

San Gorgonio IRWM Plan Project List

Project Number	Project Title	Sponsor	Project Grouping	Project Description
Plan Projects				
P-1	Fire Flow Improvements in County Areas	City of Banning	Group A	County areas within the southern part of the City of Banning Water Service Area have been identified as deficient in meeting fire flow criteria. To improve available fire flow, a combination of new pipelines and PRV stations are proposed. The project would include design and construction of the necessary facilities.
P-2	Storage Tank for Camp Comfort Wells	City of Banning	Group A	The project would construct a new 100,000 gallon storage tank to primarily be used for fire flow protection and operational flexibility in case of extended power outages. The four City of Banning wells near Camp Comfort, designated as 9, 10, 11 and 12, would pump into this storage reservoir rather than directly into the Banning Water Canyon Transmission Main. The new storage tank would provide 1,500 gpm of fire flow for up to 1 hour. For providing water to Banning Heights Mutual Water Company through the emergency inter-tie at the historical average of 35 gpm, the 100,000 gallon supply in the proposed tank would last approximately 2 days.
P-3	Wastewater Treatment Plant Upgrade	City of Banning	Group A	The proposed project will upgrade the existing City of Banning Wastewater Treatment Plant to provide tertiary treatment with the goal of producing recycled water, both for direct non-potable reuse and for groundwater augmentation. Currently the City of Banning has 90% plans and specifications, but wishes to revisit the selected treatment technology to ensure it is the most economically viable solution, before proceeding with construction. Because both the Butterfield and Rancho San Gorgonio Specific Plans depend on the availability of recycled water, they are identified as potential partners and will likely pay for the extension of the City's existing non-potable distribution system to be able to connect to the WWTP. Cabazon Water District and the Morongo Tribe are both downgradient of the City of Banning wastewater treatment plant and would benefit from the addition of tertiary treatment to achieve higher rates of nitrogen removal.
P-4	Upsizing Emergency Connection with City of Banning	BHMWC	Group A	This project would upsize an existing emergency connection between the City of Banning and Banning Heights Mutual Water Company (BHMWC) at the northern end of their respective distribution systems. An upsized emergency connection would improve BHMWC's fire flow protection. A PRV would be incorporated into the emergency connection that would also benefit Banning's system by pressurizing fire hydrants in the Banning Water Canyon that are currently not pressurized.

San Gorgonio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
				A second phase of the project would allow water to flow through the BHMWC distribution system and connect back to the Banning system with a new connection at the southern end of the BHMWC system. This would increase the reliability of the City of Banning's Wells 9, 10, 11 and 12 by making their supply available to the City in the event of main breaks that require the isolation of the aging Banning Water Canyon Pipeline.
P-5	Chromium-6 Treatment	City of Banning	Group A	Design and Construction of Chromium-6 Treatment facilities at up to 9 groundwater wells in the City of Banning. Depending on the revised MCL adopted by the State, anticipated to be made public sometime in 2019, the number of wells needing treatment may need to be revised up or down. The proposed treatment technology is Strong Base Anion Exchange, although alternatives would be considered as part of preliminary design.
P-6	Main Pressure Zone Separation Project	City of Banning	Group A	The Main Pressure Zone in the City of Banning potable water system currently encompasses approximately two thirds of the service area and static pressures range from 40 psi to 235 psi. The proposed project would split the zone into Upper Main and Lower Main pressure zones to reduce static pressures in what will become the Lower Main Zone. The reduced pressures are expected to help decrease distribution system water losses due to leaks and main breaks. Additional operational benefits include the ability to isolate major outages and to better track demands in different areas of the City. The zone separation will happen by way of multiple PRV valves, to achieve redundancy and reliability. The proposed project will include design and construction of the PRV stations.
P-7	Recycled Water Distribution System Expansion (Phase 1B and 1C)	City of Banning	Group A	The proposed project would expand the City of Banning's existing non-potable distribution system with an additional 2.8 miles of 24" pipe and 0.6 miles of 8" pipe. The expansion would make it possible to connect the distribution system to the City's Wastewater Treatment Plant, which will start producing recycled water after tertiary treatment upgrades. Plans and specifications have been completed for this project.
P-8	Banning/Cabazon Pipeline	SGPWA	Group A	This project would upsize an existing emergency connection between the City of Banning and Banning Heights Mutual Water Company (BHMWC) at the northern end of their respective distribution systems. An upsized emergency connection would improve BHMWC's fire flow protection. A PRV would be incorporated into the emergency connection that would also benefit Banning's system by pressurizing fire hydrants in the Banning Water Canyon that are currently not pressurized.

