Mojave Region IRWM Plan Potential Projects (Project Summary)

Project No.	Original Project No.	Project Category	Project Title	Lead Agency/ Organization	Project Description	Project Type	Estimated Project Cost	Project Benefits
3R	3	Water Supply / Recharge	Ames/Reche Groundwater Storage and Recovery Program - Phase II Expansion	Mojave Water Agency & Bighorn-Desert View Water Agency	Expand the Ames/Reche Recharge Facility to accommodate the maximum potential delivery capacity of 3,000 acre-feet per year (AFY) (currently permitted for 1,500 AFY).	Conceptual	$100K - $1M	1,000+ acre-feet (AF) groundwater recharge
13R	13	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	$100K - $1M	1-100 AF water savings; 500-1,000 acres habitat restoration.
18R	18	Conservation & Education	Commercial/Industrial/ Multi-Family Cash for Grass Program	Alliance for Water Awareness and Conservation	This project would expand the scope of turf removal projects in the Mojave Region to increase water savings throughout the region. The current $10,000 rebate cap for commercial, industrial, and mult-family units has discouraged larger scale landscape conservation projects. The savings this project is expected to provide is approximately 55 gallons of water saved per year per square foot of grass removed.	Implementable Program	$100K - $1M	1,000+ AF water savings.
19	19	Individual or Small System Improvements	Conceptual Planning for Hinkley's Community Drinking Water System	MWA/Lahanton Regional Water Quality Control Board (RWQCB) /Department of Public Health (DPH) grant per Lance	Evaluate the concept of a community water system that draws water from a source of water that is not affected by the chromium plume. The water source must not be affected by plume expansion, remedial byproducts, or groundwater drawdown for the lifetime of the source and must be able to meet the water quality requirements.	Conceptual	N/A	Improved water supply for DAC.
21	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 2) Help fund infrastructure designed to apply waste pond water directly to adjacent fields via irrigation systems, etc. 3) Feasibility study to determine alternate uses of manure for fuels	Implementable	$250K-$1M	Protection of groundwater quality.
22	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: In conjunction with current recharge in the Mojave River, off river basins could be constructed that can be filled from the Morongo basin pipeline.	Conceptual Design	$100K - $1M	N/A
27	27	Flood Management	Dry Well Installation Program, Town wide, Town of Apple Valley	Town of Apple Valley	The proposed project consists of the construction of a series of dry well structures along natural flood water pathways, town wide, in the areas hardest hit by surface runoff flooding. The dry wells will make use of natural low-lying areas to capture storm water runoff, reduce flooding, and promote and maximize groundwater recharge.	Implementable Program	$1M	Improved flood management and groundwater recharge.
29	29	Flood Management/ Recharge	Forks Dam Storm Water Detention	Mojave Water Agency	The project proposes that appropriate infrastructure could capture a significant portion of stormwater flow out of Afton Canyon 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	$1M- >$10M	The value of average lost storm water.
31	31	Wastewater / Recycled Water	Helendale Community Services District (CSD) - WWTP Effluent Distribution System	Helendale Community Services District	Design and construction of "Purple Pipe" pipeline system to convey effluent water to nearby Golf Course Irrigation system that currently uses pumped groundwater.	Conceptual	$100K - $1M	1,000+ AF water savings.

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32	32	Wastewater / Recycled Water	Helendale CSD Tertiary Treatment Upgrade	Helendale Community Services District	The project is designed to produce recycled tertiary water for use within the District service area by improving the WWTP processes to provide unrestricted Title 22 recycled water. The delivery phase is two-stage with minor delivery to Helendale Community Park for landscape irrigation and delivery to the Silver Lakes Association for golf course irrigation which would require an extensive pump station and force main. The next phase is recycled water storage required to store water during the wet months for use in the dry months and for use by the onsite farming operation.	Implementable Project	$3,523,500	Increased recycled water supply and groundwater protection.
34	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	>$10M	Electrical power generation.
35	35	Flood Management	Indian Cove Stormwater Capture and Recharge Project	Twentynine Palms Water District/Joshua Basin Water District	This project could mitigate past over-drafting and prevent future declines in water levels within this shared basin through stormwater capture and recharge in the Indian Cove groundwater basin.	Conceptual -	$100K - $1M	1-100 AF water savings; 1-100 AF new water supply.
