

# Mojave Region Proposition 84 IRWM Drought Grant

## Attachment 1 – Authorization and Eligibility Requirements



### *Project Consistency with an Adopted IRWM Plan*

The following projects are included in this Proposal:

1. Mojave Region Commercial, Industrial and Institutional (CII) Turf Removal Program
2. Hi-Desert Water District Capital Water Main Replacement Program
3. Hesperia Water District Reclaimed Water Distribution System Project

Each project being proposed in this grant application is consistent with the Mojave IRWM Plan and contributes to meeting the objectives identified in the adopted Plan.

All three projects underwent the project review and selection process documented in the IRWM Plan and are included in the IRWM Plan project list, which is attached hereto.

## Appendix D.2

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Project Lists

## Appendix D.2c

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### Ranked List of Projects



Mojave Region IRWM Plan Potential Projects (Sorted by Rank)

Project No.	Project Category	Project Title	Lead Agency/ Organization	Project Description	Comments/ Review Questions	Project Type	Prioritized Objectives														Primary Objectives	Importance	Urgency	Tier for Ranking	Get Real Rank								
							1	3	7	2	4	5	8	9	10	11	12	13	14	6													
1012	Water Supply / Recharge	Cedar Street / Bandicoot Detention Basin	City of Hesperia, MWA	The Basin would provide groundwater recharge upgradient from Hesperia Water District wells. The Hesperia Master Plan of Drainage identifies a 120 acre site for a storm water detention basin at the east end of Cedar Street and southwesterly of the California Aqueduct. In addition to storm water detention, the site would be able to accommodate groundwater recharge. Integrates Projects 14 and 107.	Integrates Projects 14 and 107.	Conceptual Design			1					1												3,5,9	H	H	1	2			
3R	Water Supply / Recharge	Ames/Reche Groundwater Storage and Recovery Program - Phase II Expansion	Mojave Water Agency, Bighorn-Desert View Water Agency, Hi-Desert Water District	Expand the Ames/Reche Recharge Facility to accommodate the maximum potential delivery capacity of 3,000 AF/Yr. (currently permitted for 1,500 AF/Yr.).		Conceptual		1	1	1	2	2	1	2													2	1,3,7	H	H	1	3	
22	Water Supply / Recharge	Deep Creek Off-River Recharge And Storage Basins	Mojave Water Agency	Off River recharge and storage basins on the Deep Creek Properties		Conceptual Design		1	1				1	1														1,3	H	H	1	3	
29	Flood Management/Recharge	Forks Dam Storm Water Detention	Mojave Water Agency	Although extremely variable on average 41,000 acre feet of storm water flow out of Afton Canyon every 6 years. Based on current State Water Project delivery costs this equates to approximately \$16 million worth of "lost" water. The project proposes that appropriate infrastructure could capture a significant portion of this water and allow it to recharge area groundwater systems. This could be accomplished through various diversion structures along the river or make use of the existing Forks Dam to impound storm water. Impounded storm water could be slowly released from the Forks Dam at a rate that would allow percolation rather than run-off though Afton Canyon.		Conceptual		1	1	2			1	1	2													1,3,5	H	H	1	3	
35	Flood Management	Indian Cove Stormwater Capture and Recharge Project	Twentynine Palms Water District/Joshua Basin Water District	The Department of Water Resources has identified the safe yield for the Indian Cove groundwater basin, limiting production to 1,500 acre-feet per year to avoid overdraft. This project could mitigate past over-drafting and prevent future declines in water levels within this shared basin.		Conceptual			1	1																		3,7	H	H	1	3	
42R	Individual or Small System Improvements	Johnson Valley Pressurized Water System	Bighorn-Desert View Water Agency	Approximately 1/3rd of the Agency's service area is without a pressurized water supply. Residents in these areas rely on hauled water (self-haul or commercial delivery). Property owners are now prohibited from building or improving their property using hauled water as the water supply. Project would bring a pressurized water distribution system to the area to improve quality of life, public health and provide for enhanced fire protection.		Conceptual		1	1	1				1														1,3,7	H	H	1	3	
54	Water Supply / Recharge	Oro Grande Wash Groundwater Recharge Project	Mojave Water Agency	The Oro Grande Wash Groundwater Recharge Project has an ultimate delivery capacity for approximately 8,000 AF. The trunk facilities are designed to flow the full capacity. The Flow control facility and pipeline into the wash is designed to flow half of the capacity into a joint use San Bernardino County Flood Control Detention/Recharge Basin. This project (Phase 2 of the Oro Grande Wash Project) is to construct a second pipeline to the Wash and to another groundwater recharge area between Amethyst and Bear Valley Road.		Implementable Project		1	1				1	1														1,3	H	H	1	3	
