

Chapter 15: Inyo-Mono Phase II Projects

Phase I Projects

A list of projects was developed for the Phase I Inyo-Mono IRWM Plan based on submissions from Inyo-Mono RWMG Members and other regional stakeholders. The Phase I call for proposals was relatively straightforward and simply asked for project proponent name and contact information, project title, project description, and estimated project cost (if known). The process of soliciting project ideas began in the summer of 2009 and continued through most of the Phase I Plan writing process in 2010. Eventually, descriptions of 101 projects were collected, including the 15 that were submitted for Round 1 Implementation funding. Twenty-five of the projects underwent ranking by the RWMG to be included in the Implementation application, though only 15 were included in the final application due to various kinds of constraints. No other kind of analysis was performed on the information contained in the 101 project descriptions. The full list of projects can be found in the Phase I Plan.

Phase II Projects

Online Project Upload Form

For the Phase II IRWM Plan, the RWMG agreed that the project solicitation and project evaluation processes could be streamlined and made more efficient for project proponents. One way to do this could be through reducing the amount of redundant information being asked of project proponents in different steps of the process. Examples from other IRWM regions of online project upload forms were researched, and exemplary characteristics were noted. The goals of building an online project upload form for the Inyo-Mono region were three-fold: (1) to collect the necessary information from project proponents to assess regional water-related project needs and how they related to the Inyo-Mono regional Objectives and Resource Management Strategies; and (2) to determine how the regional project needs fit into the larger DWR State Water Plan strategies, priorities, and benefits; and (3) to provide a big-picture analysis of the financial needs of the region with respect to various categories of water resources projects.

The online upload form is password protected to provide basic quality control on the information being submitted. Potential users simply contact the Inyo-Mono Program Office for the password. The upload form will be available on an ongoing basis for project proponents to upload projects, and they can submit information for projects that are conceptual, in the planning phases, or shovel-ready. A partial screen shot of the upload form is shown in Figure 14-1 of Chapter 14. The complete upload form can be found at <http://Inyo-Monowater.org/members/project-upload/>.

Phase II Project List

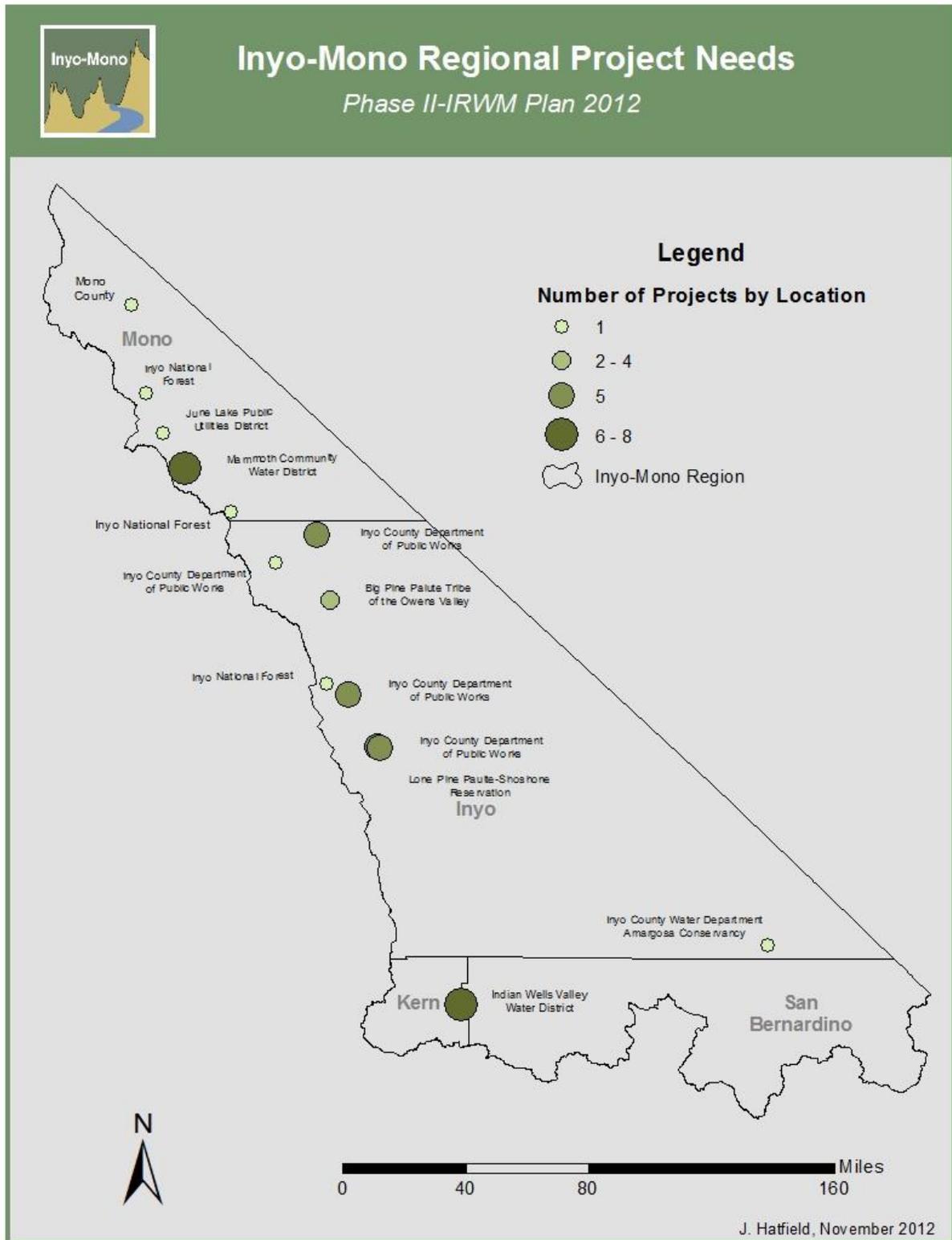
The online project upload form was made available for entities to upload projects in April, 2012. Written and oral instruction was provided by the Program Office on several occasions and in several different venues. Although the upload form is always available, a cutoff date for Phase II projects of June 22, 2012, was arbitrarily decided. At that point, 36 projects had been uploaded into the system, which is a substantial decrease from the 101 projects included in the Phase I Plan. It is suspected that the longer and more involved upload form used for the Phase II projects may have presented a challenge or barrier

to some. The Program Office will continue working with project proponents in determining the best way to gather project-related information.

The Phase II Project List will be amended as necessary to include additional project needs that are gathered using the online upload form. Plan amendments will be considered and decided upon by the Inyo-Mono RWMG according to the process outlined in Chapter 1. Such an amendment was made in early 2013 to accommodate several more projects that were uploaded after the June 2012 deadline but before a secondary deadline of September 2012. Some of these projects were included in the Round 2 Implementation grant application.

Figure 15-1, below, shows the locations of the original 36 Phase II Plan projects gathered between April and June 2012. Table 15-1 is a list of the entire suite of 46 projects. This list will be updated as needed in the form of an approved amendment, following the RWMG decision-making process, to the Inyo-Mono IRWM Plan.

Figure 15-1: Round 2 Implementation proposed projects



Map showing regional project needs at the time of Round 2 Implementation by organization sponsoring the project.

