

ATTACHMENT 6
Monitoring, Assessment, and Performance Measures
Proposal: Westside IRWM
Project: Abandoned Well Incentive Program

Presented in the table below is the planned monitoring, assessment and performance measures that will demonstrate the Project will meet its intended goals, achieve measurable outcomes and provide value to the State of California.

Monitoring, Assessment, and Performance Measures				
Project: <u>Abandoned Well Incentive Program</u>				
Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Protect groundwater quality	Properly destroy abandoned well to protect groundwater quality	140 wells	Number of wells properly destroyed	The number of well destruction permits completed will be used to measure project performance

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Monitoring, Assessment, and Performance Measures				
Proposal: Westside IRWM				
Project: WDCWA Portion of the Sacramento River Joint Intake Project				
Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
<ul style="list-style-type: none"> • Preserve and enhance habitat and biological diversity of native and migratory species. • Promote and enhance water related recreational opportunities within the region (fishing). • Increase availability of suitable life-cycle habitat for threatened, endangered or imperiled native fish. 	Protect juvenile Chinook Salmon, Steelhead Trout and Green Sturgeon by replacing the largest unscreened surface water diversion facility on the Sacramento River.	All Sacramento River water diverted to the WDCWA will be screened to prevent the entrainment of migrating fish.	Completed construction of the Sacramento River Joint Intake Project in compliance with requirements of the project EIR, the California Department of Fish and Game Protest Dismissal Agreement and the positive barrier fish screen criteria of the Department of Fish and Game, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service.	Implement the Davis-Woodland Water Supply Project Positive Barrier Fish Screen Performance Evaluation and Monitoring Plan as required in the California Department of Fish and Game Protest Dismissal Agreement.

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Proposal: Westside IRWM				
Project: WDCWA Portion of the Sacramento River Joint Intake Project				
Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
<ul style="list-style-type: none"> • Provide new water supply to meet existing needs. • Provide reliable water supplies of suitable quality for multiple beneficial uses. • Promote reasonable use of water and watershed resources. 	Reduce dependence on groundwater for WDCWA member cities of Woodland and Davis.	Provide up to 30 MGD of surface water for the WDCWA member cities of Woodland and Davis to be used conjunctively with existing groundwater systems.	Maximize the use of surface water subject to dry season availability under California Term 91 regulations and Bureau of Reclamation Lake Shasta critical year condition declaration.	The Water Right Permits (in particular Permit 20281, Term 23) require the WDCWA to measure the instantaneous diversion rate, the amount diverted each day and the cumulative amount diverted, to maintain records of the daily readings, and to post each daily measurement on a publicly accessible website within forty-eight (48) hours after the measurement is made.
<ul style="list-style-type: none"> • Improve drinking water quality. • Reduce public health risks by reducing contaminants of concern in drinking water sources. • Meet all drinking water standards within the region. 	Reduce levels of TDS, arsenic, Hexavalent Chromium, nitrate and hardness in drinking water.	Reduce to levels of TDS, arsenic, Hexavalent Chromium, nitrate and hardness meeting drinking water standards and user requirements.	Measured levels of TDS, arsenic, Hexavalent Chromium, nitrate and hardness in existing groundwater supply and future surface water supply.	Chemical analysis of water as reported in each City's annual water quality report.

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Proposal: Westside IRWM				
Project: WDCWA Portion of the Sacramento River Joint Intake Project				
Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
<ul style="list-style-type: none"> Improve the quality of treated wastewater. Meet all wastewater discharge standards within the region. Preserve, improve and manage water quality to meet designated beneficial uses for all water bodies within the region. 	Reduce levels of Selenium, Manganese, TDS and Boron in water supply.	Reduce levels to minimize required upgrades at wastewater treatment plants and meet all state and federal wastewater discharge regulations.	Compliance with all relevant discharge quality standards.	Report of waste discharge from City's wastewater treatment plants.
<ul style="list-style-type: none"> Provide 100% reliability of municipal water supplies of appropriate quality to meet forecasted demand with the region. 	Diversify the water supply portfolio by supplying surface water to two cities currently 100% reliant on groundwater.	0 days per year where water suppliers invoke drought ordinances and require rationing.	Maximize the use of surface water subject to dry season availability under California Term 91 regulations and The Bureau of Reclamation Lake Shasta critical year condition declaration.	Monitor number of days water suppliers invoke drought ordinances and number of days rationing is required.

