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

January 2015

Mojave Water Agency

CII TURF REPLACEMENT PROGRAM

WaterSMART: Water and Energy Efficiency Grants for FY 2015
Funding Opportunity Announcement No. R15AS00002

Location: San Bernardino County, CA

Mojave Water Agency
CII Turf Replacement Project

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Project Location
Mojave Water Agency
San Bernardino County, CA

Mojave Water Agency
22450 Headquarters Drive
Apple Valley, CA 92307

January 22, 2015

Table of Contents

1 Cover Page

2 Assurances Form

3 Title Page 1

4 Table of Contents 2

5 Technical Proposal and Evaluation Criteria 3

5.1 Executive Summary 3
5.2 Background Data 4
5.3 Technical Project Description 13
5.4 Evaluation Criteria 18
5.4.1 Criterion A - Water Conservation 18
5.4.2 Criterion B - Energy-Water Nexus 22
5.4.3 Criterion C - Benefits to Endangered Species 23
5.4.4 Criterion D - Water Marketing 23
5.4.5 Criterion E - Other Contributions to Water Supply Sustainability 23
5.4.6 Criterion F - Implementation, Results, and Performance Measures 29
5.4.8 Criterion G - Additional Non-Federal Funding 32
5.4.9 Criterion H - Connection to Reclamation Project Activities 32

6 Environmental and Cultural Resources Compliance 34

7 Required Permits or Approvals 38

8 Letters of Project Support 39

9 Official Resolution 47

10 Project Budget 48

10.1 Funding Plan 48
10.2 Budget Proposal 49
10.3 Budget Narrative 50
10.4 Budget Form 53

Appendices

Appendix A - 2004 Regional Water Management Plan; Introduction
Appendix B - Fugitive Dust Control Rule

5 Technical Proposal and Evaluation Criteria

5.1 Executive Summary

Date: January 22, 2015
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 proposing to implement the Commercial, Industrial and Institutional (CII) Turf Replacement Program (Program). MWA has developed the *CII Turf Replacement Program* by expanding and refining the Agency's on-going "Cash for Grass" Program. In particular, the Agency seeks to establish a rebate pool of $1,472,000 to support turf replacement by CII water users in the MWA service area. The proposed program will both increase the Agency's capacity to fund turf replacement projects and enable the Agency to extend program participation to 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 2015 and being completed in October of 2017.

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,

- ✓ Providing the opportunity for interested applicants to participate in the Mojave Regional Demonstration Garden Program (MRDGP) that will showcase drought tolerant and desert adaptive plants as well as landscaping features designed to retain and percolate stormwater,
- ✓ 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 stern water use policies upon a reluctant community. 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 funds)	$922,000	80%
MWA (internal funds)	$250,000	
Reclamation	$300,000	20%
Total	$1,472,000	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. The average annual supply delivered to the Agency is currently estimated to be 30,600 acre-feet. 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
City of Victorville	34,759
City of Hesperia	26,218
AV Ranchos	20,581
City of Adelanto	7,100
County Special Districts	6,973
Phelan CSD	6,790
Helendale CSD	2,810
Golden State Water – City of Barstow	8,900
Golden State Water – Lucerne Valley and Apple Valley	3,000
Total	117,131

Figure 5-1 Project Location Map

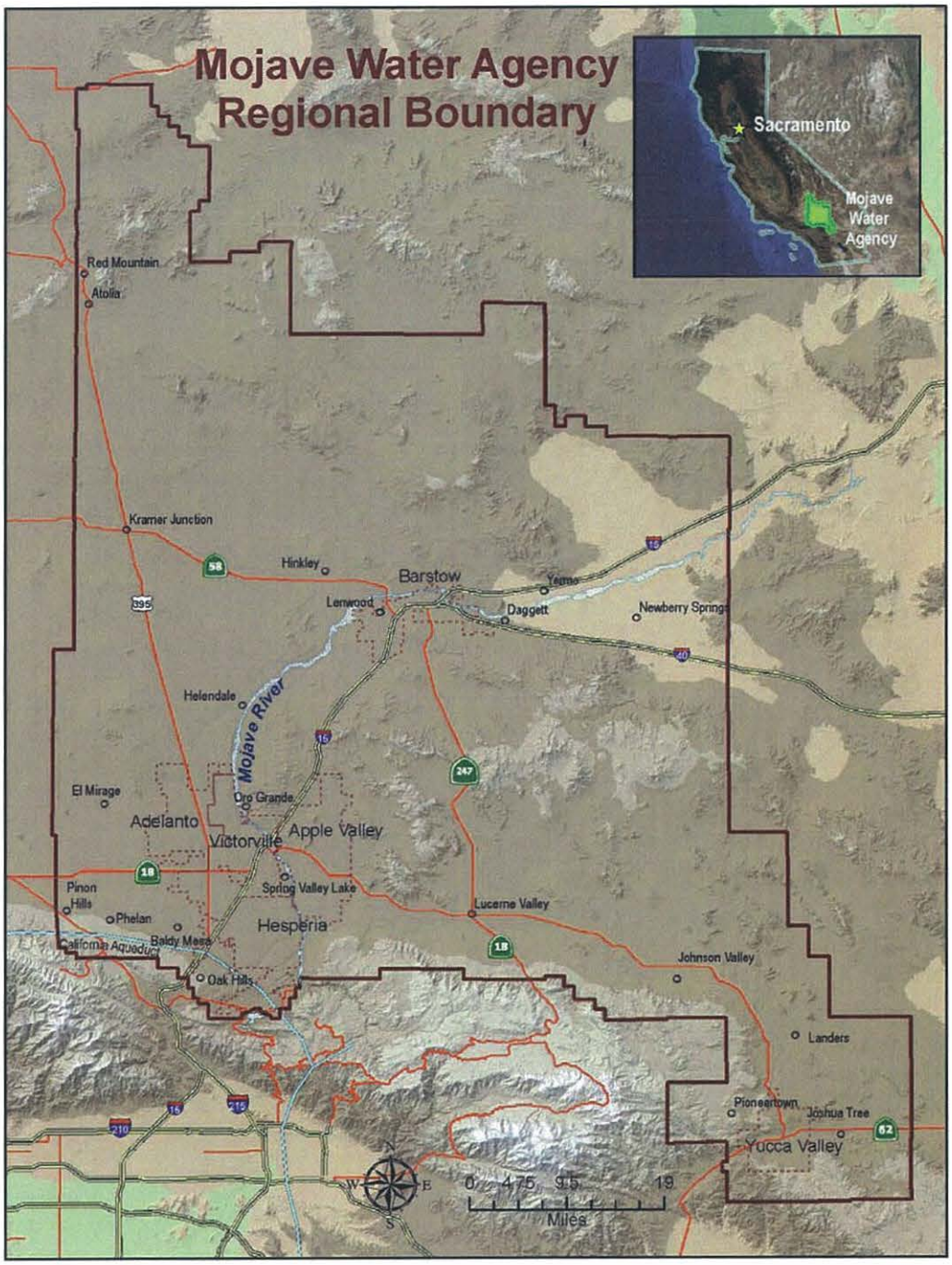

Figure 5-2 Boundaries of the Mojave Water Agency

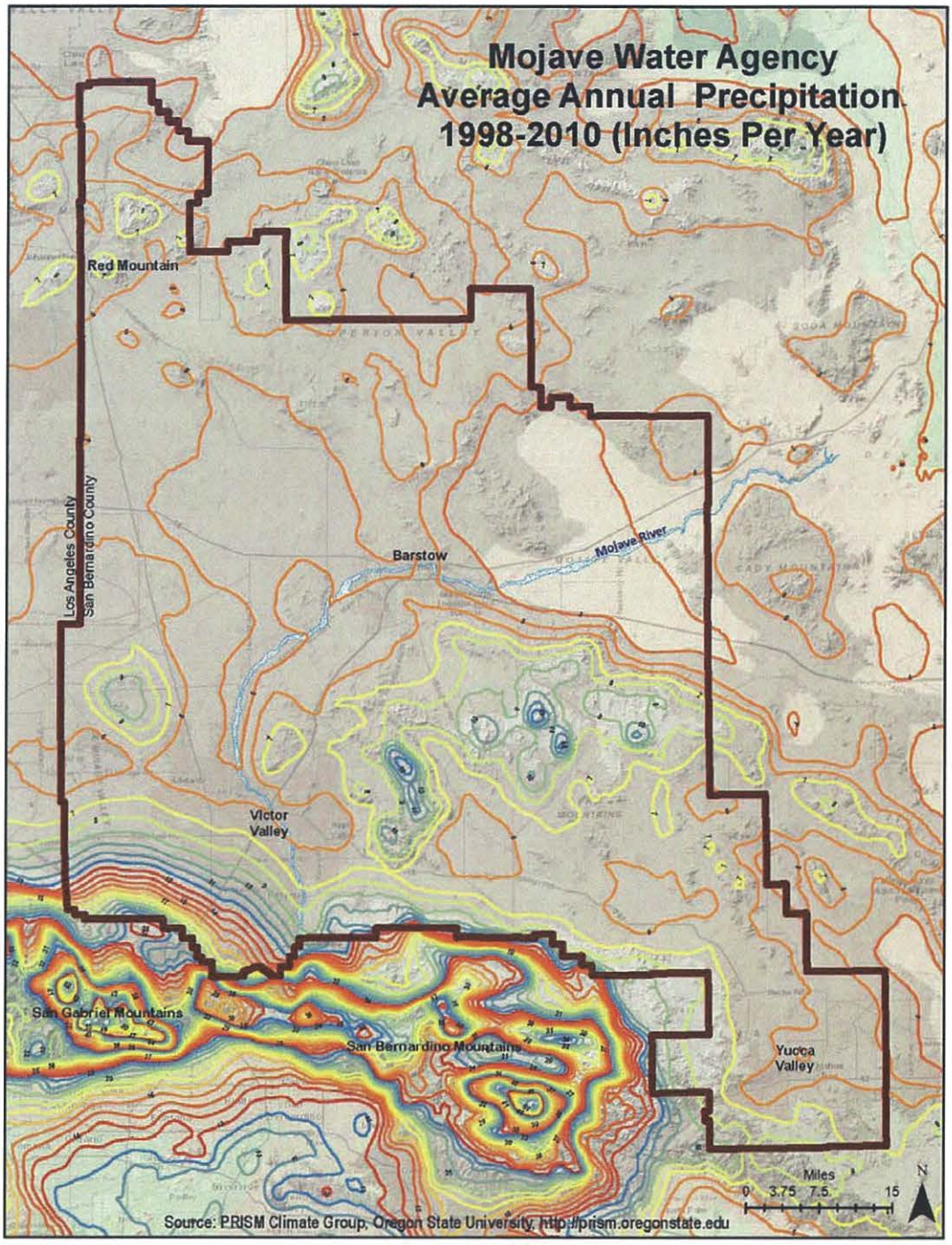

Figure 5-3 Average Annual Precipitation

Water Demand – Data provided by the Agency show total production in the service area during 2012 to have been 156,181 acre-feet, slightly above the average rate of production

over the past ten years of 134,576 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, refinement of this program to target rebate funds to CII users is expected to be an effective mechanism for promoting water conservation.