Table 15-1. Phase II Plan projects

Organization Name	Organization Type	Project Title	Project Description
Amargosa Conservancy	Non-profit organization	Amargosa Basin Groundwater Studies	Perennial flow in the Wild and Scenic (W&S) Amargosa River is almost wholly groundwater dependent, but the sources and future sustainability of that flow are largely unknown. BLM’s comprehensive W&S management plan is in preparation, will require a system water balance and federal reserved water right determination, which necessitates the collection and analysis of extensive hydrological and other information to protect the river and its unique and rich ecological resources. Collaborative studies, whose participants include the Amargosa Conservancy, the US Geological Survey, BLM, The Nature Conservancy and Inyo County, have resulted in a partial understanding of this geologically and hydrologically-complex system, but much work remains to be done in the face of new demands on regional groundwater from utility scale solar plants. This grant would critically supplement and extend existing studies, provide essential information to the BLM W&S planning, and develop a greater understanding of the effects of climate change and proposed groundwater pumping in this over-allocated interstate groundwater system. The work would be completed by the USGS and additional field work by Johnson Wright, Inc., (JWI) a hydrogeological consulting firm that has done substantial monitoring and analysis focused on the area. The USGS study would install monitors and complete the first two years of an evapotranspiration study. The JWI work would continue river and spring sampling and monitoring, including geochemical analysis, install and monitor several additional wells in key locations, and install a weather station to determine precipitation levels. Extensive partner matching funds are anticipated to be available. The grant request could be segmented or somewhat reduced in scale if needed and still achieve important goals.
Big Pine Paiute Tribe	Native American Tribe	Wellfield Radius of Influence Study	The Big Pine Indian Reservation is located in LADWP’s Big Pine Wellfield, and, annually, approximately one-third of LADWP’s groundwater pumping is from Big Pine. The Taboose-Thibault Wellfield is adjacent to the Big Pine wellfield and is annually pumped an almost equal amount. The Tribe would like to develop a model depicting a radius of influence of each DWP well in the Big Pine and Taboose-Aberdeen wellfields to better understand the impacts of pumping on the region. This study will assist in the

Organization Name	Organization Type	Project Title	Project Description
			management of groundwater resources in the Big Pine and Taboose-Aberdeen wellfields.
Big Pine Paiute Tribe of the Owens Valley	Native American Tribe	Hydrant Replacement	An analysis of the Tribe's water distribution system revealed that there are 62 hydrants throughout the system and the average hydrant age is 33 years old. Hydrants have a typical life expectancy of 40-60 years so hydrant replacement is of a high priority. In fact, 27 of the 62 hydrants have reached the end of their life expectancy or parts are no longer available if repairs are needed. This project will replace hydrants for the protection of the community and surrounding environment.
Big Pine Paiute Tribe of the Owens Valley	Native American Tribe	Irrigation Mainline Replacement	LADWP is required to annually deliver surface water to the Big Pine Indian Reservation. The surface water is diverted from Big Pine Creek and flows through an unlined ditch on LADWP land into an intake pond which ultimately feeds the tribal irrigation system. Unfortunately, the irrigation mainline, located on LADWP property, has numerous leaks resulting in abundant water losses which are credited to the Tribe's uses but which the Tribe never actually receives. This project will replace the mainline from the irrigation holding pond to the standpipe located at Watson Street. The pipe will be 15" diameter and run 1,400 feet. Natural Resource Conservation Service has indicated interest in assisting with the funding of this task. This task may trigger the California Environmental Quality Act since the construction will take place off Reservation.

Organization Name	Organization Type	Project Title	Project Description
Big Pine Paiute Tribe of the Owens Valley	Native American Tribe	Water Main Replacement Project	<p>This project will replace approximately 9400 feet of old 4 inch PVC main which has had numerous repairs and has been proven to be undersized for the growing community of the Big Pine Paiute Tribe.</p> <p>The tribal utility operator found 7 leaks during the 2008 comprehensive study survey along the 4 inch portion of the water distribution system that he repaired, thus saving approximately 1 million gallons per month in water losses. Due to the historically high numbers of line breaks and lack of sufficient fire flows, all sections of 4 inch pipe need to be replaced with 6 inch or 8 inch pipe.</p> <p>There are no SDWA violations involved with the proposed project. However, without the needed fire protection, the safety risk to the community has been catastrophic household fires as well as potential for more catastrophic fires as long as the water mains remain undersized for proper fire flows. These areas identified as having undersized water mains have already experienced seven catastrophic household fires in the last nine years with the most recent one on March 31, 2012, one in December 2009, one in the summer of 2005, one in 2004, two in 2003, and one in the summer of 2002. Reasons for the catastrophic nature of these household fires have been noted as either due to a lack of fire hydrants within the proximity of the home or due to a lack of sufficient fire flow provided by the undersized 4 inch water mains required to suppress the fire.</p>
Crystal Crag Water and Development Association	Mutual Water Company	Crystal Crag Water Quality Compliance	<p>When our present water system was installed, it made use of a pre-existing 3000-gallon tank. They also installed a 7440-gallon tank in order to have a little over 10,000 gallons of storage—supposedly enough to have enough contact time to meet our CT requirement. A weakness in our system is our old 3000-gallon tank. Seven years ago it was rusting on the inside. We put in a liner which has kept the tank from leaking. However it has not kept the tank from rusting more between the liner and the inner surface. We have judged that that tank should not be part of our solution because it would only mean that we would face a large expenditure in a few years when the liner wears out. It would be cheaper in the long run to get a new tank and keep up the maintenance on it as we have done with the larger tank.</p>

Organization Name	Organization Type	Project Title	Project Description
			<p>We have hired an engineer recommended by the California Rural Water Association to come up with a solution. He has come up with the following recommendations:</p> <p>Additional Recommendations:</p> <ol style="list-style-type: none"> 1. Install a data recorder for the master flow meter for the system. This will allow the capture of peak flow data for the system, which is not currently captured. Peak flow data is needed for appropriate CT calculations. Install a data recorder for the tank levels. This is a required factor in CT calculations and should be recorded and documented for future calculations. 2. Install a flow meter in the piping to the new tank. This will allow the setting of an appropriate flow split between the two tanks using a throttling valve. By documenting an appropriate flow split, more accurate (and less conservative) CT calculations can be performed. 3. Modify the current CT spreadsheet so that the full flow is applied to the pipe volume. This will have the effect of reducing the CT calculation.
Indian Wells Valley Water District	Public Utilities District	Aquifer Testing Program	<p>This project involves a series of aquifer tests in areas where the groundwater flow model is lacking real data. Some of the aquifer data used in the model used geologic logs and driller reports. Actual aquifer tests will add certainty to the model and refine its use as a groundwater management tool.</p>
Indian Wells Valley Water District	Public Utilities District	Brackish Water Resource Study	<p>Groundwater is the sole source of potable water for the communities of Ridgecrest, Inyokern, Trona, the Naval Air Weapons Station at China Lake, and numerous private well owner living in unincorporated areas. Recharge of the aquifer is primarily from the Sierra Nevada range on the valley's west side. While scientists believe there is a great deal of groundwater in the aquifer, not all is potable. Although Indian Wells Valley Water District (IWWVD) actively promotes conservation, groundwater levels continue to decline. The need for alternative sources of potable water is inevitable.</p> <p>This project will identify source areas for brackish water that could be treated and provide a new source of potable water for the valley. By utilizing local brackish water supplies, the IWWVD could significantly delay</p>

