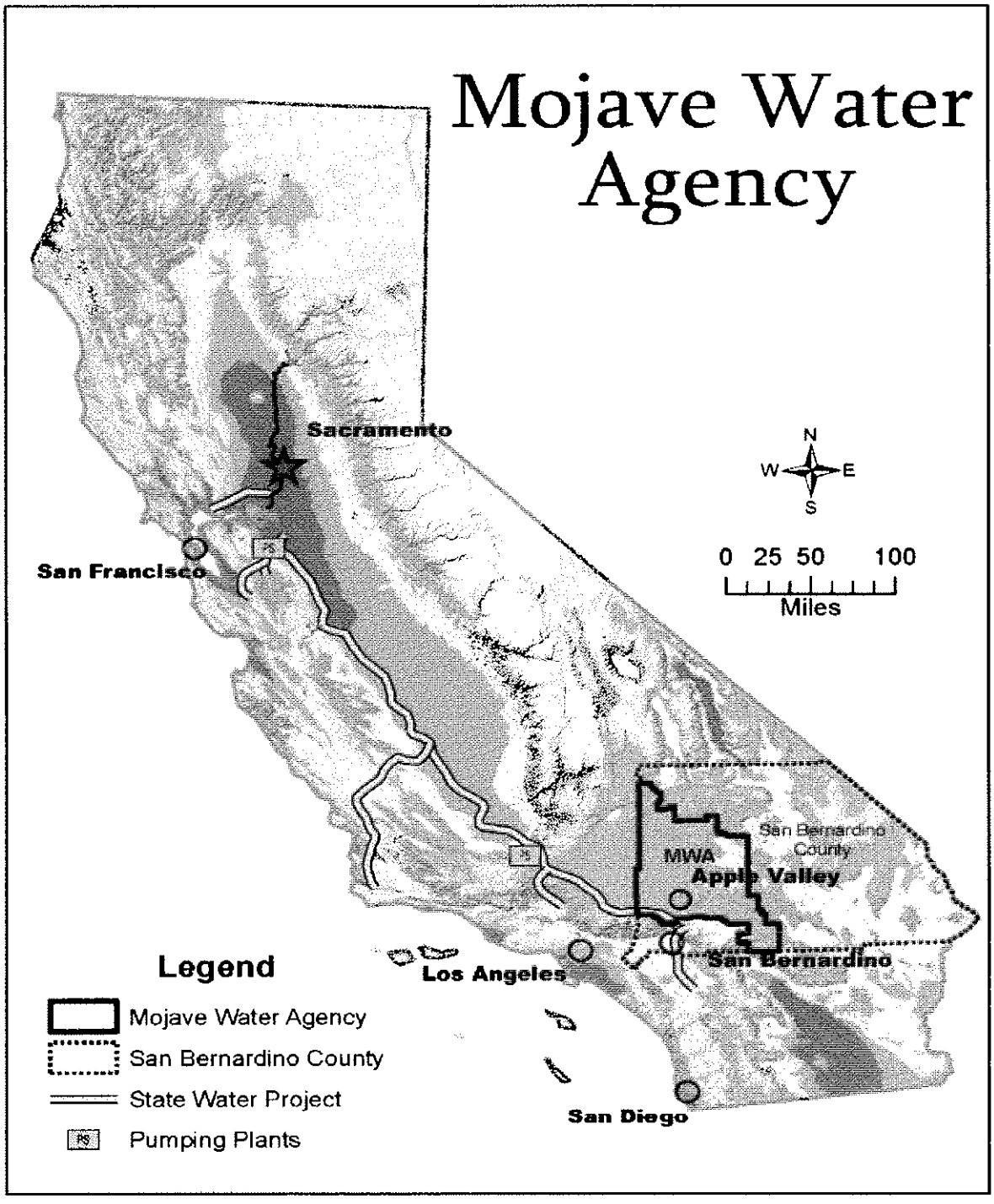


Figure 5-1 **Project Location Map**

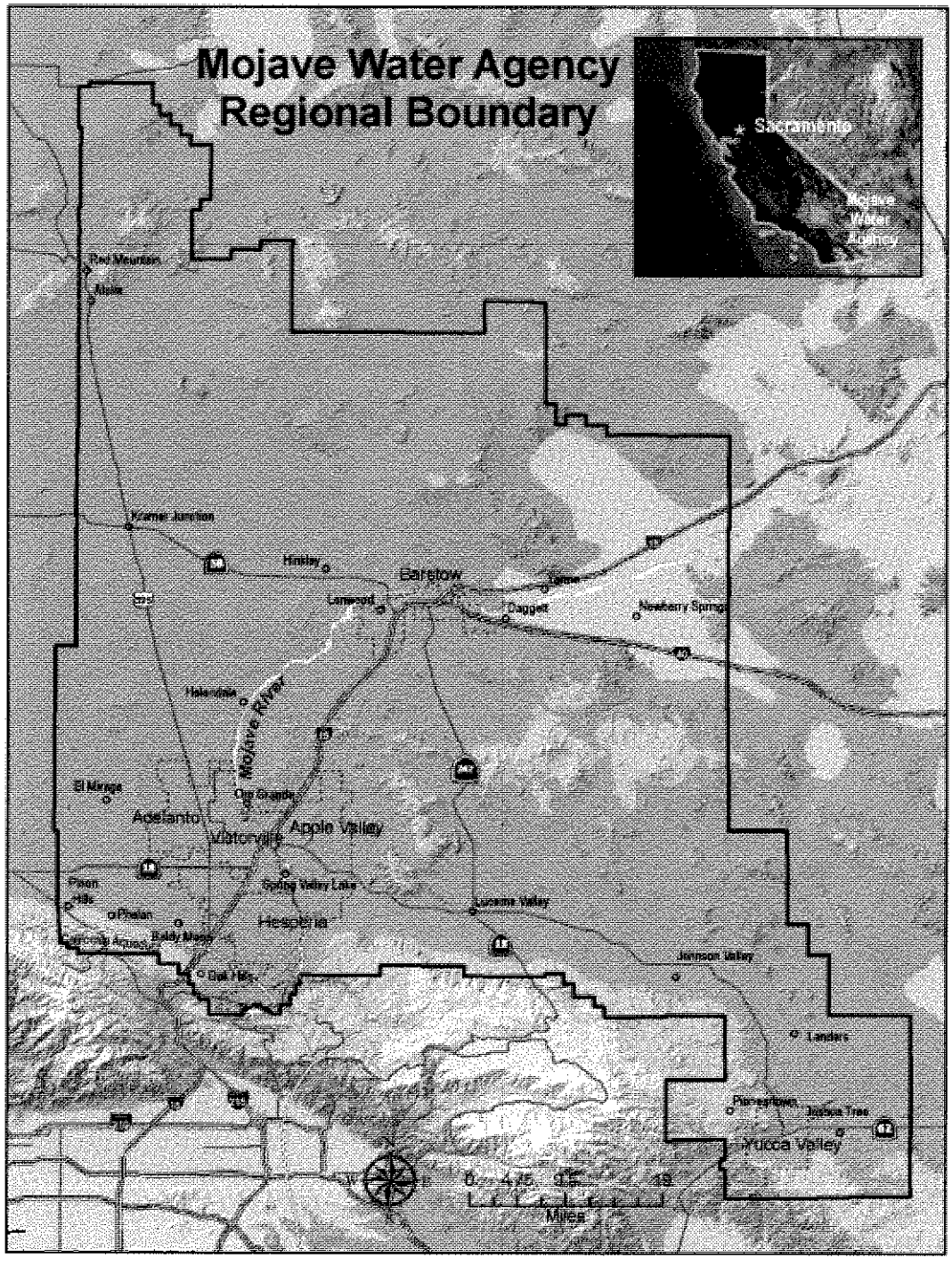


Figure 5-2 **Boundaries of the Mojave Water Agency**

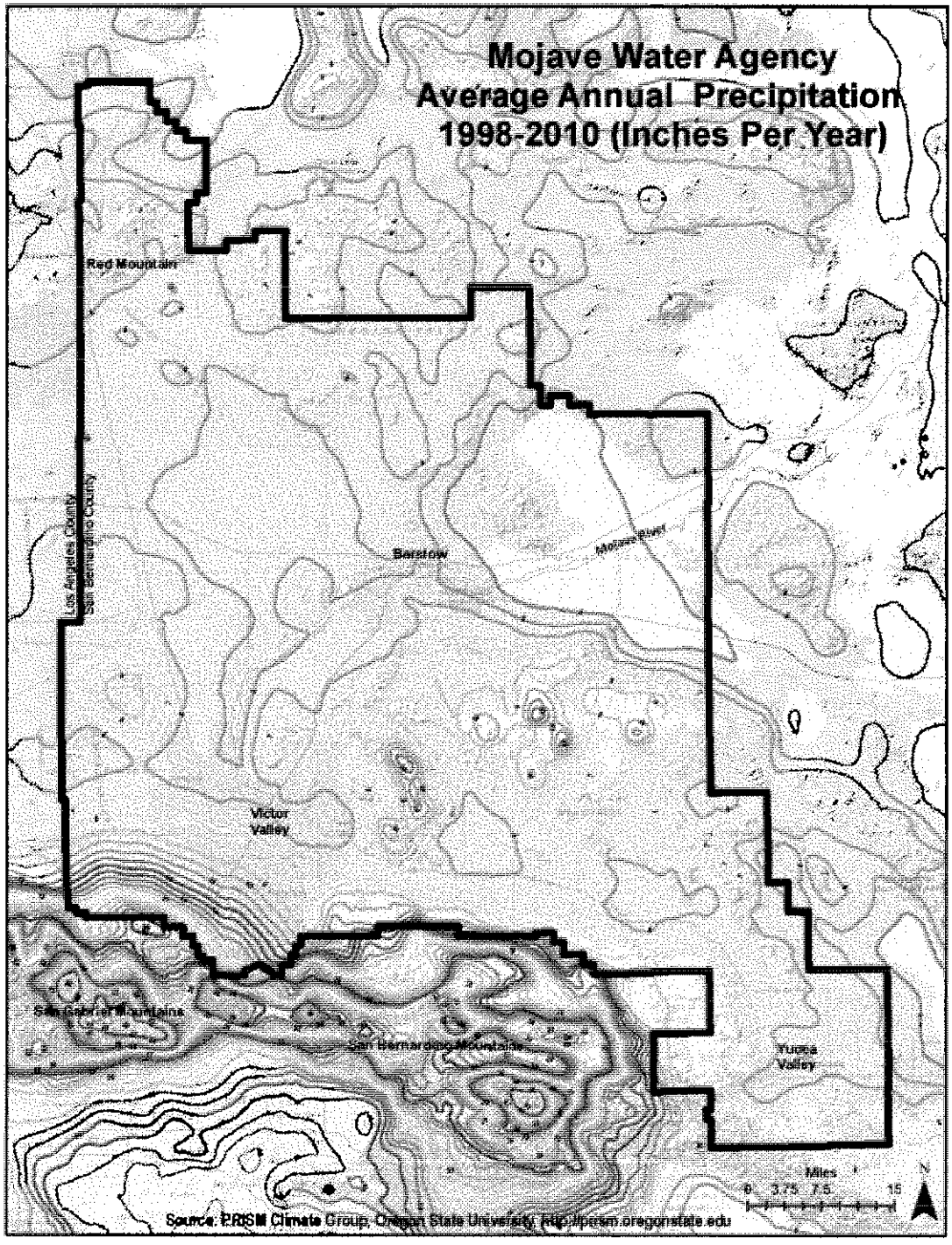


Figure 5-3 Average Annual Precipitation

Water Demand – Data provided by the Agency show total production in the service area during 2015 to have been 134,238 acre-feet, a reduction from the average rate of production over the past ten years of 156,181. This reduction can be attributed to increasing public awareness and implementation of the previous Cash for Grass and WaterSMART turf replacement programs acre-feet. Although CII usage is not clearly broken out in the Agency's records, data on water usage reported to the California Department of Water Resources suggest that CII uses accounted for approximately 15 percent of total usage over the past ten years.

As the on-going *Cash for Grass Program* has proven to be one of the more popular and effective water conservation programs offered by the Agency (with 13 participating property owners, and an additional 10 on the program waiting list), refinement of this program to target rebate funds to CII users was introduced in 2015. The CII Program has attracted such a high degree of interest that the Agency has prepared this grant application to enable the Program to be further expanded.

Water Delivery System – Figure 5-4 shows the Agency's existing and planned water conveyance, recharge and recovery facilities including pipelines, pumping plants, recharge areas and wells. The table below summarizes the length of pipelines and number and extent of other water management facilities owned and operated by the Agency.

Water Conveyance and Delivery System	
System Used	**Number**
Unlined Canal	None
Lined Canal	None
Pipelines	168 miles
Pumping Plants	3
Spreading Grounds	24 acres
Wells	6
Farm Turnouts	None
Spillway Basins	None
Drains	None
Direct River Turnouts	4

To distribute water from the California Aqueduct to the points of need, MWA has taken a central role in designing and constructing the Morongo Basin and Mojave River pipelines, which extend from the California Aqueduct. The Morongo Basin Pipeline was completed in 1994 and deliveries began in 1995 to the Hi-Desert Water District. Water flowing through the pipeline is diverted to recharge ponds in an effort to reduce overdraft in the Warren Valley Basin. The MWA also financed and constructed the enlargement of Reach 1 of the Morongo Basin Pipeline to facilitate artificial recharge of the Alto Subarea along the Mojave River in the vicinity of Hesperia and Apple Valley. The Mojave River pipeline was completed in 2006 and extends from the California Aqueduct through Barstow east to Newberry Springs. The Hodge and Lenwood Recharge sites,

located west of Barstow, have been completed as have the Daggett and Newberry Springs recharge sites, east of Barstow.