36R	36	Individual or Small System Improvements	Infrastructure Improvements Projects	Joshua Basin Water District	Design and Construction of infrastructure replacements to improve efficiency and increase conservation of resources. Particular emphasis on water booster station improvement to reduce energy impacts (i.e. reduce in-rush impacts on pump start-up and increased efficiency of equipment.	Planning, Design, Construction	$1M - $10M	1-100 AF water savings; 1-100 AF groundwater recharge; reduction in energy consumption.
38R	38	Wastewater / Recycled Water	Central Wastewater Treatment Plant Project	Joshua Basin Water District	Design and construction of required central WWTP to include plant siting, WWTP design, trunk sewer alignment and design, environmental compliance, permitting and construction. Central WWTP provides long-term control of nitrate contamination in groundwater basin, as well as other contaminants identified in past studies.	Conceptual -	>$10M	100-1,000 AF new recycled water supply; groundwater quality protection.
40R	40	Conservation & Education	Graywater & Rainwater Harvesting Project	Joshua Basin Water District	Development of design standards and funding of on-site collection facilities for capture of graywater and rainwater by individual property owners located in the JBWD service area. Public education is an important component of the project and will include printed materials and demonstration models of graywater and rainwater collection facilities.	Conceptual	$100K - $1M	1-100 AF water savings; 1-100 AF new water supply; 1-100 AF reduction in groundwater overdraft; reduction in flood damage
41R	41	Flood Management	Stormwater Recovery Project	Joshua Basin Water District	This project would capture and retain stormwater from local arroyos into the new recharge basin to enhance percolation potential into the groundwater basin. Includes studies to determine quantities of stormwater that could be recharged, engineering feasibility for retention and percolation and environmental review.	Feasibility Study	$1M-$10M	100-1,000 AF new water supply; 100-1,000 AF groundwater recharge; flood damage prevention
42R	42	Individual or Small System Improvements	Johnson Valley Pressurized Water System	Bighorn-Desert View Water Agency	This project would bring a pressurized water distribution system to the Agency's service area to improve quality of life, public health and provide for enhanced fire protection. Project should include additional studies for locating water supply wells (building on historical data and the existing conceptual model report), evaluate if existing monitoring Well No. JVHI can be deepened and converted to a production well and CEQA/NEPA studies.	Conceptual	>$10M	1-100 AF new water supply.
44	44	Individual or Small System Improvements	Lucerne Valley Small Water Systems Feasibility Study	Lucerne Valley Economic Development Association (LVEDA)	Prepare a feasibility study to explore the consolidation of the ten mutual water companies, local school district, CDA 29 & Hitchin Lucerne Inc retail commercial property. This would be a two phase study addressing 1) managerial & resources consolidation & 2) physical infrastructure tie-in consolidation.	Feasibility Study	$75,000	Helps conserve resources.

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49	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	$5.5M - $12M	Encourages environmental resource stewardship.
54	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	$2M-$3M	Increased groundwater recharge.
56R	56	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	N/A	Improves water banking; enhances flood control and riparian restoration.
57	57	Wastewater / Recycled Water	Recycled Water Distribution System	City of Hesperia	Construct a water distribution system for the conveyance of recycled water from the proposed Subregional Treatment Plant in the City of Hesperia. The system would include a non-potable reservoir near the Subregional site, booster pumps, and approximately seven miles of "purple" pipeline to convey recycled water to the Hesperia Golf Club and several other users throughout the City.	Conceptual Design	$1M - $10M	1000+ AF new recycled water supply; 1000+ AF groundwater recharge
58	58	Water Supply / Recharge	Regional Aquifer Recharge Capacity	Mojave Water Agency	MWA has very little off-river aquifer recharge capacity. MWA needs to be able to accept a large quantity of water in a relatively short (wet) period. This could be accomplished through a variety of infrastructure. Once such infrastructure combination could include surface water impoundment for later distribution to recharge ponds, ASR injection wells, etc... In addition this project could easily be expanded to a water bank with an aqueduct pump-back component for "buy low/sell high" of banked water.	Conceptual	>$10M	1-100 AF groundwater recharge; reduction in flood damage.