Organization Name	Organization Type	Project Title	Project Description
			the need to import water.
Indian Wells Valley Water District	Public Utilities District	Brackish Water Treatment Plant	Construction of a brackish water treatment facility to utilize local non-potable water supplies as a supplemental source for the valley's water supply thereby delaying the need to consider importing water.
Indian Wells Valley Water District	Public Utilities District	Main Line Replacement	Main line replacement enables the District to replace old or under-sized main line pipelines to improve operating efficiency, improve water quality, and improve fire flow.
Indian Wells Valley Water District	Public Utilities District	Southwest Area Hydrogeologic Study	A follow-up study to the recent AB303 project that provided 8 new wells and sampling of over 75 sites. The 8 wells drilled generally showed fairly good water quality characteristics and could be a potential area for future production. Additional data are needed in the area south and west of existing monitor wells. Funding would also provide additional water sampling, future aquifer testing using AB303 project wells, and some shallow geophysical surveys.
Indian Wells Valley Water District	Public Utilities District	Storm Infiltration System	Study the feasibility of capturing surface water during significant rain events and percolating that water into the aquifer. Groundwater depths in the recharge areas of the valley are deep, and percolation ponds may not be feasible due to vertical migration rates, evaporation rates, etc. Storm runoff could possibly be captured and percolated in the eastern part of the valley where groundwater levels are relatively shallow, but the water is of lower quality. This project could shed light on possibilities of water capture, retention, detention, infiltration, re-injection, treatment, and re-use of surface water flowing through the valley and not currently being utilized.
Indian Wells Valley Water District	Public Utilities District	Water Collection Galleries	A study to provide the feasibility of installing water collection systems along the Sierra Nevada front. Information could provide insight to the potential of recharging water migrating from the canyons to aquifer systems along the Sierra. Water collection systems at some key locations could supplement the existing supply with water that would otherwise be lost to evaporation or migration into the Sierra Nevada fault, etc. Key locations include Indian Wells Canyon, Grapevine Canyon, Sand Canyon, NoName

Organization Name	Organization Type	Project Title	Project Description
			Canyon, and Nine-Mile Canyon.
Indian Wells Valley Water District	Public Utilities District	Water Quality Treatment Plant	Construction of a water treatment facility to be used by both the Indian Wells Valley Water District and the Navy's facilities at China Lake Naval Air Weapons Station (NAWS) to handle future water quality issues.
Inyo County	County Agency	CSA-2 Sewer System Needs Assessment	Sewer system has not been evaluated for 35 years, and there were significant infiltration/inflow problems then.
Inyo County	County Agency	CSA-2 Sewer System Upgrade Project	<p>The proposed project is located in Aspendell, served by County Service Area #2 (CSA-2), west of Bishop, bordering Inyo National Forest and USFS campgrounds. The County manages the system on behalf of the Aspendell residents. The project will replace 3,000 ft. of existing sewer main.</p> <p>The system was installed in the late 1960s and consisted of a gravity sewer collector that discharged to a communal septic tank and leachfield. By the early 1970s the system began to exhibit various problems. In the mid 1970s an engineering study found that the leach field was poorly designed and the collector system had problems related to poor construction, hydraulics and inflow and infiltration (I&I).</p> <p>In 1977 the USFS was ordered by the RWQCB to remove pit toilets located in nearby campgrounds to eliminate impacts to water quality. In 1978 the USFS constructed a treatment facility to serve the campgrounds. At that time, CSA-2 abandoned the community septic and leach field system and connected the existing sewer collection system to the USFS system.</p> <p>The sewer collection system is now more than 40 years old, near the end of its useful life. Several hundred feet of the main need replacement due to recurring blockages and continuing I&I. Blockages occur from inconsistency of pipe diameters, uneven grade and root intrusion, and have resulted in overflow and spillage.</p> <p>Bishop Creek is downgrade from the sewer system, and runoff from a spill has the potential to contaminate the creek. Seeping mains also may affect groundwater in wetland areas near the creek and likely produce non-point</p>

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			<p>source pollution.</p> <p>I&I are increasing as the system degrades and are impacting the treatment plant and increasing energy costs for treatment and reducing plant capacity, thereby resulting in rising costs charged to CSA-2. The USFS has complained about flow generated by the CSA-2 system. The County intends to replace mains that have documented root intrusion or I&I first and then replace other portions of the system. Phase 1 will include approximately 3,000 feet of 6" mains, and manholes.</p>
Inyo County	County Agency	Groundwater monitoring network for southeast Inyo County	<p>This project will construct a network of six monitoring wells in southeastern Inyo County for the purpose of (1) complying with CASGEM monitoring requirements, (2) monitoring effects of groundwater development and use on groundwater users and groundwater dependent resources, (3) help determine interbasin flow paths in the Pahrump-Middle Amargosa-California Valley region, and (4) help determine sources of water to regional groundwater discharge features such as springs that provide water to the Amargosa River. The project involves siting and constructing six wells in Pahrump Valley, California Valley, Middle Amargosa Valley, and Mesquite Valley, sampling these wells for general water quality, equipping the wells with data loggers, initiating a data collection program, and submitting a monitoring program to DWR to comply with CASGEM monitoring requirements. The project will be conducted in cooperation with the Amargosa Conservancy, USBLM, and USGS.</p>
Inyo County	County Agency	Laws, Independence, and Lone Pine Water Systems Master Plan	<p>Laws, Independence, and Lone Pine are disadvantaged communities. The Laws, Independence, and Lone Pine Town water systems are in need of a Master Plan / Needs Assessment which could answer basic questions about how to operate the systems effectively and economically but yet set aside enough reserves to meet both anticipated and unforeseen needs. The assessment would include a hydraulic analysis of the systems addressing fire flow needs and maximum day demand needs. The assessment may also include a staffing plan identifying the number of office and field staff necessary to carry out operations of the system and identify specific tasks to each staff member. The assessment should also identify all current and anticipated future regulatory requirements a water purveyor must meet. These regulations encompass California</p>

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			Occupational Safety and Health Administration requirements to Certified Unified Program Agency regulations to Air Quality regulations and Public Health Department regulations. Capital improvements could be identified over a five, ten and twenty year horizon. The estimated cost for the project is based upon cost estimates received for a hydraulic analysis and water rate study and the estimated costs of County personnel providing requested data to the successful contractor.
Inyo County	County Agency	Laws, Independence, and Lone Pine Rate Study	Laws, Independence, and Lone Pine are disadvantaged communities. The Laws, Independence, and Lone Pine Rate Study shall build upon the Water Master Plan / Needs Assessment Project and the Condition Assessment Project by preparing a Water Rate Study to investigate identified funding needs and how to fund them. The estimated costs for this project, keeping in mind the previously completed studies, may be about \$50,000 which also includes Administration costs. The Water Master Plan, Conditions Assessment, and Rate Study Projects may be completed within one round of funding.
Inyo County	County Agency	Laws, Independence, and Lone Pine high efficiency toilet replacement project	Laws, Independence, and Lone Pine are disadvantaged communities. The Laws, Independence, and Lone Pine high efficiency toilet (HET) replacement project shall provide a rebate to customers who purchase and install HETs in their homes as a water conservation measure. The program may be administered as follows: the customer would purchase a toilet from a pre-defined list of appliances with a rebate amount determined by the particular model chosen. After an inspection of installation by the County, a rebate would be applied to their water bill and carried forward until the rebate amount was exhausted. The estimated number of toilets replaced would be 1.25 toilets per service with a maximum rebate of \$100 per replaced toilet applied to their water bill. Some residents may replace all their toilets while others may not replace any toilets. The estimated cost for the project could be \$119,000 for 1.25 toilets for every 952 services and approximately \$30,000 for project administration for a total project estimate of \$149,000. Alternatively, rather than applying the rebate to the water bill, a rebate card valued at \$100 may be issued.