56R	Water Supply / Recharge	Alto Subarea Regional Aquifer Storage and Restoration (ASR2)	Mojave Water Agency	The Alto Subarea Regional Aquifer Storage and Restoration (ASR2) project would use water from the Mojave Water Agency R-Cubed infrastructure to inject potable water into existing municipal wells in the regional aquifer. Injection would be timed to periods when these wells would not normally be in service (fall-winter). Injected water would be available for immediate use by purveyors during normal demand periods (spring- summer). This project uses existing equipment with very little new infrastructure. Costs incurred would be for minimal retrofitting at wellheads, periodic well cleaning, and injected water.		Conceptual; Implementable Project		1	1	1			1	1	1													1,3,7	H	H	1	3	
62R	Baja / Ag Issues	Water Conservation Ordinance	County of San Bernardino			Implementable		1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	H	H	1	3	
66R	Water Supply / Recharge	State Water Project Water Treatment Plant in conjunction with R3 project	Mojave Water Agency	Construct a Water treatment plant to treat State Water Project Water and deliver directly into the potable R3 water delivery system. This can be done instead of pumping groundwater wells.		Conceptual		1	1	2			1	1														3	H	H	1	3	
73	Wastewater / Recycled Water	Twentynine Palms Groundwater Protection Plan Septic System Management Element (SSME)	Twentynine Palms Water District/City of Twentynine Palms	The Regional Water Quality Control Board (Colorado Region) has adopted a septic rule in order to comply with the State Recycled Water Policy. In order to protect the groundwater quality within Twentynine Palms, the Groundwater Protection Plan has identified a Septic System Management Program for monitoring and maintenance of the community's only supply of water, groundwater. Indoor conservation and the reduction of outflow to septic systems will be a significant focus of the septic maintenance and informational outreach goals.		Implementable Program				1	2																	7	H	H	1	3	
74R	Individual or Small System Improvements	Water Infrastructure Restoration Program: Pipeline Installation/ Replacement Project	Bighorn-Desert View Water Agency	The existing BDVWA infrastructure has deficiencies which prevent it from meeting fire flow due to heavy reliance on 6-inch water mains and Class B fire hydrants; an inability to refill most reservoirs overnight after a 500-gallons per minute fire; and inefficient operation of two zones (E-2 and E-3) due to the manner in which they were originally constructed. Project would improve pressure, fire protection and public safety.		Conceptual				1				2														7	H	H	1	3	
94R	Individual or Small System Improvements	Fluoride and Arsenic Treatment	City of Adelanto	Construct an Arsenic and Fluoride Treatment System for Potable Well 8A, 5A and 4. Wells are in violation of current EPA MCL's.		Conceptual		1						1														1,5,10	H	H	1	3	
101	Flood Management	Cushenbury Flood Detention Basin	Mojave Water Agency	Proposed to capture runoff from the San Bernardino Mountains in the Lucerne Valley Subbasin. Currently, large storm flows drain to dry lake beds in the area that have low percolation rates. Consequently, the majority of water that drains to the lake beds is lost to evaporation and never enters the basin. The project would divert storm flows to detention basins with high rates of percolation to decrease losses from evaporation.	2004 RWMP	Conceptual		1	2	1			1	1														1,7	H	H	1	3	
102	Wastewater / Recycled Water	Local Wastewater Treatment Plant (Lucerne)	San Bernardino County	Wastewater treatment in the region is currently provided by individual septic tank systems. It is likely that at some point in the future, a municipal wastewater treatment facility will have to be built. (description from 2004 RWMP)	2004 RWMP	Conceptual				1																		1	7,10	H	H	1	3
103	Water Supply / Recharge	Lucerne Valley Recharge Ponds	Mojave Water Agency	Provides an opportunity for recharge in the Este Subarea. Recharge sites have been contemplated both east and west of the Helendale Fault. The 1994 RWMP recommended constructing a facility east of the fault because the majority of pumping occurs east of fault. MWA has purchased land for a recharge facility, prepared preliminary construction plans, and performed the necessary environmental reviews.	2004 RWMP	Implementable Project		1	1	1																		1,3,7	H	H	1	3	
1002	Judgment/Water Rights Issues	Evaluate and consider potential modifications to the Judgment for the Baja Subarea	Mojave Water Agency	General Project Concept is to combine projects submitted in the IRWM Planning process regarding policy issues relating to the Mojave Basin Area judgment. Integrates Projects 2, 11R, 20R, 46R, 67R, 76R and 104.	Integrates Projects 2, 11R, 20R, 46R, 67R, 76R, and 104.	Conceptual		1	1	2	1	2	1	1														2	1,3	H	H	1	3