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

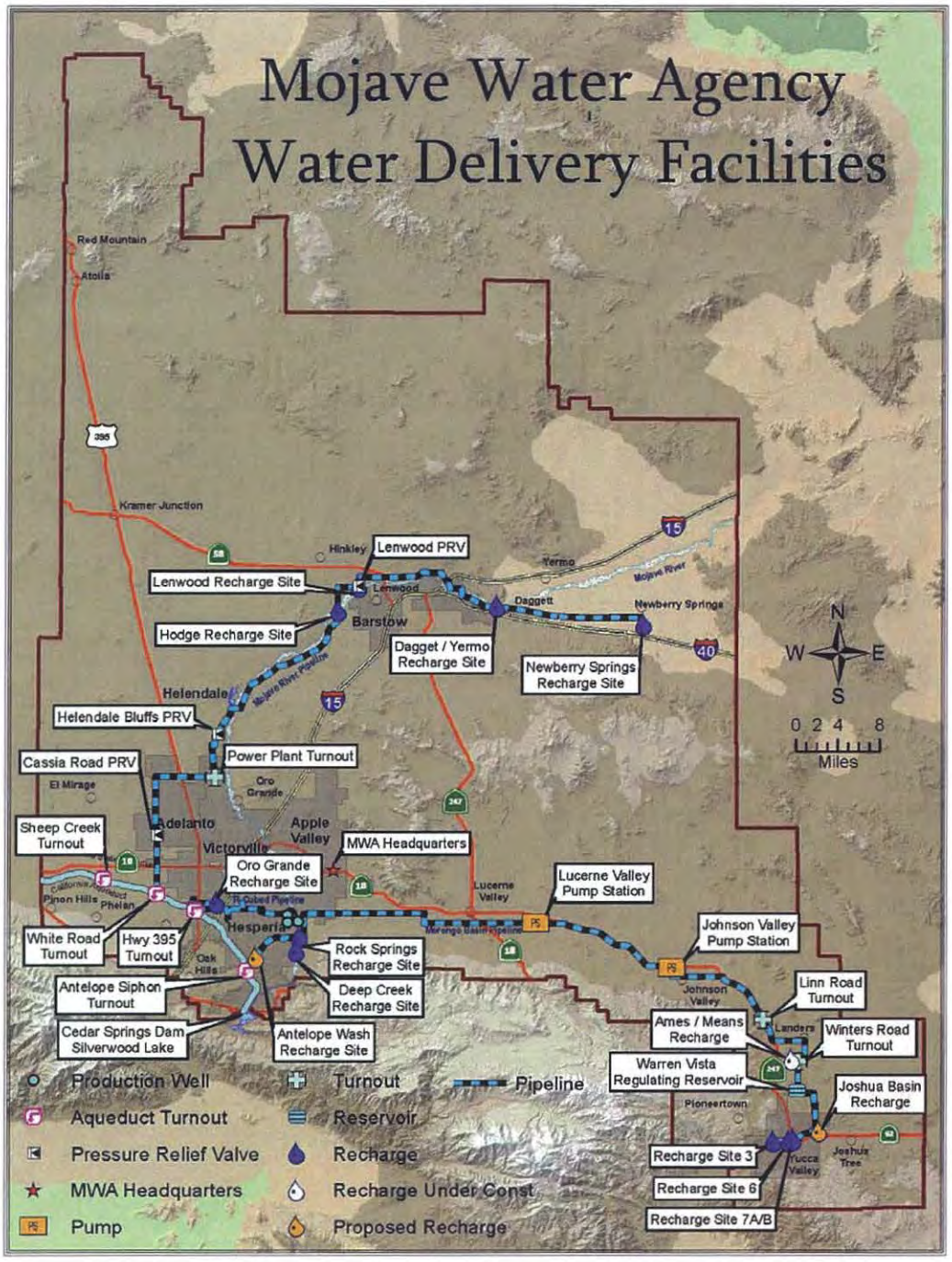

Figure 5-4 Map of Mojave Water Agency Facilities

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.

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 132-10, June 2013, 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 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 has targeted removal of turf from residential and small commercial landscapes and has provided the Agency with the experience and expertise needed to formulate the *CII Turf Replacement Program* proposed for WaterSMART funding.

The *CII Turf Replacement Program* will refine the Agency's existing turf replacement program by targeting commercial, industrial and institutional users and by enabling applicants to select between two levels of program participation and rebate funding.

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 fostered the highest level of water savings. However, the structure of the existing program has prevented certain interested elements of the community from participating either because the size of their lawns exceeded limits for enrollment (limits designed to prevent rebate funds

from being exhausted on a small number of large projects) or because the level of cost share has been insufficient to enable parties, such as not-for-profit medical facilities, to justify the cost of participation.

The proposed *CII Turf Replacement Program* is designed to overcome these obstacles by offering a two-tiered program that offers the option of a $0.50 cents per square foot rebate for a standard conversion project (Basic Program) or a $1.00 per square foot rebate for conversion projects enrolled in the Mojave Regional Demonstration Garden Program (Enhanced Program).

Participants in the basic rebate program will have six months for their landscape conversion to be completed. Upon successful completion of the conversion, the participant will benefit by:

- ✓ Receiving $0.50 per square foot of turf removed.

To be considered for participation in the Basic 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.

Participants in the Enhanced Program benefit by:

- ✓ Receiving $1.00 per square foot of turf removed.
- ✓ Free advertising: The MRDGP marketing program will include print and radio advertising, website promotion, identification on the demonstration garden map, and promotion at the grand opening event and during the annual demonstration garden tour.
- ✓ Recognition from local water purveyors and government agencies as a leader in water conservation.
- ✓ Promotion in a demonstration garden virtual video tour

In addition to the conditions governing the Basic Program, applicants must agree to the following additional conditions to be considered for participation in the Enhanced Program:

- A minimum two-year commitment as a participant in the MRDGP.
- The participant's garden must be ADA accessible with a walking path or sidewalk with regular touring hours.
- Participating entities must agree to be featured in the MRDGP marketing program allowing publication of the garden address and viewing hours, photographic images and video of the garden.

- Garden site must receive approval from the MWA Water Conservation Manager before project initiation.
- Sites must display at least five different species of plants from the MWA-approved plant list. If plants are to be used that are not on the approved plant list, they must be approved by the Water Conservation Manager.
- Participating entities must agree to an annual inspection to ensure project compliance. Failure to meet the MWA standards may result in suspension from the program.
- Each plant species will feature approved plant markers.
- Program participants must adhere to landscaping requirements that include:
    - Installation of at least 40% living plant coverage to receive approval for a rebate.
    - Use of plants on lists available through your local water districts or municipalities and the Alliance for Water Awareness and Conservation (AWAC) www.hdawac.org website
    - Remaining lawn areas and existing landscaping are not considered in the 25% plant coverage calculation.
    - Plants and lawn outside the converted area are not covered by the Program conditions or considered in the rebate calculation even if they are adjacent to or overhang the participating area.
    - It is recommended that converted areas be covered by a minimum two (2) inch-thick layer of permeable mulch. This may be a requirement in some areas.
    - Mulches may include bark, rock, un-grouted stepping stones, and permeable artificial turf.
    - Non-permeable materials like plastic film and concrete are not permitted in the conversion area.
    - If a spray irrigation system is currently being used, it must be converted to a low-volume drip system equipped with a pressure regulator, filter, and emitters providing irrigation to new plantings.
    - Each drip emitter must be rated at less than 20 gallons per hour (gph).
    - Spray irrigation is not permitted in the landscape conversion area and must be capped off if not converted to drip irrigation.
        - If part of a lawn is converted, the sprinkler system must be properly modified to provide adequate coverage to the remaining lawn without spraying the converted area.

Scope of Work – The *CII Turf Replacement Program* is a reconfiguration of an existing rebate program and will provide 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 the Section 10. If the program is awarded funding from Reclamation,

implementation is anticipated to begin in November 2015 and is projected to continue for two years until the end of October 2017.

Implementation of the Program expected to begin in November 2015 and is projected to continue for two years until the end of October 2017.

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 of Rebate Program. 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 Contract; (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 and understand the distinctions between the Basic Program and the Enhanced 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. While administration of the Basic Program is expected to be virtually identical to that of the "Cash for Grass" Program, the Enhanced Program will require additional administrative involvement because of the higher level of engagement in planning and monitoring of these projects. 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

A new feature of the *CII Turf Replacement Program* will be long-term audits of project performance. The audits will be designed to collect data on a sample of the Basic Program and Enhanced Program landscapes to evaluate the performance of the two program tiers. 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 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

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.