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Project: WDCWA Portion of the Sacramento River Joint Intake Project				
Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
<ul style="list-style-type: none"> Build a single intake to minimize adverse impacts to the Sacramento River riparian corridor and reduce the risk of large erosion events. Support regional collaborative projects that provide benefits for multiple agencies. 	One joint use of intake will reduce impacts from disturbance during construction and benefit multiple agencies.	Construction of a single intake facility serving two agencies and providing water for both agricultural and urban use.	Agreement between RD 2035 and WDCWA for constructing a single intake for both urban and agricultural use.	Successful construction of joint intake facility.
<ul style="list-style-type: none"> Restore Native vegetation and form and function along riparian corridors. Protect and enhance habitat and biological diversity of native and migratory species. 	Increase habitat for the Giant Garter Snake.	Existing habitat impacted by construction will be replaced at the 3:1 ratio.	Project will provide a total of 2.19 acres of new habitat.	Habitat will be created and measured under the mitigation monitoring requirements of the EIR.
<ul style="list-style-type: none"> Meet demand reduction of 20% by 2020 statewide water conservation targets. 	Meet or exceed goal.	20% reduction or more by 2020.	City monitoring of per capita use.	Water meters will be used to measure use.

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Presented in the table below is the planned monitoring, assessment and performance measures that will demonstrate the Project will meet its intended goals, achieve measurable outcomes and provide value to the State of California.

Monitoring, Assessment, and Performance Measures				
Project: <u>Dixon Main Drain / V-Drain Enlargement Project</u>				
Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Provide Adequate Flood Protection, Practice Integrated Flood Management and Resolve Water Related Conflicts	Reduce localized flooding in project area.	Provide capacity for runoff directly tributary to the project in the 10-year and 100-year storms.	Runoff from the 10-and 100-year storms will be contain within the channel banks of the project prior to the Eastside Drain Project construction.	Hydrologic and hydraulic modeling results for the project along with visual monitoring of flooding during storm events.
	Construct an outfall for a regional watershed including both urban and rural lands.	Provide an outfall with capacity in the 10-year storm for the Eastside Drainage Project.	Runoff from the 10- year storm will be contain within the channel banks of the project after to the Eastside Drain Project is constructed.	Hydrologic and hydraulic modeling results for the Eastside Drainage Project along with visual monitoring of flooding during storm events.
Restore Native Vegetation, restore ecosystems, expand environmental stewardship	Create wetlands by enlarging channel section and creating floodplain bench.	Create 5 acres of wetlands.	Low flow channels with perennially flowing water and floodplain benches and channel side slopes that remain saturated long enough during each wet season to promote sustainable growth of hydrophytic vegetation.	As-Built Report prepared and submitted to the Corps, RWQCB and the California Department of Fish and Game. Detailed annual monitoring reports for five years containing hydrology data, plant community sampling data and summaries and photographic documentation. Photos, taken from the same location each year will allow a visual analysis of the year to year changes that occur in the channels and the created floodplains benches.

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Project: <u>Dixon Main Drain / V-Drain Enlargement Project</u>				
Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
	Restore native vegetation by planting upland areas	Establish native vegetation 50 acres of upland habitat	Seed approximately 50 acres of uplands with a variety of native perennial grasses. Monitor and maintain for two years. Within two years, there will be at least 50% visual coverage by native grasses of the area seeded.	Upland area monitoring will include photo point establishment and photo monitoring annually to document plant survival and growth, quarterly surveying of planted vegetation to determine survival and semi-annual (spring and fall) surveys to determine need for weed control.
Address Pollution Sources, improve water quality, reduce instream erosion, protect surface water quality	Reduce erosion and improve water quality by fencing channel from livestock	Protect 24 acres of land currently accessible to grazing cattle with exclusionary fencing.	Construct 8,600 feet of permanent fence along the western project boundary to prevent cattle from accessing the channel	Construction management and inspections of the project documented with as constructed drawings.
	Reduce erosion by reducing channel water velocity through enlarging and planting channel section.	Decrease water velocity in large storm events.	Water velocity decreases with channels flowing at capacity through constructing a larger channel section with 4:1 slope banks and high water flood bench and planting channel bench and banks above the bench.	Construction management and inspections of the project documenting channel construction and planting. Inspections of channel during vegetation and wetlands monitoring.

