



ATTACHMENT 3

WORK PLAN



COSUMNES, AMERICAN, BEAR & YUBA RIVER
INTEGRATED REGIONAL WATER MANAGEMENT

ATTACHMENT 3 WORK PLAN

PROPOSAL ABSTRACT: This proposal addresses the critical need for improved infrastructure and drought preparedness within four rural and predominantly disadvantaged communities through a suite of water conservation and delivery-improvement projects. This effort is coordinated by the Cosumnes, American, Bear, and Yuba (CABY) regional watershed planning collaborative. The CABY region is situated entirely within the Mountain Counties Area as defined by the California Water Plan Update 2009 (DWR Update 2009). Although the Mountain Counties region makes up only 9.9 percent of the total land base and about 2 percent of the total population in California, it contributes over 60 percent of the state’s domestic water supply (DWR 2009). While the CABY region is relatively small in terms of land area and population compared to other California regions, the management of its watersheds and water infrastructure is a critical component of the state’s domestic water supply. Therefore, an investment of State funding in the economically disadvantaged portions of the CABY region stands to benefit not only local residents, whose very public health and safety is jeopardized by current conditions, but also the overall state domestic water supply, the quality of that supply, and the health of related natural and biological systems. These systems are directly impacted by inefficient water use, functionally obsolete infrastructure and the specter of climate change.

INTRODUCTION TO THE WORK PLAN

This attachment consists of two primary sections: 1) Introduction to the Work Plan and 2) Tasks/Scope of Work. The Introduction to the Work Plan presents a summary of the entire proposal, including proposal goals and objectives, purpose and need, the regional map and a description of how the proposal is consistent with the adopted CABY IRWM Plan. The first section also describes linkages to other projects that provide added benefits of the proposed projects.

The second section, the Scope of Work, includes detailed descriptions of the proposed implementation projects. Based on the goals and objectives of the proposal, the Scope of Work describes each task and the necessary work to complete each project. Where applicable, the tasks also identify the necessary internal work products and deliverables to DWR that can be used to assess progress and accomplishments.

As required, the tasks listed in the Scope of Work correspond to those shown on the Budget and Schedule discussed in Attachments 4 and 5. All supporting documentation necessary to substantiate work already completed is attached as appendices, cited below.

BACKGROUND

CABY is a collaborative planning effort that adopted an Integrated Regional Water Management Plan (IRWMP) in December 2006. Diverse stakeholder involvement was a priority from its inception, and today CABY comprises 45 organizations representing water districts, government agencies, and agricultural, tribal, environmental, and community groups. These members believe that cooperatively designing and vetting projects streamlines the planning process, thereby marshaling and maximizing resources and investments in project implementation.

The CABY region is made up of four watersheds—the Cosumnes, American, Bear, and Yuba--which combine to form a major drainage area of the western slope of the Sierra Nevada range, from the range crest to the Central Valley. The collective streams, rivers, lakes, and reservoirs of these watersheds flow into the Sacramento River and are part of the Mountain Counties Area as described in the California Water Plan Update 2009 (DWR 2009), which extends from the southern tip of Lassen County to the northern part of Fresno County. Although the Mountain Counties Area makes up only 9.9 percent of the total land base and 2 percent of the total population in California, it contributes over 60 percent of the State's domestic water supply (DWR 2009). What's more Folsom Lake, which receives water entirely from the CABY watersheds, has a 2,780 total acre feet storage capacity yielding the largest single outflow in the Mountain Counties Area (DWR 2009). Therefore, the future of California depends heavily on the management and quality of water supply and infrastructure within this relatively small region.

The 18-member CABY Planning Committee (PC) is made up of a subset of the 45-member organization collectively known as CABY, with representatives from a cross section of interests. The PC meets four times per year and average attendance is high with the majority of stakeholders participating in each meeting. Local support for CABY remains strong and the organization continues to grow every year, gaining roughly three new member agencies per year with no attrition. The fact that member agencies have invested significant funding (over \$800,000) in CABY and priority projects since 2007 is a demonstration of their support.

Biannually, the PC members meet and work collaboratively to identify the high-priority project development needs across the region. In 2008, the PC announced a “call for projects,” as part of its regular IRWMP update process. After reviewing dozens of projects covering a wide range of issues, the CABY PC voted to establish water system shortages and drought preparedness as the project development focus for 2009/2010.

These projects contemplated infrastructure improvements and long-range conservation planning as a strategy for responding to future climate change, water shortages and/or drought conditions. Projects from four communities – Nevada City, Washington, Alta/Colfax, and Grizzly Flats -- became the nucleus for a regional outreach and project development effort by CABY staff, aimed specifically at small, rural and disadvantaged communities with an emphasis on planning for and minimizing water shortages. Additional outreach was aimed at creating a pilot water trust entity to address the water needs of natural resources in the region during low flow or drought conditions, and climate change in the longer term.

The CABY staff spent all of 2009 working with targeted communities in the region to develop what CABY refers to as “application-ready” projects. Application-ready status refers to a level of project detail and “readiness to proceed” commensurate with DWR grant applications, or other government or foundation grant funding entities. Application readiness incorporated this essential premise: *Best Management Practices (BMPs) developed by the California Urban Water Conservation Council as appropriate responses to water shortages and climate change could also benefit smaller purveyors within the context of their respective resources and circumstances.* Therefore, similar BMPs have been incorporated into proposed projects when applicable and practical.

By working closely with its communities, CABY created a suite of integrated projects aimed at preparing the smaller and less affluent jurisdictions in the region to respond to individual or region-wide water shortage events as well as sustained impacts from climate change. Each potential project sponsor considered two basic but companion aspects of water shortage contingency planning: 1) water shortage needs assessments and drought preparedness and, 2) infrastructure-related improvement needs with attendant capital improvement needs assessments.