Organization Name	Organization Type	Project Title	Project Description
Inyo County Public Works	County Agency	Laws, Independence, and Lone Pine Condition Assessment and Leak Detection Survey	<p>Laws, Independence, and Lone Pine are disadvantaged communities. The Laws, Independence, and Lone Pine Condition Assessment and Leak Detection Survey shall provide a condition assessment of pipeline integrity and leak detection of all mains in the three town water systems. The project shall also provide funds to excavate and repair leaks and unmetered services discovered by this Project. The project may help to conserve water lost by leaks and un-metered services while the condition assessment may help to prioritize capital improvements. The estimated cost for the Condition Assessment and Leak Detection Survey may be \$200,000 over the total of approximately 20 miles of mains in all three water systems. An additional \$50,000 could be included to remedy the defects discovered. Administration of the project may cost approximately \$50,000.</p>
Inyo County Public Works	County Agency	Lone Pine, Independence and Laws Water Meter Project	<p>Inyo County owns and operates three community water systems serving the unincorporated towns of Laws, Independence, and Lone Pine. The combined population served by the water systems is approximately 2,000 people. The proposed project will replace residential analog meters with automatic electronic read meters and renovate the Town Demand Meters. Laws, Independence, and Lone Pine are Disadvantaged Communities. Ratepayer revenues for Lone Pine and Independence cover operations and maintenance but are insufficient to build capital reserves for upgrades. The county has had limited success raising the rates. The Laws water system supplies water for only 14 ratepayers. Monthly revenues are too small to operate the system in the black. Inyo County subsidizes the system operation and maintenance costs. The aging analog meters were installed in the 1970s and are no longer accurate and produce unreliable readings for billing. The Town Demand meters have not been certified in ten years. The Independence Town demand meter is not turning freely and under reporting flows.</p> <p>The proposed project will replace the residential analog meters with automatic electronic read meters and renovate the Town Demand Meters. The project will provide for accurate measurement of individual water usage and efficient monitoring of the town's gross water demand. The improvements will provide better accounting and billing information and</p>

Organization Name	Organization Type	Project Title	Project Description
			<p>promote water conservation. Converting to automatic electronic read meters will reduce meter reading time from 10 days to 3 days, providing for more efficient operations and reduced costs.</p>
Inyo County Public Works	County Agency	Lone Pine Transmission Main Project	<p>Lone Pine is a disadvantaged community. This project would install about 4,300 lineal feet of 16 inch ductile iron pipe. Approximately 800 lineal feet of the current transmission main are above ground paralleling the creek within 2 feet of the creek, cross under the creek bed or are adjacent to tributaries to Lone Pine Creek. The existing main has a joint in the pipe crossing a gully where the main is above ground and the joint is sagging in mid-air. The steel pipe is very thin- about 1/8 inch thick. The new main would primarily be within public rights-of-way and as far from th creek as possible; while the existing main is entirely on public lands or LADWP land. The new main would also cross the LADWP aqueduct.</p>
Inyo County Public Works	County Agency	Alternative Lone Pine Transmission Main Project	<p>Lone Pine is a disadvantaged community. If the 4,300 lineal foot Lone Pine Transmission Main Project is not approved, this project may install about 2,000 lineal feet of 16" ductile iron pipe bypassing the tributaries of Lone Pine creek, pass along public rights-of-way and pass into LADWP land and reconnect with the existing transmission main west of the aqueduct preventing the need for a new aqueduct crossing. Approximately 800 lineal feet of the current transmission main abandoned by this project are above ground paralleling the creek nearby, cross under the creek, or are adjacent to creek tributaries. It also has a sagging joint in mid-air. The main is about 1/8" thick.</p>
Inyo County Public Works	County Agency	Independence Transmission Main Project	<p>Independence is a disadvantaged community. This project would replace the transmission main from the tanks to the old chlorination vault, a distance of about 2,600 lineal feet. The current main has 2,135 feet of old steel main that was used material when it was installed in 1928. A leak in the main in 1991 started as a pin-hole diameter sized leak which grew eventually to 210 lineal feet replaced as none of the adjacent pipe was of sufficient integrity to permit attachment without causing more leaks. This project would also add a 12 inch meter providing more fire flow to the town than the existing 8 inch meter. The current transmission main is of 10", and 12" construction. This project would replace all 10"-12" pipe with 16 inch ductile iron pipe. The main crosses through a boulder field about</p>

Organization Name	Organization Type	Project Title	Project Description
			1000 feet wide with boulders maybe as large as 2 feet to 3 feet in diameter.
Inyo County Public Works	County Agency	Independence Transmission Main Project #2	Independence is a disadvantaged community. If the Independence transmission main project is not approved for round 2 funding, this project would survey the existing Independence Transmission Main for elevation and at the high points and points of inflection on the main install double 2" air release valves. There is one known and several suspected high points trapping air within the transmission system. These defects impede the delivery of large volumes of water during times of high demand such as a fire. There is air in the distribution system potentially causing an air lock affecting a portion of the upper end of the distribution system. This project also adds a 12" meter to the existing 8" town demand meter which may provide more fire flow to the town.
Inyo County Public Works	County Agency	Owens Valley Safe Water Project	This project tests and replaces, if necessary, about 50 backflow preventers to county facilities thereby protecting the public health; replaces leaking check valves at Laws, Independence, and Lone Pine which protects the groundwater; replaces disintegrating infrastructure in Laws protecting the water supply; installs a backflow preventer and a meter at the Laws Museum protecting the public supply; installs a bypass line in Independence protecting the creek, and installs about 800 lineal feet of pipe in Lone Pine benefitting three schools and the hospital.
June Lake Public Utility District	Public Utilities District	Wastewater Treatment Plant Upgrades	<p>Our wastewater treatment plant has been in service for over 35 years and is in need of the upgrades identified below to enhance the treatment process. Currently we do not have a screening device at the head works. Screens are used in wastewater treatment to strain larger particles from the water stream and are usually the first components in the treatment system. The main objective of using a screen is to remove materials and large objects that could damage or cause blockage to downstream equipment, reduce the overall effectiveness and reliability of the treatment processes and ultimately contaminates the final discharge waterway.</p> <p>The objectives of this project are to protect and restore surface water and groundwater quality into the Mono Basin to safeguard public and</p>