San Gorgonio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
				A second phase of the project would allow water to flow through the BHMWC distribution system and connect back to the Banning system with a new connection at the southern end of the BHMWC system. This would increase the reliability of the City of Banning's Wells 9, 10, 11 and 12 by making their supply available to the City in the event of main breaks that require the isolation of the aging Banning Water Canyon Pipeline.
P-9	Charles Street Septic Conversion	City of Banning	Group B	A City block along Charles Street, east of San Gorgonio Avenue, is currently on septic. Approximately 1600 feet of new 8" sewer main and 45 sewer laterals would be constructed and connected to the surrounding collections system. The additional flows to the wastewater treatment plant would be treated and made available for reuse as recycled water once the City upgrades its treatment facilities.
P-10	Victory Avenue Septic Conversion	City of Banning	Group B	A portion of Victory Avenue, west of Florida Street, is currently on septic. Approximately 600 feet of new 8" sewer main and 10 sewer laterals would be constructed and connected to the surrounding collections system. The additional flows to the wastewater treatment plant would be treated and made available for reuse as recycled water once the City upgrades its treatment facilities.
P-11	Wesley Street Septic Conversion	City of Banning	Group B	A portion of Wesley Street, between San Gorgonio Avenue and Hargrave Street, is currently on septic. Approximately 1600 feet of new 8" sewer main and 15 sewer laterals would be constructed and connected to the surrounding collections system. The additional flows to the wastewater treatment plant could be treated and made available for reuse as recycled water once the City upgrades its treatment facilities.
P-12	Dedication of Jensen Creek/Diversion Rights to Environmental Proposes	Cabazon Water District	Group B	Dedication of Cabazon Water District's Jensen Creek Stream Diversion rights to environmental purposes, specifically wildlife, with the construction of water guzzlers or similar devices within the Jensen Creek drainage area, on the lower mountainside and the grading of roads for service to the facilities.
P-13	Pipeline Rehabilitation Asset Study	City of Banning	Group B	The proposed project would conduct a study of the existing City of Banning Water Distribution System, including review of available data and additional field investigations, to develop a pipeline rehabilitation plan. Anticipated tasks would include updating the City's GIS system with complete pipeline age and material information as well as leak history and condition assessment if available.
P-14	Installation of System-Wide Isolation Valves	Cabazon Water District	Group B	Installation of isolation valves throughout the water system (within both DAC and SDAC areas). There are a limited number of isolation valves (estimated 150, of which an estimated 100 are functional) throughout Cabazon; therefore, extensive and significant

San Geronio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
				dewatering of pipelines and waste of water results when repairs or replacements are required. The project, consisting of 45 replacement valves and 210 additional valves, will reduce water waste during pipeline dewatering for repairs and replacements, improve system operation, and improve system reliability by limiting or minimizing service interruptions to customers and limiting waste of water.
P-15	Potable Water Storage Tank in the Northcentral Portion of Cabazon	Cabazon Water District	Group B	Construction of a new 1.0 MG tank in the northcentral portion of Cabazon (a Disadvantaged Community), in order to provide fire flow, operational flexibility, and system redundancy.
P-16	Potable Water Storage Tank in the Southeastern Portion of Cabazon	Cabazon Water District	Group B	Dedication of Cabazon Water District's Jensen Creek Stream Diversion rights to environmental purposes, specifically wildlife, with the construction of water guzzlers or similar devices within the Jensen Creek drainage area, on the lower mountainside and the grading of roads for service to the facilities.
P-17	Potable Water Well in Cabazon (SDAC Area)	Cabazon Water District	Group B	The project consists of site search, selection, and acquisition; a hydrologic (aquifer zone) test well; and construction of a potable production well, a vertical turbine pumping unit, electrical service equipment and gear, plant and site piping, offsite electrical service extension and offsite water extension, and site improvements, including pump building, parking and drive pavement, and site fencing with vehicle and pedestrian gates. The District provides water service on both sides of Interstate 10 (I-10) and the Union Pacific railroad tracks, and its water system is essentially divided by I-10 and the Union Pacific railroad tracks, except for a single 8" pipeline interconnecting the north side and south side water systems. The pipeline is old (68 years, and well beyond its service life of 50 years) and is located in the western end of the District. The southeastern portion of the District's water system serves a Severely Disadvantaged Community (SDAC) with a single potable water well. Another potable water well south of I-10 would increase supply reliability and provide redundancy to the SDAC area.
P-18	Replacement Pipeline Crossing Under Interstate 10	Cabazon Water District	Group B	Construction of a 16" replacement pipeline, including conductor casing under Interstate 10 and the Union Pacific railroad tracks, connecting northern and southern portions of the water system, which are separated by Interstate 10 and the Union Pacific railroad tracks. The existing 8" pipeline is old (68 years, well beyond its service life of 50 years) and inadequate; it is unable to convey demand and fire flow from north to south simultaneously. Also, the replacement pipeline will connect to the District's existing 16" pipelines at each end of the replacement pipeline.