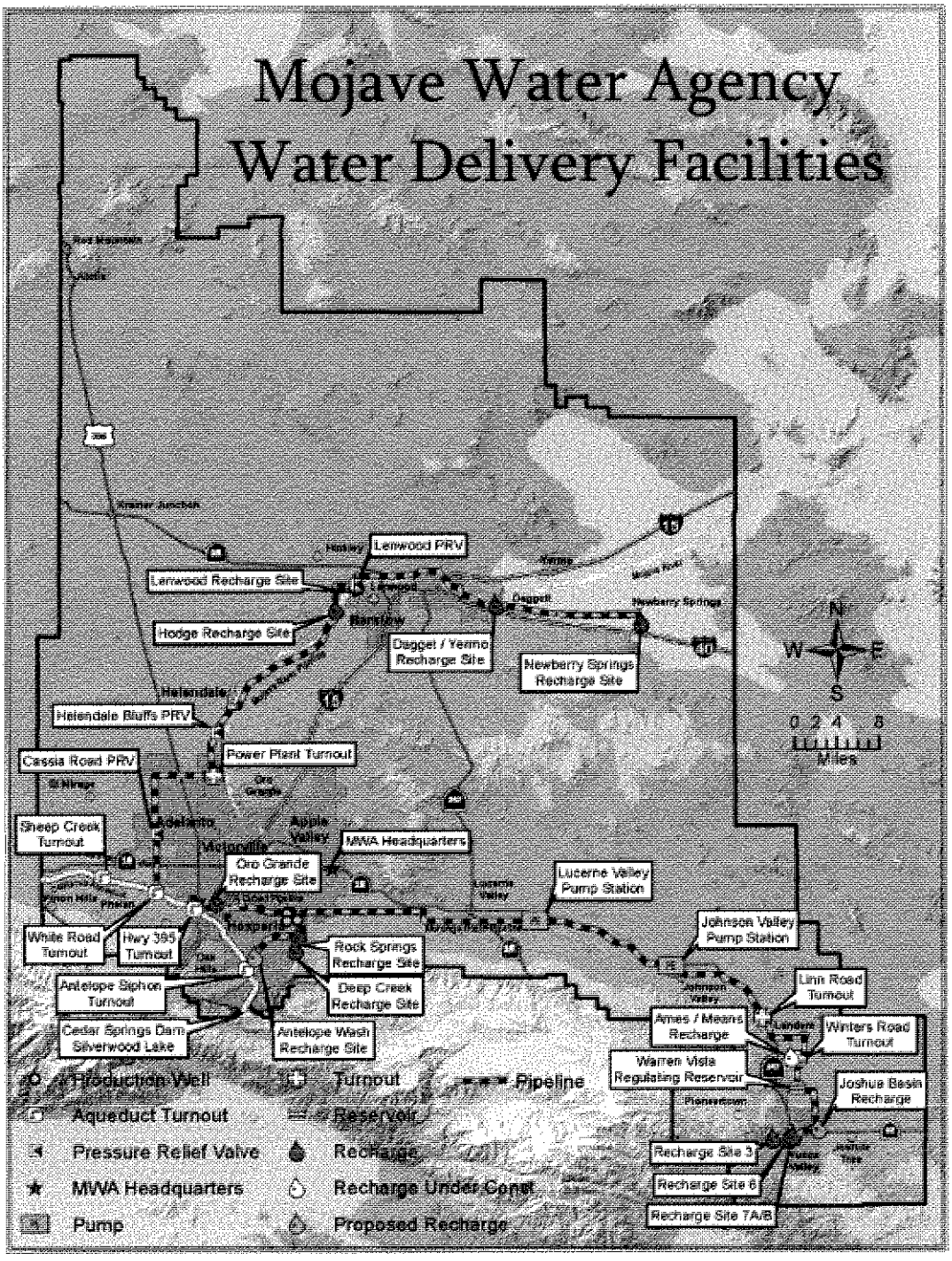


Figure 5-4 **Map of Mojave Water Agency Facilities**

Potential Shortfalls – The Agency evaluates potential water supply shortfalls within the context of the Integrated Regional Water Management Act, initiated in 2002 by California State Senate Bill 1672. Demand for imported SWP water, primarily used for mitigating groundwater overdraft averaged approximately 30,600 acre-feet per year over the past decade and is projected to increase to 46,200 acre-feet per year by 2035. Water suppliers and water users in the region are deeply concerned over this outlook as the economic health of the region is tied to its ability to demonstrate that affordable, high-quality water will be available in the future.

Energy Sources and Use – As illustrated in Figure 5-1, the MWA is located near the southern end of the California Aqueduct at an elevation well above the Bay-Delta. Therefore, the energy required to deliver water to the Agency is substantial. In addition, because water received by the Agency is used for aquifer replenishment; energy is also consumed by the Agency and by local water purveyors in recovering and distributing the recharged groundwater. Approximately 265,661,600 kWh per year are required to convey water from the SWP to the MWA service area, and an additional 161,11,400 kWh per year are then expended in recovering groundwater recharged from local and imported sources for delivery by local retail purveyors. Typical values for the energy required to deliver water from the Delta to customers within the MWA service area are shown below.

Location	Energy Requirement (kWh/acre-foot)
Net energy consumed in delivery from Delta[1]	4,549
Groundwater pumped from R^3 Project[2]	1,017
Total	5,566

[1] Source: Cumulative Kilowatt-Hour Per Acre-Foot Factor at Pearblossom Pumping Plant, "Management of the California State Water Project Bulletin 132-13, April 2015, Table 7, Page B-20.

[2] The regional Recharge and Recovery Project, known as R^3, delivers SWP water from the California Aqueduct in Hesperia to recharge sites in the floodplain aquifer along the Mojave River. MWA production wells on either side of the river will then recover and deliver the stored water directly to local retail purveyors.

Past Working Relationships with Reclamation – The Agency has enjoyed an effective partnership with Reclamation through implementation of several programs. Recent projects implemented by the Agency thanks to Reclamation support are noted below:

- USBR Challenge Grant No. R09AP35R21
  Project: Oro Grande Wash Groundwater Recharge
  Reclamation funding: $3,456,660
  Completion date: 10/2012

- USBR Title XVI Grant No. R10AC35R15
  Project: Regional Recharge and Recovery
  Reclamation funding: $10,997,056
  Completion date: 5/2013
- USBR WaterSMART Grant No. R15AS00002
  Project: CII Turf Replacement Program
  Reclamation funding: $300,000
  Completion date: 7/2015
- USBR Water Supply Management Studies
  MOU No. R10-MU-35-0020

  Phase I: Evapotranspiration Water Use Analysis of Salt Cedar and other Vegetation in the Mojave River Flood Plain, 2007 and 2012
  Completion date: 8/2011

  Phase II: Mojave River Watershed Climate Change Assessment
  Completion date: 9/2013

  Phase III: Baja Subarea Water Use Efficiency Investigation
  Completion date: ongoing

5.3 Technical Project Description

Subsequent to adoption of the Integrated Regional Water Management Plan (IRWMP), the Agency applied for funding from the state to initiate the *Cash for Grass Turf Replacement Program*. The first phase of this program began in February of 2008 and was supported by bond funds from the State of California's Proposition 50. A second phase of the turf replacement program was self-funded and the third phase is being supported by funds from the State of California's Proposition 84. The *Cash for Grass Program* targeted removal of turf from residential and small commercial landscapes and provided the Agency with the experience and expertise needed to formulate the *CII Turf Replacement Program* which refined the Agency's existing turf replacement program by targeting commercial, industrial and institutional users. As noted previously, the *CII Program* was initiated in 2015, and funding requested under this grant application is to support continuation and expansion of the *CII Program*.

Project Mechanism – As a signatory to the California Urban Water Conservation Council Memorandum of Understanding, MWA has pledged to implement conservation Best Management Practices to reduce water demands through more efficient water use, including providing financial incentives to retail agencies within the service area. The Agency has been funding water conservation incentives to 25 retail water agencies and well owners since February 2008 and is now operating the third phase of a turf replacement program. This program has been successful in converting residential and smaller CII lawns to lower water use landscapes.

Experience in managing this, and other, incentive programs has shown turf replacement to be the most cost-effective of the Agency's incentive programs and to be the program that has yielded the highest level of water savings.

The *CII Turf Replacement Program* will offer a $1.00 per square foot rebate for conversion projects enrolled in the Rebate Program (Program). Participants in the Program have six months for their landscape conversion to be completed. Upon successful completion of the conversion, the participants benefit by:

- ✓ Receiving $1.00 per square foot of turf removed.

To be considered for participation in the rebate program, applicants must agree to the following conditions:

- The converted landscape must replace at least 25 percent of the area of turf removed with desert adaptive and/or drought tolerant plants. Landscapes much be configured to minimize stormwater runoff and maximize percolation to groundwater.
- Site designs must be approved by the Water Conservation Manager.
- Applicants must agree to an annual inspection to ensure project compliance.

Scope of Work – The *CII Turf Replacement Program* is a continuation of a rebate program, begun in 2015, that provides incentives for CII water users to reduce their usage. The Program is consistent with the Conservation and Demand Management Provisions of the MWA IRWMP. As described above, the design of the *CII Turf Replacement Program* has been developed by the Agency and program costs to be covered under a grant agreement are included in Section 10. If the program is awarded funding from Reclamation, implementation is anticipated to begin in November 2016 and is projected to continue for two years until the end of October 2018.

Implementation of the Program expected to begin in November 2016 and is projected to continue for two years until the end of October 2018.

Project Tasks - Program implementation has been divided into the following four tasks: 1) Grant and Program Administration, 2) Reporting, 3) Environmental Documentation and Permitting, and 4) Implementation. The Agency will manage each of these activities.

Task 1: Grant and Program Administration

Activities entail coordination of all Program activities, including budget, schedule, communication, and grant and cost-share administration (preparation of invoices and maintenance of financial records). All costs for this task will be borne within the Agency's normal operating budget. Therefore, no federal funds are being requested for this activity and the staff time devoted to this work will not be included in the Agency's cost share.

Deliverables: (1) review of USBR Grant Agreement; (2) project kick-off meeting with USBR personnel; (3) coordination of field visits with USBR personnel; (4) preparation of invoices and maintenance of financial records; (5) preparation of grant reimbursement requests; and (6) other deliverables as required.

Task 2: Reporting

Report on the financial status and program progress to Reclamation. Progress reports and a final project report will be prepared. In addition, the program will comply with any other reporting requirements specified in the Grant Agreement. All costs for this task will be borne within the Agency's normal operating budget. Therefore, no federal funds are being requested for this activity and the staff time devoted to this work will not be included in the Agency's cost share.

Deliverables: Submission of semi-annual and final reports as specified in the Grant Agreement.

Task 3: Environmental Documentation and Permitting

A National Environmental Quality Act (NEPA) document will be completed for the *CII Turf Replacement Program*. MWA staff will work with environmental specialists from the Lower Colorado Region's Temecula Area office to determine the scope of the required documentation. As the Program will be a continuation and refinement of an existing program which has been supported by grant funds received from the State of California, no additional CEQA documentation is expected to be needed.

All turf replacement projects performed under the proposed program will comply with the requirements of Rule 403.2 Fugitive Dust Control for the Mojave Desert Planning Area. This rule is designed to ensure that NAAQS for PM_{10} will not be exceeded due to anthropogenic sources of fugitive dust within the Mojave Desert Planning Area.

Deliverables: (1) Completed and approved environmental documentation; (2) compliance with the MDPA Fugitive Dust Control Rule.

Task 4: Implementation of Rebate Program

The *CII Turf Replacement Program* relies on program participants to furnish and install all project works. Turf replacement plans must be pre-approved by the Agency before work commences, and post-installation inspection by the Agency is required for all participants. Other than these inspections, construction and construction management are the responsibility of the rebate applicant.

Subtask 4a - Advertising, Public Outreach

Because of changes in the program's design, the Agency will advertise the *CII Turf Replacement Program* and perform public outreach so that CII water users are aware of the Program. All advertising and public outreach will be funded by the Agency's operating budget so that federal funds and Agency matching funds can be dedicated entirely to the rebate pool.

Deliverable: Advertisement and public outreach for Program.

Subtask 4b - Implementation of Rebate Program

The Agency will administer the *CII Turf Replacement Program* in a manner similar to that which has proven effective in previous turf replacement programs. Administration of the Program is expected to be virtually identical to that of the *Cash for Grass Program*. Pre-inspection services and customer support will be provided by the local retail agencies under the oversight of the MWA Project Manager.

Once a landscape conversion project is finished, the applicant will be responsible for notifying the local water district of completion. The post-conversion inspection will include photographs, obtaining the dimensions of the converted landscape, irrigation system inspection, plant eligibility review and rebate eligibility verification. If the converted landscape or irrigation system fails inspection, the landowner is allowed 60 days (or the remainder of the six-month period, whichever is greater) to fully comply with the program conditions.