Organization Name	Organization Type	Project Title	Project Description
			environmental health and to secure water supplies for beneficial uses.
Lone Pine Paiute-Shoshone Tribe	Native American Tribe	Hydrant Replacement on Zucco Road	<p>The fire hydrants located throughout the reservation are in need of replacement. In a report created by SCS Engineers in June of 1999 titled “Water Resources Management Plan and Irrigation Analysis: Lone Pine Paiute-Shoshone Indian Reservation, Lone Pine, California”, it was noted that the majority of hydrants on LPPSR were nearing the end of their service life (based on a 40-60 year service life). Since 1999, none of the hydrants have been replaced; therefore, they are in need of replacement. The main objective of this project is to replace the existing fire hydrants on Zucco Road with newer, properly functioning, efficient models. Other subsequent objectives are safer conditions on Zucco Road due to improved operational efficiency of hydrants, lower leak potential due to replaced hydrants, fire suppression, and employment of tribal Members from the LPPSR for completion of the project.</p> <p>The beneficiaries of this project are both tribal and non-tribal residents living on the reservation. The new hydrants on Zucco Road would create a safer area less prone to fire damage, which helps protect homes in and around the surrounding community of Lone Pine. Since the hired help will come from LPPSR, the tribal Members are given an opportunity for work that otherwise would not have existed.</p>
Lone Pine Paiute-Shoshone Tribe	Native American Tribe	Irrigation system replacement	<p>The irrigation system was installed in the 1940s by the Bureau of Indian Affairs as part of the 1934 Land Exchange. The system, well over 25 years old, is in serious need of rehabilitation and/or replacement. Pipe failures and cracking has been seen and affects the operation of the system. The overall project goal is system replacement. Currently, LPPSR’s irrigation mainline runs approximately 5,200 feet from east to west and consists of many different pipe sizes. A replacement of the system would allow it to flow properly and provide the necessary amounts of water for assigned and tribal lands. The main objective is to replace the old system with newer parts to guarantee effective operation for meeting future demands.</p>

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Lone Pine Paiute-Shoshone Tribe	Native American Tribe	Main Line Replacement	<p>The original distribution system was put in by the Bureau of Indian Affairs in the 1940s and consisted of various pipe widths: 5", 4", 3", 2" and ½" pipes, which ultimately failed after certain periods of time. In 1990, approximately 5 miles of the mainline were replaced with 4", 6" and 8" pipes to replace failing sections and to expand the system. According to a 1999 investigation, many of the main lines were reaching the end of their service life and were recommended for replacement. Today, it is very evident that the mainline needs to be replaced to not only adequately supply water to homes and tribal operations, but to also ensure the system does not fail if and when fire hydrants are used to suppress fires. Project goal is to repair or replace damaged mainlines to ensure their continued use and operation of the system to maintain its capacity to supply homes and tribal operations. Overall project objective is to meet the demands of a growing population and to allow access for new home construction and future economic development.</p> <p>2012 update: mainline replacement has occurred on the western side of the reservation, but work remains to be completed. Funds needed are probably lower than the "grant ask" since a lot of the work has been completed.</p>
Lone Pine Paiute-Shoshone Tribe	Native American Tribe	Water Storage Tank	<p>Initial construction of water storage tanks for LPPSR took place at various stages. There are currently three (3) storage tanks that supply water for domestic use. These storage tanks are located within reservation boundaries and operate on a gravity flow and pressurized system. The pressurized system mainly feeds the western half of the reservation, which has resulted in expensive utility bills to keep the system operational. The main goal of the project is to move the water storage tanks 3000 feet west of their current location to the base of the Alabama Hills to enable the whole system to completely operate by gravity flow, thus reducing the costs to operate. An end result of relocating the water storage tanks is to ensure that LPPSR will/can meet the needs/demand of a growing population and allow for easier access when new homes are built.</p>
Lone Pine Paiute-	Native	Well Rehabilitation	<p>The construction of domestic wells took place more than 25 years ago. In 1999, an inventory and inspection of the wells was conducted and noted</p>

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Shoshone Tribe	American Tribe		that all wells are either in need of being updated and/or replaced. Despite the repairs that have occurred throughout the years, they continue to be problematic. During the initial inspection of the wells in 1999, it was noted that no rehabilitation work or diagnostic testing has ever been done. The goal of the project is to improve the function and operation of the wells to improve water quality conditions. An overall objective of the project is to sustain an adequate supply of water that can meet the capacity of future demands and reduce the costs needed for untimely repairs.
Mammoth Community Water District	Community Services District	Expansion of Mammoth Basin Groundwater Monitoring Array	MCWD relies on groundwater for up to 60% of its annual potable supply, and has a network of nine production wells and 14 monitoring wells. MCWD completed a groundwater model and report in 2009 (Wildermuth environmental Inc. 2009), to simulate the groundwater basin under existing and potential future groundwater use levels. This report identified geographic areas that lack adequate groundwater data and thus constrain the understanding of the hydrogeologic system and limit the accuracy of the groundwater model. To address these data gaps, MCWD proposes installation of new monitoring wells in the areas identified in the 2009 report, and a targeted set of pumping-induced short term "stress tests" to confirm key aquifer parameters, such as groundwater/surface water interactions. The proposed new well locations are: 1) four wells in the vicinity of Laurel Pond for water quality and shallow groundwater monitoring; 2) two wells between the Town of Mammoth Lakes and Hwy 395, adjacent to Mammoth Creek, to improve groundwater monitoring in the central-eastern areas of the aquifer; 3) one well near the crossing of Mammoth Creek and Hwy 395 to monitor areas of potential creek interactions with groundwater; and 4) one well in the vicinity of the Convict Creek watershed divide to confirm key boundary condition assumptions for the aquifer. The collection of new groundwater data would be used to improve the Mammoth Basin Groundwater model and increase the understanding of the characteristics of the hydrogeological system.
Mammoth Community Water District	Community Services District	Mammoth Creek Data Collection Improvements	MCWD's water right licenses and permit require the District to refrain from diverting water when Mammoth Creek flows fall below specified monthly flow levels. These specified flows protect the creek's fish habitat and downstream ranching operations. This project would improve the accuracy

Organization Name	Organization Type	Project Title	Project Description
			<p>of two key gages for low flow conditions, and provide improved real-time monitoring at a third gage, for improved tracking and response to low flow conditions. This project would improve Mammoth Creek flow monitoring at three locations:</p> <ul style="list-style-type: none"> • the Old 395 Gage downstream of the Mammoth Creek crossing of Hwy 395 bridge by installing a live link with MCWD’s Supervisory control and Data Acquisition (SCADA) system • the Old Mammoth Road gage, by redesigning the placement of the gauge to improve flow hydraulics • the Twin Lakes Outlet Weir to measure low flows by installing a sharp crested weir plate
<p>Mammoth Community Water District</p>	<p>Community Services District</p>	<p>MCWD Energy Efficiency and Self-Sufficiency</p>	<p>MCWD is keenly interested in reducing its carbon footprint and reducing energy costs by pursuing options for reducing its operational energy demands and producing renewable clean energy. The cost for energy is the District’s second largest operations expense. With the completion in 2011 of a 1 MW solar array that provides 30% of the District’s current annual electrical power supply, the District has demonstrated its determination to pursue sound energy generation and reduce its greenhouse gas emissions into the future. The District proposes implementing further renewable energy production and energy efficiency using the most appropriate technology available. This project would include two elements supporting expanded renewable energy production and maximum system efficiency; installation of variable frequency drives (VFD’s) on all major power loads such as well pumps and wastewater plant blowers, and a technical/financial feasibility study for installation of micro-turbines at existing pressure reducing stations in the water distribution system. The VFDs have a secondary benefit of improved management of groundwater quality, when installed on wells. The micro-turbine concept is gaining rapid support within the energy sector as one of the largest potential sources of small, distributed generation sources. This project will confirm the feasibility of retrofitting the 3 largest pressure reducing stations with micro-turbines to generate power for feed in to the local SCE grid.</p>