59	59	Flood Management	Regional Flood Control/Flood Management Plan	Mojave Water Agency	Prepare a multi-jurisdictional, regional flood control / flood management plan that integrates flood data and information, coordinates flood control efforts and infrastructure, and seeks to integrate flood management and water supply projects across the Mojave IRWM Region.	Conceptual	$100K - $1M	Benefits to public access/open space/habitat; reduction in flood damage.
60R	60	Other	Reorganization between two adjacent small water agencies (BDVWA and CSA 70 Zone W-1 [Landers])	Bighorn-Desert View Water Agency	Initiate reorganization through Local Agency Formation Commission (LAFCO). Provide for LAFCO processing fees, boundary map, preparation of TFM Report (Technical, Financial and Managerial) plan for operation of consolidated entities and evaluate physical infrastructure tie-in. Possible need for Master Plan identifying infrastructure improvements and build-out requirements.	Implementable Project	<$100K	
63	63	Flood Management	Sheep Creek Wash Storm Water	Phelan Piñon Hills Community Services District	The Sheep Creek Wash Storm Water Retention project is intended to capture storm water and recharge the Oeste Basin, in order to help minimize storm water damage and increase groundwater supplies. This conceptual plan would require diverting storm water flows from Sheep Creek Wash to a proposed recharge basin. Storm water flows would be monitored at the inlet of the basin. A proposed monitoring well will also be used to monitor static levels.	Conceptual	$1M-$10M	100-1,000 AF new recycled water supply; 100-1,000 AF groundwater recharge; reduction in flood damage.

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64	64	Flood Management	Silver Lakes Association Stormwater Debris - Retention Basin	Silver Lakes Association	Design and construction of a reinforced concrete storm water debris interceptor where Buckthorn Wash bisects the Silver Lakes Golf Course. Approx. size (LWD): 60-feet x 10-feet x 6-feet.	Conceptual, Design, Construct	<$100K	Reduction in flood damage.
65	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 use, groundwater and surface water storage programs, etc.	Conceptual	N/A	1,000+ AF new water supply; 1,000+ AF groundwater recharge.
66R	66	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	>$10M	1,000+ AF new water supply; 1,000+ AF groundwater recharge.
68R	68	Flood Management	Storm Water Retention and Percolation in Hondo Wash Ruby Wash	Bighorn Desert View Water Agency	Retain storm flows in Hondo Wash and other drainages in the area to enhance percolation potential into Ames groundwater basin (Pipes Subbasin) and provide a mechanism for flood control that does not currently exist. Includes studies to determine quantities of flow that could be captured annually, engineering feasibility for retention and percolation, and environmental impact overview (Initial Study). Water could be retained behind shallow berms or even dam structures along narrow sections of the wash.	Conceptual	$100K - $1M	1-100 AF water savings; 1-100 AF new water supply; 1-100 AF groundwater recharge; reduction in flood damage.
72	72	Individual or Small System Improvements	Twentynine Palms Fluoride Treatment Plant Expansion	Twentynine Palms Water District	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 Forty-nine Palms aquifers.	Study, Design, Construction	$1M-$10M	100-1,000 AF new water supply; 100-1,000 AF groundwater recharge.
73	73	Wastewater / Recycled Water	Twentynine Palms Groundwater Protection Plan Septic System Management Element (SSME)	Twentynine Palms Water District/City of Twentynine Palms	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 Project	$1M - $10M	1-100 AF water savings.
74R	74	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	$1M - $10M	N/A
82	82	Water Supply / Recharge	Wrightwood Imported Water Project	Golden State Water Co - Wrightwood	Installation of a well near Desert Front Road, including a pump station and transmission main to import water from the lower elevations south of the town into the higher elevations in the north. Includes study, design and facilities.	Study, Design, Construction	>$10M	N/A
86	86	Individual or Small System Improvements	Alta Loma Reservoir Replacement	Hi-Desert Water District	Increase of 1 MG in water storage capacity to ensure adequate emergency storage (current 250k deficit).	Conceptual	$1M - $10M	Increase of 1 MG in water storage capacity.