As with Subtask 4a, all costs associated with this subtask will be provided through the Agency's operating budget.

Deliverables: 1) Pre-inspection and customer support to be provided by local retail agencies, 2) Post-conversion inspection and other administrative and operational support provided by MWA.

Subtask 4c - Long-Term Performance Audits

The *CII Turf Replacement Program* will continue to require long-term audits of project performance. These audits are designed to collect data on a sample of the rebate Program landscapes to evaluate program performance. Data on water savings and insights into water user satisfaction help the Agency in planning future turf replacement efforts and generate information that is being shared with Reclamation and with other organizations undertaking or contemplating turf removal programs.

Deliverable: Long-term audits of performance of individual projects and of overall Program.

5.4 Evaluation Criteria

5.4.1 Criterion A: Water Conservation

Subcriterion A.1(a) – Quantifiable Water Savings

Describe the amount of water saved. *For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project. Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations.*

Projected annual water savings resulting from this Program are 400 acre-feet based on savings observed during earlier turf replacement programs administered by the Agency.

How have average annual water savings estimates been determined?

Projected water savings for the proposed *CII Turf Replacement Program* are based on savings observed during earlier turf replacement programs administered by the Agency, as indicated above. Water savings are calculated using a standard coefficient of 55 gallons of water conserved per year per square foot of turf replaced by xeriscape, a rate equivalent to 7.35 acre-feet of water conserved per participating acre. This rate of reduction in water usage is supported by the 2005 Southern Nevada Water Authority Xeriscape Conversion Study (found online at http://www.snwa.com/html/cons_wslxeriscape.html) and is documented by audited water billings within the MWA service area for participants in the *Cash for Grass Program*. Calculations for the annual water savings value, using this information, are found below.

What is the applicant's average annual acre-feet of water supply?

As noted above, all water used within the boundaries of the MWA is produced by groundwater pumping from aquifers recharged from two sources. Annual native water supply recharging the region's groundwater aquifers is estimated to average 54,000 acre-feet per year, and surface water imported from the California Bay-Delta via the SWP contributes an average of 30,600 acre-feet per year of supplemental supply. Together these sources represent an annual average of 84,600 acre-feet of supply.

Since the Agency's surface water supplies are dependent on SWP operations, the Agency is vulnerable to the diminishing reliability of water deliveries from the SWP. In recent years reduced deliveries from the Bay-Delta have caused the Agency to increase its reliance on groundwater pumping.

Where is that water currently going?

Mojave Water Agency records from the period between 2004 and 2013 show that water produced within the MWA service area went to the following uses:

Use	Annual Average Volume (AF)	Percentage of Total Production
Municipal	98,120	61%
Industrial	7,245	4%
Recreational Lakes	9,006	6%
Golf Courses	4,520	3%
Agriculture	42,680	26%
Total	161,571	100%

Data available from the MWA does not provide a clear indication of CII usage in the MWA service area. However, DWR Public Water System Statistics indicate that CII usage is approximately 15 percent of total usage reported to the Department, a volume equivalent to 24,236 AF per year.

Where will the conserved water go?

The conserved water will go to beneficial uses within the Agency or, potentially, could be made available to other SWP contractors during years when the Agency's SWP allocation is adequate to allow such a transfer.

Landscape Irrigation Measures: Turf Removal Specific Criteria

Projected total surface area of turf to be removed as part of this Program is 54 acres, resulting in an annual reduction in consumptive use of 400 acre-feet.

(i) How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions and supporting data.

Section 5.4.1 indicates that water savings are calculated using a standard coefficient of 55 gallons of water conserved per year per square foot of turf replaced by xeriscape. All relevant calculations, assumptions, and supporting data used to determine the annual water savings are included in that prior section.

(ii) What is the total surface area of turf to be removed and what is the estimated average annual turf consumptive use rate per unit area?

The Program would support the removal of 2,362,500 square feet (approximately 54 acres) of ornamental turf at a cost of $2,362,500. Agency staff believe that all of the landscape conversions will remain in place for an average of ten years.

Upon full implementation, the amount of water conserved by the Program will be approximately 400 acre-feet per year. As this is a turf replacement program, the water savings on participating areas will be firm, approximated as follows:

$$7.35\ acre-feet/acre\ \times 57\ acres = 400\ \frac{acre-feet}{year}$$

Over the 10-year life of the Program approximately 4,000 acre-feet will be conserved.

(iii) Was historical water consumption data evaluated to estimate average annual turf consumptive use per unit area? If so, did the evaluation include a weather adjustment component?

Yes, a Landscape Coefficient of 0.9 was used when evaluating average annual turf water consumption. This coefficient includes a weather adjustment.

(iv) Will site audits be performed before applicants are accepted into the program?

Yes, pre-project audits will be conducted as a condition of program participation as described above in Section 5.3.

(v) How will actual water savings be verified upon completion of the project?

Audited pre-project and post-project meter readings will be provided by the retail agency serving water to the project site as a basis for verifying water savings.

Subcriterion A.2 – Percentage of Total Supply

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

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

Projected water savings from this Program represent 0.50% of the Agency's total annual water supplies.

As described above, the total annual supply received from local sources and from imported water is approximately 84,600 acre-feet. Based on the approximation of water conserved by this Program, at 400 acre-feet per year, the following calculations support the percentage of total supplies value given above.

Percentage of Agency's Total Supply:

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

$$\frac{400\ acre-feet}{84{,}600\ acre-feet} = 0.47\ \%$$

Percentage of the Agency's Total Production:

$$\frac{400\ acre-feet}{148{,}963\ acre-feet} = 0.27\ \%$$

The total production number used in this equation is explained in Section 5.2, above.

Percentage of average annual CII usage:

$$\frac{400\ acre-feet}{24{,}236\ acre-feet} = 1.65\ \%$$

This computation is based on DWR Public Water System Statistics indicating that CII usage is approximately 15 percent of total usage.

5.4.2 Criterion B: Energy-Water Nexus

Subcriterion B.1 – Implementing Renewable Energy Projects Related to Water Management and Delivery

Does this project include the construction of or installation of renewable energy components (e.g., hydroelectric units, solar-electric facilities, wind energy systems, or facilitates that otherwise enable the use of renewable energy)?

The proposed *CII Turf Replacement Program* does not include construction or installation of any renewable energy components.

Subcriterion B.2 – Increasing Energy Efficiency in Water Management

Energy savings resulting from this Program are expected to be 22,264,000 kWh/year due to reduced pumping required for delivery of surface water to Agency users. This value is equivalent to 1,692 tons of CO_2 equivalent emissions (EPA estimate).

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

- *Please provide sufficient detail supporting the calculation of any energy savings expected to result from water conservation improvements.*
- *Please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements?*
- *Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.*

The following calculations compute the quantity of embedded energy conserved by reducing demand through full implementation of the proposed *CII Turf Replacement Program*. The energy estimates include energy required to convey water from the California Bay-Delta to the MWA service area for recharge and energy required to pump recharged water for delivery to users. These calculations assume that all water conservation generated by the program would result in a corresponding reduction in the Agency's demand for and reliance on surface water supplies delivered from the California Bay-Delta via the SWP.

Location of Energy Use	Energy Requirement (kWh/acre-foot)	Acre-feet	Energy Requirement (kWh/year)
Net energy consumed in delivery from Delta	4,549[1]	400	1,819,600
Groundwater pumped from the R^3 Project	1,017[2]	400	406,800
Total	5,566	400	2,226,400

[1] Source: Cumulative Kilowatt-Hour Per Acre-Foot Factor at Pearblossom Pumping Plant, "Management of the California State Water Project Bulletin 132-13, April 2015, Table 7, Page B-20.

[2] The regional Recharge and Recovery Project, known as R^3, delivers SWP water from the California Aqueduct in Hesperia to recharge sites in the floodplain aquifer along the Mojave River. MWA production wells on either side of the river will then recover and deliver the stored water directly to local retail purveyors.

Over the assumed ten-year life of the Program, this annual total equates to the following overall energy savings:

$$2{,}226{,}400\ \frac{kWh}{year} \times 10\ years = 22{,}264{,}000\ \ kWh$$

In terms of emissions as a result of the specific energy savings calculated above; a calculation using the U.S. Environmental Protection Agency's (EPA) Greenhouse Gas Equivalencies Calculator indicates the sum of greenhouse gas emissions saved over the life of the Program is 16,920 tons of Carbon Dioxide equivalents. The annual equivalent is 1,692 tons of Carbon Dioxide equivalents, the output of 140 homes or 323passenger vehicles).

Does the calculation include the energy required to treat the water?

No. The energy required to treat recovered groundwater is not included in this calculation. The energy required to treat surface water delivered via the SWP does not fall under the responsibility of the Agency and therefore has not been included in this calculation.

Will the project result in reduced vehicle miles driven, in turn reducing carbon emissions? Please provide supporting details and calculations.

No. Implementation of this Program is not expected to reduce vehicle miles driven.

5.4.3 Criterion C: Benefits to Endangered Species

Describe any benefits to Endangered Species Locally.

The *CII Turf Replacement Program* will not provide any direct benefit to local endangered species nor will the Program adversely affect local wildlife. The project may provide an indirect benefit to wildlife in the California Bay-Delta by reducing demands for export of water.

5.4.4 Criterion D: Water Marketing

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

Water marketing elements are not applicable to this Program.

5.4.5 Criterion E: Other Contributions to Water Supply Sustainability

Subcriterion E.1 – Addressing Adaptation Strategies in a WaterSMART Basin Study

Provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed Basin Study (i.e., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes).

The Agency has not been involved in a WaterSMART Basin Study; therefore, at this point, this project is not identified as an element of an adaptation strategy identified in such a study.

Subcriterion E.2 – Expediting Future On-Farm Irrigation Improvements

Will the proposed project help expedite future on-farm improvements, listing specific fields and acreage improved in the future?

Because of its nature as an urban water conservation program, the proposed project is not expected to expedite future on-farm improvements.

Subcriterion E.3 – Other Water Supply Sustainability Benefits

Will the project address water supply shortages due to climate variability and/or heightened competition for finite water supplies (e.g. population growth or drought)?

While not directly targeting the specific concerns noted above, the need for vigorous water conservation actions within the MWA are driven in large part by concerns over the future of the water supplied from the California Bay-Delta. These concerns are manifestations of the impact of climate variability, population growth and drought on the ability of the State of California to meet its water supply commitments to areas such as MWA which are heavily reliant on water delivered from the Bay-Delta.

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

The Mojave Region has been subject to California's severe drought which started in late 2012 and has persisted through 2015. The on-going drought has led to unprecedented reductions in water allocations to MWA of only 10% percent of the Agency's contracted supply.

Given the arid conditions and limited water supply that characterize the MWA service area, California's on-going drought has had an immediate impact. For this reason, implementation of the *CII Turf Replacement Program* is particularly valuable as the Program offers a mechanism for rapid establishment of water conservation measures in a drought-affected region. Introduction of the CII Program last year aide the Agency in responding to the reduction in water use (from 16-32% required reduction, depending on purveyor) mandated by the California State Water Resources Control Board for the Agency's service area. Purveyors within MWA's service area have reduced water usage by an average of 22%. Continuation and expansion of the Program is central to the Agency's plan to remain in compliance with the State Board restrictions.

Provide a detailed explanation of how the proposed WaterSMART Grant project will improve the reliability of water supplies during times of drought.

As the drought persists, it is likely that deliveries from the SWP will continue to be curtailed and local water demands will increasingly be met by pumping from the aquifers underlying the Agency. The anticipated rate of groundwater extraction may result in deeper pumping lifts and land subsidence as predicted in the USGS 2014 Mojave Water-Level Studies (USGS California Water Science Center). Water supplies for local municipal areas, such as Victorville and Hesperia, may be strained as a result of high demands on groundwater resources and dropping pumping levels.

The *CII Turf Replacement Program* will improve reliability of water supplies for users in the Mojave Region by reducing demands. This conservation effort will stretch the capability of

existing supplies and infrastructure to satisfy remaining municipal, commercial, agricultural and environmental demands. In particular, the Program is expected to mitigate the decline in groundwater levels anticipated to occur absent implementation.

Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?

As noted previously, MWA serves as the Watermaster for the Mojave Basin Area Judgment. The fact that the WMA is the Watermaster for an adjudicated groundwater basin indicates the strength of the competition for water in the Mojave Basin. This competition has been exacerbated by California's prolonged drought and the impacts of the drought on the water supply available to the region through the SWP. In this setting, water conserved under the *CII Turf Replacement Program* directly addresses heightened competition for water on both a regional and a state-wide basis.

How will the water source that is the focus of this project (river, aquifer, or other source of supply) be impacted by climate variation?

As mentioned above, the primary source of surface water for the Mojave Region, the SWP, is heavily dependent on the hydrology of the California Bay-Delta. Climate variation is expected to reduce the volume and alter the timing of flows into the Bay-Delta, with these changes forecast to lead to worsening water supply reliability and greater variability in the annual amount of water delivered to the Agency. These impacts are likely to cause a greater reliance on groundwater to meet demands, straining the underlying resources in the basin.

Will the project help to address an issue that could potentially result in an interruption of water supply if not resolved?

The *CII Turf Replacement Program* is a response to concerns over long-term water supply reliability and not a response to issues that could result in short-term interruptions.

Will the project make additional water available to Indian tribes?