Organization Name	Organization Type	Project Title	Project Description
Mammoth Community Water District	Community Services District	MCWD Recycled Water Master Plan	MCWD's recycled water distribution is limited to one current and one future customer, both golf courses with large irrigation demands. To optimize the future use of the recycled water, the District proposes the development of a recycled water master plan. The plan would include consideration the economic and supply aspects of expanding recycled water distribution to parks, schools, large commercial properties, and public landscape medians. For example, the plan will examine the current and future production and storage capacity for recycled water, areas of the service area that could best utilize reclaimed water, and the associated costs to expand the recycled water distribution infrastructure. In addition, the plan would inform planning efforts to meet future water supply demands. The plan will also assist MCWD in applying for future federal USBR Title XVI program funds for construction of new recycled water distribution and treatment improvements.
Mammoth Community Water District	Community Services District	MCWD Water Treatment Plant Corrosion Control	The properties of MCWD's water supply contribute to conditions that cause an exceedence of the Safe Drinking Water Act (SDWA) Lead and Copper Rule. California Department of Public Health (DPH) has mandated that MCWD implement the results and recommendations of a recent Corrosion Control Study to achieve compliance for the Lead and Copper Rule. The District has one surface water treatment plant and two groundwater treatment plants. The study recommended and the DPH has approved the installation of aeration systems to adjust the pH of the groundwater treatment plant (GWTP) effluents. The surface water treatment plant pH control is completed (2011-2012), and used caustic soda chemical feed to adjust the raw water pH. This project will implement the corrosion control improvements at groundwater treatment plant #2.

Organization Name	Organization Type	Project Title	Project Description
Mammoth Community Water District	Community Services District	MCWD Well Rehabilitation Phases 1 and 2	MCWD's groundwater production wells have varying levels of naturally occurring contaminants, which are regulated by state and federal drinking water standards. To produce safe water for the community, groundwater supplies from some wells must be reduced and diluted with other supplies. This need to reduce the amount of groundwater produced is a significant concern when surface water supplies are limited by environmental concerns or low water availability. Recent advances in well profiling have demonstrated that contaminants can be limited to specific layers within an aquifer and that the identification of the location of these layers and the rate of water produced from these layers can be used to develop actions that would reduce or eliminate contaminants from the well. Phase 1 of this proposal would conduct well profiling in four wells and develop recommendations to reduce contaminants. Phase 2 would consist of implementing recommended actions to reduce contaminants into the raw water system.
Mammoth Community Water District	Community Services District	Meridian Blvd. Sewer Main Replacement Project	MCWD has aging sewer lines made of substandard materials and designed for lower flows than they are currently carrying; therefore, completion of this project will eliminate the potential overflow of sewage onto the streets. The project consists of replacing about 1,000 feet of aging sewer main pipeline and installing 6,500 feet of new sewer main pipeline along portions of Meridian Boulevard in the Town of Mammoth Lakes. The pipeline replacement targets existing asbestos cement pipe threatened by structural failure due to hydrogen sulfide corrosion exasperated by low slopes and high flows. The proposed new pipeline alignment and installation would extend the existing sewer main along Meridian Boulevard and divert flows around old asbestos pipe currently in use.
Mono County	County Agency	Mono Well Sampling and Solution	Many wells in Mono County do not meet safe drinking water standards. This known problem is exacerbated by the lack of a suitable testing laboratory that private landowners can utilize to conduct the regular testing that is justified by these conditions. This project would be carried out in 2 phases--the first would provide a mobile laboratory to conduct testing in the outlying communities at a reduced cost to the consumer. The second phase of this project would be to provide appropriate treatment

Organization Name	Organization Type	Project Title	Project Description
			<p>infrastructure (reverse osmosis, etc.) for systems that have established problems.</p>
<p>Town of Mammoth Lakes</p>	<p>Local Agency</p>	<p>Mammoth Lakes Stormwater Management Plan Phase 2</p>	<p>Much of the infrastructure in the Town of Mammoth Lakes (hereafter referred to as “Town”), including roads and drainage facilities, were built by Mono County prior to the incorporation of the Town in 1984. During this time, there was minimal emphasis placed on erosion control, water quality or facility design. As a result, the Town is now dealing with serious erosion issues, inadequate drainage facilities, numerous flood prone areas and a lack of water quality improvements. Several large storm events in 2006 and 2007 highlighted the existing problems in the Town and caused excessive erosion of slopes and ditches, flooding of Town facilities and private property, and discharged sediment and other pollutants to Hot Creek and Mammoth Creek.</p> <p>The project is located within the Town of Mammoth Lakes municipal boundary, which is the only incorporated city in Mono County, California. All stormwater from the Town drains into Mammoth Creek and Hot Creek, which are impaired streams. This project will develop policies and methods to control nutrient and sediment loads from entering nearby Mammoth Creek and Hot Creek. In addition a measurement and monitoring plan will be developed to evaluate the long term implementation of the plan and policies. The project will adopt measures that can be modified and used from other local best management practices.</p> <p>The Town is signatory to the Inyo-Mono Regional Water Management Group, and this project will be developed and completed in cooperation with this planning group. In addition, the Town will conduct outreach and meetings with the Town Council, Planning Commission, and other members of the public to solicit input and provide information and education regarding the importance of stormwater pollution to the community and the environment.</p> <p>Goal: Move the Town of Mammoth Lakes towards a more proactive approach to managing stormwater, improving water quality and minimizing the risk of flooding through the development and implementation of a Stormwater Management Plan.</p>

Organization Name	Organization Type	Project Title	Project Description
			<p>Objectives:</p> <ol style="list-style-type: none"> 1. Develop a Stormwater Management Plan that includes provisions for improved management and policy; Capital Improvement Program (CIP); maintenance and operations; and education and outreach. 2. Build upon the work previously completed by the Town, including the integration of the findings and recommendations included in the Erosion, Drainage and Flooding Project Final Recommendations Report dated April 11, 2008. 3. Identify, delineate and prepare to implement CIP projects identified within the Stormwater Management Plan.
US Forest Service	Other Federal Agency	Hilton Trails/Watershed Restoration	<p>This project proposes to repair identified trail/watershed interaction problem areas within the Hilton Lakes Watershed. Specific actions include: repairing headcuts, re-routing system trails out of sensitive montane and subalpine meadow systems, restoring abandoned trails. In addition, this project proposes to maintain existing erosion control structures on the system trails, placement of additional erosion control structures and enhancing stream crossing. This project will assist in restoring meadow hydrologic function and provide a sustainable trail system that is compatible with watershed processes. This project will also provide ecosystem resiliency for the restored meadows by enhancing water capture, storage and summer base flows.</p>
U.S. Forest Service	Other Federal Agency	Bishop Creek Sewage Treatment Plan	<p>The Bishop Creek Wastewater Treatment Plant (WWTP) will be brought up to standard by streamlining effluent flow, increase energy efficiency and decommission unused assets. The sewage disposal ponds will be repaired to comply with the terms of the State Water Resources Control Board order, which governs the operation of the facility. The plant services 97 connectors including seven (7) campgrounds, an RV dump station and the community of Aspendell. The current operating condition of the plant does not comply with the State issued discharge permit.</p>
US Forest Service	Other Federal Agency	Lee Vining Campground Watershed Evaluation	<p>This project proposes to inventory campgrounds and associated roads for maintenance, improvement or removal in Lee Vining Canyon where they</p>