GOALS AND OBJECTIVES

CABY planning aims for a sustainable water management program that meets water needs without compromising the natural environment. CABY partners and water agencies recognize the value of investing in a diverse water supply portfolio that emphasizes efficiency and improves reliability in the face of droughts, emergencies, and climate change. The

goals and objectives for the proposal are a direct outgrowth of the regional vision articulated in the IRWMP and embody natural resource protection.

The following three goals and attendant objectives apply to small, rural or disadvantaged populations identified as high priority in the CABY region:

Goal 1: Provide safe, reliable and efficient water infrastructure to meet basic and immediate water supply needs, to maximize water conserved, to improve environmental conditions, and to ensure equitable water service levels.

OBJECTIVES

- 1- A Implement 12 water system infrastructure improvement projects in the disadvantaged communities of Nevada City and Washington; implement a critical water supply project within the rural community of Grizzly Flats and leak detection programs within these and Alta-Colfax jurisdictions to provide direct and immediate water savings to disadvantaged and rural communities. These infrastructure improvement projects will easily transition from the evaluation/design phase to implementation/action.
- 1-B Improve highest priority substandard or functionally obsolete water system infrastructure within four communities of the CABY region identified above.
- 1-C Develop integrated Geographic Information System (GIS) database and produce water infrastructure maps for Nevada City, Washington, and Grizzly Flats to allow more accurate planning and needs assessments, to update and improve hard copy maps, electronic database, and/or mapping systems.
- 1-D Improve environmental resource management in all four CABY watersheds by providing improved beneficial instream flows through periods of critical dry years through the Water Trust.

Goal 2: Proactively prepare for and increase resiliency to drought or unplanned water shortage conditions by building the institutional capacity of the CABY communities most in need of this planning.

OBJECTIVES

- 2-A Address and respond to the water shortage planning needs of Nevada City, Washington and Alta-Colfax developing *Water Shortage Contingency Plans* to include: 1) drought preparedness; 2) emergency supply shortages (e.g., due to

wildfire); 3) infrastructure, funding and staffing challenges; and, 4) climate change.

- 2-B Design and implement water shortage contingency solutions in these communities for practical application as both emergency and long-term strategies.
- 2-C Build from existing and in-place water shortage contingency planning efforts already developed for rural communities such as the *Grizzly Flats Drought Preparedness Plan (2007)*.
- 2-D Add benefit to the entire state’s water supply paradigm through the development and implementation of the Water Trust by 2012 whereby conserved water is made available within and outside the region for beneficial instream flow. This in turn will help assure benefits to wildlife and fisheries in the face of climate change.

Goal 3: Facilitate open exchange of project information for the benefit of other similar communities across the CABY region and the state.

OBJECTIVES

- 3-A Make available performance measures and measured outcomes of all CABY projects through use of the CABY website, meetings and other opportunities for exchange (e.g., newsletters).
- 3-B Support and develop interagency partnerships that result in sharing of data and exchanges in lessons learned in to maximize effectiveness, reduce error, and avoid "reinventing the wheel." For example, this proposal aims to develop projects that can serve as pilot projects for nearby rural communities with similar issues and needs. Project exportability thus can be used as a model for adjacent economically disadvantaged and rural communities in the CABY region and throughout the state.
- 3-C Encourage information sharing to enhance the development of water system solutions throughout the CABY region and beyond.

PURPOSE AND NEED

The purpose of this proposal is to meet the high-priority water infrastructure improvement and water shortage planning needs within rural and disadvantaged communities in the CABY region, as described below.

Infrastructure Improvement Needs: All four subject communities currently depend on old, degraded, substandard, or functionally obsolete infrastructure, whose improvement could benefit not only local health and safety and water supply, but natural systems and domestic supply outside the region. In some cases the water system infrastructure was originally installed in the 1800s. The targeted infrastructure is subject to extensive leakage and no longer functions to design capacity. Distribution lines within these local systems often fail to deliver to residents and fire fighters any pressure at all for multi-day intervals. Additionally, the tanks and storage facilities that supply these systems routinely spill and waste large amounts of treated water.

Due to the age of much of the infrastructure targeted in this proposal, repair is not a feasible option and the cost of replacement exceeds the financial resources of these communities. The following bulleted statements and photographs illustrate the urgent needs and deleterious conditions of the infrastructure in the subject communities:

- In Washington, a severely disadvantaged community (DAC) with a median income of \$21,667 per year, the system infrastructure routinely loses up to 20 percent of its treated water to leaks and spills, causing the district to pay to treat water for which it cannot bill.
- Also in Washington, some customers experience annual and unplanned water outages for multi-day intervals due to inadequate distribution system pressure.
- In the disadvantaged community of Nevada City, a number of residents served by the distribution lines proposed for replacement experience insufficient water pressure to simultaneously bathe and wash clothes.
- In Colfax, also a DAC, calculations indicate that the system experiences an approximate 38 percent annual water loss due to leaks.
- In Grizzly Flats, Washington and Nevada City unstable water pressure results in inadequate (e.g., instances of zero psi) water flows for fighting residential and wildfires especially during the peak fire season.
- Lack of funding has created a situation for Washington in which the water purveyor does not have sufficient organizational capacity to meet internal goals for water delivery programs.
- The community of Washington currently has no system maps (electronic or hard copy) on which to base future capital improvement planning to monitor system repairs or to support development of drought response actions. Similarly, the communities of Nevada City and Grizzly Flats have inadequate electronic system mapping to support future planning, system monitoring, or development of operational options.

- Grizzly Flats currently has no seasonal storage capacity making it extremely vulnerable to critical water shortage events both short and long term.