The Morongo Band of Mission Indians falls within the MWA service area. As is the case with other communities in the region, they would benefit from the Program because a reduction in water applied to lawns would increase the quantity of water available for other users.

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

As Figure 5-5 illustrates, a high proportion of the MWA service area is classified as economically disadvantaged. One of the Program's goals is to enable disadvantaged households to make improvements to their landscapes that will both enhance the value of their homes and reduce their monthly bills for water. Therefore, while the Program will not make water available to economically disadvantaged household and communities, it is designed to benefit the economically disadvantaged.

Does the project promote and encourage collaboration among parties?

Implementation of the *CII Turf Replacement Program* requires collaboration between the Agency and its member water districts and with individuals, businesses and organizations who participate in the Program. Successful completion of individual projects, and the resultant water savings and landscape conversions, are likely to encourage future collaboration between the Agency, its member water districts, local communities, organizations, and individuals.

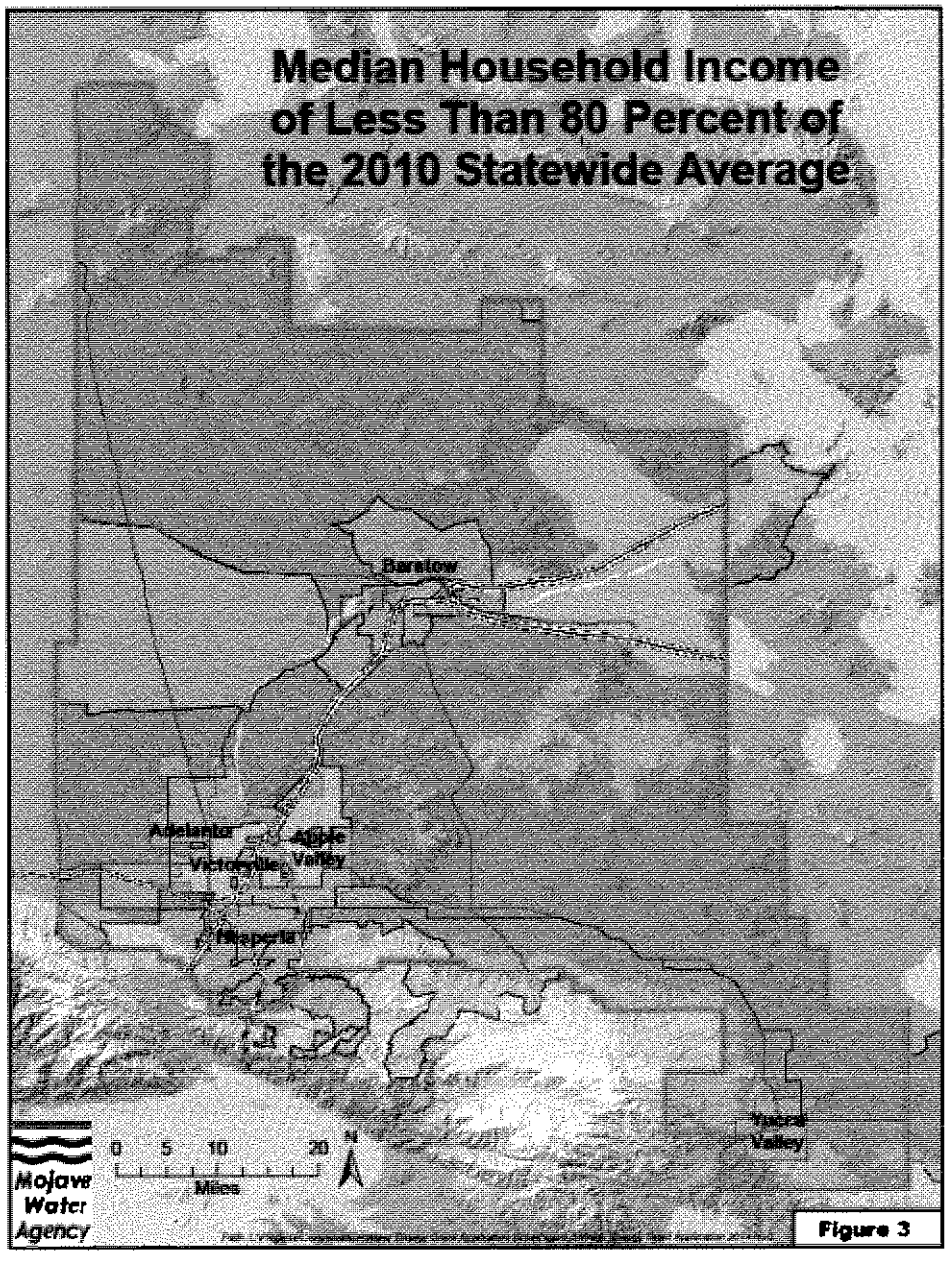


Figure 5-5 Map of Economically Disadvantages Areas within Mojave Water Agency

Is there widespread support for the project?

The letters of support included in this application are an indication of the broad support the Agency has received for the overall program and for submission of this grant application.

What is the significance of the collaboration/support?

The major significance of the support is that it indicates the degree to which the Agency has been successful in developing a mentality of prudent water stewardship. The Program is both a reflection of this success and a mechanism for strengthening appreciation of the importance of resource stewardship and for identifying opportunities to practice stewardship.

Will the project help to prevent a water-related crisis or conflict?

As described earlier in the grant application, the MWA serves as Watermaster for groundwater basins within California's High Desert Region. Therefore, the purpose of the Agency is largely to manage water in a region susceptible to water-related crisis or conflict. The *CII Turf Replacement Program* is one of a series of innovative demand reduction efforts that have been implemented by the Agency in its efforts to encourage a culture of resource stewardship and to sustain a balance between water use and water supply in its service area.

Is there frequently tension or litigation over water in the basin?

Although there are tensions regarding water supply and water use within the region, because the MWA service area overlies adjudicated groundwater basins and because the MWA serves as the Watermaster for these basins, there is a well-established process for addressing such tensions.

Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?

Data collected during the *CII Turf Replacement Program* will be shared with Reclamation and with other entities interested in implementing similar water conservation programs. Therefore the results of the Program and lessons learned during its implementation will benefit future water conservation efforts undertaken by the MWA, Reclamation and others considering adopting similar programs.

Will the project increase awareness and serve as an example of water and/or energy conservation and efficiency within a community?

The *CII Turf Replacement Program* offers a clearly visible platform for promoting conservation and water use efficiency through the conversion of landscapes, including public landscapes, and by demonstrating that landscape aesthetics do not need to be sacrificed in order to promote water conservation.

Will the project enhance or increase the capability of future water conservation or energy efficiency improvement efforts for use by others?

This Program is intended to serve as a model for other water purveyors interested in implementing turf replacement programs. To this end, information on program implementation and results of program monitoring will be provided to Reclamation and will be made available to other interested parties upon request.

Does the project integrate water and energy components?

Yes, in the sense that the conserved energy is embedded in the conserved water. Therefore, there is a direct correlation between reductions in water use and reductions in energy consumption.

5.4.6 Criterion F: Implementation, Results and Performance Measures

Subcriterion F.1 – Project Planning

Does the project have a Water Conservation Plan, System Optimization Review (SOR), and/or district or geographic area drought contingency plans in place YES? Does the project relate/have a nexus to an adaptation strategy developed as part of a WaterSMART Basin Study)? *Please self-certify, or provide copies of these plans where appropriate to verify that such a plan is in place.*

There is no Water Conservation Plan or System Optimization Review associated with this project since this a rebate program that requires no additional water to be added to the system. Turf removal associated with the project reduces load on the area's water delivery systems. The continuation of this project is part of the regions drought contingency plan. Our member agencies look to this program and include its availability and water saving in their individual drought contingency plans. This project may have a nexus with the adaptation strategy developed as part of the WaterSMART Basin Study for the Mojave River Basin (Plan of Study was funded in 2014) once the Basin Study is completed.

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

The *CII Program* is an expansion and refinement of the *Cash for Grass Turf Replacement Program* that was included in the Agency's IRWMP and has received funding from the State of California under a Proposition 50 IRWM Implementation Grant and under a Proposition 84 IRWM Implementation Grant. This program has also recently received financial support from the California DWR's Emergency Drought Response grant program that is being administered under the state's IRWM framework. These funds were awarded on a competitive basis to water agencies assessed as being most vulnerable to drought and to projects and programs determined to be effective responses in these vulnerable areas. State funding for this program is a major source of the non-Federal contribution identified in this grant application.

Describe how the project conforms to and meets the goals of any applicable State or regional water plans, and identify any aspect of the project that implements a feature of an existing water plan(s).

The MWA was the lead agency for development of the Mojave Water Agency IRWMP which was adopted in 2004. The IRWMP includes a fully-integrated Groundwater Management Plan, which is in compliance with California Water Code Section 10753.
In addition to the IRWMP and Groundwater Management Plan, urban water purveyors within the region, such as the Hi-Desert Water District and the Joshua Basin Water District, have adopted Urban Water Management Plans. These plans are available on the Agency's website as well as being referenced in the update to the IRWMP that was completed in 2014.

Subcriterion F.2 – Readiness to Proceed

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

The Agency is prepared to proceed with program implementation pending completion of any necessary environmental documentation. The Agency proposes that should Reclamation select the *CII Turf Replacement Program* for funding, Agency staff would immediately confer with Reclamation staff from the Temecula Area office on environmental compliance requirements so that any necessary NEPA activity would commence immediately following announcement of an award and could be completed prior to signing of a grant agreement.

As the Program will be a succession of turf replacement projects, there are no sequential milestones leading to program completion once the environmental compliance has been completed. Rather the Program's success will hinge on sustaining a rate of activity that enables the attainment of the anticipated benefits. Based on the Agency's success in administering the *Cash for Grass Program*, which has provided rebates for over six million square feet of turf removal since 2008, and the interest in the *CII Turf Replacement Program* shown in 2015, Agency staff are confident that they can successfully meet the Program's target of 2,500,000 square feet of turf removal and replacement within a two-year period.

Should WaterSMART funding be awarded to the Program, the Agency anticipates that work would begin in November of 2016 and be completed in October 2018. The budget tables in Section 10 present the anticipated rate of program activity as follows:

- Year 1 - $1,181,250 of rebates issued
- Year 2 - $1,181,250 of rebates issued

Subcriterion F.3 – Performance Measures

The performance measures applicable to the proposed Program suggested in Reclamation's FOA are:

- No. A.7a. – Landscape Irrigation Measures (turf removal), and
- No. B.2 - Increasing Energy Efficiency in Water Management

The methods that will be used to evaluate these performance measures are discussed below.

- Measure No. A.7a – Landscape Irrigation Measures (turf removal)

The baseline for quantification of the water conservation benefits associated with the *CII Turf Replacement Program* will be the following:

- Number of square feet of turf replaced;
- Estimated historical annual average quantity of water applied per unit area of turf.

Together these metrics will enable the Agency to track program performance and to confirm that the removal of turf correlates with a verifiable reduction in water usage. Moreover, audited usage summaries from the Agency's retail water purveyors will be used to compare pre-project and post-project water usage by Program participants.

Experience with the *Cash for Grass Program* has demonstrated a clear correlation between turf removal and a decline in water usage, but has also shown that the level of reduction in water usage on a unit area basis varies widely from site to site. Inclusion of larger landscapes in the proposed Program is expected to lead to further insights into the performance of turf replacement projects. Preliminary data from the first year of the *CII Turf Replacement Program* is expected to become available in late 2016 or early 2017. Among the insights hoped to be revealed from this data is whether there is a statistically significant difference in the level of water conserved by turf replacement on the large lawns participating in the *CII Program* from that conserved on smaller lawns participating in the *Cash for Grass Program.*

In general, the Agency anticipates that the benefits of the *CII Turf Replacement Program* will be similar to those observed in the *Cash for Grass Program.* The following table shows the area of turf removed during the three phases of the *Cash for Grass Program* and the annual water savings that were estimated to have been achieved by each phase.

Rebate Program	Area Removed (Sq-ft)	Program Costs ($)	Water Savings (AFY)	Water Savings per Area (AFY/Acre)
Ph I[2]	3,506,194	$1,753,097	592	7.35
Ph II[3]	667,178	$333,589	113	7.38
Ph III[4]	4,813,213	$2,406,606	812	7.36
Total	8,986,585	$4,493,292	1517	7.36

[1] Assumes annual water savings rates extend over a project life of 10 years
[2] Program supported by Proposition 50 funds from the State of California
[3] Program funded entirely by MWA
[4] Program supported by Proposition 84 funds from the State of California

In addition to attaining water and energy conservation benefits, the *CII Turf Replacement Program* aims at fundamentally altering the notion of a model CII landscape. This will be accomplished by exposing the community to landscaping practices that achieve strong visual appeal without requiring large infusions of scarce resources and that introduce the community to a landscaping aesthetic that tailors the use of plants and other materials to the site and to the region.

To gauge the success of the Program, long-term audits will be used to collect data from a sample of program participants to evaluate the relative performance of the Program. Data on water savings and insights into water user satisfaction will help the Agency in planning future turf replacement efforts and will generate information that will be shared with Reclamation and with other organizations undertaking or contemplating similar programs.

- Measure No. B.2. - Increasing Energy Efficiency in Water Management

Quantification of the benefits of increased energy efficiency is directly related to quantification of volumes of water conserved since all of the energy to be conserved under this Program is embedded in the conserved water. Therefore, determination of the quantity of embedded energy conserved by implementation of the *CII Turf Replacement Program* will follow directly from monitoring the volumes of water conserved and computing the associated quality of embedded energy using DWR data (available online) and the Agency's groundwater pumping data.