Lower Putah Creek Main Channel Restoration: Monticello Dam to Dry Creek

ATTACHMENT 6 Monitoring, Assessment, and Performance Measures

Presented in the table below is the planned monitoring, assessment and performance measures that will demonstrate the Project will meet its intended goals, achieve measurable outcomes and provide value to the State of California.

Monitoring, Assessment, and Performance Measures				
Project: <u>Lower Putah Creek Main Channel Restoration: Monticello Dam to Dry Creek</u>				
Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Preserve and enhance water-related recreational opportunities in the Interdam Reach	Reduce weeds (esp. Himalayan blackberry thickets) that inhibit public access to public lands	Provide access to water's edge unobstructed by blackberry thickets	Number of occurrences and area of blackberry thicket controlled.	Photographs before and after.
	Higher populations of salmonids resulting from increased rearing habitat	Provide 2500 feet of new side channel rearing habitat (four locations).	Higher numbers of fish caught per hour of fishing	Fishermen exit surveys.
	Extend salmonid habitat to Winters	1.5 miles	Number of trout sampled in electrofishing surveys	Fish counts
Protect and enhance habitat and biological diversity of native and migratory species	Increased abundance and diversity of wildlife, increased area dominated by native fish	25% increase in species counts by river mile in restored reaches; 20% increase in nesting by obligate riparian and riparian dependent species; perennial salmonid habitat below Putah Diversion Dam extended by two miles, (50%) from Dry Creek to Highway 505.	Increased number of species per river mile in restored reaches; increased nesting by obligate riparian species; increased length of habitat occupied by salmonids in October surveys;	Fish and wildlife monitoring, species counts and observed nesting behavior compared with baseline studies
	Lower water temperature	2 degrees Celcius lower water temperature	Lower water temperature at downstream end of project compared with baseline data	Temperature loggers

Lower Putah Creek Main Channel Restoration: Monticello Dam to Dry Creek

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Improve the form and function of degraded natural channels	Increased area of floodplains adjacent to the flow channel that support natural recruitment of riparian vegetation and associated habitat	13 acres of new floodplains averaging 50 feet of width	New floodplains	As built surveys.
Implement invasive species management plan	Reduced number of occurrences and area occupied by invasive plants	90 percent reduction in invasive plants	Reduced weed populations	Updated weed maps
Restore native vegetation/form/function in riparian/aquatic corridors	Restored native vegetation abundance and diversity	13 acres of restored floodplain , 20 acres of weed resistant native vegetation replacing invasive weeds; 40 acres of native grassland with cottonwood overstory (NAWCA match)	Enhanced riparian vegetation	Photo documentation before and after restoration.
Enhance water supply	Reduced infiltration losses in summer via narrower flow channel; enhanced infiltration on new floodplains in winter; enhanced responsiveness of flows to changes in releases.	Average reduction of releases by 15 cfs	Reduced releases due to 1) reduced summer losses and 2) enhanced natural recharge from winter flows	Release records, flow monitoring

Attachment 6
Monitoring Assessment and Performance Measures
Middle Creek Flood Damage Reduction
and Ecosystem Restoration Project

Presented in the table below is the planned monitoring, assessment and performance measures that will demonstrate the overall Project will meet its intended goals, achieve measurable outcomes and provide value to the State of California.