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92R	92	Wastewater / Recycled Water	Wastewater Reclamation Project	Hi-Desert Water District	The project will provide centralized treatment of wastewater generated within the Town at a level consistent with that of the local discharge requirements of both the Regional Board and the CDPH. Wastewater will be collected and conveyed through a series of pipelines that make up the WRP's collection system. Once delivered to the treatment facility, the treated wastewater will be discharged into the East Hydrogeologic Subunit of the Warren Subbasin providing a future source of extractable groundwater.	Implementable Program	$125,000,000	Groundwater quality protection.
93	93	Wastewater / Recycled Water	Apple Valley & Hesperia Subregional Water Reclamation Facilities	Victor Valley Wastewater Reclamation Authority	Two scalping facilities that will treat liquids from existing collection system and reuse for irrigation purposes. Once complete, each facility will be able to process up to 1 million gallons per day (MGD) with the opportunity to expand each to 4 MGD.	Implementable Project	$58,800,620	Increased treatment and reuse of recycled water.
94R	94	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 Environmental Protection Agency (EPA) Maximum Contaminant Levels (MCL's).	Conceptual	$100K - $1M	
95	95	Wastewater / Recycled Water	Adelanto Pearmain Relief Sewer Line	City of Adelanto	The project would consist of the installation of 12 to 18 inch sewer main and manholes from the waste water treatment plant on Auburn to the intersection of Air Expressway and Pearmain. The project would also connect new County HS that is built but not opened due to lack of County funding.	Implementable Program	$1.35M	Improved sewer system connection and potential additional recycled water.
97	97	Wastewater / Recycled Water	Adelanto Reclaimed Water Delivery Infrastructure	City of Adelanto	Adelanto recently completed expansion of WWTP from 2.5 mgd to 4 mgd. This project is a feasibility study to consider options for expanding the WWTP to tertiary and evaluating potential rw users for viability both hydraulically and need.	Conceptual	$1M - $10M	100-1,000 AF water savings; 100-1,000 AF new recycled water supply; Env. Stewardship/awarenes ss; wastwater pollution prevention.
98R	98	Wastewater / Recycled Water	Rehabilitation of Sewage Lift Station	City of Adelanto	Install new larger sewage lift station pit and pump station. Install new pumps and SCADA to same. Install new liner, SCADA communications. Work needed to prevent Sanitary Sewer Overflows.	Conceptual	$100K - $1M	Wastewater pollution prevention.
101	101	Flood Management	Cushenbury Flood Detention Basin	Mojave Water Agency	The project is proposed to capture runoff from the San Bernardino Mountains in the Lucerne Valley Subbasin. The project would divert storm flows to detention basins with high rates of percolation to decrease losses from evaporation.	Conceptual	$100K - $1M	100-1,000 AF new water supply; 100-1,000 AF groundwater recharge; reduction in flood damage.
102	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)	Conceptual	>$10M	100-1,000 AF new recycled water supply; env. Stewardship.
103	103	Water Supply / Recharge	Lucerne Valley Recharge Ponds	Mojave Water Agency	This project 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.	Implementable Project	$1M - $10M	1,000+ AF new water supply; 1,000+ AF groundwater recharge.

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105	105	Wastewater / Recycled Water	Wrightwood Sewer Plan	MWA/Lahanton RWQCB/DPH grant per Lance	The project is to develop a sewer plan for the Wrightwood Community.	Conceptual	$1M-$10M	100-1,000 AF water savings; 100-1,000 AF new water supply; 1-100 AF recycled water; 100-1,000 AF groundwater recharge.
106	106	Water Supply / Recharge	Sheep Creek Recharge Basin and Two Wells	Phelan Piñon Hills Community Services District	This project consists of the construction of a recharge basin along with 2 pumping wells. The District is looking at utilizing the Sheep Creek California Aqueduct turn-out to extract State Water Project water to recharge the proposed basin utilizing the proposed pipeline. The two proposed wells will be used to pump water into our distribution system and will serve to monitor static and pumping levels of the ground water.	Conceptual	$1M - $10M	1,000+ AF new recycled water supply; 1,000+ AF groundwater recharge.