Based on discussions with entities who have expressed an interest in participating in the proposed *CII Turf Replacement Program*, the Agency estimates that approximately 75 percent of the area enrolled in the Program will fall under the Basic Program at the $0.50 per square foot rebate rate, and the remaining 25 percent will participate in the Enhanced Program at the $1.00 per square foot rebate rate. Applying these percentages leads to 572,000 square feet of turf removal being supported under the Enhanced Program at a cost of $572,000 and 1,800,000 square feet being removed under the Basic Program at a cost of $900,000. Under this scenario, the Program would support the removal of 2,372,000 square feet (approximately 54 acres) of ornamental turf at a cost of $1,472,000. Of the funds expended on rebates, 37 percent would fund the Enhanced Program and 63 percent would fund the Basic Program. Although Enhanced Program participants will be required to agree to a longer participation period than will applicants signing up for the Basic Program, 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:

$$7.35\ acre-feet/acre\ \times 54\ acres = 400\ \frac{acre-feet}{year}$$

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

Projected water savings from this Program represent 0.47% 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 2,226,400 kWh/year due to reduced pumping required for delivery of surface water to Agency users. This value is equivalent to 1,660 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).

The following calculations compute the quantity of embedded energy that would be 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 132-10, June 2013, 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 16,620 tons of Carbon Dioxide equivalents. The annual equivalent is 1,662 tons of Carbon Dioxide equivalents, the output of 141 homes or 320 passenger 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 future 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, this project is not an element of 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 – Building Drought Resiliency

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 2014. 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

Describe impacts occurring now or expected to occur as result of drought conditions. Detail how proposed project improves reliability of water supplies during times of drought. Will the project improve reliability of supplies for people, agriculture, and/or the environment 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.

Subcriterion E.4 – 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.

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 made 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 Project 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.

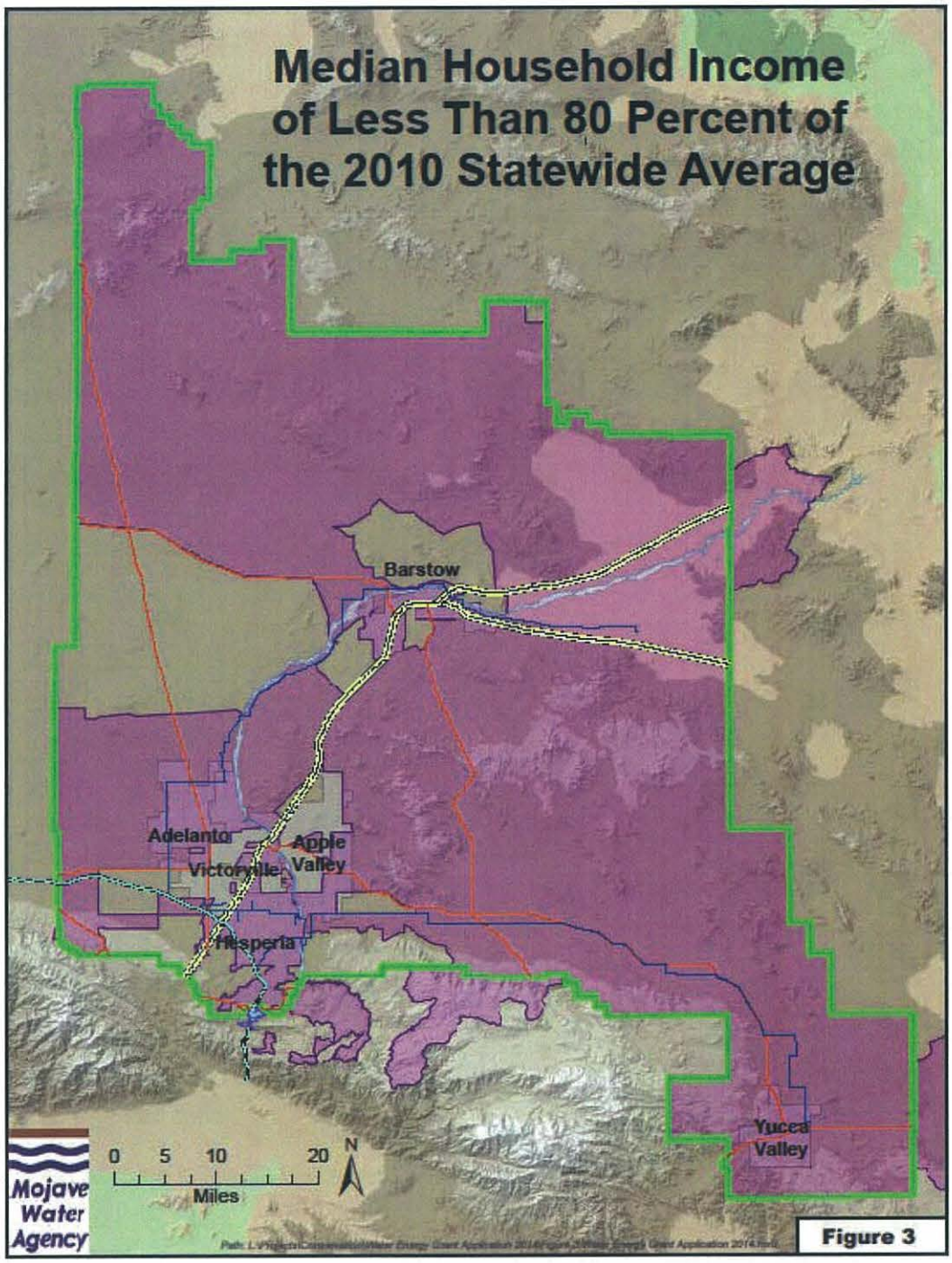

Figure 5-5 Map of Economically Disadvantages Areas within Mojave Water Agency

Is there widespread support for the project?

The letters of support including 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 proposed 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 proposed *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.

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

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 proposed 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

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, Agency staff are confident that they can successfully meet the *CII Turf Replacement Program's* target of 2,372,000 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 2015 and be completed in October 2017. The budget tables in Section 10 present the anticipated rate of program activity as follows:

- Year 1 - $736,000 of rebates issued
- Year 2 - $736,000 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.

In general, the Agency anticipates that the benefits of the *CII Turf Replacement Program* will be similar to those observed in the earlier "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]	2,950,068	$1,475,034	497	7.36
Total	7,123,440	$3,561,720	1202	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. To this end, the turf replacement program is augmented by other activities that include sample gardens, open houses, and virtual tours intended to introduce the community to a landscaping aesthetic that tailors the use of plants and other materials to the site and to the region. Introducing the Enhanced Program at the $1.00 per square foot rebate rate, will raise the overall cost of the short-term water savings generated by the *CII Turf Replacement Program.*

To gauge the success of the Enhanced Program, long-term audits will be used to collect data from a sample of the Basic Program and Enhanced Program participants to evaluate the relative performance of the two program tiers. 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 Removal 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

The total Program cost is $1,472,000. 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:

$$\frac{\$1{,}472{,}000}{(400\ acre-feet\ per\ year\ \times 10\ years)} = \$368\ per\ acre-foot$$

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 Evaluation Criterion G: Additional Non-Federal Funding

As shown in the budget tables in Section 10, the Agency proposes to contribute a nearly 4 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 Evaluation 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 Removal 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:

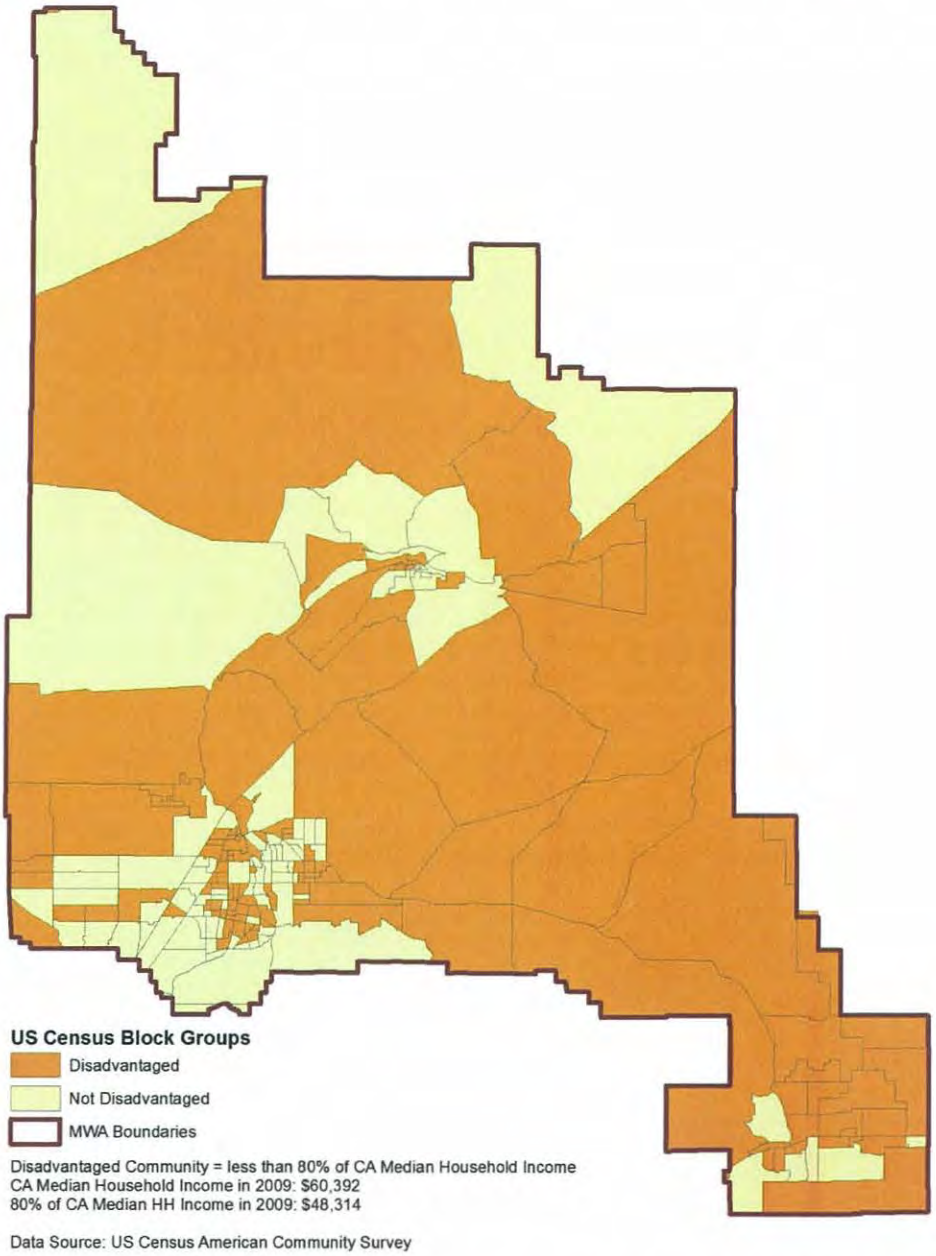

Figure 6-1 Disadvantaged Communities within the Mojave Water Agency

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 with 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 Hesperia;
- ✓ The City of Victorville;
- ✓ The County of San Bernardino
- ✓ The Helendale Community Services District;
- ✓ The Office of Colonel Paul Cook (Ret.), Congressman of California's 8th District of the Congress of the United States House of Representatives;
- ✓ Sun City Apple Valley Community Association; and
- ✓ The Valley Municipal Water District.

Copies of these letters immediately follow this page.

CITY OF
VICTORVILLE

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FAX 760.245.7243
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14343 Civic Drive
P.O. Box 5001
Victorville, California 92393-5001

January 21, 2015

Mr. Shaun Wilken
U.S. Bureau of Reclamation
Policy and Administration
Denver Federal Center, Bldg. 67, Rm. 152
6th Avenue and Kipling Street
Denver, CO 90225

SUBJECT: Support for Mojave Water Agency's WaterSMART Grant Application

Dear Mr. Wilken:

I am writing on behalf of the City of Victorville Community Services Department in support of Mojave Water Agency's (MWA) application for a WaterSMART: Water and Energy Efficiency Grant that will implement an expanded commercial, industrial, and institutional turf removal program for the Mojave Desert region. The expanded program titled, Cll Turf Removal Program, will continue to reduce water consumption and achieve greater energy efficiency in the High Desert.

The current turf removal program has yielded impressive results. Since its inception in 2008, approximately 7 million square feet of turf has been removed, saving more than 1100 acre-feet of water each year. This program, administered by MWA, and coordinated in conjunction with the Alliance for Water Awareness and Conservation, has created a collaborative culture of greater resource stewardship. Many of our homeowners and businesses have participated in this program, and an expanded commercial program will attract larger scale projects.

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

Sincerely,

Christian H. Guntert
Director of Community Services

City of Hesperia

Gateway to the High Desert

January 20, 2015

Mr. Shaun Wilken
U.S. Bureau of Reclamation
Policy and Administration
Denver Federal Center, Bldg. 67, Rm. 152
6th Avenue and Kipling Street
Denver, CO 90225

Regarding: Support for Mojave Water Agency's WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Wilken:

I am writing on behalf of The City of Hesperia in support of Mojave Water Agency's (MWA) application for a WaterSMART: Water and Energy Efficiency Grant that will implement an expanded commercial, industrial, and institutional turf removal program for the Mojave Desert region. The expanded program titled, Cll Turf Removal Program, will continue to reduce water consumption and achieve greater energy efficiency in the High Desert.

The current turf removal program has yielded impressive results. Since its inception in 2008, approximately 7 million square feet of turf has been removed, saving more than 1100 acre-feet of water each year. This program, administered by MWA, and coordinated in conjunction with the Alliance for Water Awareness and Conservation, has created a collaborative culture of greater resource stewardship. Many of our homeowners and businesses have participated in this program, and an expanded commercial program will attract larger scale projects.

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

Sincerely,

Mike Hernandez
Water Conservation Specialist
City of Hesperia

Board of Supervisors
County of San Bernardino

ROBERT A. LOVINGOOD
SUPERVISOR, FIRST DISTRICT

January 20, 2015

Mr. Shawn Wilken

U.S. Bureau of Reclamation Policy and Administration

Denver Federal Center, Bldg. 67, Room 152

6th Avenue and Kipling Street

Denver, CO 90225

Dear Mr. Wilken:

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 that will implement an expanded 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 current turf removal program has yielded impressive results in our region. Since its inception in 2008, approximately 7 million square feet of turf has been removed, saving more than 1100 acre-feet of water each year. This program, administered by MWA, and coordinated in conjunction with the Alliance for Water Awareness and Conservation, has created a collaborative culture of greater resource stewardship. Many of our homeowners and businesses have participated in this program, and an expanded commercial program will attract larger scale projects.

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 Bernadino 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

Helendale Community Services District

26540 Vista Road, Ste. B
PO Box 359
Helendale, California 92342
(760) 951-0006 Fax (760) 951-0046

January 15, 2014

Mr. Shaun Wilken
U.S. Bureau of Reclamation
Policy and Administration
Denver Federal Center, Bldg. 67,Rm. 152
6th Avenue and Kipling Street
Denver, CO 90225

Regarding: Support for Mojave Water Agency's WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Wilken:

I am writing on behalf of Helendale Community Services District in support of Mojave Water Agency's (MWA) application for a WaterSMART: Water and Energy Efficiency Grant that willimplement an expanded commercial, industrial, and institutional turf removal program for the Mojave Desert region. The expanded program titled, Gil Turf Removal Program, will continue to reduce water consumption and achieve greater energy efficiency in the High Desert.

The current turf removal program has yielded impressive results. Since its inception in 2008, approximately 7 million square feet of turf has been removed, saving more than 1100 acre-feet of water each year. This program, administered by MWA, and coordinated in conjunction with the Alliance for Water Awareness and Conservation, has created a collaborative culture of greater resource stewardship. Many of our homeowners and businesses have participated in this program, and an expanded commercial program will attract larger scale projects.

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

Sincerely,

Kimberley Cox
General Manager

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 20, 2015

Mr. Shaun Wilken
U.S. Bureau of Reclamation
Policy and Administration
Denver Federal Center, Bldg. 67, Rm. 152
6th Avenue and Kipling Street
Denver, CO 90225

Dear Mr. Wilken:

As the representative of California's 8th Congressional District, I am writing in strong support of Mojave Water Agency's (MWA) application for a WaterSMART: Water and Energy Efficiency Grant that will implement an expanded commercial, industrial, and institutional turf removal program for the Mojave Desert region. The expanded program will reduce water consumption and achieve greater energy efficiency in the High Desert, an area of my district where water resources can, at times, be scarce.

The current turf removal program has yielded impressive results. Since its inception in 2008, approximately 7 million square feet of turf has been removed, saving more than 1100 acre-feet of water each year. This program, administered by MWA, and coordinated in conjunction with the Alliance for Water Awareness and Conservation, has created a collaborative culture of greater resource stewardship. Many of our homeowners and businesses have participated in this program, and an expanded commercial program will attract larger scale projects.

Please give strong consideration to MWA's grant application for a WaterSMART: Water and Energy Efficiency Grant, and I thank you for allowing me an opportunity to express my support. If you have any questions regarding this letter, please contact my office at (760) 247-1815.

Sincerely,

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

Sun City Apple Valley

by Del Webb®

January 20, 2015

Mr. Shaun Wilken
U.S. Bureau of Reclamation
Policy and Administration
Denver Federal Center, Bldg. 67, Rm. 152
6th Avenue and Kipling Street
Denver, CO 90225

Regarding: Support for Mojave Water Agency's WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Wilken:

I am writing on behalf of the Sun City Apple valley Community Association in support of Mojave Water Agency's (MWA) application for a WaterSMART: Water and Energy Efficiency Grant that will implement an expanded commercial, industrial, and institutional turf removal program for the Mojave Desert region. Our community has a large area of turf that can be converted to water wise landscaping under our new program .

While we have examined the Cash for Grass program in the past, we were limited by the current program's project size. Allowing larger scale projects will make our company's landscape transition more economically feasible, and will ultimately reduce energy costs.

The Sun City Apple Valley Community Association supports MWA's grant application for a WaterSMART: Water and Energy Efficiency Grant, and respectfully request your consideration to fund this important project.

Sincerely,

Jason Kratz
General Manager
Sun City Apple Valley Community Association

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

380 East Vanderbilt Way
San Bernardino, CA 92408
phone: 909.387.9200
fax: 909.387.9247
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January 15, 2014

Ms. Michelle Maher
U.S. Bureau of Reclamation
Policy and Administration
Denver Federal Center, Bldg. 67,Rm. 152
6th Avenue and Kipling Street
Denver, CO 90225

Subject: Support for Mojave Water Agency's WaterSMART: Water and Energy Efficiency Grant Application

Dear Ms. Maher:

I am writing on behalf of San Bernardino Valley Municipal Water District (Valley District) in support of Mojave Water Agency's (MWA) application for a WaterSMART: Water and Energy Efficiency Grant that will implement an expanded 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 current turf removal program has yielded impressive results. Since its inception in 2008, approximately 6.1 million square feet of turf has been removed, saving more than 730 acre-feet of water each year. This program, administered by MWA, and coordinated in conjunction with the Alliance for Water Awareness and Conservation, has created a collaborative culture of greater resource stewardship. Many homeowners and businesses have participated in this program, and an expanded commercial program will attract larger scale projects.

Valley District supports MWA's grant application and respectfully requests that you fund this important project.