San Gorgonio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
P-19	Wastewater Treatment Plant and Recycled Water Program	Cabazon Water District	Group B	Development, construction, and implementation of a wastewater collection, treatment, and conveyance system in order to reduce potential contamination of nitrates from entering into the Cabazon sub-basin of the Coachella Valley groundwater basin, and the concurrent construction of a recycled water system, to implement a program for making recycled water available for County Parks and Recreation facilities and other locations where feasible.
P-20	Well Pumping Plant Improvements	Cabazon Water District	Group B	Replacement of an existing pumping unit and related electrical equipment at two existing potable water wells, both located north of Interstate 10, as well as installation of a new water level measuring access port (for monitoring groundwater levels) at another existing potable water well, which is located south of Interstate 10. Water levels have declined and the existing pumping units do not perform as needed; therefore, they need to be replaced.
P-21	Emergency Standby Generator at Well Pumping Plant 1	Cabazon Water District	Group B	Installation of emergency backup power (standby generator) at one of the District's well pumping plants (Well Pumping Plant 1).
Conceptual Projects				
C-1	Altitude Valves to Maximize Emergency Storage	City of Banning	N/A	The City of Banning has existing pressure zones that stretch a considerable distance, creating slightly different Hydraulic Grade Lines (HGLs) from one end of a zone to another. Depending on seasonal demand patterns, this leads to an underutilization of existing storage reservoirs. With altitude valves that are independently controlled at each reservoir, this project aims to maximize the use of existing storage facilities. Reservoirs that have been identified as potentially benefiting from altitude valves are the three San Gorgonio Reservoirs, and the Southwest Reservoir. Another existing reservoir, the Brinton Reservoir, has an altitude valve but must be operated below capacity so as to not overflow the Southwest Reservoir. Once the other reservoirs are retrofitted with altitude valves, all reservoirs will be able to operate at their designed maximum water level, with an anticipated increase in usable storage of approximately 1.0 million gallons.
C-2	Arundo and Tamarisk Mapping and Systematic Removal	City of Banning	N/A	Arundo and Tamarisk are invasive species that thrive in the region and can crowd out native flora, thereby degrading habitat and decreasing regional biodiversity. Both arundo and tamarisk are attracted to riparian habitat, and once established are very difficult to remove. Tamarisk thickets have been known to draw large amounts of groundwater to outcompete other species. At the same time, tamarisk can concentrate