115	115	Environmental & Recreation	Land and Water Rights Acquisition	California Department of Fish & Wildlife	Acquire voluntary water transfers or water rights to reduce water use. Acquire riparian habitat along the Mojave River either in fee title or through the purchase of a conservation easement.	Implementable Project	$1M - $10M	N/A
116	116	Water Supply / Recharge	Replacement Water Supply for Perchlorate/Nitrate Affected Groundwater - Barstow Area	MWA/Lahanton RWQCB/DPH grant per Lance	Perform a feasibility study to determine the most cost effective and sustainable manner to design, construct and operate an alternative water supply for residents adversely affected by perchlorate and nitrate polluted groundwater in an unincorporated area northeast of Barstow.	Feasibility Study	$100K - $1M	1-100 AF new water supply.
117	117	Other	Water Supply and Quality	San Bernardino County Special Districts Department	Water quality and supply projects to meet existing and emerging regulatory requirements. Development of strategically constructed facilities to support and mitigate regional water quality and supply issues.	Conceptual; Feasibility	>$10M	100-1,000 AF recycled water supply; 100-1,000 AF groundwater recharge.
118	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	$50K - $100K	Water conservation and demand reduction.
121	121	Individual or Small System Improvements	Rehabilitate pre-1960 pipelines	Lake Arrowhead Community Services District (CSD)	Rehabilitation of miles of old wastewater pipelines.	Implementable Project	>$10M	Water quality improvement/protection; potential 300 acres restoration.
122	122	Wastewater / Recycled Water	Effluent Outfall Replacement Project	Lake Arrowhead CSD	Replace and upsize the existing effluent outfall pipeline, which travels approximately ten (10) miles and drops 1,200 feet in elevation to property owned by Lake Arrowhead CSD in Hesperia.	Conceptual	>$10M	1,000+ AF new water supply; 1,000+ AF groundwater recharge; reduction in flood damage.
125		Flood Control	Gage Tributary Washes	MWA	There has been ongoing discussion for years regarding storm water flow volume and basin contribution from ungagged desert washes. Simple gages could be installed at road under-crossings. These crossings often have concrete lined channels which makes them ideally suited as ready-made weirs for ephemeral stream gages. Place a pressure transducer in a one-foot steel pipe with holes drilled in it and bolt it to the side of the concrete channel and key washes could be accurately gaged for storm flow.	Conceptual; Implementable	<$100K	Quantify flow in desert washes.

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1001	**	Wastewater / Recycled Water	Sewer Lift Station or Reverse Osmosis (RO) 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.	Conceptual; Implementable	$1M-$10M	1,000+ AF water savings; 1,000+ recycled water supply.
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 evaluate and consider potential modifications to the Mojave Basin Area Judgment for the Baja Subarea. The goal would be to maintain an equitable approach to water resource planning and development for all stakeholders in the Baja area and not deprive Baja of an equitable share of benefits made possible by the Physical Solution and Judgment. Further evaluation and consideration would be required by the Watermaster and the Court. The following general ideas were received through the IRWMP process and are summarized into two main groups for evaluation purposes. 1. Explore other ideas for Production Safe Yield as defined in the Judgment as an alternative sustainable target for management of Free Production Allowance in Baja. An evaluation may include changes to production rights and alternative Rampdown approaches. 2. Explore the potential for strategies to sell, lease or share Free Production Allowances among parties that could alleviate rampdown impacts to certain groups or types or agricultural operations. Integrates Projects 2, 11R, 20R, 46R, 67R, 76R and 104.	Conceptual	N/A	N/A
1003	**	Individual or Small System Improvements	Assistance Program for Small Drinking Water Systems	Mojave Water Agency, San Bernardino County Environmental Health Services	Program would identify water supply, water quality and infrastructure needs of small drinking water systems within the IRWM Region. Small systems needs may include but not limited to: Water quality treatment systems, fireflow protection, replacing aging infrastructure, install new infrastructure, interconnection with other purveyors, well drilling, scada systems, feasibility studies, etc. This program would help connect small systems to available funding by identifying funding sources, assisting with grant applications and paperwork, etc. Sources of funding could include State and Federal funds from a variety of programs designed to help small systems in the identified challenges listed. Integrates Projects 6, 7, 15, 45R 52, 69, 80, 84, 85, 100, and 120.	Conceptual	$100K - $10M	N/A