Monitoring, Assessment, and Performance Measures				
Project: <u>Middle Creek Flood Damage Reduction and Ecosystem Restoration Project</u>				
Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Reduce flood risk and potential damage in the Project area to minimal levels.	Private property damage eliminated	Removal of 18 homes and 1,650 acres of property from behind a substandard levee	Direct measurement of the number of homes and acres of land acquired and protected from future development	Measured with the use of Geographic Information Systems (GIS).
	When floods occur, infrastructure damage is not significant	Elevate roadways above 1% annual chance flood	Project to elevate approximately one quarter mile of Highway 20 and one quarter mile of the Nice-Lucerne Cutoff	Project to elevate roadways and Record Drawings completed
		Reduce flood risk to PG&E transmission line	Floodproof and/or relocate PG&E transmission towers	Project and Record Drawings completed
Improve water quality on Clear Lake	Reduce frequency and magnitude of nuisance, cyanobacteria blooms in Clear Lake	Reduce nutrient inputs to Clear Lake	Reduce Clear Lake average chlorophyll-a concentrations by 26%	Direct measurement of nutrients and chlorophyll-a in the Clear Lake water column

Restore damaged open water and wetlands systems and their associated habitat values in the Project area	Restoring the area to serve as a functional floodplain-wetland-open water complex	Restore 765 acres wetlands, 230 acres riparian, 405 acres open water, and 250 acres floodplain	Acres of ecological system restored	Measured with the use of Geographic Information Systems (GIS) and aerial photographs.
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Presented in the table below is the planned monitoring, assessment and performance measures that will demonstrate this phase of the Project will meet its intended goals, achieve measurable outcomes and provide value to the State of California.

Monitoring, Assessment, and Performance Measures				
Project: <u>Property Acquisition, Middle Creek Flood Damage Reduction and Ecosystem Restoration Project</u>				
Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Reduce flood risk and potential damage in the Project area to minimal levels.	Private property damage eliminated	Removal of 18 homes and 1,650 acres of property from behind a substandard levee	Direct measurement of the number of homes and acres of land acquired and protected from future development	Measured with the use of Geographic Information Systems (GIS).

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Monitoring, Assessment, and Performance Measures

Proposal: Westside IRWM

Project: Regional Collaborative Water use Efficiency Program

Presented in the table below is the planned monitoring, assessment and performance measures that will demonstrate the Project will meet its intended goals, achieve measurable outcomes and provide value to the State of California.

Monitoring, Assessment, and Performance Measures				
Project: <u>Regional Collaborative Water Use Efficiency Program</u>				
Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Decrease potable water use and increase water supply reliability.	To provide reliable water supplies of suitable quality for multiple beneficial uses within the region.	900 HETs installed 400 HEW/turf replacement/rain garden rebates 50 rain barrel rebates	Number of high volume toilets replaced with HETs; HEWs installed; sq. ft. of turf removed; rain barrels rebated.	Quarterly reports will be submitted listing the number of HETs, HEWs, rain barrels installed, the amount of turf removed, associated costs of the program, and the calculated water savings.
Increase agricultural water use efficiency practices.	The adoption of agricultural Best Management Practices as they pertain to water use efficiency.	7 site assessments	The number of site inspections and agricultural irrigation audits conducted will be recorded.	Quarterly reports will be submitted listing the number of site inspections and agricultural audits, associated costs of the program, and the calculated water savings.
Promote reasonable use of water and watershed resources	Increased public awareness of best management practices for urban and agricultural water supplies.	The regional conservation program will use multiple venues (print, electronic, physical, and verbal) to deliver conservation information to the public in the region.	The number of site inspections/visits will be tracked, The number of brochures mailed out and materials distributed, The number of PSAs created and the number of workshop attendees.	Quarterly reports will be submitted listing the number of site inspections, brochures and materials distributed, PSAs created and number of workshop attendees. Associated costs of the program and the calculated water savings will also be reported.
Improve education and awareness	Improved awareness and education about	The regional conservation program	Number of workshops, brochures mailed out and materials	Quarterly reports will be submitted listing the number of brochures and

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Monitoring, Assessment, and Performance Measures