Sincerely,

for **Douglas Headrick, P.E.**
General Manager
and Chief Engineer

9 Official Resolution

The Board of Directors of the Mojave Water Agency is scheduled to adopt the required Resolution at its regular Board meeting on February 12, 2015. A copy of the Board Resolution will be forwarded to Reclamation immediately after adoption.

10 Project Budget

10.1 Funding Plan

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

MWA intends to commit State of California Proposition 84 funds available to the Agency to meet all Non-Federal Cost Share requirements of the WaterSMART grant program. These funds have been awarded to the Agency through the California DWR's Integrated Water Management - 2104 Drought Grant Program.

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

(a) What project expenses have been incurred?

(b) How they benefitted the project?

(c) The amount of the expense?

(d) The date of cost incurrence?

The Agency plans to include no in-kind costs in the budget for this Program.

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

No funding partners are involved in this Program, thus, no letters of commitment were necessary.

(4) Describe any funding requested or received from other Federal partners.

There are no other Federal partners for the proposed Program.

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

There are no pending funding requests for this Program.

Summary of non-Federal and Federal Funding Sources

Funding Sources	Funding Amount
Non-Federal Entities	
1. State of California Proposition 84 funds available to the Agency	$922,000
2. MWA funds	$250,000
Non-Federal Subtotal	$1,172,000
Other Federal Entities	
1. Not applicable	$0
Other Federal Subtotal:	$0
Requested Reclamation Funding:	$300,000
Total Project Funding:	$1,472,000

10.2 Budget Proposal

The Agency proposes to apply all Federal and Non-Federal funds that may be associated with the grant agreement to funding of the rebate pool that will be used to reimburse Program participants for turf removal. The total budget for the rebate pool is proposed to be $1,472,000, with $300,000 in requested grant funds (Federal Cost Share) and $922,000 of State of California funds (Non-Federal Cost Share) that have been provided to the Applicant through Proposition 84 and $250,000 of Agency funds that would be a second component of the Non-Federal Cost Share. In addition to these funds to support the rebate pool, the Agency will be providing administrative support to the Program outside of the funding allocated through the proposed grant program. Refer to Table 1 at the end of this section, which provides a summary of the estimated budget, including State and Reclamation funding.

Section 5.3 (Technical Project Description) of this application presents a Scope of Work describing tasks necessary for the successful operation of the Program. The Agency proposes to cover all costs associated with staff, consultant and contract employee time required to perform the Scope of Work under the Agency's operating budget. Accordingly, the Agency will not be requesting reimbursement for the level-of-effort associated with operation of the Program nor will the Agency present this effort as an element of their cost share.

A summary of the estimated Program costs by funding source is presented in Table 1. A separate table has been prepared in support of the budget estimates (in Table 1), both tables immediately follow the text of this section in the order shown below.

- **Table 1:** Provides a summary of the estimated budget, including Reclamation and Applicant contributions.

- **Table 2:** Provides a summary of the estimated budget to implement the Program by budget category and follows the "Budget Proposal" outline from the FOA.

The Standard Budget Form 424A (SF-424A), as designated for non-construction programs in the FOA, is included at the end of this section.

10.3 Budget Narrative

Applicant Contributions (Non-Federal Cost Share)

The Agency proposes to cover all Program costs not associated with rebates given to program participants.

Federal Cost Share

The Agency requests that WaterSMART funding be made available to cover 19 percent of the cost of the $1,472,000 rebate pool. The Agency is not requesting any Federal Cost Share for operation of the Program.

The following discussion addresses budget line items required for operation of the Program. Each of these line items except for the "Other" category will be covered by the Agency's operating budget and, therefore, are not included in either the funds being requested from Reclamation or in the Non-Federal cost share. Table 2 at the end of this section displays the Program budget and includes explanatory notes.

Program Staff

Nicholas Schneider, Water Conservation and Public Information Manager for the Agency will be the representative for the Applicant and will provide overall Program Management. The Program will be staffed by the Agency's office and field personnel. In this regard, the Agency's office staff, which will consist of a Senior Project Manager and an Administrative Assistant, will perform program-related administration support and will provide assistance with permitting, environmental documentation and grant reporting. Additionally, the Agency will use accounting staff for tracking costs and maintaining financial records to administer Program finances, including making all rebate payments to program participants. The Agency's field staff will assist with implementation of the Program, working with the participants, and providing Program auditing support. Refer to Section 5.3 for a description of the activities covered under each task in the Scope of Work.

The work will be completed as part of the Agency's daily operations and will not be part of the Applicant's cost-share. In this regard, the Agency will not be asking for reimbursement or reporting any "In-Kind" contributions for any Salaries and Wages costs. The Agency is proposing not to track these costs separately from daily operations, even though employees will be providing services necessary for implementation of the grant-funded Program. Accordingly, no expenses under "Salaries and Wages" have been included in Table 2.

Fringe Benefits

Expenses under Fringe Benefits have not been included. Please see discussion under "Salaries and Wages" above.

Travel

Travel expenses have not been included in the budget inasmuch as local travel will be covered under the Agency's operating budget. Accordingly, no expenses have been included under "Travel" in Table 2.

Equipment

Equipment expenses have not been included in the budget inasmuch as the Agency is not expected to purchase or lease any equipment as part of this Program. Any equipment necessary to implement the Program will be provided by program participants to carry out their turf removal and alternative landscaping projects. Accordingly, no "Equipment" expenses have been included in Table 2.

Materials and Supplies

Acquisition of supplies for general office use is not anticipated; rather, the Agency will provide any incidental supplies. Acquisition of materials for "Advertisement" of the Program, as part of Program Implementation (Task 4), will be required. However, since the costs associated with purchase of the materials and supplies will be minimal, they will be purchased by the Agency and be included as part of their overhead costs. In this regard, the Agency will not be charging any expenses, nor will they be asking for reimbursement of any costs for acquisition of materials and supplies. Accordingly, no "Materials and Supplies" expenses have been included in Table 2.

Contractual/Construction

As previously referenced, this Program will be implemented by Agency staff, supported by consultants and contract employees as needed. Accordingly, no "Contractual/Construction" expenses have been included in Table 2.

Environmental and Regulatory Compliance Costs

According to the FOA, "the minimum amount budgeted for environmental compliance should be equal to at least 1-2 percent of the total project costs." Given the Agency's experience in administering the "Cash for Grass" Program, the Agency anticipates that the costs for environmental and regulatory compliance will be on the order of the minimum costs suggested in the FOA. As with other aspects of program administration, the Agency intends to carry costs for environmental and regulatory compliance as part of their operating budget so that staff and consultant time required for these activities will not be shown in the program budget. Therefore, no costs for Environmental and Regulatory Compliance have been included in Table 2.

Reporting

Any work related to "Reporting" will be completed by Agency staff and be integrated as part of their daily operations. In this regard, the Agency will not be charging any expenses, nor will they be asking for reimbursement of any costs associated with Reporting. Accordingly, no "Reporting" expenses have been included in Table 2.

Other Expenses

The estimated costs for overall implementation of the Program are included under the "Other" category. As part of this Program, the Agency proposes to provide a "Rebate" (in the form of payment) to the participating landowners for every square foot of turf removed under the Program. The Program will be implemented as a two-tier program as follows:

- **Tier 1:** Basic Program [Rebate of $0.50 per square foot of turf removed]
- **Tier 2:** Enhanced Program [Rebate of $1.00 per square foot of turf removed]

The Basic Program and the Enhanced Program will target CII users with a rebate amount of $0.50 per square foot of turf removed for participants in the Basic Program and $1.00 per square foot of turf removed for participants in the Enhanced Program. The unit cost of $0.50 per square foot of turf removed is based on the Agency's experience in implementing its on-going Cash for Grass Program which has provided rebates for the removal of over six million square feet of turf since the program's inception in 2008. The unit cost of $1.00 per square foot of turf removed is based on a unit cost that has been used by other water purveyors operating successful turf-removal programs in Southern California. Refer to the Technical Proposal for a more detailed description of each of the two tiers of the Program.

The total estimated budget for each tier was calculated by multiplying the area of land (in square feet) converted by the rebate unit cost as shown below.

- Tier 1-Basic Program: 1,800,000 square feet x $0.50/ square feet = $900,000
- Tier 2-Enhanced Program: 572,000 square feet x $1.00/ square feet = $572,000

Accordingly, a total of 2,372,000 square feet of turf would be removed under the combined Tier 1 and Tier 2 programs, at a total cost of $1,472,000. Based on these estimates, of the funds disbursed from the rebate pool, 63 percent would be allocated toward Tier 1 participants and the remaining 37 percent would be allocated toward Tier 2 participants.

Based on the assumptions presented in this Budget Proposal all program costs for the Federal Cost Share and Non-Federal Cost Share will fall under the category of "Other" costs.

Indirect Costs

No indirect costs are included in the budget. Accordingly, this category does not apply.

Total Costs

Recall that the estimated budget for the Program is presented in Table 1. As shown, the total budget to fund the rebate pool for this Program is estimated at **$1,550,000**, with **$300,000** in requested grant funds (Federal Cost Share) and **$1,250,000** in Non-Federal Cost Share funds that are State funds available to the Applicant through Proposition 84. The total Federal Cost Share requested is 19 percent of total Program costs with the remainder contributed through State funds available to the Applicant.

10.4 Budget Form

Included in this section is Form SF-424A for budget proposal purposes, specifically, "Non-Construction Programs" as specified by the FOA.

Table 1 - Program Funding Sources

FUNDING SOURCES	PERCENT OF TOTAL PROGRAM COSTS	TOTAL COST BY SOURCE
State Funding (Proposition 84 funds available to Agency)	63%	$ 922,000
Agency Funding	17%	$ 250,000
Reclamation Funding	20%	$ 300,000
Other Federal Funding	0%	$ -
TOTAL PROGRAM COSTS	100%	$ 1,472,000

Notes:

- This table is supported by detailed line item costs in Table 2 which is included following.