Subcriterion F.4 – Reasonableness of Costs

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

The total Program cost is $2,362,500. The average annual water conserved is 400 acre-feet, as shown above. Based on the total water conserved the unit cost over the life of the Program is determined as follows:

$$\frac{\$2{,}362{,}500}{(400\ acre-feet\ per\ year\ \times 10\ years)} = \$590\ per\ acre-foot$$

The expected life of the Program is based on the Agency staff's experience with turf replacement.

With respect to the cost contribution being requested from Reclamation, the value of this contribution in terms of conserved water is shown in the following equation:

$$\frac{\$300{,}000}{(400\ acre-feet\ per\ year\ \times 10\ years)} = \$75\ per\ acre-foot$$

5.4.7 Criterion G: Additional Non-Federal Funding

$$\frac{Non\text{-}Federal\ Funding}{Total\ Project\ Cost}$$

$$\frac{\$2{,}062{,}500}{\$2{,}362{,}500} = 87\%$$

As shown in the budget tables in Section 10, the Agency proposes to contribute an over 7 to 1 match to Reclamation funding requested to support the rebate pool. In addition to providing matching funds, all Agency staff time required for administration, reporting, and program implementation is being performed under the Agency's operating budget and will not be represented as a component of the local cost share.

5.4.8 Criterion H: Connection to Reclamation Project Activities

How is the proposed project connected to Reclamation project activities?

The Program aligns with Reclamation's goal of promoting conscientious stewardship of water and energy resources throughout the western United States and of lowering green-house gas emissions. In addition, by reducing demand for export of water from the California Bay-Delta, the Program relieves stress on this important hub of Reclamation's water management activity in California.

Does the applicant receive Reclamation project water?

No. The two sources of water to the MWA service area are native water recharging the region's groundwater aquifers, estimated to average 54,000 acre-feet per year and the Agency's water supply imported from the California Bay-Delta via the SWP, estimated to average 30,600 acre-feet per year.

Is the project on Reclamation project lands or involving Reclamation facilities?

The *CII Turf Replacement Program* is not located on Reclamation project lands nor does it involve Reclamation facilities.

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

Yes, Reclamation has supported, and continues to support, water management activities of the MWA. In addition, Reclamation is involved in projects outside of the MWA's service area but within the Mojave River Basin.

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

Yes, the intent of the Program is to conserve water in subbasins of the Mojave River Basin which lie within the boundaries of the MWA.

Will the project help Reclamation meet trust responsibilities to Tribes?

No, the Program will not directly assist Reclamation in meeting tribal trust responsibilities.

6 Environmental and Cultural Resources Compliance

The following section summarizes MWA's approach to avoid, minimize, and mitigate any potential environmental impacts related to implementation of the *CII Turf Replacement Program.*

A similar program, the Cash for Grass Program has been in operation since early 2008 in compliance with the California Environmental Quality Act (CEQA). Because of the parallels between the proposed program and the on-going Cash for Grass Program, MWA anticipates that the CEQA documentation already in place will either be adequate for the expanded program or can serve as a good model for preparation of revised documentation.

In addition to continuing to comply with CEQA, should the proposed *CII Turf Replacement Program* be recommended for funding, Agency staff will coordinate with Reclamation environmental specialists to determine the level of NEPA documentation necessary, and the Agency will begin preparation of any needed documents with the goal of satisfying NEPA requirements prior to signing of the funding agreement. Because all activity will take place on established CII lawns, we do not anticipate that Reclamation environmental staff will require that habitat or vegetation surveys be conducted to support preparation of the NEPA document. If such surveys are required, the Agency will engage experienced experts to perform the necessary surveys.

The Agency will complete all necessary CEQA and NEPA documentation before commencing any turf removal activities under the proposed Program.

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

Removal of turf from CII landscapes will involve minimal soil disturbing activities that will affect the air in the surrounding environment. All turf removal projects performed under the proposed Program will comply with the requirements of Rule 403.2 Fugitive Dust Control for the Mojave Desert Planning Area. This rule is designed to ensure that NAAQS for PM_{10} will not be exceeded due to anthropogenic sources of fugitive dust within the Mojave Desert Planning Area. Compliance with this rule has not posed a problem for the Cash for Grass Program.

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

Typically, endangered species habitat is not found on established lawns. However, certain species may be present around the edges of these lawns. Interference with California-listed endangered and threatened species has not been a CEQA compliance issue for the Cash for Grass Program.

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

No wetlands occur within the areas that have the potential of participating in the Program.

(4) When was the water delivery system constructed?

The Mojave Water Agency was established in 1960 and the major features of the Agency water distribution system were completed in 1995. The Agency began importing State Water Project water in 1960.

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

The proposed Program will not alter any existing water conveyance or delivery features.

(6) Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question or you may visit <http://www.nps.gov/np/>.

The Agency is not aware of any buildings or structures which are listed or eligible for listing. However, the Agency will coordinate with Reclamation staff to ensure that the proposed Program would have no effect on historic properties pursuant to 36 CFR Part 800.4(d)(1).

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

The Agency is not aware of any archeological sites in the program area. Due to the nature of the turf removal programs, any archeological sites that may be identified are likely to have been disturbed when the ornamental lawn was established.

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

About 450,000 people live within the Region per 2010 Census data. Six incorporated cities are located within the region:

- City of Adelanto
- Town of Apple Valley
- City of Barstow
- City of Hesperia
- City of Victorville
- Town of Yucca Valley

Slightly more than half of the Census Block Groups located within the Region (125 out of 220) were disadvantaged in 2009, according to U.S. Census data. See Figure 6-1, below:

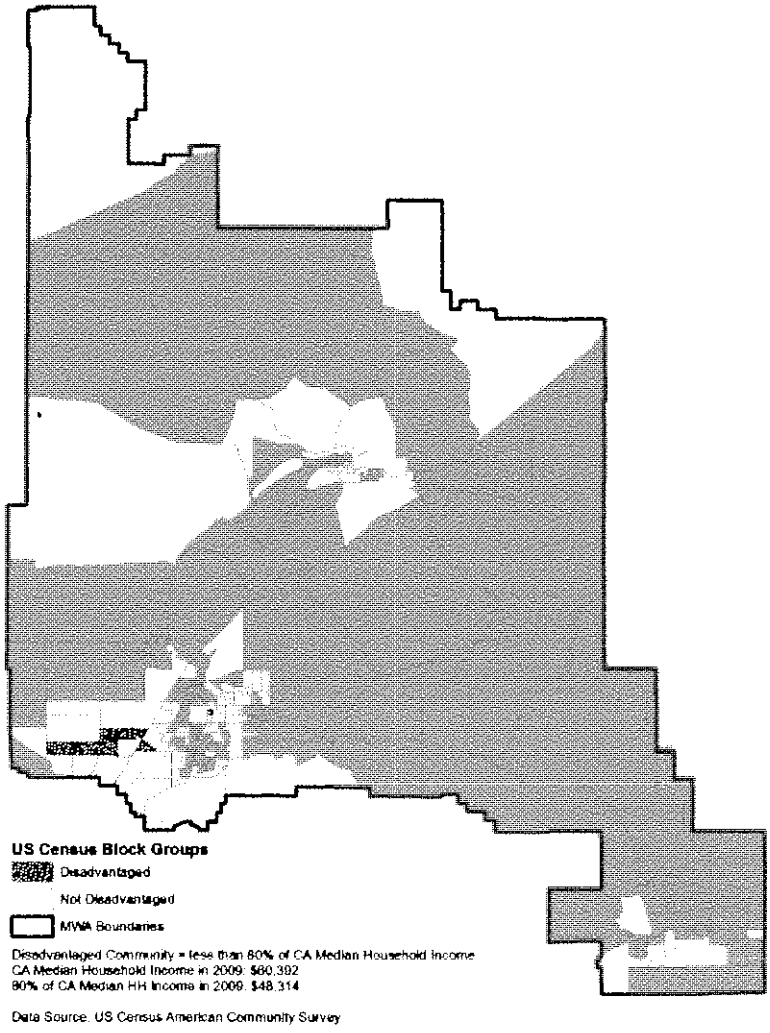


Figure 6-1 Disadvantaged Communities within the Mojave Water Agency

By reducing water consumed by CII users, implementation of the *CII Turf Replacement Program* will help maintain the reliability of water supplies for others including the disadvantaged communities.

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

The proposed Program will not inhibit access to any sacred sites or tribal lands.

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

No, the lawn areas enrolled in the Program area will maintained for weed control as a condition of the agreement between the Agency and the participating landowners and will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species.

7 Required Permits and Approvals

The Agency will be responsible for securing any necessary permits. However, given the Agency's experience in implementing the on-going "Cash for Grass" Program, permit acquisition is likely to be unnecessary.

All turf removal projects undertaken by the proposed Program will conform to the requirements of Rule 403.2 Fugitive Dust Control for the Mojave Desert Planning Area.

8 Letters of Project Support

The Mojave Water Agency has well-established working relationships with member water districts, local municipalities, and the County of San Bernardino. In addition, members of the United States Congress who represent the area recognize the value of the Agency's water conservation measures in maintaining the long-term reliability of the region's water supply. Therefore, although the Agency is providing all of the Non-Federal cost share and administrative support for implementation of the proposed *CII Turf Replacement Program*, the benefits of the Program to the region are well recognized.

The Mojave Water Agency has received the following letters that indicate the broad support for the Agency's efforts to seek WaterSMART funding necessary for implementation of the *CII Turf Replacement Program*:

- ✓ The City of Victorville and Victorville Water District;
- ✓ The County of San Bernardino;
- ✓ The Office of Jay Obernolte, Assemblyman of the 33rd District of the California Legislature;
- ✓ The Office of Colonel Paul Cook (Ret.), Congressman of California's 8th District of the Congress of the United States House of Representatives.

Copies of these letters immediately follow this page.

STATE CAPITOL
P.O. BOX 942849
SACRAMENTO, CA 94249-0033
(916) 319-2033
FAX (916) 319-2133

DISTRICT OFFICE
15900 SMOKE TREE STREET, SUITE 125
HESPERIA, CA 92345
(760) 244-5277
FAX (760) 244-5447

Assembly
California Legislature

JAY OBERNOLTE
ASSEMBLYMAN, THIRTY-THIRD DISTRICT

COMMITTEES
VICE CHAIR: ARTS, ENTERTAINMENT, SPORTS, TOURISM, AND INTERNET MEDIA
UTILITIES AND COMMERCE
RULES (ALTERNATE)

SUBCOMMITTEES
BUDGET SUBCOMMITTEE NO. 3 ON RESOURCES AND TRANSPORTATION

JOINT COMMITTEES
JOINT COMMITTEE ON ARTS
JOINT LEGISLATIVE BUDGET

January 14, 2016

Bureau of Reclamation
Acquisition Operations Branch
Attn: Ms. Janeen Koza
Mail Code: 84-27852
P.O. Box 25007
Denver, Co 80225

Dear Ms. Koza:

I am writing as the State Assemblyman for the 33rd District in support of Mojave Water Agency's (MWA) application for a WaterSMART: Water and Energy Efficiency Grant for Fiscal Year 2016 that will serve to continue to fund the commercial, industrial, and institutional turf removal program for the Mojave Desert region. This program, titled, "CII Turf Removal Program," will continue to reduce water consumption and achieve greater energy efficiency in the High Desert.

The Mojave Water Agency's Water Conservation Incentive Program has enjoyed great success with the removal of more than 8.5 million square feet of turf since September 2008. This program, administered by MWA in conjunction with the Alliance for Water Awareness and Conservation, has created a collaborative culture of greater resource stewardship. The large scale program is on track to remove more than 2.165 million square feet of turf before the end of 2016. As California continues to face great water resource challenges, conservation programs will continue to be a critical tool in reducing water use.

Therefore, I support MWA's grant applications for a WaterSMART: Water and Energy Efficiency Grant, and respectfully request your consideration to fund this important project.

Sincerely,

JAY OBERNOLTE
Assemblyman, 33rd District

Printed on Recycled Paper

PAUL COOK
8TH DISTRICT, CALIFORNIA

1222 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-5861

Congress of the United States
House of Representatives
Washington, DC 20515–0508

January 13, 2016

Bureau of Reclamation
Acquisition Operations Branch
Attn: Ms. Janeen Koza
Mail Code: 84-27852
P.O. Box 25007
Denver, CO 80225

RE: Letter of Support for Mojave Water Agency WaterSMART Grant Application

Dear Ms. Koza:

I am writing in support of Mojave Water Agency's (MWA) application for a WaterSMART: Water and Energy Efficiency Grant for Fiscal Year 2016 that will serve to continue to fund the commercial, industrial, and institutional turf removal program for the Mojave Desert region. This program, titled, "CII Turf Removal Program," will continue to reduce water consumption and achieve greater energy efficiency in the High Desert.

The Mojave Water Agency's Water Conservation Incentive Program has enjoyed great success with the removal of more than 8.5 million square feet of turf since September 2008. This program, administered by MWA in conjunction with the Alliance for Water Awareness and Conservation, has created a collaborative culture of greater resource stewardship. The large scale program is on track to remove more than 2.165 million square feet of turf before the end of 2016. As California continues to face great water resource challenges, conservation programs will continue to be a critical tool in reducing water use.