San Geronio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
				salts on the ground surface to make the habitat inhospitable to other plant species. The initial phase of the proposed project would create a dynamic GIS map of known arundo and tamarisk that can be constantly updated, with community involvement. Community outreach and education would be a part of the initial phase. Once a substantial amount of data has been gathered for the region, an implementation phase would be undertaken to remove as many arundo and tamarisk as economically feasible using a combination of cost sharing with private homeowners and removal of these species from public lands as operating budgets allow.
C-3	Banning water Canyon Pipeline Relining	City of Banning	N/A	The City of Banning depends on the Banning Water Canyon for nearly a third of its water supply. There is a single transmission pipeline that conveys water from 11 groundwater wells and it has a history of repeated main breaks, indicating it has reached the end of its useful life. Due to the difficult terrain and few services along this transmission main, the City is proposing to reline some segments of the 100-year-old pipeline rather than replacing it entirely. The project would evaluate several methods and products for relining or otherwise rehabbing the pipeline and move forward with the selected option. The City anticipates that this alternative to replacing the pipeline will be less disruptive to the natural habitat, including portions that cross USDA Forest Service property, and result in fewer GHG emissions.
C-4	Banning Water Canyon Pipeline Replacement Phase 1A	City of Banning	N/A	The Banning Water Canyon Pipeline Replacement Phase 1A project will construct approximately 1 mile of 24" ductile iron pipe to replace existing 16" and 18" riveted steel pipe that has reached the end of its useful life. Plans for Phase 1A have been prepared, as part of the Phase 1 project, currently in construction. The main benefit of the project is increased reliability of the Banning Water Canyon system, which consists of 11 potable water wells and transmission main serving the City of Banning and, on an emergency basis, the Banning Heights Mutual Water Company. An added benefit is a reduction in system losses, both from slow leakage and main breaks. Finally, relocating the alignment of the pipe to the existing maintenance road will help protect habitat, including on USDA Forest Service properties.
C-5	Conservation Program and Community Outreach	City of Banning	N/A	Ramp up conservation efforts through consistent community outreach, on a regional scale. Educate people about rebates and technologies that can help them save money by conserving water. Promote drought-friendly landscaping; work with HOAs to remove large turf areas that do not serve a functional purpose. Pool resources for outreach materials with other stakeholders in the region.

San Gorgonio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
C-6	Emergency Backup Power at Critical Productions Facilities	City of Banning	N/A	This project proposes to install emergency backup power generators at critical production facilities to ensure reliability of the potable water system in case of power outages. Three wells have been identified by the City of Banning as being a high priority for emergency power, based on their location relative to the demands of the system. These wells are Well 7, Well 8, and Well M3.
C-7	Groundwater Model Calibration	City of Banning	N/A	This project would continue the work of coupling the watershed model and various groundwater models for the region that was started as part of the San Gorgonio IRWMP. As it exists, the model is able to run, but the results do not closely resemble field measured data. The next step in development of a regional groundwater model would add the Beaumont Basin along with the Banning Bench unit, Banning Water Canyon unit, and Banning unit. Groundwater pumping data, estimated septic return flows, and wastewater discharge flows would be incorporated into the model as well as recharge data from imported water and recycled water groundwater augmentation. The benefits of having a calibrated regional model are many, among them the ability to better manage water resources for both long term and short term planning purposes.
C-8	Imported Water Recharge Facility	City of Banning	N/A	An imported water recharge facility, located in the City of Banning, in a location that would provide direct benefit to residents in the eastern portion of the San Gorgonio Pass region. This would require a pipeline from Cherry Valley to the recharge facility. It is proposed that the City of Banning would operate and maintain the recharge facility and use it for the dual purpose of recharging recycled water, anticipated to be available in the near future from the Banning Wastewater Treatment Plant. Additional potential benefits would be the use of the recharge ponds as a source of water for helicopters fighting brush fires in the area, and as outdoor recreation for local residents with walking paths around the ponds.
C-9	Location #2 Waterline Replacement	City of Banning	N/A	Location #2 Waterline Replacement is located on Nicolet Street, Cottonwood Road, George Street, and 12th Street in the City of Banning. This project will replace undersized pipes that have reached the end of their useful life, and relocate them to the street from their current location in alleyways. New high-accuracy meters, compatible with radio read technology will be installed as part of this project. This project would also install new fire hydrants at more accessible locations.
C-10	Location #3 Waterline Replacement	City of Banning	N/A	Location #3 Waterline Replacement is located on Geneva Street, Roberge Avenue, 22nd Street, sunrise Avenue, and Hays Street in the City of Banning. This project will replace undersized pipes that have reached the end of their useful life, and relocate