Table 2 - Budget Summary - Aggregate of Program Costs

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE (HOURS/DAY)	TOTAL COST
	$/Unit	Quantity		
SALARIES AND WAGES				$ -
FRINGE BENEFITS				$ -
TRAVEL				$ -
SUPPLIES/MATERIALS				$ -
EQUIPMENT				$ -
CONTRACTUAL/CONSTRUCTION				$ -
ENVIRONMENTAL/REG. COMPLIANCE				$ -
OTHER				
Tier 1 -Basic Program	$ 0.50	1,800,000	sq-ft	$ 900,000
Tier 2 -Enhanced Program	$ 1.00	572,000	sq-ft	$ 572,000
TOTAL DIRECT COSTS				**$ 1,472,000**
INDIRECT COSTS - 0%				$ -
TOTAL PROGRAM COSTS				**$ 1,472,000**

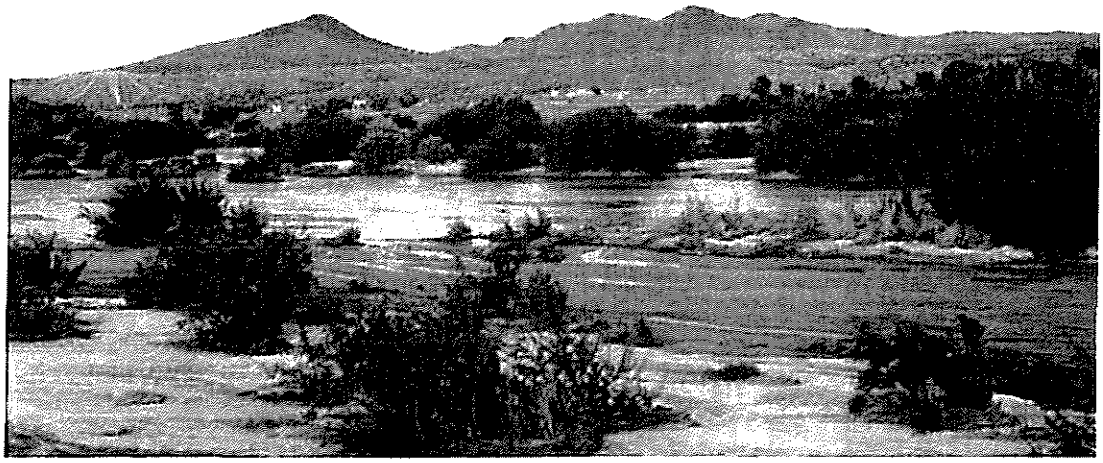
Notes:

- 'Salaries and Wages' and Fringe Benefits for Agency staff, under this Program, will be charged to a general accounting number as part of daily operations.
- Environmental/Reg. Compliance: A 'Lump Sum' allowance of approx. two percent of the total project costs has been used in accordance with Section IV.D.4 of the FOA (pg. 28).
- Reference the Project Approach for task descriptions.

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

TABLE OF CONTENTS

VOLUME 1: REPORT

CHAPTER1: INTRODUCTION 1

Purpose 2
Integrated Water Management Plan 4
Urban Water Management Plan 4
Groundwater Management Plan 5
Public Outreach 5
Interrelation of Plan Elements 5
Checklists 6
Integrated Regional Water Management Plan Checklist 7
Urban Water Management Plan Checklist 8
Groundwater Management Plan 12

CHAPTER 2: AGENCY AND STAKEHOLDER BACKGROUND 1

Mojave Water Agency 1
Adjudication 6
Mojave Basin Area 6
Warren Valley Basin 7
Summary of 1994 Regional Water Management Plan 7
Major Stakeholders 10
Water Agencies 10
State and Federal Agencies 11
Municipalities (cities, county, other) 12
Miscellaneous Community Interests 12

FIGURES
Figure 2-1: MWA Location 2
Figure 2-2: Base Map 4
Figure 2-3: Current and Future Facilities 5

CHAPTER 3: PHYSICAL SETTING 1

Physiographic Setting 1
Geology 9
Groundwater 11
DWR Documentation of Overdraft Conditions 18
Efforts to Eliminate Overdraft 18
Surface Water 19
Riparian Habitat/Wetlands 19
Exhibit H 19
Areas outside Exhibit H 20
Climate 23

Wastewater 23
The City of Adelanto 24
The City of Barstow 24
Victor Valley Wastewater Reclamation Authority 24

TABLES

Table 3-1: DWR Groundwater Basins 5
Table 3-2: Groundwater Elevations Established in Exhibit H 20
Table 3-3: Total Wastewater Flow Projections (MGD) 25
Table 3-4: Recycled Water Projections (MGD) 25

FIGURES

Figure 3-1: Hydrologic Setting 3
Figure 3-2: Groundwater Basins and Water Districts 6
Figure 3-3: Morongo Basin/Johnson Valley Area Subbasins 8
Figure 3-4: Typical Geologic Cross-Section of Mojave River Groundwater Basin 9
Figure 3-5: Geology of Mojave River Groundwater Basin 10
Figure 3-6: 1998 Water Level Contours 13
Figure 3-7: Riparian Habitat and Dry Lake Beds 22

CHAPTER 4: WATER SUPPLY 1

Mojave Basin Area 1
Gaged Surface Inflow and Outflow 1
Annual Variability of Water Supply 7
Ungaged Surface Inflow and Outflow 9
Subsurface Flow 10
Deep Percolation of Precipitation 11
Wastewater Imports 11
Phreatophyte Consumption 11
Groundwater 12
Dry Year and Multiple Dry Year Water Supply 16
Morongo Basin/Johnson Valley Area 17
Dry Year and Multiple Dry Year Water Supply 21
Well Data 21
State Water Project 24
Water Quality 28
Inconsistent Water Sources 29
Planned Water Supply Sources Through 2020 in Five-year Increments 29
Water Quality and Management Strategies 33
Water Quality and Supply Reliability 33
Opportunities for Short and Long-Term Transfers 33
Timeline for Implementation of Proposed Projects 34

TABLES

Table 4-1: Mojave River Stream Gages 2
Table 4-2: Mojave Basin Area - Net Average Annual Water Supply 10

Table 4-3: Mojave Basin Area - Average Annual Dry Year Water Supply 18
Table 4-4: Mojave Basin Area - Average Annual Multiple Dry Year Water Supply 19
Table 4-5: Morongo Basin/Johnson Valley Area Net Average Annual Water Supply 20
Table 4-6: Morongo Basin/Johnson Valley Area Average Annual Dry Year Water Supply 21
Table 4-7: Deliveries of State Water Project Water to the MWA 1978-2001 25
Table 4-8: Average Annual State Water Project Supplies 27
Table 4-9: Available Water Supply Sources through 2020 33
Table 4-10: Permanent Transfers of Base Annual Production by Subarea WY94-02 34

FIGURES

Figure 4-1: Stream Gage Locations 4
Figure 4-2: Annual Volume of Gaged Surface Water Entering and Exiting the Basin (1921-2001) 6
Figure 4-3: Accumulated Departure from Base Period (1931-1990) average for seasonal discharge at the Forks 8
Figure 4-4: Percent Exceedence at the Forks (1931-2001) 9
Figure 4-5: Historical Groundwater Levels for State Well Number 05N01E17D01, located in the Regional Aquifer in the Este Subarea 13
Figure 4-6: Historical Groundwater Levels for State Well Number 05N05W22E02, located in the Regional Aquifer in the Alto Subarea 14
Figure 4-7: Historical Groundwater Levels for State Well Number 11N03W28R02, located in the Regional Aquifer in the Centro Subarea 14
Figure 4-8: Historical Groundwater Levels for State Well Number 5N04W11P03, located in the Floodplain Aquifer in the Alto Subarea 15
Figure 4-9: Historical Groundwater Levels for State Well Number 90N03W13R01, located in the Floodplain Aquifer in the Centro Subarea 15
Figure 4-10: Ground Water Wells Measuring Above 500 mg/L Total Dissolved Solids 23
Figure 4-11: Total Dissolved Solids (TDS) with Water Level (feet above mean sea level) for State Well 08N03W05J01 24
Figure 4-12: Historical SWP Percent of Deliveries Requested by Contractors 26
Figure 4-13: Percent Exceedence of SWP Deliveries in 2020 27
Figure 4-14: Total Dissolved Solids 30
Figure 4-15: Nitrates 30
Figure 4-16: Manganese 31

Figure 4-17: Iron 31
Figure 4-18: Fluoride 32
Figure 4-19: Arsenic 32

CHAPTER 5: WATER DEMAND 1
Introduction 1
Current Water Demand 2
Demographics 2
Consumptive Use 4
Mojave Basin area 6
Alto (Figure 5-5) 7
Baja (Figure 5-6) 7
Centro (Figure 5-7) 7
Este (Figure 5-8) 7
Oeste (Figure 5-9) 7
Morongo Basin/Johnson Valley Area 12
Copper Mountain Valley (Figure 5-11) 14
Means/Ames Valley (Figure 5-12) 14
Warren Valley (Figure 5-12) 14
Current Water Balance 17
Future Water Demand 18
Demographics 18
Consumptive Use 19
Mojave Basin Area 20
Alto (Figures 5-17 and 5-18) 24
Baja (Figures 5-19 and 5-20) 25
Centro (Figure 5-21) 27
Este (Figures 5-22 and 5-23) 27
Oeste (Figures 5-24 and 5-25) 28
Morongo Basin/Johnson Valley Area 28
Copper Mountain Valley (Figure 5-27) 32
Mean/Ames Valley (Figure 5-28) 32
Warren Valley (Figure 5-29) 32
Year 2020 Water Balance 32
Agriculture Scenario 1 32
Agriculture Scenario 2 36
Summary 37
Dry Year and Multiple Dry Year Water Balance in 2020 37
Future Supply Versus Demand in 5-Year Increments 39