I support MWA's grant applications for a WaterSMART: Water and Energy Efficiency Grant, and respectfully request your consideration to fund this important project. If you would like to discuss this matter further, please contact my Apple Valley office at (760) 247-1815.

Sincerely,

Col. Paul Cook (Ret.)
Congressman, 8th District of California

Board of Supervisors
County of San Bernardino

ROBERT A. LOVINGOOD
SUPERVISOR, FIRST DISTRICT

January 20, 2016

Bureau of Reclamation Acquisition Operations Branch

Attention: Ms. Janeen Koza

Mail Code: 84-27852

P.O. Box 25007

Denver, CO 80225

Dear Ms. Koza:

I am writing on behalf of the County of San Bernardino First District in support of Mojave Water Agency's (MWA) application for a WaterSMART: Water and Energy Efficiency Grant for Fiscal Year 2016 that will serve to continue to fund the commercial, industrial, and institutional turf removal program for the Mojave Desert region. The expanded program titled, CII Turf Removal Program, will continue to reduce water consumption and achieve greater energy efficiency in the High Desert.

The Mojave Water Agency's Water Conservation Incentive Program has enjoyed great success with the removal of more than 8.5 million square feet of turf since September 2008. This program, administered by MWA in conjunction with the Alliance for Water Awareness and Conservation, has created a collaborative culture of greater resource stewardship. The large scale program is on track to remove more than 2.165 million square feet of turf before the end of 2016. As California continues to face great water resource challenges, conservation programs will continue to be a critical tool in reducing water use.

Therefore, we support MWA's grant application for a WaterSMART: Water and Energy Efficiency Grant, and respectfully request your consideration to fund this important project.

With Best Regards,

Robert A. Lovingood, First District Supervisor
County of San Bernardino Board of Supervisors

San Bernardino County Government Center • 385 North Arrowhead Avenue, Fifth Floor • San Bernardino, CA 92415-0110 • (909) 387-4830
High Desert Office • 12474-A Cottonwood Avenue • Victorville, CA 92395 • (760) 995-8100 • (800) 472-8597

VICTORVILLE
WATER DISTRICT

1-866-955-4426
FAX 760.269-0088
www.victorvillewater.org

14343 Civic Drive
P.O. Box 5001
Victorville, California 92393-5001

July 2, 2015,

Nicholas Schneider
Mojave Water Agency
13846 Conference Center Drive
Apple Valley, CA 92307

SUBJECT: Request Funding for Green Tree Golf Course Large CII Turf Removal

Dear Mr. Schneider,

I am writing this letter on behalf of the City of Victorville Community Services Department and Victorville Water District to express appreciation to the Mojave Water Agency (MWA) for accepting the Sierra Golf-Green Tree project into the CII Turf 'Special Project's Removal Program. The opportunity to receive funding from this regional program will offset the costs to convert conventional turf and irrigation methods to desert-friendly landscape and water smart techniques. The Sierra Golf-Green Tree Golf Course, 'Large CII Landscape Conversion Project' is underway and removal of 1, 288,260 sq ft of turf, (29.58 AC.FT) will result in significant water savings of 217.50 (Acre-feet per year).

Sierra Golf-Green Tree- Landscape Conversion Project

Fairway	SQ FT Turf Removal	Fairway	SQ FT Turf Removal	Fairway	SQ FT Turf Removal
1	61,880	7	72,560	13	74,650
2	85,380	8	97,670	14	34,520
3	83,760	9	104,980	15	58,280
4	83,550	10	68,960	16	38,495
5	55,600	11	46,270	17	38,495
6	142,830	12	77,350	18	63,390
			Total Turf Removal:		1,288,620
			AC. FT:		29.58
			Anticipated Water Savings: (Acre-feet per year)		217.50

We appreciate the financial support this regional program can afford to us and respectfully request your consideration for project funding in order to help us to achieve the water savings of a project this size.

Sincerely,

Donna McCormick
Conservation Supervisor
(760) 955-2016
Cell (760) 983-9377

9 Official Resolution

The Board of Directors of the Mojave Water Agency adopted the required Resolution at its regular Board meeting on January 14, 2016. A copy of the Board Resolution is provided below.

RESOLUTION NO. 1010-16

A RESOLUTION OF THE MOJAVE WATER AGENCY, IN SUPPORT OF FILING AN APPLICATION WITH THE BUREAU OF RECLAMATION FOR A GRANT UNDER THE WATERSMART: WATER AND ENERGY EFFICIENCY GRANTS FOR FISCAL YEAR 2016

WHEREAS, the United States Bureau of Reclamation is currently soliciting proposals for grant funding assistance under their *WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2016 Program*; and

WHEREAS, Agency staff has prepared a grant application under the United States Bureau of Reclamation's *WaterSMART* program.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Mojave Water Agency as follows:

1. The Agency's Board of Directors has reviewed and supports the submission of a grant application to the Bureau of Reclamation for the project;
2. The Agency's General Manager is directed to submit the grant application and is authorized to enter into an agreement with the Bureau of Reclamation on behalf of the Agency for grant funding under the Bureau of Reclamation's *WaterSMART: Water and Energy Efficiency Grants for FY 2016* program;
3. The Agency is capable of providing the amount of funding and in-kind contributions as specified in the application; and
4. The Agency will work with the Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement.

ADOPTED this 14th day of January 2016 by the following vote:

AYES: 7
NOES: 0
ABSENT: 0
ABSTAIN: 0

Beverly Lowry, President

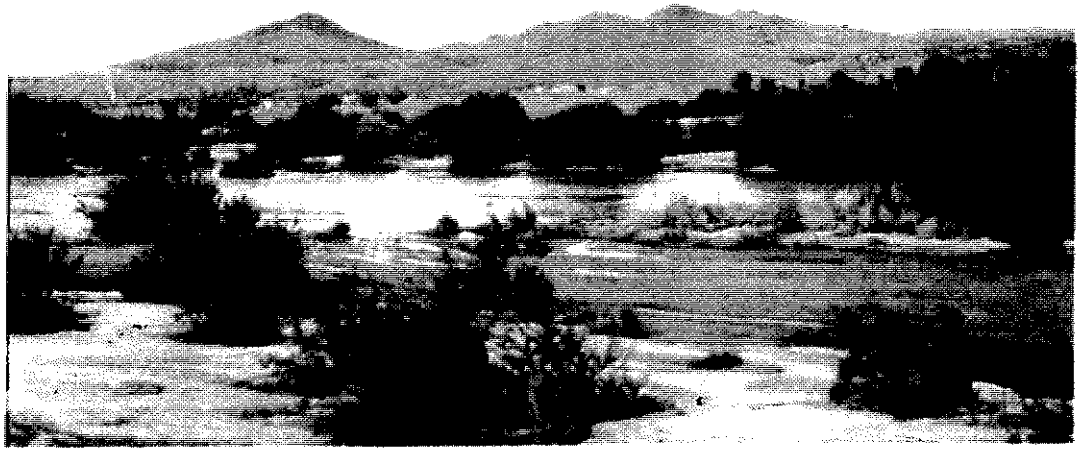
ATTEST:

Doug Shumway, Secretary

Appendices

Appendix A

MOJAVE WATER AGENCY



2004 REGIONAL WATER MANAGEMENT PLAN

INTEGRATED REGIONAL WATER MANAGEMENT PLAN
GROUNDWATER MANAGEMENT PLAN
URBAN WATER MANAGEMENT PLAN

Mojave Water Agency

VOLUME 1:
REPORT

September 2004
Adopted February 24, 2005

Schlumberger Water Services

1

INTRODUCTION

The Mojave Water Agency (MWA) was formed in 1959 by an act of the California Legislature and was activated by a vote of the residents in 1960 to manage declining groundwater levels in the Mojave Basin Area, Lucerne Valley and El Mirage Basin. The Morongo Basin and Johnson Valley areas were annexed in 1965. MWA covers over 4,900 square miles, a hydrologically diverse region that has a unique set of water management issues. Over the last decade, much has been accomplished toward the development and implementation of a comprehensive water resources plan to address these issues. Key accomplishments and events of recent years include:

1. The 1993 Stipulated Judgment, 1996 Judgment After Trial and several court decisions that have followed
2. Adoption of the 1994 Regional Water Management Plan
3. Construction of a number of key facilities including the Morongo Basin Pipeline, Rock Springs Outlet, Hi-Desert Water District recharge facilities, Mojave River Pipeline and the Hodge, Lenwood and Dagget recharge facilities
4. Purchase of an additional 25,000 acre-feet of supply from the State Water Project
5. Completion of several studies by USGS including the report entitled "Simulation of Ground-Water Flow in the Mojave River Basin"

Essentially all water supplies within MWA are pumped from the local groundwater basins and groundwater levels generally have been declining for the past 50 years or more. Adjudication proceedings were initiated due to concerns that rapid population growth would lead to further overdraft. The resulting Warren Valley Basin Judgment and the Mojave Basin Area Judgment both require that additional surface water be imported to help balance the basins.

MWA has an annual contract for up to 75,800 acre-feet of water from the State Water Project (SWP) although due to variability in deliveries of SWP water, the average annual supply available to MWA is currently estimated to be 58,400 acre-feet. In order to balance the basin by the year 2020, it will be necessary for MWA to utilize its full SWP supply. Construction of

projects by MWA within its service area is necessary to build, operate, maintain and replace the State Water Project facilities to which MWA is contractually obligated. These projects are necessary to fulfill MWA's contractual obligations with the State of California and to insure water availability to all of its residents.

Purpose

MWA first prepared a Regional Water Management Plan in 1994 (Bookman-Edmonston Engineering, Inc. 1994). Since that time, several developments have prompted MWA to prepare a plan update. These developments include advancements in the basin adjudication process, a more refined understanding of the hydrology and hydrogeology of the service area, population increases, shifts in agricultural and urban water demands, and the growing realization that the Mojave region can be a strategic element in the long-term management of California's water supplies. The Mojave Groundwater Basin is located along the California Aqueduct and has nearly two million acre-feet of available storage, which could make the region a strategic player in solving state-wide water storage and conjunctive use problems while addressing its internal water resources needs. Recent additions to California law promote development of integrated water resource management plans and groundwater management plans by providing preference to agencies with such plans for funding through state grant programs. **This Plan serves as an Integrated Regional Water Management Plan, Groundwater Management Plan and Urban Water Management Plan and meets the requirements of SB 221, SB 610, SB 1938 and AB 901.**

The RWMP was supported through a March 22, 2001 Memorandum of Understanding (MOU) with the DWR Integrated Storage Investigation which requires a "Basin Advisory Panel" of local civic and technical leaders and other stakeholders. This update was prepared in three phases with input from a Technical Advisory Committee (TAC) convened as the advisory panel. Objectives were: 1) to review and revise, as necessary, previous estimates of water supply and demand, 2) identify and solicit input from stakeholders with interest in long-term reliable water supplies for the region, and 3) identify a suite of preliminary alternatives that will help MWA achieve its goals in water supply management for the next two decades. Proposed projects and management actions are tailored to address at least one key water management issue in the basin.

The following six key water management issues emerged as a result of this process:

- Current demand exceeds supply; future demand will also exceed supply unless corrective actions are taken
- Naturally occurring water quality problems affect drinking water supplies
- Many of the groundwater basins are in overdraft
- All but two of the subareas have riparian ecosystem maintenance issues

- Wastewater infrastructure issues affect the two subareas with the largest water demands
- Many subareas within MWA are impacted by activities in other subareas

Fundamental objectives established with the input of the TAC are to: 1) balance future water demands with available supplies and, 2) maximize the overall beneficial use of water throughout MWA. To compare expected performance of alternative combinations of projects and management alternatives, a screening model was developed. The screening model simulates the changes to groundwater hydrology, Mojave River flows, and pumping and return flows that would result from implementation of the identified projects and management actions. Each alternative was evaluated and ranked according to its effectiveness in meeting the long-term needs of the basin.

This draft Regional Water Management Plan incorporates the highest-ranking alternatives. The draft will undergo an environmental review and the MWA Board of Directors will adopt a final Plan. This Plan provides MWA with long-term direction for management and development of resources and describes MWA's resource management and development strategy through the year 2020. The Plan concludes with 60 Management Actions. Chapters of the Plan are summarized below.

Chapter 2, Agency and Stakeholder Background, describes the MWA and the adjudications of the Mojave Basin Area and Morongo Basin/Johnson Valley Area. The previous 1994 Regional Water Management Plan is summarized and the major stakeholders are identified.

Chapter 3, Physical Setting, describes geography, geology, groundwater conditions, aquifers, groundwater basins, water districts, surface water resources, climate, and wastewater systems.

Chapter 4, Water Supply, provides a detailed description of natural and imported water supplies and their variability within the MWA.

Chapter 5, Water Demand, describes current and projected future water demand in the Mojave Basin Area and Morongo Basin/Johnson Valley Area. Water balances for the year 2020 are presented for two different agricultural demand scenarios, including single dry year and multiple dry year scenarios.

Chapter 6, Water Shortage Contingency Planning, summarizes water shortage contingency plans of MWA and service area water purveyors.

Chapter 7, Water Conservation and Demand Management Measures, provides an overview of water conservation plans and practices of the MWA, cities, water agencies and other groups in the MWA service area.