San Gorgonio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
				them to the street from their current location in alleyways. New high-accuracy meters, compatible with radio read technology will be installed as part of this project. This project would also install new fire hydrants at more accessible locations.
C-11	Recoating of Mountain Tank	City of Banning	N/A	The Mountain Tank, an existing 268,000-gallon potable water reservoir, has an interior coating that is deteriorating and needs replacement. Plans and specifications need to be prepared to temporarily take the tank out of service while maintaining normal water deliveries to the Mountain North Zone in the City of Banning. The new tank coating will improve water quality and extend the useful life of the Mountain Tank.
C-12	Redetermination of Safe Yield	City of Banning	N/A	Re-determine the safe yield for the various groundwater units that make up the San Gorgonio Pass Subbasin, to include: Banning unit, Banning Bench unit, Banning Water Canyon unit, Cabazon unit.
C-13	Reservoirs Seismic Evaluation and Retrofits	City of Banning	N/A	The City of Banning owns nine potable water storage reservoirs, some of which were built in the 1950's. The proposed Reservoirs Seismic Evaluation and Retrofits project will evaluate existing infrastructure to identify the most critical and cost effective improvements that can increase the reliability of the City of Banning potable water storage. Anticipated improvements would be flex joints, disconnecting overflow piping currently hard plumbed as it transitions underground, and possible retrofits to the ringwall foundation.
C-14	Sewer Main Relining and Point Repairs - North Banning	City of Banning	N/A	The older parts of the City of Banning's sewer system, primarily in north Banning have been shown to have higher Infiltration and Inflow following storm events, as confirmed with flow monitoring performed in January 2017. This puts unnecessary strain on the City of Banning Wastewater Treatment Plant, to be able to treat peak flows. The proposed project would reline and repair the segments of the collection system that have been shown to be in poor condition, based on CCTV video inspections. Additionally, older manholes would be repaired and sealed. Keeping rainwater out also has the added benefit of keeping wastewater in, which would increase the annual flows to the wastewater treatment plant, making this water available after treatment as recycled water. The initial phase of the project, as proposed, would focus on data gathering and plan development for a future implementation phase.
C-15	Smart Metering	City of Banning	N/A	The City of Banning currently has approximately 10,500 water meters that are manually read each month. The proposed project would retrofit the existing meters with a compatible electronic register and radio so they can be read automatically (AMR) by a receiver placed in a vehicle that would be driven around the City. The AMR system

San Geronio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
				would reduce mis-reads; capture smart statistics such as potential slow leaks, reverse flow, and major leak conditions; provide frequent updates for more accurate billing; and free up meter reading staff to provide a higher level of service when turn ons and turn offs are needed. A subsequent phase would install Automatic Metering Infrastructure (AMI) to read meters remotely on a continuous basis. AMI would allow both City staff and customers to access detailed consumption history reports which make it easier to conserve water and detect possible water theft.
C-16	Storm Water Capture Studies and Projects	City of Banning	N/A	Feasibility studies for storm water capture as part of new Master Planned Communities in the City of Banning, i.e., Butterfield and RSG. The improvements would bring together the benefits of flood protection and groundwater recharge. A third potential benefit would be the use of the basins for recharge using recycled water.
C-17	Water Canyon Recharge Facilities	City of Banning	N/A	This project would be to design and construct new and/or expanded basins in the Banning Water Canyon. Existing undersized recharge basins would be consolidated and enlarged to increase capacity, and enhanced with the addition of desilting basins. The primary source of water would be stormwater runoff and snowmelt.
C-18	Water Canyon Storage Reservoir	City of Banning	N/A	A proposed potable water storage reservoir near Camp Comfort in the Banning Water Canyon will increase the reliability of water service in case of power outages as well as offer operational flexibility so that wells 9, 10, 11, and 12 can be turned off periodically to allow the local aquifer to recover. The proposed reservoir will have a capacity of 180,000 gallons to offer fire flow protection of 1,500 gpm for a two hour duration.
C-19	Banning MDP – Line A-1	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. A-1 drains the intersection of Westward Avenue and 8th Street. The line is an underground drain that extends easterly in Westward Avenue to a point of junction with Line A at 4th Street.
C-20	Banning MDP – Line A-2	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line A-2 is a future extension of the underground drain which is now completed to the intersection of Ramsey Street and 8th Street. The proposed storm drain extends westerly from 8th Street in Ramsey Street to a point approximately 600 feet west of 12th Street.