Mojave Region IRWM Plan Potential Projects (Sorted by Rank)

Project No.	Project Category	Project Title	Lead Agency/ Organization	Project Description	Comments/ Review Questions	Project Type	Prioritized Objectives														Primary Objectives	Importance	Urgency	Tier for Ranking	Get Real Rank
							1	3	7	2	4	5	8	9	10	11	12	13	14	6					
							Balance Supply & Demand	Maintain Stable GW Basins	Support & Assist DAC's	Improve Water Use Efficiency	Reduce Reliance on Delta	Optimize Use of Assets	Improve Environmental Stewardship	Improve Floodplain Mgmt.	Preserve Water Quality	Obtain Financial Assistance	Improve Public Awareness	Establish Reliable Maintenance Funding	Increase Use of Recycled Water	Prevent Land Subsidence					
1007	Baja / Ag Issues	Baja Sustainability Initiative #2 (Baja Major Storm Diversion Network)	Mojave Water Agency	A major storm event diversion network to capture storm flows and transfer them to retention ponds that could then be disbursed on the south side of the valley to help facilitate recharge and recovery in areas that are unable to receive any natural benefit from storm flows that run down the river. A reduction in the velocity of the storm flows could also greatly assist in the prevention of scouring Cady Riparian Habitat. This would also include investigation into the possible utilization of pit at Kewitt, possible installation of weirs and irrigation channels to divert flood waters to percolation ponds, injection wells. Integrates Projects 8, 9, 43, 47, and 75.	Integrates Projects 8, 9, 43, 47, and 75.	Conceptual	1	1	1			1				1				1	1,3,7	H	H	1	3
1013	Baja / Ag Issues	Baja Sustainability Initiative #4 (Well Assistance Program)	Baja Sub-Advisory Committee	Financial assistance program to provide low interest loans and grants to help low income individuals finance the costs for construction, refurbishment or service of their individual household water wells. May also include requests for financial assistance for SPW from Mojave River Pipeline. Integrates Projects 26 and 81R.	Integrates Projects 26 and 81R.	Conceptual			1							1					7,11	H	H	1	3
13R	Environmental & Recreation	Camp Cady: Tamarisk removal and riparian restoration program	Mojave Desert Resource Conservation District (MDRCD)	Invasive species (tamarisk) removal, expansion/improvement of endangered Mohave tui chub habitat and implementation of a sustainable engineered riparian habitat irrigation system.		Implementable Project			2				1			2	2	2			8	H	M	2	1
118	Conservation & Education	Weather Based Irrigation/Completion of Demonstration Garden Project	Barstow Community College	This proposed project introduces Smart Controllers to maximize irrigation control of water use during the extreme environment condition and helps to manage water use in a normal environment as well. Smart Controllers would create an efficient schedule and give the ability to accommodate micro bursts and downpours of rain. The completion of the Barstow Community College garden project will give way to a High Desert regional concept.		Implementable Project					1						1				2, 12	H	M	2	1
1001	Wastewater / Recycled Water	Sewer Lift Station or Reverse Osmosis Treatment Plant	City of Victorville	The lift station is preferred over the RO plant due to the ongoing operational and maintenance costs associated with RO. The RO project could integrate with other recycled water projects in the region, such as with the City of Adelanto; however, VSD 4 lift station is preferred over this project due to the ongoing operational and maintenance costs associated with reverse osmosis. Integrates Projects 17 and 61.	Integrates Projects 17 and 61.	Conceptual; Implementable	1	1	2		2	1			1				1		5,10,14	H	M	2	1
1006	Individual or Small System Improvements	Capital Water Main Replacement Program	Hi-Desert Water District	This project would include the replacement of 46,940 lineal feet of old, undersized steel water mains with that of PVC constructed water mains. During installation, new, properly spaced isolation valves and fire hydrants would also be installed along with service lines. Construction of this infrastructure would be in various areas within the Town of Yucca Valley. Integrates Projects 87-91.	Integrates Projects 87-91.	Conceptual	2	2	2	2	2	1							1		5,2	H	M	2	1
21	Other	Dairy Nitrate Reduction	Mojave Desert Resource Conservation District (MDRCD)	Obtain funding – to be matched with NRCS/USDA funding – a possible 25% contribution – to: 1) Help dairies pay to haul manure off-site – likely to fields distant from shallow groundwater and surface waters. 2) Help fund infrastructure designed to apply waste pond water directly to adjacent fields via irrigation systems, etc. – alleviating direct percolation to groundwater. Requires manure “manifest” to track movement and use of nutrients. BMP to effectively use nutrients – applied at agronomic rates. 3) Feasibility study to determine alternate uses of manure for fuels – i.e.: composting/digestion/gasification – what can be done on a regional basis – work in conjunction with VVWRA, etc.		Implementable Program			2				2	2	1	1	2	2	2		10,11	H	M	2	2