Chapter 8, Stakeholder Assessment and Public Outreach, describes the public outreach efforts taken by the MWA during the development of this Plan and summaries water management issues of stakeholders in the MWA service area.

Chapter 9, Basin Management Objectives and Alternatives, describes the development of Basin Management Objectives and performance measures developed with the Technical Advisory Committee, a description of supply enhancement projects, and the development and evaluation of alternatives.

Chapter 10, Management Actions, contains 60 actions for implementation of the Plan.

Integrated Water Management Plan

California Water Code Section 79562.5 (b) states that DWR shall establish standards that address, at a minimum "the major water related objectives and conflicts of the watersheds in the region covered by the plan, including water supply, groundwater management, ecosystem restoration, and water quality elements." While specific standards for Integrated Regional Water Management Plans have not yet been developed, this Plan was developed to address all four Integrated Regional Water Management Plan elements identified in the Water Code.

MWA has developed this Regional Water Management Plan through a comprehensive systems approach. The Plan integrates components related to groundwater management, urban water management, agricultural water use, environmental habitat protection and restoration, water quality, and stakeholder and public outreach. The Plan meets requirements of the Urban Water Management Planning Act and requirements for Groundwater Management Plans pursuant to the Water Code and components recommended by DWR as elaborated below.

Urban Water Management Plan

This Regional Water Management Plan was prepared for the MWA in order to comply with 2003 California Urban Water Management Act requirements including amendments made by Senate Bill 610 and Assembly Bill 901. The California Urban Water Management Planning Act (Division 6 Part 2.6 of the Water Code) requires water suppliers with over 3,000 customers or that supply over 3,000 acre-feet of water annually to prepare Urban Water Management Plans (UWMP). MWA does not supply water directly, but holds the State Water Project contract and imports water to replenish groundwater basins and to meet obligations of the Mojave Basin Area

and Warren Valley judgments. Seven water supply agencies within the MWA have developed UWMPs. The checklist at the end of this chapter indicates where in this Plan specific UWMP components are located.

Groundwater Management Plan

This Plan contains components included in California Water Code Sections 10750-10753.10 related to Groundwater Management Plans. The California State Legislature passed Assembly Bill 3030 (AB 3030) during the 1992 legislative session allowing local agencies to develop Groundwater Management Plans. The legislation declares that groundwater is a valuable resource that should be carefully managed to ensure its safe production and quality. The legislation also encourages local agencies to work cooperatively to manage groundwater resources within their jurisdiction. Senate Bill 1938 was passed by the Legislature September 16, 2002 and made changes and additions to sections of the Water Code created by AB 3030. This Plan addresses all the relevant components related to Groundwater Management Plans in the Water Code, as well as the components recommended by DWR in *California's Groundwater*, Bulletin 118 (DWR, 2003).

The Water Code sections related to Groundwater Management Plans apply to all groundwater basins identified in the California Department of Water Resources (DWR) Bulletin 118 (DWR, 1980), except those basins already subject to groundwater management by a local agency or a watermaster unless approved by the watermaster. The MWA overlies several groundwater basins (see Chapter 3), as defined by DWR in Bulletin 118. Nothing in this Plan supercedes the Mojave Basin or Warren Valley Basin adjudications. The checklist at the end of this chapter indicates where in this Plan specific Groundwater Management Plan components are located.

Public Outreach

Significant public outreach efforts were made during development of this Plan. These efforts involved evaluation of questionnaires and holding meetings with individuals, groups and a Technical Advisory Committee. Outreach efforts were directed at stakeholders from local water agencies, state and federal agencies, municipalities, San Bernardino County, and 13 local community groups. Lists of stakeholders are included in Chapter 2 of this Plan. Stakeholder assessment and public outreach efforts are discussed in Chapter 8.

Interrelation of Plan Elements

There is overlap in the requirements of Integrated Regional Water Management Plans, Urban Water Management Plans and Groundwater Management Plans. New laws now require UWMPs of water suppliers that utilize groundwater (all urban suppliers in MWA use groundwater) to

include a description of the groundwater basin and location and amounts of groundwater pumped. Plan elements specific to Integrated Regional Water Management Plans, Urban Water Management Plans and Groundwater Management Plans are located throughout this Plan, placed in chapters according to general subject.

Checklists

Three checklists are contained on the following pages. The first relates to Integrated Regional Water Management Plans, the second relates to Urban Water Management Plans and the third relates to Groundwater Management Plans. The checklists contain a summary of Water Code elements to be addressed, section numbers of the Water Code where the requirement can be found, and the location in this Plan where the subject is addessed. Copies of the relevant Water Code sections are included in Appendix J.

Appendix B

(Adopted: 07/22/96)

RULE 403.2
Fugitive Dust Control
for the Mojave Desert Planning Area

(A) General

(1) Purpose

(a) To ensure that the NAAQS for PM_{10} will not be exceeded due to anthropogenic sources of fugitive dust within the MDPA; and

(b) To implement the control measures contained in the Mojave Desert Planning Area Federal PM_{10} Attainment Plan.

(2) Applicability

(a) The requirements of this Rule shall apply to owners or operators of sources in the following categories within the MDPA:

(i) Construction/Demolition Activity;
(ii) Heavily Traveled Publicly Maintained Unpaved Roads;
(iii) Weed suppression activity;
(iv) Limestone processing activity in the Lucerne Valley Area; and
(v) Activities on Bureau of Land Management (BLM) land.

(3) Conflicts with Other District Rules

(a) If there is a conflict between the provisions of this Rule and those of District Rule 403, the conflicting provisions of District Rule 403 are superseded.

(B) Definitions

For the purposes of this Rule, the following definitions shall apply:

(1) "Active Operation" - Activity capable of generating Fugitive Dust, including, but not limited to: Bulk Material storage, handling and processing; Earth-Moving Activity; Construction/Demolition Activity; and movement of vehicles on Unpaved Roads.

(2) "Air Pollution Control Officer" (APCO) - The person appointed to the position of Air Pollution Control Officer of the District pursuant to the provisions of California Health & Safety Code §40750, and his or her designee.

(3) "Alternative PM_{10} Control Plan" (ACP) - A plan that incorporates emission reducing measures other than those source-specific measures in section (C), and generates Equivalent Emission Reductions.

(4) "Baseline Emissions" - A specific PM_{10} emissions level calculated as the product of an emission rate (pounds of PM_{10} per unit of operations) and an activity rate (number of operations per day). Calculated pursuant to section (G)(7)(a).

(5) "Bulk Material" - Sand, gravel, soil, aggregate and any other organic or inorganic solid matter capable of releasing fugitive dust.

(6) "California Air Resources Board" (ARB) - The California State Air Resources Board, the powers and duties of which are described in Part 2 of Division 26 of the California Health and Safety Code (commencing with section 39500).

(7) "Construction/Demolition Activity" - Any on-site mechanical activity preparatory to or related to building, altering, rehabilitating, demolishing or improving property that results in Disturbed Surface Area, including the following activities: grading; excavation; loading; crushing; cutting; planing; shaping; or ground breaking, but excluding activities related to MDAQMD-permitted industrial operations.

(8) "Disturbed Surface Area" - Portion of the earth's surface that has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural condition, thereby increasing the potential for emission of Fugitive Dust. Does not include area restored to a natural state with vegetative ground cover and soil characteristics similar to adjacent or nearby natural conditions.

(9) "Earth-Moving Activity" - Grading, earth cutting and filling, loading or unloading of dirt or other Bulk Materials, adding to or removing from Open Storage Piles of Bulk Materials, landfilling, or soil mulching.

(10) "Enforceable" - Included in a Permit To Operate (PTO) or otherwise subject to enforcement by the District, and submitted as a source-specific SIP revision.

(11) "Equivalent Emission Reductions" - Real, Enforceable, Permanent, Quantifiable, and Surplus emission reductions equal in amount to 120 percent of those required by section (C). Such emission reductions shall be calculated relative to Baseline Emissions. In addition, such emission reductions shall be demonstrated to be equivalent to the reductions required by section (C) using an USEPA-approved modeling demonstration.

(12) "Federal Clean Air Act" (FCAA) - 42 United States Code §7401 et seq.

(13) "Fugitive Dust" - Those solid Respirable Particulate Matter emissions that become airborne, other than those emitted from an exhaust stack, chimney, or vent. Fugitive emissions are directly or indirectly caused by the activities of man.

(14) "Heavily Traveled" - Typically carrying more than 800 vehicle trips per day.

(15) "High Winds" - When wind gusts exceed 40 kilometers (25 miles) per hour or, on an hourly average, when wind speeds exceed 24 kilometers (15 miles) per hour. The average wind speed determination shall be on a 15 minute average at the nearest meteorological station or by wind instrument on site.

(16) "Lucerne Valley Area" - That portion of the MDPA bounded in the south by the township line common to T2N and T3N, in the east by the range line common to R2E and R3E, in the north by the town ship line common to T5N and T6N, and in the west by the range line common to R2W and R1W (see Map One).

(17) "Mojave Desert Planning Area" (MDPA) - That portion of San Bernardino County: north and east of a line running east from the Los Angeles County boundary along the township line common to T3N and T2N, then south along the range line common to R2E and R3E; and south and west of a line running east from the Kern County boundary along the township line common to T11N and T12N, then south along the range line common to R4E and R5E, then south and east along the western and southern boundaries of the Twentynine Palms Marine Corps Air Ground Combat Center, then south along the range line common to R12E and R13E (see Map One).

(18) "National Ambient Air Quality Standards" (NAAQS) - Standards set by the Federal Government that define the acceptable amount of criteria pollutants in the air. Achievement of these standards protects the public's health and welfare.

(19) "Off Highway/Off-Road Recreation Vehicle" (OHV) - Any motorized vehicle primarily defined as an all-terrain motor vehicle, motorcycle, motorbike, ATC, ATV, motor buggy and/or four wheel drive light utility vehicle.

(20) "Open Storage Pile" - Any accumulation of Bulk Material not fully enclosed, covered or chemically stabilized with five percent or greater silt content. Pile silt content shall be assumed to be five percent or greater, unless a person can show the silt content is less.

(21) "Permanent" - Contained in a permit or other instrument which ensures achievement on each and every operating day, and submitted as a source-specific SIP revision.

(22) "Publicly Maintained" - Under the jurisdiction of, and physically maintained by, State, County, or local government.

(23) "Quantifiable" - Able to be measured and/or calculated before and after a reducing action using the same test methods and/or calculation procedures.

(24) "Reasonably Available Control Technology" (RACT) - Any device, system, process modification, apparatus, technique, or combination of the above which results in the lowest emissions rate and which is reasonably available considering technological and economic feasibility, as defined by MDAQMD regulations as of the date of application.

(25) "Reasonably Available Control Measure" (RACM) - A control measure included in the control strategy presented within the "Final Mojave Desert Planning Area Federal PM_{10} Attainment Plan," as adopted July 31, 1995.

(26) "Real" - Represents a reduction in actual emissions.

(27) "Respirable Particulate Matter" (PM_{10}) - Any material , except uncombined water, existing in a finely divided form as a liquid or solid at standard conditions whose mean aerodynamic diameter is smaller than or equal to 10 micrometers as measures by a reference method based on 40 CFR 50, Appendix J and designated in accordance with 40 CFR 53; or methods found in Article 2, Subchapter 6, Title 17, California Code of Regulations (commencing with §94100); or any equivalent method designated in accordance with 40 CFR 53.

(28) "Stabilize" - To reduce the fugitive dust generating capability of a surface by paving, chemically treating, watering, or compacting, sufficient to eliminate Visible Fugitive Dust. Chemical treatment must be performed with a substance approved for such use by the applicable Regional Water Quality Control Board.

(29) "Surplus" - In excess of emission reductions which are otherwise required by Federal, State, or District law, rule, order, permit, or regulation. Proposed District laws, rules, or regulations which have been taken to public workshop are applicable for purposes of this definition.

(30) "Trackout" - Visible Bulk Material deposited upon public roadways as a result of Active Operations.

(31) "Unpaved Road" - Any vehicle travel route not covered by one or more of the following: concrete, asphaltic concrete, or asphalt.

(32) "United States Environmental Protection Agency" (USEPA) - The Administrator of the Environmental Protection Agency or the appropriate designee.

(33) "Visible Fugitive Dust" - Dust emissions from a fugitive source as dark as or darker in shade than that shade designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or of equivalent opacity, for a period or periods aggregating more than three minutes in any one hour.

(C) Requirements

(1) The owner or operator of a source in an affected source category shall comply with the applicable requirements contained in this subsection unless and until the owner or operator has applied for and obtained a District-approved ACP pursuant to section (G).

(2) The owner or operator of any Construction/Demolition source shall:

(a) Use periodic watering for short-term stabilization of Disturbed Surface Area to minimize visible fugitive dust emissions. For purposes of this Rule, use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered sufficient to maintain compliance;

(b) Take actions sufficient to prevent project-related Trackout onto paved surfaces;

(c) Cover loaded haul vehicles while operating on Publicly Maintained paved surfaces;

(d) Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than thirty days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate Visible Fugitive Dust emissions;

(e) Cleanup project-related Trackout or spills on Publicly Maintained paved surfaces within twenty-four hours; and

(f) Reduce non-essential Earth-Moving Activity under High Wind conditions. For purposes of this Rule, a reduction in Earth-Moving Activity when visible dusting occurs from moist and dry surfaces due to wind erosion shall be considered sufficient to maintain compliance.