Even during periods of economic expansion and strength, these communities were unable to fund even the highest priority infrastructure improvements. During these economically constrained times, this capacity has dropped further, leaving towns and their inhabitants extremely vulnerable to continued system degradation and critical water shortage events. A chronic shortage of funds has resulted in continued system deterioration and associated water loss, thereby causing the jurisdiction to lose income at a time when revenues to support system improvements are especially critical. Conversely, proposed improvements will enhance local economic functionality, conserve local and State beneficial water supplies, and supplement flows for maintenance of natural systems in the face of climate change.

Water Shortage and Drought Preparedness: Climate change projections for the CABY watersheds in coming decades indicate the potential for significant fluctuations in water supply. Neither the community of Washington nor Nevada City currently have the resources to engage in drought preparedness planning or system upgrades to address critical water shortage events. Alta-Colfax is also in need of added assistance to address drought preparedness planning.

As described above, the water delivery systems of the subject communities are vulnerable to system performance problems resulting from substandard infrastructure and lack of available backup supply making planning for water shortage events all the more urgent. By way of example, in previous low-flow years, Washington was forced to run a quarter mile, two-inch PVC line to intercept source flows because the system intake was above the reservoir storage level. Improved planning efforts will help the disadvantaged and rural communities to proactively identify and address the system vulnerabilities and prepare for emergency responses to unplanned water shortage events.

The documents produced as part of drought preparedness will be exported outside the CABY boundaries, providing a benefit and serving the needs for rural and disadvantaged communities outside the CABY region.



This photo illustrates the age and poor condition of the water distribution lines in Nevada City.



Another illustration of the age and poor condition of the water system in Nevada City. This photo illustrates the diminished capacity of the city's water lines.



Major leaks in the water distribution system, such as the example shown in this photo, which was taken on Maybert Road in Washington, CA, are common occurrences within the WCWD service area. Leaks such as this will be prevented as a result of project implementation.

Benefits and Population Served: Populations of the four, subject communities are small and, in some cases, remote. The populations served are:

- Nevada City population 2,944 (website data states 2008 data)
- Washington population of 140 (2000 Census data)
- Alta population of 732 and Colfax population of 1,878 (website December 2010)
- Grizzly Flats population 647 (2000 Census data)

The current condition of the water system infrastructure, as described above, is unacceptable in meeting health and safety concerns, regardless of population size. Bringing water delivery systems in the CABY region to an acceptable level of safety and efficiency will demonstrate a commitment on the part of the State to rural and disadvantaged communities, along with regions of greater wealth and population. Because of the limited resources available to disadvantaged communities, these purveyors are inherently less able to provide sustainable water delivery to their customers. These communities do not have access to funds in order to conduct needs assessments and to implement other components required for urban water districts by Bulletin 1420.

Consistency with IRWM Plan: Although CABY is funded primarily by the larger urban water agencies in the region, such as El Dorado Irrigation District and Placer County Water Agency, these and other member agencies identified the urgent and even basic needs of the rural and disadvantaged communities as among the highest priorities for the CABY effort. CABY partners have been active in long-term water management and have comprehensive land and water management authority in all four of the CABY watersheds. In this proposal, the CABY IRWMP partners propose projects that demonstrate effective solutions to long-term regional water needs in combination with planning and support tools most needed in the rural parts of the counties. The proposed projects are considered an integral part of implementing the CABY IRWM Plan.

The 45 CABY partners worked together to develop an initial set of principles and goals articulating the intention and direction of the highly rated CABY IRWMP. Assessment of the relationship of projects to the key IRWMP principles and objectives was of primary importance in evaluating projects to be included in the proposal. The capacity of the projects to produce benefits beyond their immediate value was also considered key, as was applicability to projects beyond the borders of the four communities included in this proposal.

To make the transition to a better future for California water management, technical infrastructure improvements are needed at a comprehensive level, including disadvantaged and rural communities located in areas that contribute a disproportionately high percentage of California's overall water supply. This CABY proposal offers infrastructure and models of change to meet the growing demands of local and statewide water supply, while facing the impacts of rapid population growth and climate change.

REGIONAL WATER SUPPLY AND DISADVANTAGED COMMUNITIES

Attachments 11 and 12 further document critical water supply or water quality needs of the subject disadvantaged communities. Because these communities endure funding challenges, CABY offers one of the few IRWMP programs in the state that does not require individual sponsors to complete project application materials without assistance; the agency directly offers a high level of technical support in developing projects for submittal. Even during periods of strong economic expansion, these communities rely heavily on support from not only CABY, but local water management agencies such as Placer County, Placer County Water Agency, El Dorado County Water Agency and El Dorado Irrigation District. Each of these agencies individually endorsed participation in the CABY IRWMP process and supports this grant application for the proposed projects. These agencies played a strong role in developing this proposal and are dedicated to the successful implementation of the proposed projects via ongoing coordination to ensure the most effective use of funds.

As noted in Exhibit G, subject communities are eligible for Expanded Project Eligibility and funding to conduct feasibility studies and needs assessments, such as drought preparedness and capital improvement planning as described in the tasks/scope of work. Absent a more equitable and integrated management approach as proposed here, existing inequities will undoubtedly worsen for the local disadvantaged communities as water resource conflicts continue and increase over the coming years.