San Geronio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
C-21	Banning MDP – Line A-3	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line A-3 drains the intersection of 8th Street and Williams Street. The line is an underground drain that extends easterly in Williams Street to an outlet into the old Line A storm drain.
C-22	Banning MDP – Line A-4, Stage 2	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line A-4 drains a large local area north of Gilman street between Banning MDP Lines A and C. The line is an underground drain which extends some 1200 feet easterly in Gilman Street to 8th Street. From there it continues southward in 8th Street and discharges into the existing realigned segment of Line A-4, Stage 1 at Wilson St.
C-23	East Gilman Home Channel aka Banning MDP Line A	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. The East Gilman Home Channel collects runoff from a 1.14 square mile watershed, one of the major watersheds draining into Banning. The channel begins in the mouth of a canyon approximately 2,000 feet north of the intersection of Wilson Street and 16th Street, and continues southeasterly to the intersection of Nicolet and 8th Streets. Partial segments of this channel have been constructed. The connecting reaches of Line A between Williams and Nicholet St are to be constructed.
C-24	Banning MDP Line B	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line B extends northerly to Wilson Street, the Gilman Home Channel segment completed in 1972. The line proposed is a concrete lined channel located within the existing well-defined wash. A double 10' x 6' box culvert is proposed to replace the existing double 48" CMP's under Wilson Street when the street is improved in the future.
C-25	Banning MDP Line C-1	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line C-1 is proposed to improve the existing upstream inlet structure to provide a debris storage capacity of 0.5 ac-ft.
C-26	Banning MDP Line C-2	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line C-2 is an underground drain that relieves a drainage problem on Indian School Lane. The line extends some 500 feet westerly in Indian School Lane to an outlet into Line C.

San Gorgonio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
C-27	Banning MDP Line C	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line C is a 7'Wx6'H rectangular concrete channel that will replace the existing rock and mortar channel upstream from Wilson Street, and extend to the existing Indian Canyon Debris Basin.
C-28	Banning MDP Line D-1	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line D-1 is an underground drain that begins at Cherry Street, extends easterly in George Street to Hathaway Street, and continues south in Hathaway Street to confluence with Line D at Ramsey Street.
C-29	Banning MDP Line D	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Portion of Line D is constructed. Increased inlet capacity is required at several locations and some improvement of the restriction just upstream from the freeway is necessary. It is recommended that 378 feet of catch basin inlets be added. The improvement to Line D between Hathaway Street and Interstate 10 will involve the removal of an existing restricted covered channel and construction of an 8'w x 4'h RCB in Ramsey Street.
C-30	Banning MDP Line E-1	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line E-1 is an underground drain that helps relieve drainage problem downstream on Ramsey Street. The line extends easterly in George Street to Woodland Avenue and continues southerly in Woodland Avenue to Nicolet Street.
C-31	Banning MDP Line E	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Recommended improvements for Line E consist of improving the inlet capacity on Ramsey Street by the addition of 157 lineal feet of catch basin inlets. The project will also look at feasibility of construction of a 60 inch diameter pipe parallel to existing storm drain along Ramsey Street from Sunrise Avenue and draining into the mainline channel (approximately 1200 feet).
C-32	Banning MDP Line F	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line F is an underground drain in San Gorgonio Avenue, extending from the Southern Pacific

San Gorgonio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
				Railroad tracks south to an outlet at Smith Creek. Line F is needed to for flood risk management for development of properties between 4th Street and San Gorgonio Avenue.
C-33	Banning MDP Line G	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line G is an underground drain that extends southerly in Hargrave Street from Lincoln Street to the existing drain at Wesley Street.
C-34	Banning MDP Line H	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line H is an underground drain that extends southerly in Hathaway Street from Barbour Street, to an outlet at Smith Creek.
C-35	Banning MDP Line J-1	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line J-1 is an underground drain which services the tributary area between Highland Springs Channel and Smith Creek Channel. It carries runoff from the existing 48 inch RCP, downstream to the Caltrans channel adjacent to the Interstate 10 freeway.
C-36	Banning MDP Line J-2	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line J-2 is an underground drain extending easterly in Ramsey Street some 2000 feet to the junction with Line J-1. This drain will help relieve the local drainage problem on Ramsey Street.
C-37	Banning MDP J aka Highland Springs Channel	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Major portion of Line J has been constructed along Highland Springs Avenue. The remaining portion includes the construction of the facility parallel to interstate 10.
C-38	Banning MDP – Line K-1	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line K-1 is a 9' x 7' RCB will drain 960 cfs from the total Smith Creek Basin peak discharge rate of 3,500 cfs, and convey these flows to Pershing Creek Channel (Line K) via Ramsey Street. This facility combines with Line K just south of Ramsey Street crossing.
C-39	Banning MDP K aka West Pershing Channel	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. West Pershing Channel includes an upstream extension of the existing channel along