Organization Name	Organization Type	Project Title	Project Description
			<p>contribute to negative watershed effect, degraded water quality and impaired meadow hydrologic function. Priority campgrounds include Lower Lee Vining, Moraine, and Aspen campgrounds.</p> <p>There is an opportunity to take a broader look at issues within this watershed incorporating stakeholders such as Southern California Edison, Los Angeles Department of Water and Power, California State Parks, Mono Lake Committee and local citizens in Lee Vining and surrounding communities among others.</p> <p>The Forest in collaboration with stakeholders would develop a preliminary proposed action to address identified issues, such as water quality and meadow hydrologic function, within the watershed.</p>
US Forest Service	Other Federal Agency	Oak Creek Gully restoration Implementation	<p>This project would implement restoration recommendations from the collaborative planning effort. The collaborative planning effort is being conducted jointly with the Ft. Independence Tribe and the Inyo National Forest. At this point, it is uncertain exactly of what the restoration effort will consist. Potential projects include: engineering of up to three flood diversions, two reservoirs, three miles of creek restoration (tribal, private, and National Forest lands) and up to 500 acres of irrigation systems. Creek restoration could consist of reshaping the channel and improving bank stability, placing riprap in the channel to retard bank erosion and/or riparian plantings among other treatments.</p> <p>The collaborative planning effort contains a detailed account of history of the fire/flood sequence and consequences in the Oak Creek Watershed.</p> <p>This project would benefit the Tribe, Oak Creek Stakeholders (Private landowners), Mt. Whitney Fish Hatchery, Inyo National Forest, as well as local flora and fauna.</p>

Phase II Project Needs Analysis

The information collected in the online project upload form allowed for more extensive analysis of the types of projects currently needed within the Inyo-Mono IRWM region than was possible in the Phase I Plan. Again, 36 projects are part of this analysis. This analysis will be re-done with information from all 46 projects in 2015.

Fifteen of the 36 projects were input by urban water suppliers (Figure 15-1). There are only two urban water suppliers in the Inyo-Mono IRWM region: Mammoth Community Water District and Indian Wells Valley Water District. The next two largest categories of project proponents are County Agency and Native American Tribe. Public Utilities Districts and Resource Agencies round out the 36 projects.

Figure 15-2. The original 36 Phase II projects split out by Project Proponent organization type.

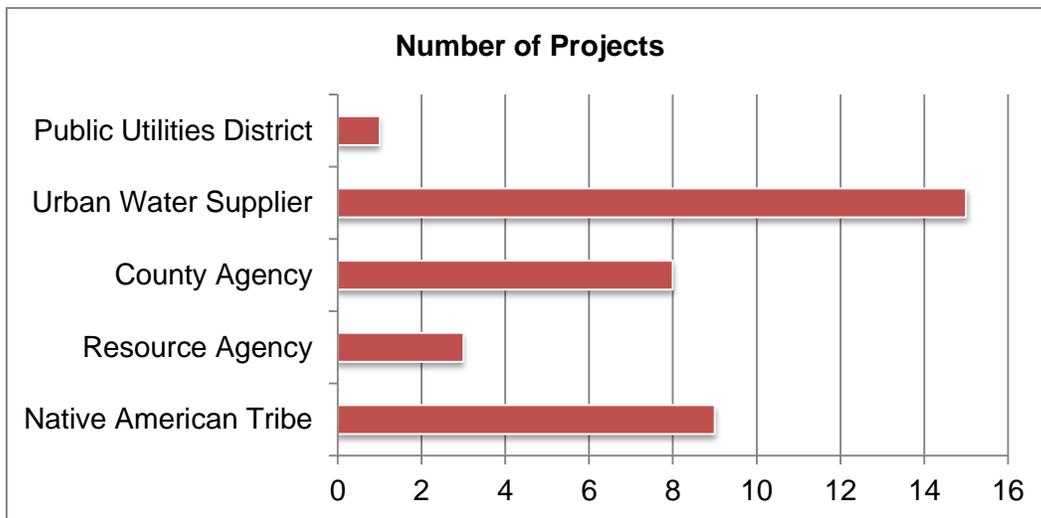
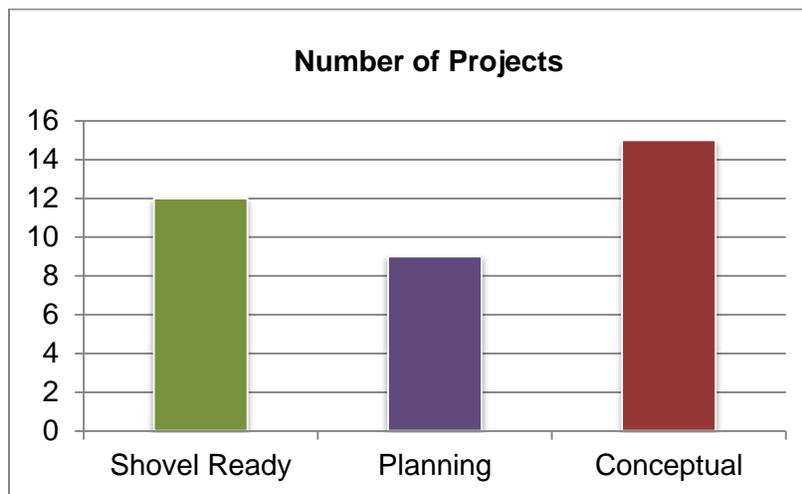


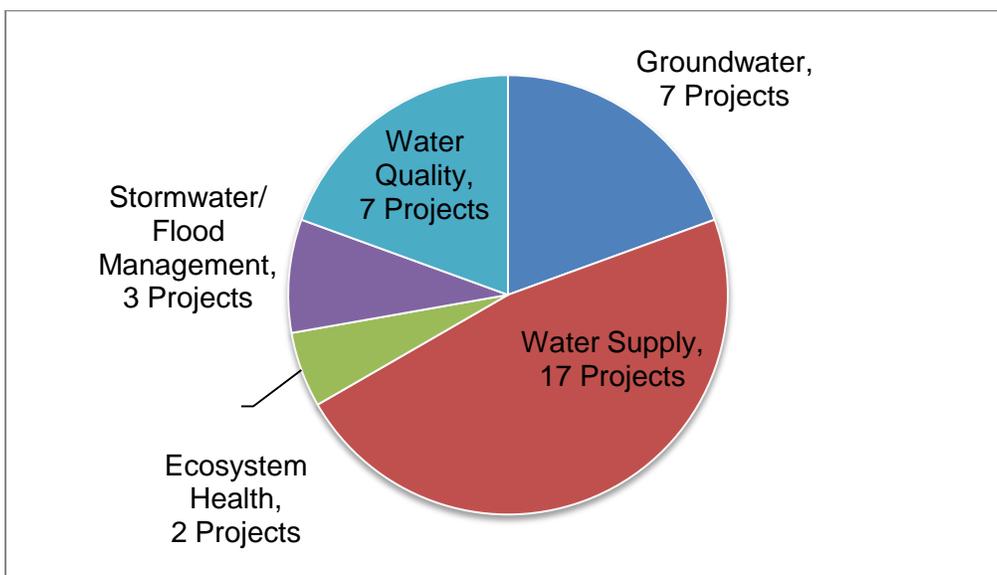
Figure 15-3. Phase II project status.



Of the 36 Phase II projects, 12 are shovel-ready, nine are in the planning phase, and 15 are conceptual (Figure 15-2).