PROJECT OVERVIEW

SPONSOR	PROJECT NAME	ENGINEERING DESIGN % COMPLETE	PROJECT ABSTRACT	DAC STATUS (YES/NO)
Infrastructure Reliability, Conservation and Efficiency Program				
Nevada City	Gracie Street Intertie	10%	During most years and primarily in the dry season months, Nevada City's water treatment plant approaches operational capacity. Both the distribution system and individual structural elements are oftentimes unable to deliver water to maintain system pressure or volume, causing recharge problems within the storage tanks. Even under periods of non-peak demand, the system often maintains inadequate pressure and has added problems during peak demand periods. Nevada City has consulted with the Nevada Irrigation District to install an intertie to the NID system to ensure a backup water supply to the City during periods when treatment plant production is reduced or curtailed. The proposed construction of an eight-inch line at Gracie Road/Gold Flat intersection will enable NID to provide the City with up to two million gallons per day, needed during periods of peak demand or system failure such as closure of the City water treatment plant. It will also supplement fire fighting resources in the event of a catastrophic fire.	Yes
Nevada City	South Pine Distribution System Improvement	10%	The 4-inch water line in South Pine has an effective diameter of 2 inches. Installed in the 1870s, the line currently runs directly underneath a number of houses located on South Pine, making line replacement within the current arrangement infeasible. The line running underneath the homes is suspected to leak, both at the lateral connection and through the line itself;	Yes

SPONSOR	PROJECT NAME	ENGINEERING DESIGN % COMPLETE	PROJECT ABSTRACT	DAC STATUS (YES/NO)
			however, it is problematic to locate the leaks because of where they are situated. Therefore, this project includes improvement of the line to a 6-inch diameter (to accommodate fire flows and pressure requirements), as well as a realignment of the main.	
Nevada City	Park Avenue Distribution System Improvement	10%	The Park Avenue distribution line has not been updated since its installation; however, in the 1980's a new road was constructed that left a 430-foot segment of remnant four-inch line underneath Park Avenue. The difference in size between the two lines has resulted in a significant pressure differential, which in turn impacts flow for fire fighting and residential water pressure. Additionally, because of its age, the pipe has significant deposition of both rust and captured materials, thereby effectively reducing the line size to two inches. The pipe also is suspected to leak at several locations. The relocation and installation of new line will be accomplished using design standards that the City already has in place. NID has provided the City with design specifications for a wide variety of infrastructure improvements, including distribution lines and associated connections and laterals. Minor modifications to the specifications will be required and will be accomplished by the City's engineer.	Yes
Nevada City	Prospect Avenue Distribution System Improvement	10%	Segments of Prospect Avenue are serviced by a 4-inch line installed in 1865. No improvements to this line have been constructed since its original installation and the functional diameter of the main has likely been compromised. Fire-fighting flows on this stretch of Prospect Ave range from 168 to 336 gallons per minute (gpm), significantly less than the 1,000 gpm considered optimal for fire fighting. Further, the residual	Yes

SPONSOR	PROJECT NAME	ENGINEERING DESIGN % COMPLETE	PROJECT ABSTRACT	DAC STATUS (YES/NO)
			psi measures at zero, as opposed to the required 20 psi. The 612-foot line would be replaced with a 6-inch pipe that would restore both adequate fire flows and residual psi.	
Nevada City	Installation of Altitude Valves and SCADA System on Storage Tanks	10%	As currently operated, all three tanks cannot achieve their full storage capacity because of the absence of altitude valves. Once the initial tank is filled, the second and third tanks begin to fill. However, prior to the second tank reaching capacity, the first tank begins to spill due to pipe size restriction. Likewise, in order to fill the third tank to capacity, both the first and second tanks will spill. These spill rates are 2,500 gph. In other words, in order for the system as currently configured to run at peak capacity, water wastage must occur. Installation of a Supervisory Control and Data Acquisition (SCADA) system, which enables automated data collection, will eliminate the need for recording and evaluating manual meter readings, allow for the download of data on a regular and predictable basis, improve the management capacity of the city, and alleviate water losses due both to system efficiency and leaks or system failures.	Yes
Nevada City	Leak Detection and Repair	0%	Nevada City experiences a variety leaks including service line leaks, and valve leaks. However, in most cases, the largest portion of unaccounted-for water is lost through leaks in supply and distribution system lines. This project would implement comprehensive leak detection and repair programs within the developed urban center of Nevada City. Nevada City has opted to hire this service out to a private contractor already trained in equipment use.	Yes

SPONSOR	PROJECT NAME	ENGINEERING DESIGN % COMPLETE	PROJECT ABSTRACT	DAC STATUS (YES/NO)
Nevada City	Install Water Meters on City Facilities	NA	The City has procured the meters but has not had the resources to install them on identified properties. With the preparation of the proposed Water Shortage Response Feasibility Study and Action Plan (see below) a variety of conservation opportunities will be developed to address water consumption and irrigation efficiency. The City will then be able to monitor the effectiveness of the installed improvements and/or strategies.	Yes
Critical Water Supply Needs Assessment				
Nevada City	Integrated Water Shortage Contingency, Drought Preparedness, and Comprehensive Water Conservation Planning Program	NA	The Integrated Water Shortage Response Feasibility Study and Action Plan components include: 1) preparation of water shortage action plans with prioritized actions and clear implementation strategies, 2) integrating water shortage preparedness with capital improvement planning, and, 3) enhancing customer conservation options and behavior. This project would also develop a GIS electronic database/mapping system of the major infrastructure components to assist with planning and engineering projects. A Phase I capital improvement needs assessment and evaluation will be completed to include specific elements aimed at creating maximum flexibility during periods of low water availability. This project would develop long-term drought preparedness and water conservation plans in areas that are not subject to DWR Urban Water Management Plan regulations. The project would also develop community outreach programs such as plumbing fixture retrofits.	Yes

SPONSOR	PROJECT NAME	ENGINEERING DESIGN % COMPLETE	PROJECT ABSTRACT	DAC STATUS (YES/NO)
Infrastructure Reliability, Conservation and Efficiency Program				
Washington County Water District	Maybert Road Distribution Line Improvements	0%	The main distribution system for Washington relies on a single, rapidly deteriorating, eight-inch distribution line. Replacement of this line has been a high priority for the district; however, there are insufficient funds to install and replace the distribution line, or to repair and upgrade the alignment where it has experienced erosion and slumpage.	Yes
Washington County Water District	Relief Hill Road – Flow Control Pressure Improvements	0%	The proposed project will balance pressure between the Maybert Road, Washington, and Relief Hill system components and will increase overall pressure throughout the system. The proposed improvements will result in an increase in water pressure sufficient to meet the current state pressure mandate.	Yes
Washington County Water District	"Level-control" Altitude Valves on Storage Tank	0%	The 200,000-gallon Relief Hill Road Storage Tank (the only major storage component in the WCWD system for treated water,) currently experiences substantial seasonal overflow. As part of the original design, an altitude valve to control flow into the tank was installed. The altitude valve was to open when tank water levels dropped and close when the tank was full. This operation was based on the assumption that the sand filters would be operated intermittently rather than continuously. However, operational experience has shown that the differential head to open or close the altitude valve is inadequate until the storage tank is approximately half empty. The differential head is inadequate because the plant and the tank are too close in elevation. Therefore, there is not sufficient pilot pressure to open the altitude valve until the storage tank	Yes