TABLES
Table 5-1: Comparison of Actual and Projected 2000 Population 2
Table 5-2: Year 2000 Demographic Data for Selected Cities 3
Table 5-3: 1995 and 2000 Projected and Actual Consumptive Use 4
Table 5-4: Mojave Basin Area Historical Consumptive Use (Acre-feet/year) 8

Table 5-5: Morongo Basin/Johnson Valley Area Historical Consumptive Use 13
Table 5-6: Year 2000 Average Annual Water Balance (Acre-feet/year) 17
Table 5-7: Current and Projected Population Estimates 18
Table 5-8: Projected Agricultural Consumptive Use (Acre-feet/year) .. 20
Table 5-9: Mojave Basin Area Current and Projected Consumptive Use 23
Table 5-10: Morongo Basin/Johnson Valley Area Projected Consumptive Use 31
Table 5-11: Year 2020 Average Annual Water Balance under Agriculture Scenario 1 (Acre-feet/year 35
Table 5-12: Year 2020 Average Annual Water Balance under Agriculture Scenario 2 (Acre-feet/year) 36
Table 5-13: Year 2020 Average Annual Dry Year Water Balance under Agriculture Scenario 2 (Acre-feet/year) 38
Table 5-14: Year 2020 Multiple Dry Year Average Annual Water Balance under Agriculture Scenario 2 (Acre-feet/year) 39
Table 5-15: Average Annual Surplus or Deficit under Agriculture Scenario 2 in 5-Year Increments (Acre-feet/year) 40
Table 5-16: Average Annual Dry Year Surplus or Deficit under Agriculture Scenario 2 in 5-Year Increments (Acre-feet/year) 40
Table 5-17: Average Annual Multiple Dry Year Surplus or Deficit under Agriculture Scenario 2 in 5-Year Increments (Acre-feet/year) 41

FIGURES

Figure 5-1: Mojave Basin Area Actual Total and Urban Consumptive Use for 1990-2000 and 1994 RWMP Projected Use 5
Figure 5-2: Mojave Basin Area Actual Total and Agricultural Consumptive Use or 1990-2000 and 1994 RWMP Projected Use 5
Figure 5-3: Morongo Basin/Johnson Valley Area Actual Total Consumptive Use for 1990-2000 and 1994 RWMP Projected Use 6
Figure 5-4: Mojave Basin Area Total Consumptive Use by Sector For 1995-2001 9
Figure 5-5: Alto Subarea Consumptive Use by Sector for 1995-2001 9
Figure 5-6: Baja Subarea Consumptive Use by Sector for 1995-2001..... 10
Figure 5-7: Centro Subarea Consumptive Use by Sector for 1995-2001 .. 10
Figure 5-8: Este Subarea Consumptive Use by Sector for 1995-2001 11
Figure 5-9: Oeste Subarea Consumptive Use by Sector for 1995-2001 ... 11
Figure 5-10: Morongo Basin/Johnson Valley Area total Consumptive Use by Sector for 1995-2000 15
Figure 5-11: Copper Mountain Valley Subbasin Consumptive Use by Sector for 1995-2000 15
Figure 5-12: Mean/Ames Valley Subbain Consumption Use by Sector for 1995-2000 16

Figure 5-13: Warren Valley Subbasin Consumptive Use by Sector for 1995-2000 16
Figure 5-14: Agricultural Consumptive Use from 2001 through 2020 Under Agriculture Scenario 2 Assumptions 21
Figure 5-15: Mojave Basin Area Total Consumptive use for the Year 2000 and Projections through Year 2020 under Agriculture Scenario 2 22
Figure 5-16: Mojave Basin Area Total Consumptive Use for the Year 2000 and Projections through Year 2020 under Agriculture Scenario 2 22
Figure 5-17: Alto Subarea Consumptive Use for the Year 2000 and Projections Through Year 2020 Under Agriculture Scenario 1 24
Figure 5-18: Alto Subarea Consumptive Use for the Year 2000 and Projections 25
Figure 5-19: Baja Subarea Consumptive Use for the Year 2000 and Projections through Year 2020 Under Agriculture Scenario 1 26
Figure 5-20: Baja Subarea Consumptive Use for the Year 2000 and Projections through Year 2020 Under Agriculture Scenario 2 26
Figure 5-21: Centro Subarea Consumptive Use for the Year 2000 and Projections through Year 2020 Under Agriculture Scenarios 1 and 2 27
Figure 5-22: Este Subarea Consumptive Use for the Year 2000 and Projections through Year 2020 Under Agriculture Scenario 1 29
Figure 5-23: Este Subarea Consumptive Use for the Year 2000 and Projections through Year 2020 Under Agriculture Scenario 2 29
Figure 5-24: Oeste Subarea Consumptive Use for the Year 2000 and Projections through Year 2020 Under Agriculture Scenario 1 30
Figure 5-25: Oeste Subarea Consumptive Use for the Year 2000 and Projections through Year 2020 Under Agriculture Scenario 2 30
Figure5-26: Morongo Basin/Johnson Valley Area Total Consumptive Use for the Year 2000 and Projections through Year 2020 ..33
Figure 5-27: Copper Mountain Valley Subbasin Consumptive Use for The Year 2000 and Projections through Year 2020..... 33
Figure 5-28: Means/Ames Valley Subbasin Consumptive Use for the Year 2000 and Projections through Year 2020 34
Figure 5-29: Warren Valley Subbasin Consumptive Use for the Year 2000 and Projections through Year 2020 34

CHAPTER 6: WATER SHORTAGE CONTINGENCY PLANNING 1
Mojave Water Agency 1
Cities and Water Agencies 2
Adelanto Water Authority 3
Apple Valley Ranchos Water Company 3
Hesperia Water District 3
Hi-Desert Water District 4
Joshua Basin Water District 4
Southern California Water Company 5
Victor Valley Water District 5

CHAPTER 7: WATER CONSERVATION AND DEMAND MANAGEMENT MEASURES 1
Coordinated Water Conservation Efforts 1
Alliance for Water Awareness and Conservation 1
Participants 2
MWA and Lewis Center for Education and Research MOU 2
MWA and Mojave Desert Resource Conservation District MOU 3
MWA and Mojave Weed Management Area MOU 3
MWA and Copper Mountain College MOU 4
MWA and Barstow Community College MOU 4
MWA and Victor Valley College MOU 4
MWA Mojave Desert Resource Conservation District Demonstration Project 4
Urban Water Management Plans 5
Demand Management Measures 6

TABLES
Table 7-1: Demand Management Measures 6
Table 7-2: Implementation Status for DMMs 7
Table 7-3: Summary of Conservation Planning 8
Table 7-4: Conservation Savings for DMM1 8
Table 7-5: Conservation Savings for DMM2 9

CHAPTER 8: STAKEHOLDER ASSESSMENT AND PUBLIC OUTREACH 1
Assessment Approach 1
Summary of Stakeholder Issues 3
Issues Common to All Stakeholders 11
Key Water Management Issues 12
Coordination of IWMP, GMP and UWMP with Other Agencies 18
Method for Public Participation 18

TABLES
Table 8-1: Baja Subarea Water Management Issues 14
Table 8-2: Centro Subarea Water Management Issues 15
Table 8-3: Alto Subarea Water Management Issues 16
Table 8-4: Oeste Subarea Water Management Issues 17
Table 8-5: Este Subarea Management Issues 17
Table 8-6: Morongo Basin/Johnson Valley Water Management Issues ... 18

CHAPTER 9: BASIN MANAGEMENT OBJECTIVE AND ALTERNATIVES 1
Mojave Water Agency 1
Basin Management Objectives 2
Performance Measures 3
Projects and Management Actions 3
Methodology 4
Normalized Project Cost Methodology 5
Supply Enhancement Projects and Management Action Groupings 5
Supply Enhancement Projects 10
SWS/Non-Floodplain Aquifer Recharge 10
SWP/Floodplain Aquifer Recharge 15
Baja Storm Flow Non-SWP/Increase Recharge Efficiency 19
Non-SWP/Change Source of Groundwater Supply 22
Management Actions 23
Water Treatment and Blending 23
Improve Riparian Health 27
Conservation and Storage Agreements 28
The MWA Screening Model 29
Alternative Overview 30
Initial Alternatives 30
Revised and Final Alternatives 32
Demands Met 33
Groundwater Storage 35
Groundwater Levels 35
Subarea Interaction 37
Water Quality 39
Alternative Cost 39
Recommended Alternatives 39
Common Features 40
Project and Management Action Priorities 40

TABLES

Table 9-1: Abbreviated Normalized Cost Table (2003 Dollars) 7
Table 9-2: Supply Enhancement Project 8
Table 9-3: Management Actions 9
Table 9-4: Initial Alternative Assumptions and Results 31
Table 9-5: Revised and Final Alternative Assumptions and Results 32
Table 9-6: Representative Projects and Management Actions Included in each Revised and Final Alternatives 34
Table 9-7: Average Annual Change in Groundwater Storage 35
Table 9-8: Annualized Cost of Each Alternative 39
Table 9-9: Recommended Priority for each Project or Management Action 42

FIGURES

Figure 9-1: Screening Model Aquifer Units 6
Figure 9-2: Time Series of Elevations in the Baja Regional Aquifer 36

Figure 9-3: Time Series of Elevations in the Alto Floodplain Aquifer 37
Figure 9-4: Average Annual Mojave River Flows 38
Figure 9-5: Average Annual Groundwater Flows 38