Monitoring, Assessment, and Performance Measures				
Project: <u>Regional Collaborative Water Use Efficiency Program</u>				
Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
throughout the region about water, watershed functions, and ecosystems and the need for sustainable resource management to protect community health and well-being.	water resources and water supply through conservation education for both children and adults.	will use multiple venues (print, electronic, physical, and verbal) to deliver conservation information to the public in the region.	distributed.	materials distributed, PSAs created and number of workshop attendees.
Increase access to high-efficiency plumbing fixtures for residents of small communities and one DAC in the region.	The installation of high-efficiency plumbing fixtures and appliances in small communities around Lake Berryessa.	50 HETs and 50 HEWs installed.	Number of HETs and HEWs installed.	Quarterly reports will be submitted listing the number of HETs and HEWs installed along with the associated costs of the program, and the calculated water savings.

ATTACHMENT 6 - Project Goals, Performance Measures, and Monitoring Plans
Project: Wastewater Storage Ponds and Disposal Improvements

Presented in the table below are the planned project monitoring, assessment, and performance measures that will demonstrate that the project will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. Unless already prepared, the information presented in this table should be incorporated into project monitoring plans as part of project implementation.

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods	Monitoring Plans
Meet all wastewater discharge standards.	Compliance with Waste Discharge Requirements (WDRs) regulated by the Central Valley Regional Water Quality Control Board (Regional Board).	No violations of the WDRs.	No Administrative Civil Liability Complaints (fines) issued by the Regional Board.	Daily observation by the District’s operator that there is an unpermitted spill has not occurred and that there is a minimum of 2-feet of freeboard in all storage ponds.	The District is required by the current WDRs to provide monthly, quarterly, and annual reports to the Regional Board. Included within these documents is a statement regarding any unpermitted discharges to a water body or encroachment into the 2-foot freeboard mark in any pond which are both violations.
Minimize accidental wastewater discharges to Lake Berryessa.	Increase Wastewater Treatment, Storage, and Disposal Facilities Capacity to handle subdivision build-out flows and an annual precipitation return period of 100 years.	<ul style="list-style-type: none"> • Upgrade existing wastewater storage capacity to accommodate the required design volume. • No wastewater discharges cause by excessive Inflow/Infiltration entering the collection system. 	No future discharges to Lake Berryessa.	<p>The Regional Board has issued a schedule to bring the District’s wastewater facilities into compliance.</p> <p>Additional fines could be issued to the District if the provided schedule is not adhered to.</p>	Same as above.

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods	Monitoring Plans
Reduce public health risks by eliminating treated wastewater discharges to drinking water sources.	Preserve the water quality of Lake Berryessa by preventing future discharges of treated wastewater to Stone Corral Creek which empties into the Lake.	Same as above.	Reduction of approximately 3.5* million gallons of treated wastewater entering Lake Berryessa annually. *Based on the average amount of wastewater discharges that occurred from 2005-2011.	Same as above.	Same as above.

ATTACHMENT 6 - Project Goals, Performance Measures, and Monitoring Plans
Project: Lake Berryessa Resort Improvement District

Presented in the table below are the planned project monitoring, assessment, and performance measures that will demonstrate that the project will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. Unless already prepared, the information presented in this table should be incorporated into project monitoring plans as part of project implementation.

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods	Monitoring Plans
Meet all water quality standards.	Compliance with the California Department of Public Health (CDPH) operating permit and all water quality standards.	No violations.	No water quality exceedances.	Daily observation of the water system by the District operators.	The District is required by the current CDPH operating permit to provide monthly, quarterly, and annual reports. Included within these documents is a statement regarding any water quality result exceedance.
Provide reliable water supply of suitable quality for a DAC	Replace all three water storage tanks and pump stations within the subdivision.	<ul style="list-style-type: none"> • Increase equipment redundancy. • Seismic stability in all tanks. • Minimize water leakage from the system. 	No water shortages caused by weather related issues or equipment failures.	SCADA system will alert operators of decreasing water levels.	Same as above.
Improve water-related public health for the region	Replace all three water storage tanks and pump stations within the subdivision.	Same as above.	No boil water notices.	Comparison of pre- and post-construction water quality data.	Same as above.