SPONSOR	PROJECT NAME	ENGINEERING DESIGN % COMPLETE	PROJECT ABSTRACT	DAC STATUS (YES/NO)
			is dangerously low. During summer periods of high demand, the maximum system capacity of 200 gallons per minute may not be able to replenish the level in the storage tank during the overnight periods of lowered demand and therefore a low storage capacity may exist for extended periods of time. The tank, therefore, has a slow recovery time and is frequently unable to respond to peak flow demands.	
Washington County Water District	System-wide Installation of Water Meters	0%	This project would identify options and install water meters on both the main distribution system and lateral connections, allowing the District to better manage water consumption and conservation measures?.	Yes
Washington County Water District	In-town Leak Detection and Repair	0%	This project would implement comprehensive leak detection and repair programs within the developed urban center of Washington. Currently the district has no capacity to measure actual water use or detect leaks within the infrastructure network or at individual residences. Washington has opted to hire this service out to a private contractor already trained in the equipment use.	Yes
Critical Water Supply Needs Assessment				
Washington County Water District	Integrated Water Shortage Contingency, Drought Preparedness, and Comprehensive Water Conservation Planning Program	NA	The Integrated Water Shortage Contingency and Conservation Plan components include: 1) preparation of water shortage action plans with prioritized actions and clear implementation strategies, 2) integrating water shortage preparedness with capital improvement planning, 3) enhancing customer conservation options and behavior, and, in the case of WCWD, providing technical support to expand the institutional capacity of the water purveyor. This project would also	Yes

SPONSOR	PROJECT NAME	ENGINEERING DESIGN % COMPLETE	PROJECT ABSTRACT	DAC STATUS (YES/NO)
			develop a GIS electronic database/mapping system of the major infrastructure components to assist with planning and engineering projects. The CIP Needs Assessment will examine the multi-year, higher-cost projects for water supply management. The CIP Needs Assessment will build off information gained from the Water Shortage Contingency Plan to identify priorities for managing water scarcity due to climate- or infrastructure-induced shortages. This project would implement long-term drought preparedness and water conservation programs in rural areas not subject to DWR Urban Water Management Plan regulations. The project would also develop community outreach programs such as Plumbing Fixture retrofits. An organizational audit would be conducted to determine internal structures that need to be improved for long-term efficiency of the District's programs.	
Infrastructure Reliability, Conservation and Efficiency Program				
Grizzly Flats Community Service District	Reservoir Relining	100%	Extensive analyses of the reservoir leakage describe the instability and poor embankment condition of the existing reservoir and establish the need for lining the reservoir. The reservoir has poor foundation conditions, low density embankment materials, stability considerations, seepage losses, operating head considerations, and storage capacity under utilization (Increasing Active Storage Capacity of the Raw Water Reservoir, 2009, p. 1). Based on the recommendations outlined in this report, GFCSD has operated at a reduced capacity to avoid stressing the embankment. This limitation results in reduced seasonal and operational storage even in wet	No

SPONSOR	PROJECT NAME	ENGINEERING DESIGN % COMPLETE	PROJECT ABSTRACT	DAC STATUS (YES/NO)
			years. Average water loss is currently estimated at 16.2 acre-feet per year and when the water supply is fully utilized, water loss is estimated at 35 acre-feet per year. The proposed lining of the reservoir will eliminate the water loss and provide more reliable water source for residents year-round.	
Grizzly Flats Community Service District	Leak Detection and Repair	100%	The GFCSD water system is over 40 years old and consists of 25,248 feet, or approximately 5 miles of 1-inch to 8-inch pipeline that delivers water to over 600 residential accounts. The pipelines were constructed with native backfill, without the benefit of engineered pipe zone material. As a result, point loads are a common cause of the ever-increasing trend of waterline leaks and breaks, with three to five service or main line breaks per year. Leakage can range from 1 gpm for valve and meter leaks to 30 gpm or more for mainline breaks. Leak detection and repair will make more efficient use of existing water infrastructure and assure that water is available to meet existing demands and fire suppression needs. This project would also develop a GIS electronic database/mapping system of the major infrastructure components to assist with long-term planning and management.	No
Critical Water Supply Needs Assessment				
Grizzly Flats Community Service District	Integrated Water Shortage Contingency, Drought Preparedness, and Comprehensive Water Conservation Planning Program	NA	The Integrated Water Shortage Contingency and Conservation Plan components include: 1) preparation of water shortage action plans with prioritized actions and clear implementation strategies, 2) integrating water shortage preparedness with capital improvement planning, 3) enhancing customer conservation options and behavior, and, in the case of WCWD,	