34	Other	Hydroelectric Facility at Deep Creek to generate power for R3 ground water wells	Mojave Water Agency	The Deep Creek Outlet to the Mojave River can generate electrical power for use by the Agency to power the R3 groundwater wells. Two options are possible: 1) construct Groundwater wells at Deep Creek FCF and extend the R3 pipeline to these wells. Our run Conduit and conductors from Deep Creek to the R3 Groundwater wells.		Conceptual					1										5	H	M	2	2
49	Environmental & Recreation	Mojave River Walk Trail	City of Victorville	Walking / biking trail along the Mojave River. Combined recreational and public education project involving multiple participating agencies.		Conceptual			1	2		1				1					12,8,7	H	M	2	2
65	Water Supply / Recharge	State Water Project Utilization & Efficiency Strategy	Mojave Water Agency	Conceptual program with an overall goal to make the best use of the Region's State Water Project resources for maximum benefit to the Region. This would be an ongoing program with many possible elements and would explore a variety of opportunities to achieve the goal, including transfers, exchanges, purchases and sales of SWP water in concert with conjunctive		Conceptual	2				1	1			2	2					4,5	H	M	2	2
72	Individual or Small System Improvements	Twentynine Palms Fluoride Treatment Plant Expansion	Water Supply / Recharge	The District maintains a fluoride variance from DPH due to naturally occurring, high levels of fluoride in the groundwater, the District's only source of supply. The variance expires in ten years and additional source development is needed to mitigate the water quality changes. In the Mesquite Springs aquifer of the Twentynine Palms Groundwater basin, a second Fluoride Treatment Plant is needed for system redundancy. Project engineering will determine the size and volume of the plant that will produce the most cost-effective results for additional source development within the aquifer, protecting safe yield and preventing drawdown of the Indian Cove and Fortynine Palms aquifers.		Study, Design, Construction	1	1	2						1	2					10,3,1	H	M	2	2
1009	Baja / Ag Issues	Baja Sustainability Initiative #3 (Channel Dredging, Flood Control, Riparian Protection and Vegetation Removal)	Mojave Desert Resource Conservation District (MDRCD)	The Mojave River is choked with vegetation causing channel capacities to be exceeded during major flood events. Removing the vegetation and/or excavating the channel would increase the carrying capacity and decrease the flood risk for select areas. By allowing flood water to flow without restrictions, areas downstream might have a higher probability to be naturally recharged during small and large storm events. Design and reinstate a channel(s) through project area to carry storm flows to reduce flooding of improved parcels. Integrates Projects 16 and 53.	Integrates Projects 16 and 53.	Design/Implementable		1					1	1		1					9,8	H	M	2	2
1010	Conservation & Education	JBWD CUWCC Compliance Project	Joshua Basin Water District	Urban water management planning requires planning, design and implementation of a variety of best management practices for the purposes of increasing conservation, educating the community on water issues, and reducing wasteful water practices. A large component of the proposed project is a system-wide leak detection program. Integrates Projects 39 and 99.	Integrates Projects 39 and 99.	Conceptual	1	1	2	1	2	1				2	1				2,1,3	H	M	2	2
1014	Conservation & Education	Water University	Mojave Water Agency, Alliance for Water Awareness and Conservation, JBWD	The Water University Program is a comprehensive educational and outreach program targeting teachers, real estate professionals, the business community, as well as the general public. This four-component program would offer curriculum for teachers to use in their classrooms for use in science and social studies classes. The second education component targets Fire Departments with education materials and presentations for greater water efficiencies. The third component targets businesses and the real estate community with water conservation information including native landscaping tips, and free water savings devices for the home including sprinkler nozzles, shower heads, etc. The fourth component targets irrigation supervisors and contractors by offering a certificate program in water efficiency. This component would include regular workshops and education materials. The final component is aimed at homeowners to better educate them on water conservation. Integrates Projects 30, 78, and 79.	Integrates Projects 30, 78, and 79.	Implementable Project			1	2	2		2			1			2		12	H	M	2	2
1015	Flood Management - County	SB County Integrated Flood Projects	SB County Flood Control District	Flood projects throughout the Region all completed by SB County Flood Control District. Integrates Projects 108-114.	Integrates Projects 108, 110-114.	Conceptual and Design			1												9	H	M	2	2