(3) The owner/operator of a Construction/Demolition source disturbing 100 or more acres shall, in addition to the provisions of subsection (2):

(a) Prepare and submit to the MDAQMD, prior to commencing Earth-Moving Activity, a dust control plan that describes all applicable dust control measures that will be implemented at the project;

(b) Provide Stabilized access route(s) to the project site as soon as is feasible. For purposes of this Rule, as soon as is feasible shall mean prior to the completion of Construction/Demolition activity;

(c) Maintain natural topography to the extent possible;

(d) Construct parking lots and paved roads first, where feasible; and

(e) Construct upwind portions of project first, where feasible.

(4) Cities, Towns, and the County of San Bernardino shall collectively:

(a) Stabilize sufficient Publicly Maintained Heavily Traveled unpaved roads to reduce fugitive dust entrainment and wind erosion by at least 1541 tons per year of PM_{10} emissions within the MDPA.

(5) The Owner or Operator of a site undergoing weed abatement activity shall not:

(a) Disrupt the soil crust to the extent that Visible Fugitive Dust is created due to wind erosion.

(6) The owner or operator of a limestone processing facility shall:

(a) Stabilize industrial Unpaved Roads carrying more than ten vehicle trips per day with the majority of those vehicles weighing 30 tons or more;

(b) Enclose exterior belt conveyors sufficiently to cover the top and sides of the Bulk Material being transferred, or employ an alternate dust suppression system sufficient to prevent Visible Fugitive Dust;

(c) Manage or treat Bulk Material Open Storage Piles sufficiently to prevent Visible Fugitive Dust emissions. For purposes of this Rule, active watering during visible dusting episodes shall be sufficient to maintain compliance;

(d) Cover loaded Bulk Material haul vehicles while traveling upon publicly maintained paved surfaces;

(e) Employ a dust suppression system at Bulk Material transfer points sufficient to prevent Visible Fugitive Dust;

(f) Stabilize or eliminate Bulk Material Open Storage Piles that have been or are expected to be inactive for at least one year;

(g) Stabilize as much unpaved operations area as is feasible;

(h) Vacuum sweep Bulk Material spills on paved surfaces weekly or more often, as needed;

(i) Prevent facility-related Bulk Material Trackout on Publicly Maintained paved surfaces;

(j) Clean up facility-related Bulk Material Trackout and spills on Publicly Maintained roads within twenty-four hours; and

(k) Employ belt cleaners and/or conveyor return scrapers to minimize conveyor spillage.

(7) The BLM shall prepare a dust control plan that includes the following fugitive dust control measures:

(a) Stipulate that all new authorizations for stationary emission sources obtain all necessary MDAQMD permits and satisfy all applicable SIP provisions, including project- or activity-specific RACM;

(b) Control dust emissions from certain roads and routes as per the Wilderness classification in the California Desert Protection Act;

(c) Control dust emissions from certain roads and routes as identified through general BLM planning;

(d) Implement those PM_{10} control measures required to manage organized off-road events and/or competitions on public land;

(e) Use BLM-standard road design and drainage specifications when maintaining existing roads or authorizing road maintenance and new road construction; and

(f) Include public educational information on PM_{10} emissions with BLM open area literature and on information signs in heavily used areas.

(D) Exemptions

(1) The requirements of this Rule shall not apply to:

(a) Agricultural operations, as defined by California Health and Safety Code §41704(b);

(b) Actions required by federal or state endangered species legislation;

(c) Actions that could be considered prohibited habitat modification under the federal or state endangered species legislation or require Section 10(a) or 2081 review;

(d) Construction/Demolition projects disturbing less than one-half total acre or 21,780 square feet;

(e) Active Operations conducted during emergency situations, or in conjunction with any officially declared disaster or state of emergency;

(f) Active Operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and sewer services during periods of service outages and emergency disruptions;

(g) Non-periodic (occurring no more three times per year and lasting less than thirty cumulative days per year) or emergency maintenance of flood control channels and water spreading basins;

(h) Blasting operations as permitted by the California Occupational Safety and Health Administration;

(i) Emergency fire suppression operations ordered, performed or sanctioned by Federal, state or local government (including, but not limited to, creation of fuel breaks);

(j) A Construction/Demolition contractor, after the time the contract ends, provided that such contractor satisfied the requirements of this Rule during the contractual period;

(k) A grading contractor, for a phase of Active Operations after the contractual completion of that phase of Earth-Moving Activity, through and including five days after the final grading inspection;

(l) Weed abatement operations disturbing less than one acre on a lot that includes a residence;

(m) Construction/Demolition activities and/or weed abatement operations performed to maintain easements and/or roadways (including shoulders);

(n) Dust generated by mowing performed for weed abatement purposes;

(o) Casual, informal recreational use of public land, including, but not limited to Off-Road Recreational Vehicle use; and

(p) Those BLM roads and routes administered by the Federal Highway Administration and the National Recreation Trails Fund Act.

(E) Recordkeeping

(1) The owner or operator of an affected source shall maintain a Dust Control Plan as required by Sections (C)(3) and (C)(7) on site, or readily accessible, for at least two years after the date of each entry. Such records shall be provided to the District upon request.

(F) Test Methods

(1) Compliance with the provisions of this Rule shall be determined as follows:

(a) For PM_{10} emission and reduction calculations other than unpaved roads: amounts shall be calculated using USEPA "Control of Open Fugitive Dust Sources" (EPA-450/3-88-008). For PM_{10} emission and reduction calculations for unpaved roads: amounts shall be calculated using USEPA AP-42 Section 11.2.1. For purposes of this Rule, the following values may be used as defaults, in the absence of specific data: silt content of 15 percent, vehicle average weight of three tons and four wheels, and 20 days with greater than 0.01 inch of precipitation.

(b) Compliance with the requirement "Cover Haul Vehicles" is equivalent to complying with the vehicle freeboard requirements of the California Vehicle Code (§23114) on both public and private paved roads.

(c) Silt content shall be determined through sampling and analysis in accordance with ASTM Method C-136-92. Results of ASTM Method C-136-92 are valid for 60 days from the date the sample was taken.

(2) Alternative test methods may be used upon obtaining the approval of the Air Pollution Control Officer, CARB and USEPA.

(G) Alternative PM_{10} Control Plans (ACPs)

(1) An owner or operator of a source may, at any time after the adoption of this Rule, apply for and obtain District approval for an ACP as set forth in this subsection.

(2) Application

(a) The owner or operator may apply for an ACP by submitting a plan to the District which includes the following elements:

(i) Name(s), address(es), and phone number(s) of the official(s) responsible for the preparation, submittal and implementation of the ACP;
(ii) Description and location of operations;
(iii) Listing of all Active Operations included in subsection (G)(2)(a)(ii) generating Fugitive Dust emissions;
(iv) Estimation of baseline, annual, and daily emissions from each source identified in subsection (G)(2)(a)(iii);
(v) Description of actions required by the applicable portion of section (C);
(vi) Descriptions of actions proposed to generate Equivalent Emission Reductions instead of subsection (G)(2)(a)(v). Such description shall be sufficiently detailed to demonstrate Real, Enforceable, Permanent, Quantifiable, and Surplus Equivalent Emission Reductions during all periods of Active Operations;
(vii) Commitment to a post-approval monitoring program to evaluate the effectiveness of subsection (G)(2)(a)(vi) actions; and
(viii) Description of contingency measures for implementation if actions proposed for subsection (G)(2)(a)(vi) prove insufficient.
(ix) An application for an ACP which proposes using add-on controls to achieve Equivalent Emission Reductions shall specify test methods for both the emission collection system and the control system.

(3) Issuance Procedure

(a) The owner or operator of a source electing to obtain an approved ACP shall submit an application for an ACP to the APCO in writing.

(i) The owner or operator shall remain subject to federal enforcement of existing section (C) and SIP limits, unless and until USEPA approves the ACP as a source specific SIP revision pursuant to 42 U.S.C. §7410(a)(3)(A) (FCAA §110(a)(3)(A)).

(b) The APCO shall either approve, conditionally approve, or disapprove a proposed ACP, in writing, within thirty (30) calendar days of receipt of the ACP, based on the following criteria:

(i) The proposed ACP demonstrates Equivalent Emission Reductions to those required under section (C);

(ii) The proposed ACP does not result in a net increase in any Baseline Emission of an air pollutant regulated, proposed for regulation, listed or the subject of a "notice-of-intent-to-list" pursuant to the provisions of 42 U.S.C. §7412, National Emission Standards for Hazardous Air Pollutants (FCAA §112). The Baseline Emissions of a hazardous pollutant shall be determined by the lower of either actual or NESHAPS' allowable emissions;

(iii) Add-on controls shall not be considered part of an approved ACP unless such controls are incorporated in an emissions averaging approach to compliance; and

(iv) The proposed ACP complies with all applicable requirements of section (G).

(c) If the APCO conditionally approves an ACP, the APCO shall notify the applicant in writing of the ACP's conditional approval and of the deficiencies which require corrections.

(i) The applicant shall submit a revised ACP within ninety (90) days of APCO notice or the conditionally approved ACP is automatically deemed disapproved. The APCO shall evaluate the revised ACP based upon the criteria of subsection (G)(3)(b).

(d) If the APCO approves an ACP, the APCO shall notice a public hearing regarding the proposed ACP before the Governing Board of the District.

(i) Such notice shall be published in a newspaper of general circulation at least 30 days prior to the meeting of the Governing Board at which the public hearing is scheduled to take place.

(e) After the APCO approves the proposed ACP, the permits for any existing permit units included in the ACP shall be surrendered and new permits incorporating provisions of the ACP shall be issued.

(i) ACP emission reductions which are accomplished through equipment shutdown or production curtailment shall have their permanency ensured by a permit or other instrument which limits the total PM_{10} emissions from the equipment in question.

(ii) Notwithstanding provisions of District Rule 219, if the ACP encompasses the operation of equipment not requiring a permit, such equipment shall lose its exemption status and require a permit.

(f) At the public hearing, the APCO shall recommend that the Governing Board adopt the approved ACP for submission to ARB as a SIP submittal.

(g) If adopted by the Governing Board, the ACP shall thereafter be submitted by the APCO to ARB for submittal to USEPA as a source-specific revision to the SIP.

(4) Renewal

(a) An approved ACP shall be valid for a period of one year from the date of approval by the APCO.

(b) Approved ACPs shall be resubmitted, annually, at least 90 days prior to their expiration date.

(i) If all Fugitive Dust sources and emission reduction-producing actions remain identical to those identified in the previously approved ACP, the resubmittal may contain a simple statement of "no change" and the ACP shall be valid for an additional year. Otherwise a resubmittal shall conform to the requirements of subsection (G)(2).

(c) The APCO shall send a list of all approved and renewed ACPs to USEPA on an annual basis.

(5) ACP Recordkeeping

(a) The owner or operator operating under an approved ACP shall maintain daily operating records, source tests, laboratory analyses, monitoring data, data required to support ACP elements specified in subsection (G)(2)(a), and any other appropriate information in a manner and form sufficient to determine the compliance of the owner or operator with the ACP on a twenty-four (24) hour basis.

(6) Violations

(a) Failure to comply with any provisions in an approved or conditionally approved ACP shall constitute a violation of this Rule.

(7) Calculations

(a) Baseline Emission calculations:

(i) Shall use the lowest of either: (1) the actual emission rate; (2) SIP allowable emission limit; or (3) RACT limit. Calculations shall use the lowest of either actual or SIP allowable values for the activity rate;

(ii) Shall use, for activity rate actual values, the average values from data for two years directly preceding the source's application for an ACP, unless another two year period can be shown to better represent the source's normal allowable operations to the satisfaction of the APCO and the USEPA. Sources lacking specific daily activity records may substitute other records that establish daily PM_{10} emissions; and

(iii) Shall include data for all permit units included in the ACP.

(H) Contingency Measures

(1) The requirements of this section only apply if USEPA makes a finding, as evidenced by publication in the Federal Register, that:

(a) The MDPA has failed to make reasonable further progress toward attainment of the PM_{10} NAAQS; or

(b) There has been a violation of the PM_{10} NAAQS within the MDPA between January 1, 1998 and December 31, 2000.

(2) Contingent Requirements

(a) Cities, Towns and the County of San Bernardino shall:

(i) Stabilize sufficient Unpaved Roads to generate at least 2,267 tons per year of fugitive PM_{10} emission reductions.

(I) Compliance Schedule

(a) Any owner or operator of a weed abatement source shall comply on and after December 31, 1996;

(b) Any owner or operator of a Construction/Demolition source shall comply on and after December 31, 1996;

(c) Any owner or operator of a limestone processing facility shall comply on and after December 31, 1997;

(d) Cities, Towns, and the County of San Bernardino shall comply on and after December 31, 1997; and,

(e) The BLM shall comply with the following compliance schedule:

(i) Submit a draft Dust Control Plan addressing all applicable portions of Section (C) on or before September 30, 1996, to which the APCO shall respond within 60 days;

(ii) Submit a final Dust Control Plan addressing all APCO comments on or before December 31, 1996, which the APCO shall transmit to ARB for submission to USEPA as a SIP revision; and

(iii) Implement all Dust Control Plan elements on or before December 31, 1997.

[SIP: Submitted as adopted 7/22/97 on 10/18/96]

Map One

Mojave Desert Planning Area
and
Lucerne Valley Area