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			<p>providing technical support to expand the institutional capacity of the water purveyor. This project would also develop a GIS electronic database/mapping system of the major infrastructure components to assist with planning and engineering projects. The CIP Needs Assessment will examine the multi-year, higher-cost projects for water supply management. The CIP Needs Assessment will build off information gained from the Water Shortage Contingency Plan to identify priorities for managing water scarcity due to climate- or infrastructure-induced shortages. This project would implement long-term drought preparedness and water conservation programs in rural areas not subject to DWR Urban Water Management Plan regulations. The project would also develop community outreach programs such as Plumbing Fixture retrofits. An organizational audit would be conducted to determine internal structures that need to be improved for long-term efficiency of the District's programs.</p>	
Infrastructure Reliability, Conservation and Efficiency				
PCWA for Alta/Colfax	Leak Detection and Repair	50%	<p>The proposed project will allow PCWA to identify previously undetected leaks with increased accuracy and decreased labor and materials costs. Rather than having to perform a time- and labor-intensive traditional leak survey with a ground microphone and correlators, the proposed system will allow PCWA operators to remotely identify leaks with great accuracy (typically to within one foot of the leak). Once the network of correlating leak detection data loggers are installed, the loggers detect noises in the system on a nightly basis, log the information, and notify operators if leaks are "heard." The</p>	No

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			detected leaks will then be repaired by PCWA staff. The estimated annual treated-water savings associated with this project is 80 acre-feet per year.	
Infrastructure Reliability, Conservation and Efficiency				
American Rivers	CABY Water Trust	NA	The CABY Water Trust will serve as the institutional model for acquiring and managing water rights - a model that will be expanded over time throughout the Sierra. Identification and recruitment of the Water Trust Advisory Board, which will serve as the interim governing body for the CABY Water Trust, has already begun. The lessons learned through the implementation of the Sierra Water Trust Flow Augmentation Project will be applied to the CABY Water Trust Project. This project requires no environmental documentation and is ready to proceed.	No

INTEGRATED ELEMENTS OF THE CABY PROPOSAL

Each of the proposed projects can be implemented on a stand-alone basis. However, this proposal seeks to implement projects that represent issues common to the region to facilitate maximum exportability. The proposed projects span all four watersheds that make up the diverse CABY region. The community of Grizzly Flats is situated within the relatively undeveloped Cosumnes River watershed, while Alta-Colfax, situated in the American watershed, is within a relatively more developed and urban area. Washington and Nevada City are situated in the relatively remote Yuba watershed. This diversity of locale provides numerous opportunities to maximize the usefulness and integration of data beyond project boundaries.

CABY intends to support information sharing to nearby rural and disadvantaged communities to jumpstart project development and build on the work completed under this proposal. For example, the water shortage needs assessments, construction strategies, forms, standard specifications, methodologies, and budgets prepared for the proposed projects will create a body of transferrable knowledge. Similarly, the existing *Grizzly Flats Drought Preparedness Plan* (2007) serves as an example and template for the communities of Nevada City and Washington. In this way, CABY is leveraging local dollars to the benefit of the wider region.

Similarly, the proposed development of a Geographic Information System (GIS) electronic database and mapping program will be used to implement leak detection and repair projects in Washington, Nevada City and Grizzly Flats, but this mapping effort will directly benefit and add value to nearly all other management activities of the water districts including all other projects proposed as part of this grant application. The outdated paper-based record-keeping with manual data entry that is currently used by these water districts has the potential for increased errors, or duplicating work by writing down information in the field only to require someone else to input it in the computer system back at the office. The proposed GIS database and mapping will be used to evaluate water conservation planning efforts and capital improvement needs assessments. To ensure consistency of output and efficiency, CABY proposes using one GIS contractor for all four locations to build a consistent and exportable template.

A strong majority of CABY members, including the largest urban water planners in the region, approved the focus for infrastructure improvements within small, rural, and disadvantaged communities. CABY members recognize environmental watershed management is achieved through improvements to smaller components of the region

and each component is an integral part of the regional water system management. The CABY members also see water conservation in the smaller communities as an investment in their own capacity to deliver water across the region as well as a means to achieve targeted goals for beneficial instream use.

Many of the projects facilitate partnerships crucial to the future of water management planning and for disadvantaged communities in particular. For example, urban purveyors in Placer and El Dorado Counties have expended considerable sums on drought preparedness and drought action plans. Both PCWA and EID will collaborate with CABY to provide technical support, and document and process templates for use by Nevada City and Washington in the development of Water Shortage Needs Assessment and Feasibility Studies. This process will facilitate investment and support by the larger organizations for the benefit of future efforts as well.

The significant contribution of this CABY proposal is to cooperative, multi-stakeholder water management implementation to assure future water quality and supply beyond the CABY borders. For example, the proposed Water Trust will buy unused water rights from willing sellers thereby providing linkages between large-scale purveyors and small-scale stakeholders or consumers. The goal of the program is to ensure that more conserved water is available for beneficial instream uses, in turn enhancing biological function, and resiliency in the face of climate change. All CABY members will have the opportunity to participate in the development of the Water Trust and recognize this program could provide direct and immediate support towards management of the Cosumnes River Preserve, which relies on the relatively unmanaged flows along the last undammed river on the western slope of the Sierra Nevada range.

Finally, the proposed projects can serve as a stepping-stone and precursor for the intensive project activities recently approved under the CABY planning grant.

EXISTING DATA AND STUDIES

The following text lists the previous studies conducted that support the site locations, project feasibility, and technical methods proposed for the projects in this proposal.

Nevada City

The seven projects that make up the Nevada City proposal include four distribution system line replacements, installation of altitude valves and a SCADA system to manage storage system wastage, a leak detection and repair program (including equipment purchase), and completion of metering the city by installing meters on currently unmetered City-owned buildings and facilities. Beginning in November 2008, a consulting engineer prepared a series of reports evaluating the city's water treatment

plant and water distribution system (November 2008, January 2009, and February 2009). These evaluations examined every aspect of the city's water distribution system, including the treatment plant, the storage tanks, the distribution system, water conservation, and potential cost savings realized from reducing water wastage and increasing system efficiency. All of the projects in this proposal were specifically identified as high priority for immediate and near-term action. Finally, the studies identified the potential for significant cost savings for the City, as well as the extremely constrained nature of funding to accomplish the necessary improvements.