## Appendix D.2d

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### Summary Table of Projects by Priority

## Updated Projects Arranged by Proposed Priority\*

<b>Tier 2 (L,H)</b>	<b>Tier 1 (M,H)</b>	<p><b>Tier 1 (H,H)</b></p> <p><b>GRI = 1</b></p> <p>18R – Commercial / Industrial / Multi-Family Cash for Grass Program</p> <p>60R – Reorganization between 2 Small Water Agencies (BDVWA and CSA 70 Zone W-1 [Landers])</p> <p>92R – Wastewater Reclamation Project (Hi-Desert WD)</p> <p>93 – Apple Valley &amp; Hesperia Subregional Water Reclamation Facilities - VVWRA</p> <p>1011 – Antelope Valley Wash / Rancho Basin Recharge Ponds</p> <p><b>GRI = 2</b></p> <p>19 – Conceptual Planning for Hinkley’s Community Drinking Water System</p> <p>32 – Helendale CSD Tertiary Treatment Upgrade</p> <p>57 – Recycled Water Distribution System (City of Hesperia)</p> <p>95 – Adelanto Pearmain Relief Sewer Line</p> <p>106 – Sheep Creek Recharge Basin &amp; Two Wells</p> <p>116 – Replacement Water Supply for Perchlorate / Nitrate Affected GW – Barstow Area</p> <p>1003 – Assistance Program for Small Drinking Water Systems</p> <p>1004 – Baja Sustainability Initiative #1 (Ag Water Conservation &amp; Base Annual Production Right Acquisition Program)</p> <p>1012 – Cedar Street / Bandicoot Detention Basin (City of Hesperia)</p>
<b>Tier 4 (L,M)</b>	<b>Tier 3 (M,M)</b>	<p><b>Tier 2 (H,M)</b></p> <p><b>GRI=1</b></p> <p>13R – Camp Cady: Tamarisk Removal &amp; Riparian Restoration Program</p> <p>118 – Weather Based Irrigation / Completion of Demonstration Garden Project (Barstow CC)</p> <p>1001 – Sewer Lift Station or Reverse Osmosis Treatment Plant (City of Victorville)</p> <p>1006 – Capital Water Main Replacement Program (Hi-Desert WD)</p> <p><b>GRI=2</b></p> <p>21 – Dairy Nitrate Reduction</p> <p>34 – Hydroelectric Facility at Deep Creek for R3 Wells</p>