As part of the online project upload process, potential project proponents were asked to self-identify a primary project evaluation bin. These evaluation bins will be used in the revised project evaluation and ranking process for future rounds of Proposition 84 Implementation funding (Chapter 14), and also perhaps for other types of project funding. For the purposes of this analysis, the self-selection of evaluation bins was used to determine the primary type of project. Not surprisingly given the overriding water-related concerns in the region, almost half of the projects were identified as Water Supply projects (Figure 15-3). The other two significant categories of projects were Water Quality and Groundwater. Ecosystem Health and Stormwater/Flood Management represented the smallest two categories. These five categories were modified from the eight regional Objectives as discussed in Chapter 7. In the Phase I Plan, there was no Objective focused on groundwater management, and it became apparent that this was a major planning gap within the region, as is evident by the use of the Groundwater evaluation bin in the online upload form and discussions with various RWMG Members about groundwater concerns.

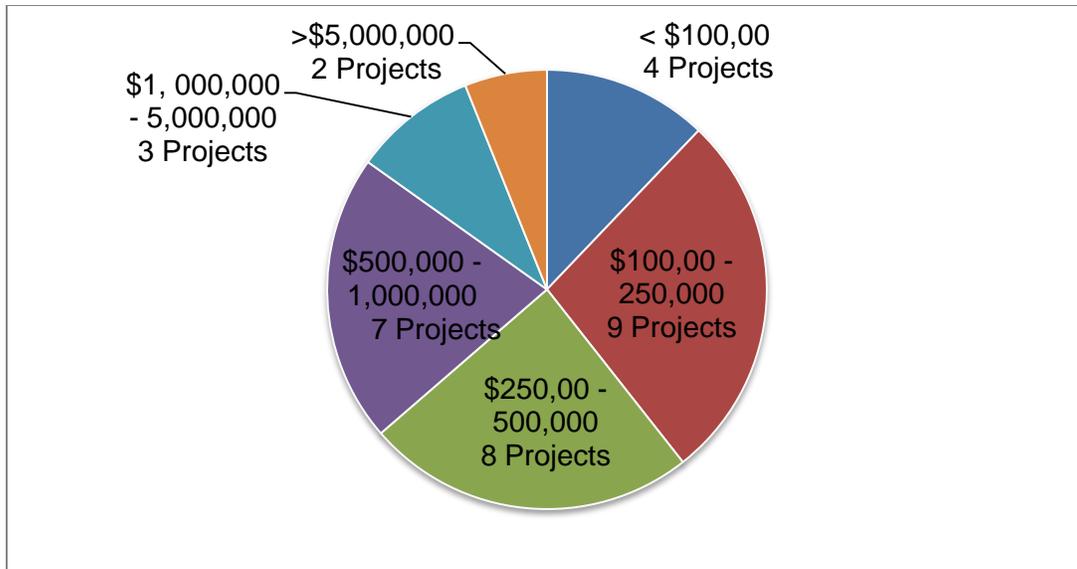
Figure 15-4. Phase II project type as modified from self-selected evaluation bins in the online project upload form.



Another important factor to consider in the analysis of regional project needs is cost. Thirty-three of the 36 projects were able to provide some estimate of project cost, including many of the concept-only projects. Given this, an estimate of the total cost of project needs in the region is \$121,825,000. This includes a \$24,000,000 project and an \$80,000,000 project, both in the Indian Wells Valley Water District. Removing those two projects from the calculations, the average project cost is approximately \$580,000. The individual project costs range from \$42,000 to \$80,000,000. Separating out projects submitted by disadvantaged communities (DACs), the average project cost is \$380,000, and projects range from \$43,000 to \$994,000. A total of \$6,032,000 in matching funds are available from project proponents to count towards the total \$121,825,000 in project needs. As many of the projects are being sponsored by DACs,

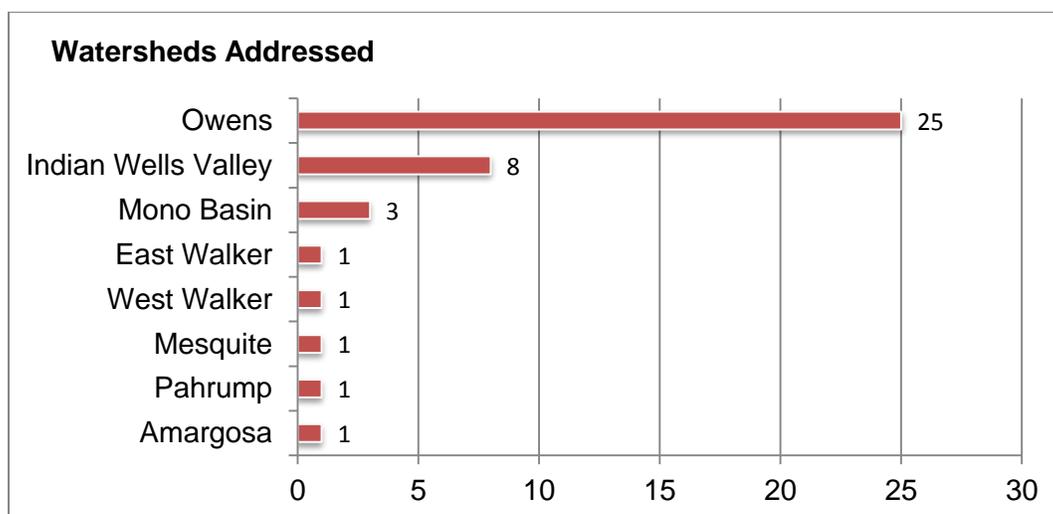
however, the RWMG will be seeking waivers to matching fund requirements. Figure 15-4 shows a further breakdown of this information by cost category:

Figure 15-5. Phase II project cost by category.



Another aspect of the analysis was to examine the geographical distribution of the benefits of the 36 Phase II projects. Through the online upload form, the project proponents were asked to identify which area watershed(s) their project(s) would address. The most projects focused on the Owens watershed. This is where the majority of the population in the Inyo-Mono region resides. It is also the area from which water is exported to Los Angeles, so this area receives a great deal of attention. The overall results from this analysis can be seen in the Figure 15-5.

Figure 15-6. Number of Phase II projects benefitting individual Inyo-Mono watersheds.



The final part of the analysis is an examination of projects addressing water-related needs in DACs. Bringing financial and technical resources to Inyo-Mono DACs has been and continues

to be a top priority for the RWMG. Understanding their needs will better allow the RWMG to seek out the appropriate resources. Only by building long-term relationships with DACs and working with them on a continual basis can we ensure that their needs are addressed in a timely manner. Furthermore, it is not enough to simply understand that there are project needs in these communities. In the Phase I Plan and subsequent Implementation application process, numerous DAC project needs were identified, and several DAC projects even went through the ranking process, but many DAC project proponents did not have the capacity to complete the long and complex DWR grant application. Particularly difficult for DACs was the economic analysis required within the application.

Table 15-2. Inyo-Mono DACs included in Phase II projects.

DACs in Phase II Projects
Benton
Big Pine
Big Pine Paiute Tribe
Coleville
Fort Independence Indian Reservation
Independence
Inyokern
Laws
Lone Pine
Lone Pine Paiute-Shoshone Reservation
Tecopa
Topaz
Trona
Walker

Therefore, having an initial list of Phase II projects from DACs will allow the RWMG to work with them in the Implementation application process and provide them the resources necessary to submit competitive funding applications.

Of the 36 Phase II projects submitted, 20 were submitted on behalf of, or will benefit, DACs. Table 15-1 provides a list of the DACs that are included in the 20 projects.