Washington County Water District

In early 2009, CABY staff conducted outreach to the WCWD board with the express purpose of identifying water system-related needs for the community. As a result of this outreach, the District's general manager and consulting engineer collaborated with CABY staff to develop a system-wide infrastructure needs assessment. This assessment identified all of the projects that comprise this proposal. The extreme age and in some cases functional obsolescence of system components have been thoroughly documented. In addition, the consulting engineer has recently completed an assessment of the structural stability of the Canyon Creek Impoundment. The general manager for the District has worked in collaboration with engineer to develop a preliminary materials list for many of the improvements and has begun initial discussions, which will result in the design of altitude valves for the system's storage tank to eliminate water wastage. Because the system is entirely unmetered, it became clear that water management and accountability for this severely disadvantaged community will rely heavily on the ability of the District to install meters, both to detect leaks and assist in water management during critical low-flow periods. The District board has formally identified drought preparedness as a significant unmet need of the community, as well as the need to evaluate the organizational capacity of the water district itself. The District's severely disadvantaged status has resulted in a lack of formal studies and needs assessments, as the infrastructure system itself has never been mapped. Therefore, this proposal specifically includes development of the data and system performance parameters that will enable the District to establish a proactive strategy toward system operation and maintenance.

Grizzly Flats

All of the technical studies required to not only demonstrate the need for the reservoir relining, but also to complete designs and specifications to the 100 percent level has already been undertaken by the District. In May 2010, a project manual entitled *Water System Improvements Project* was prepared using funding from the USDA Rural Development Program, which fully details the need, feasibility, technical methodology, and specifications for the relining project.

The Grizzly Flats CSD has identified leak detection and repair as a high priority for a number of years. The GFCSD water system is over 40 years old, with mainlines that are primarily asbestos cement and service lines that are thin-walled PVC with inadequate pressure ratings. The pipelines were constructed with native backfill without the benefit of engineered pipe zone material. The District currently averages three to five water line leaks and breaks per year. Therefore, the actual day-to-day management experience of the District serves to document the need for the leak detection and repair program, despite the lack of formal study.

Alta/Colfax Leak Detection and Repair

PCWA has performed soil identification studies, traditional leak detection surveys and system monitoring to document the need for a more refined and high performing leak detection program. PCWA's metering system allows the agency to observe when water usage trends change; however, they have not had the capacity to identify leaks in a timely manner. There are documented cases of leaks that have been determined to have been present for years, and an American Water Works Association (AWWA) Water Audit Worksheet Evaluation identified annual treated water losses of 38 percent in Alta and 28 percent in Colfax (55.2 and 170.6 acre feet, respectively).