		<p>49 – Mojave River Walk Trail          65 – State Water Project Utilization &amp; Efficiency Strategy          72 – Twentynine Palms Fluoride Treatment Plant Expansion          1009 – Baja Sustainability Initiative #3 (Channel Dredging, Flood Control, Riparian Protection &amp; Vegetation Removal)          1010 – Joshua Basin WD CUWCC Compliance          1014 – Water University          1015 – SB County Integrated Flood Projects          128 – Transition Zone Water Quality Study          129 - Well Abandonment          130 - Sewer Lift Station Nos. 1 and 3 Improvements</p>
<p><b>Tier 4 (L,L)</b></p>	<p><b>Tier 4 (M,L)</b></p> <p><b>GR=3</b></p> <p>31 – Helendale CSD – WWTP Effluent Distribution System</p>	<p><b>Tier 3 (H,L)</b></p> <p><b>GR=3 from (H,H)</b></p> <p>3R – Ames/Reche GW Storage &amp; Recovery Program – Phase II Expansion          22 – Deep Creek Off-River Recharge and Storage Basins          29 – Forks Dam Storm Water Detention          35 – Indian Cove Stormwater Capture &amp; Recharge          42R – Johnson Valley Pressurized Water System          54 – Oro Grande Wash GW Recharge Project          56R – Alto Subarea Regional Aquifer Storage &amp; Restoration (ASR2)          62R – Water Conservation Ordinance          66R – State Water Project Water Treatment Plant with R3          73 – Twentynine Palms GW Protection Plan Septic System Mgmt. Element (SSME)          74R – Water Infrastructure Restoration Program: Pipeline Installation / Replacement (Bighorn-Desert View)          94R – Fluoride and Arsenic Treatment (City of Adelanto)          101 – Cushenbury Flood Detention Basin          102 – Local Wastewater Treatment Plant (Lucerne)          103 – Lucerne Valley Recharge Ponds          1002 – Policies Requiring Mods to the Mojave Basin Area Judgment          1007 – Baja Sustainability Initiative #2 (Baja Major Storm Diversion Network)          1013 – Baja Sustainability Initiative #4 (Well Assistance Program)</p> <p><b>GRI = 3 from (H,M)</b></p> <p>27 – Dry Well Installation Program (Town of Apple Valley)          36R – Infrastructure Improvement Projects (Joshua Basin)          38R – Joshua Basin WD Central WW Treatment Plant</p>

		<p>40R – Joshua Basin WD Graywater &amp; Rainwater Harvesting</p> <p>41R – Joshua Basin WD Stormwater Recovery</p> <p>58 – Regional Aquifer Recharge Capacity</p> <p>59 – Regional Flood Control / Flood Management Plan</p> <p>63 – Sheep Creek Wash Storm Water</p> <p>64 – Silver Lakes Assoc. Stormwater Debris Retention Basin</p> <p>68R – Storm Water Retention and Percolation in Hondo Wash Ruby Wash</p> <p>82 – Wrightwood Imported Water</p> <p>86 – Alta Loma Reservoir Replacement</p> <p>97 – Adelanto Reclaimed Water Delivery Infrastructure</p> <p>98R – Rehabilitation of Sewage Lift Station (City of Adelanto)</p> <p>105 – Wrightwood Sewer Plan</p> <p>115 – Land &amp; Water Rights Acquisition (California Dept. of Fish &amp; Wildlife)</p> <p>117 – Water Supply and Quality (San Bernardino County Special Districts Dept.)</p> <p>121 – Rehabilitate pre-1960 Pipelines (Lake Arrowhead CSD)</p> <p>122 – Effluent Outfall Replacement Project (Lake Arrowhead CSD)</p> <p>125 – Gage Tributary MWA Washes</p> <p>1005 – Regional Demonstration Garden Program – Multiple Locations</p> <p>1008 – R-Cubed Enhanced Purveyor Supply System</p>
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\* Revised after the February 6, 2014 Stakeholder meeting.