San Gorgonio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
				Meridian Avenue. It is proposed to be constructed within the street right of way to the vicinity of 14th Street. At this point, the channel will extend easterly some 2200 feet to the natural channel emanating from the base of the hills. Downstream Line K channel junctions with Line L north of Ramsey Street and westerly of Omar Street. One cell of this box is to be used by proposed Line L. A rectangular concrete channel is proposed south of Ramsey Street to connect to an existing double 10' x 10' RCB under Interstate 10.
C-40	Banning MDP – Line L-1	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line L-1 provides an outlet for the area tributary to the intersection of Wilson Street and Mountain Avenue. The line is an underground drain that extends westerly in Wilson Street from Mountain Avenue some 450 feet.
C-41	Banning MDP – Line L	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line L aka East Pershing channel has been constructed in portion as part of improvements on Tract 30793. The Channel is required to drain the 340 acre watershed tributary to the low in Wilson Street located 1300 feet east of Highland Home Road. The proposed channel extends downstream from the southern limits of the Morongo Indian Reservation, some 1200 feet south along Mountain Avenue then southwesterly to the natural low. The channel then proceeds south some 2000 feet where it junctions with Line K south of Ramsey Street.
C-42	Banning MDP – Line N-1	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line N-1 is the upstream extension of the existing rock slope protection adjacent to the Prison Farm. It will reach to San Gorgonio Avenue along the north bank of Smith Creek. The project is intended to protect an existing City sewer line from Smith Creek flows.
C-43	Banning MDP – Line O	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line O is a drain in Sunset Avenue proposed to replace an existing 18" CMP between the SPRR and Ramsey Street. It is intended to intercept 10 year storm flows at the intersection of Ramsey Street and Sunset Avenue.

San Gorgonio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
C-44	Banning MDP – Line C-3	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Line C-3 is an underground drain which collects runoff. It extends from about 35 acres tributary to Indian School Lane, southeasterly 1300 feet along a wash and outlets into Sidney Street Channel (Line C-1).
C-45	East Gilman Home Debris Basin	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. The basin is located at the upstream end of Banning MDP Line A. The maximum embankment height is 28 feet with 18.7ac-ft of debris storage.
C-46	Montgomery Creek Debris Basin	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. The basin is located at the upstream end of Banning MDP Line E. The maximum embankment height is 16 feet with 22.7ac-ft of debris storage.
C-47	Smith Creek Basin	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Smith Creek Basin is located along Smith Creek between Gilman Street and Wilson Street, is proposed to reduce the 100 year peak runoff from 6,100 cfs to 3,500 cfs. This reduction is critical due to the limited capacity of the existing double 10' x 8' RCB culvert at the Interstate 10 freeway.
C-48	Smith Creek Channel, Line I-1	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Smith Creek Channel Line I-1 is an open concrete lined channel branching off to the east from Line I about one (1) mile north of Wilson Street. It extends northeasterly some 5200 feet to the base of the foothills. This channel is intended to intercept storm runoff from approximately one (1) square mile of drainage area.
C-49	Smith Creek Channel, Line I	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. Smith Creek Channel Line I is an open concrete lined channel from the mouth of the main tributary canyon to the north, down to the existing underground storm drain at the upstream side of the Interstate 10 freeway. Reinforced concrete boxes are proposed for road crossings. Since FEMA has determined this watershed to have a high debris potential, an inlet structure with a debris storage capacity of 6 ac-ft. is proposed at the upstream end, which is some 2 miles north of Wilson Street. The channel will intercept

San Geronio IRWM - Project List

April 4, 2018

Project Number	Project Title	Sponsor	Project Grouping	Project Description
				flows from approximately 2.6 square miles tributary to the mouth of the canyon. In order to maximize the flow capacity of the Interstate 10 freeway culvert at Pershing Creek and to perpetuate the Smith Creek and Pershing Creek flow patterns that exist today, a retention basin (see Smith Creek Basin) is proposed at Gilman Street, along with a proposed "split-flow" facility (see Line K- 1) in Ramsey Street.
C-50	West Gilman Home Debris Basin	RCFCWCD	N/A	This project is part of Banning Master Drainage Plan which collectively as a drainage system will protect the city of Banning from nearly 380 acres of FEMA floodplain. The basin is located at the upstream end of Banning MDP Line B. The maximum embankment height is 26 feet with 14.3 ac-ft of debris storage.