1004	**	Baja / Ag Issues	Baja Sustainability Initiative #1 (Agricultural Water Conservation and Base Annual Production Right (BAP) Acquisition Program)	Mojave Water Agency	This Agricultural Water Conservation program will be accomplished through several different means. It includes components of a Voluntary program funded entirely from local, state, federal and/or water fee dollars that purchase base annual production rights (BAP) from stipulated parties under the Mojave Basin Area Judgment. All BAP will be purchased by the Mojave Water Agency and be permanently retired. Each producer's percentage share of BAP will determine the eligible amount of BAP that can be sold to MWA. Also, a Crop Conversion program that would incentivize converting from water intensive crops like Alfalfa to other water efficient crops, with the ultimate goal of reducing costs to the point of making direct delivery of SWP viable and economically feasible. Integrates Projects 1, 10, 25, 55R, and 70R.	Implementable Project	$1M - $10M	1000+ AF water savings; 1000+ AF new water supply; 1000+ AF groundwater recharge
1005	**	Conservation & Education	Regional Demonstration Garden Program - Multiple locations	Mojave Water Agency, Newberry Springs Community Services District (CSD), City of Victorville	Construction of a variety of demonstration gardens to engage and educate visitors and communities in solutions for creating beautiful and environmentally smart landscapes. Design would include development aimed at local biomes, taking in climate and soil types, and the need to demonstrate gardening, smart agriculture, irrigation infrastructure, etc. These gardens would be similarly improved in regards to education and information availability, for example, signage, information kiosks, educational material, and QR readers. Integrates Projects 5, 23, 33, and 123.	Conceptual and Implementable	<$100k	100-1,000 AF water savings.
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.	Conceptual	$3,520,500 - $4,694,000	Increased water supply efficiency.
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.	Conceptual	$1M-$10M	1,000+ AF new water supply; 1,000+ AF groundwater recharge; reduction in flood damage.

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Project No.	Original Project No.	Project Category	Project Title	Lead Agency/ Organization	Project Description	Project Type	Estimated Project Cost	Project Benefits
1008	**	Water Supply / Recharge	R-Cubed Enhanced Purveyor Supply System	Mojave Water Agency	Design and install conveyance from R-Cubed to purveyors not currently connected to R-Cubed. This may be through direct conveyance or via interconnections with purveyors currently receiving R-Cubed water to "wheel" water to purveyors adjacent to their systems. The project includes study, design and facilities. Integrates Projects 37, 96, 124.	Conceptual	$100K - $1M	Increased water supply and reliability.
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.	Design/Implementable	N/A	1,000+ AF new water supply; 1,000+ AF groundwater recharge.
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.	Conceptual	$100K - $1M	1-100 AF water savings; 1-100 AF reduction in groundwater overdraft; public awareness.
1011	**	Water Supply / Recharge	Antelope Valley Wash / Ranchero Basin Recharge Ponds	City of Hesperia	The Ponds would provide groundwater recharge upgradient from Hesperia Water District wells. The Hesperia Master Plan of Drainage identifies a 65 acre site for a storm water detention basin in the Antelope Valley Wash south of the newly constructed Ranchero Road. In addition to storm water detention, the site would be able to accommodate groundwater recharge. Integrates Projects 4 and 109.	Conceptual Design	$1,700,000	1,000+ AF groundwater recharge; reduction in flood damage.
1012	**	Conservation & Education	Cedar Street / Bandicoot Detention Basin	City of Hesperia	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.	Conceptual Design	$2,000,000	1,000+ AF groundwater recharge; reduction in flood damage.
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.	Conceptual	$100K - $1M	1-100 AF new water supply.
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. The fourth component targets irrigation supervisors and contractors by offering a certificate program in water efficiency. Integrates Projects 30, 78, and 79.	Implementable Project		
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, 110-114.	Conceptual and Design		Reduction in flood damage.

** Projects that are highlighted yellow are Integrated Projects, with the combined projects listed under the "Comments/Review Questions" Column for the Project.