CHAPTER 10: MANAGEMENT ACTIONS 1

Management Authority 1
Management Actions 2
1. Monitoring 2
Role of the Mojave Basin Area Watermaster 3
Groundwater Levels 4
Water Quality 6
Water Supply Measurement 7
Population Growth and Development 8
Effectiveness of Water Conservation Measures 9
Evaportranspiration 10
Regional Water Level Changes and Land Subsidence 11
Data Management 12
Extraction Sites/Consumption 12
2. Improving Basin Understanding 13
Infiltration Rates 13
Aquifer Characterization 13
Modeling 14
Update Water Budget 15
3. Continue Long-Term Planning 15
Vulnerability Assessment 15
Review Land Use Plans 16
Identify Post 2020 Water Supply 16
State Water Project 17
Transportation Infrastructure 18
Regular Updates 18
4. Groundwater Projection 19
Recharge Site Management Activities 19
Identification and Destruction of Abandoned Wells 20
Hazardous Materials Response 21
Protection of Recharge Areas 21
5. Construction and Implementation 22
6. Financing 23
7. Public Participation/Community Outreach 24
Implementation Schedule 25

FIGURES
Figure 10-1: Well Locations with Known Construction Data 4
Figure 10-2: Master Schedule for MWA Management Action Plan 26

References

VOLUME 2: APPENDICIES

Appendicies:

Appendix A	Judgment After Trial January 10, 1996, Mojave Basin Area Adjudication
Appendix B	Technical Memo 3
Appendix C	Water Demand Estimation
Appendix D	Issues Questionnaire, Summary of Responses to the Issues Questionnaire
Appendix E	Technical Advisory Committee to the Mojave Water Agency Minutes
Appendix F	*The Panorama* -A newsletter published by the Mojave Water Agency
Appendix G	Resolution approving the Mojave Water Agency 2004 Regional Water Management Plan
Appendix H	Existing Monitoring Protocols
Appendix I	Well Construction Data from MWA Well Database
Appendix J	AB 3030 - Groundwater Management Planning SB 1938 - Groundwater Management and State Funding California Urban Water Management Planning Act Proposition 50 - Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002

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.

Integrated Regional Water Management

Plan Checklist

Items to Address	Section of Law	Location in Plan
Water related objectives and conflicts	79562.5(b)	Chapter 9
Water supply	79562.5(b)	Chapter 4
Groundwater management	79562.5(b)	Chapter 10
Ecosystem Restoration	79562.5(b)	Chapter 10
Water quality	79562.5(b)	Chapter 10

Urban Water Management Plan Checklist

Checklist Organized According to Subject

Items to Address	Section of Law	Location in Plan
Public and Stakeholder Outreach		
Make plan available for public inspection before its adoption.	10642	Chapter 8 Appendix F
Adopt plan as prepared or as modified after the public hearing.		Appendix G
Coordinate the preparation of its plan with other appropriate agencies, including direct and indirect suppliers, wastewater, groundwater, and planning agencies (refer to Section 10633).	10620 (d) (2)	Pg. 2 - 8
Demand, Supply, Reliability and Contingency Planning		
Provide current and projected population in 5-year increments to 20 years.	10631 (a)	Table 5 - 20
Describe the climate and demographic factors.		Pg. 3 - 25
Identify and quantify the existing and planned sources of water available in 5-year increments to 20 years	10631 (b)	Table 4 - 9
Describe opportunities for exchanges or transfers of water on short-term or long-term basis.	10631 (d)	Pg. 4 - 36
Quantify current and past water use in 5-year increments to 20 years.	10631 (e) (1)	Pg. 5 - 21
Identify projected water uses among water use sectors in 5-year increments to 20 years.	10631 (e) (2)	Pg. 5 - 21
Describe average, single dry and multiple dry water year data.	10631 (c)	Tables 4 - 3, Pg. 4 - 4
Describe any plans to replace inconsistent water sources.		Pg. 4 - 30
Provide minimum water supply estimates based on driest three-year historic sequence.	10632 (b)	Table 4 - 4
Describe the reliability of water supply.	10631 (c)	Pg. 4 - 30
Describe the vulnerability of water supply to seasonal or climatic shortage.		Pg. 4 - 30
Provide an assessment of the reliability of the water supplier's water service to its customers during normal, single dry, and multiple dry water years.	10635 (a)	Pg. 4 - 17
Compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in 5-year increments (refer to 10631 (c)).		Table 5 - 15

Items to Address	Section of Law	Location in Plan
Compare normal, single dry, and multiple dry water year projected water supply sources available to the water supplier with the normal, single dry, multiple dry water year projected water uses (refer to 10631 (c)).		Table 5 - 14
Provide actions a water supplier will take to prepare for a catastrophe.	10632 (c)	Chapter 6
Provide a copy of a draft water shortage contingency resolution or ordinance	10632 (h)	
Provide water shortage stages of action, including up to a 50 percent reduction outlining specific water supply conditions at each stage.	10632 (a)	Chapter 6
Provide mandatory prohibitions.	10632 (d)	Chapter 6
Provide penalties or charges.	10632 (f)	Chapter 6
Provide consumption reduction methods	10632 (e)	Chapter 6
Provide an analysis of the impacts on the water supplier revenues and expenditures	10632 (g)	Chapter 6
Provide measures to overcome revenue and expenditure impacts.		Chapter 6
Provide a mechanism for determining actual reductions in water use.	10632 (i)	Chapter 6
Wastewater and Reclamation		
Describe the wastewater collection and treatment systems in the supplier's service area.	10633 (a)	Pg. 3 - 25
Quantify the amount of wastewater collected and treated in the supplier's service area.		Pg. 3 - 27
Describe the methods of wastewater disposal in the supplier's service area.		Pg. 3 - 25
Describe the type, place, and quantity of recycled water currently used in the supplier's service area.	10633 (b)	Pg. 3 - 25
Describe and quantify potential uses of recycled water in 5-year increments to 20 years.	10633 (c) (d)	Table 3 - 4
Describe the technical and economic feasibility of serving the potential users of recycled water.		Pg. 3 - 27
Describe the actions that may be taken to encourage recycled water use.	10633 (e)	Pg. 3 - 25
Provide the projected acre-feet results of recycled water used per year.	10633 (e)	Table 3 - 4
Provide a plan for optimizing the use of recycled water in the supplier's service area.	10633 (f)	Pg. 3 - 25
Provide actions to facilitate the installation of dual distribution systems and to promote recirculating uses.		Pg. 3 - 25

Items to Address	Section of Law	Location in Plan
Groundwater		
Identification of groundwater as a water supply source.	10631 (b)(1)	Pg. 4 - 12
Groundwater management plan preparation.		Pg. 1 - 2
Groundwater management plan adoption.		Appendix G
Copy of the groundwater management plan.		This Plan
Describe groundwater basin(s).	10631 (b)(2)	Pg. 3 - 5
Identify the groundwater basin(s).		Pg. 3 - 6
Identify adjudicated basins.		Pg. 2 - 3
Copy of order or decree of adjudication.		Appendix A
Describe the amount of groundwater the supplier has the legal right to pump.		Appendix A
Describe and analyze location of groundwater pumped for past 5 years based on information that is reasonably available.	10631 (b) (3)	Appendix H
Describe and analyze amount of groundwater pumped for past 5 years based on information that is reasonably available.		
Describe and analyze sufficiency of groundwater pumped for past 5 years based on information that is reasonably available.		Pg. 4 - 13
Describe and analyze location of groundwater that is projected to be pumped based on information that is reasonably available.	10631 (b)(4)	Appendix H
Describe and analyze amount of groundwater that is projected to be pumped based on information that is reasonably available.		Chapter 5
Water Supply Projects and Water Supply Programs		
The description explains how all the water supply projects and water supply programs increase the water supplies to meet the total projected water use as established pursuant to subdivision (a) of Section 10635.	10631 (h)	Chapter 9
Identify specific future water supply projects and water supply programs that may be implemented to increase the amount of water available during average, single-dry and multiple-dry water years.		Chapter 9
Describe the increase in water supply that is expected to be available from each of the specific future water supply projects and water supply programs.		Chapter 9
Describe the estimated implementation timeline for each future water supply project and water supply program.		Chapter 9

Items to Address	Section of Law	Location in Plan
Water Quality		
Includes information, to the extent practicable, relating to the quality of existing water supply sources over the next 20 years in five year increments.	10634	Pg. 4 - 29
Describes the manner in which water quality affects water management strategies.		Chapter 10
Describes the manner in which water quality affects supply reliability.		Chapter 10

Groundwater Management Plan

Checklist Organized According to Required and Recommended Components

Items to Address	Section of Law	Location in Plan
Required Components		
Provide documentation that a written statement was provided to the public describing the manner in which interested parties may participate in developing the groundwater management plan.	10753.4(b)	Appendix F
Provide basin management objectives for the groundwater basin that is subject to the plan.	10753.7 (a)(1)	Chapter 9
Describe components relating to the monitoring and management of groundwater levels, groundwater quality, inelastic land surface subsidence and changes in surface flow and surface water quality that directly affect groundwater levels or quality or are caused by pumping.	10753.7 (a)(1)	Chapter 10 Appendix H
Describe plan to involve other agencies that enables the local agency to work cooperatively with other public entities whose service area or boundary overlies the groundwater basin.	10753.7 (a)(2)	Ch 8
Adoption of monitoring protocols for the components in Water Code Section 10753.7 (a)(1)	10753.7 (a)(4)	Appendix H
Provide a map showing the area of the groundwater basin as defined by DWR Bulletin 118 with the area of the local agency subject to the plan as well as the boundaries of other local agencies that overlie the basin in which the agency is developing a groundwater management plan.	10753.7 (a)(3)	Fig 3 - 2
Recommended Components		
Manage with the guidance of an Advisory Committee.		Chapter 8 Appendix E
Describe the area to be managed under the plan including historical data related to groundwater levels, quality, subsidence, groundwater/surface water interactions, issues of concern and a discussion of supplies and demands.		Chapter 3
Describe how each of the management objectives helps meet goals.		Chapter 9
Provide a map showing locations of monitoring sites for groundwater levels and quality and stream gauges.		Appendix H
Summarize types of monitoring, types and frequency of measurements.		Appendix H
List monitoring well characteristics including well depth, screened intervals and well type.		Appendix I

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