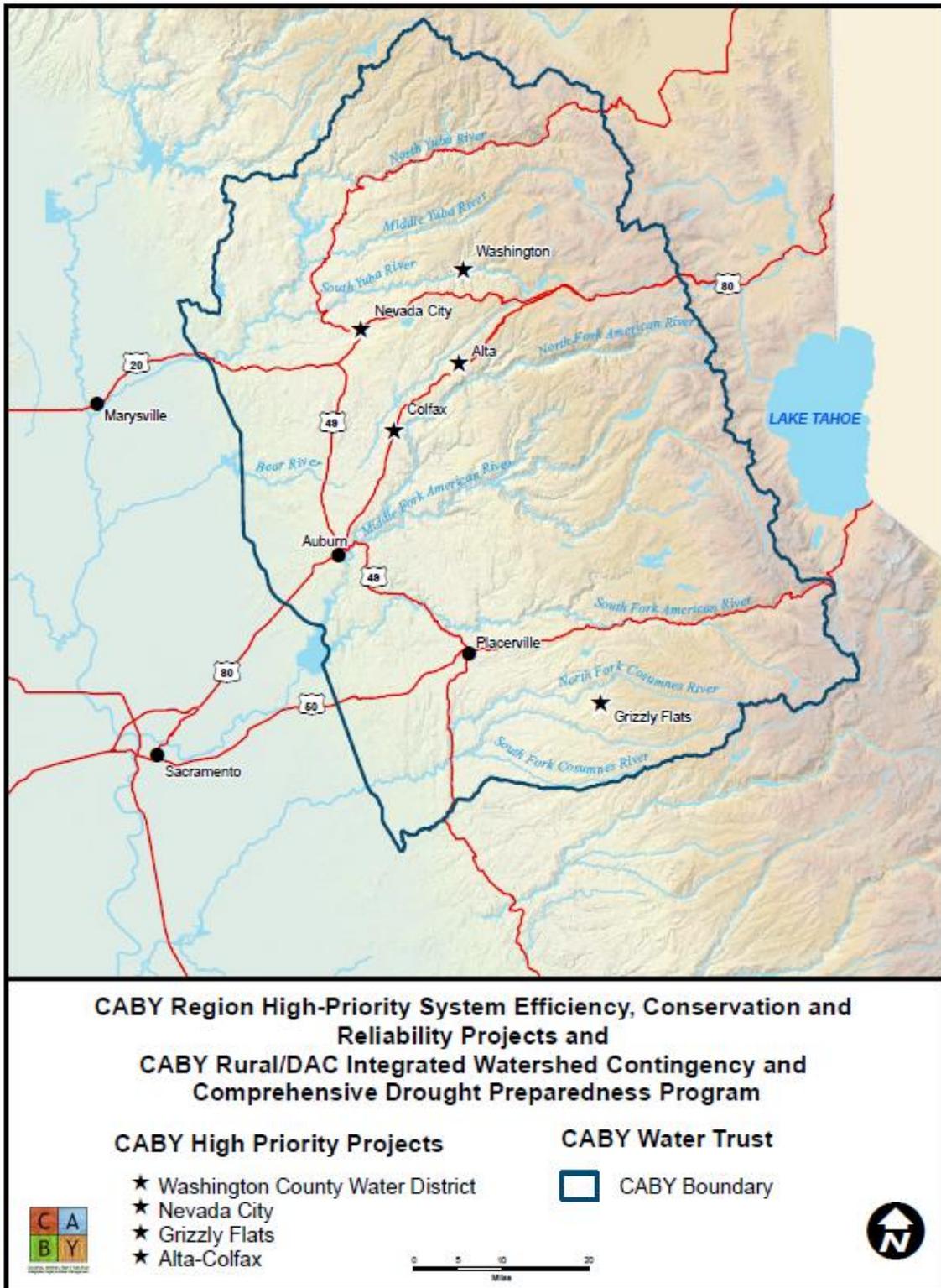
CABY Water Trust

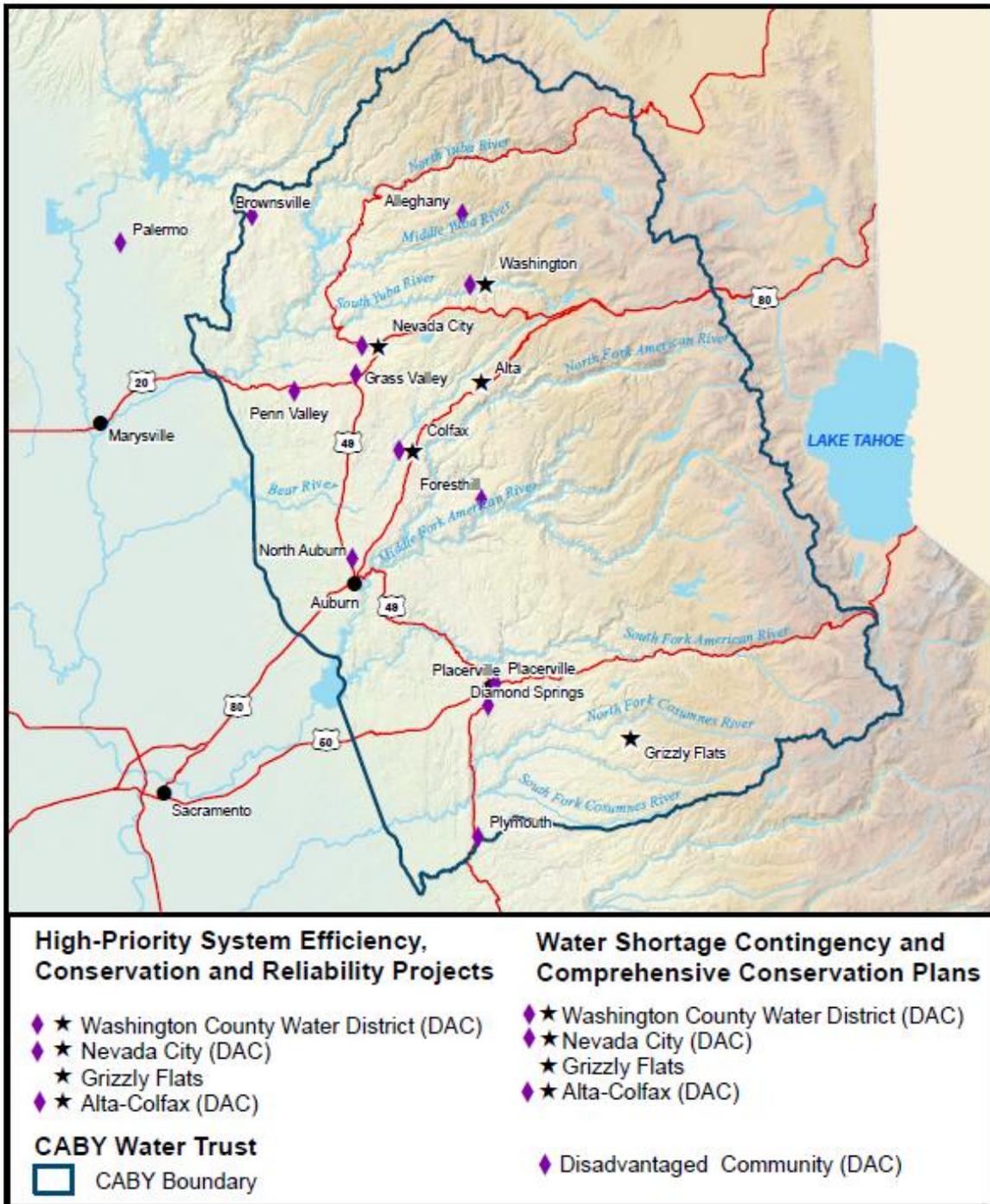
Rivers and creeks in the CABY region form a natural and engineered water supply network, which support some of the world's most ecologically rich habitats for endemic aquatic invertebrates. Almost two-thirds of these species have been documented by federal and state agencies as declining in abundance. Placer County has been and remains one of the fastest growing counties in the state and the region experiences extremely high recreational use throughout its watersheds, creeks, and rivers. In addition, it is estimated that there are least 10,000 individual holders of water rights in the Sierra Nevada region, of which CABY is a part. Studies prepared by the US Forest Service, National Marine Fisheries Service, CA Department of Fish & Game, and under the auspices of recent FERC relicensing efforts have documented the stress experienced by the system in response to both water extraction and management and climate change effects. Elsewhere in the country (Oregon, Washington, and Colorado), extremely successful water trust organizations have demonstrated capacity to obtain water rights from willing individual holders for strategic flow augmentation. The Sierra Water Trust Flow Augmentation project, funded by the US EPA and Sierra Nevada Conservancy, has committed to provide both legal and scientific support to the CABY Water Trust project. In addition, that project is being implemented by many of the same partners that will be involved in this proposal.

PROJECT TIMING AND PHASING

All proposed projects can operate on a stand-alone basis and can be fully functional without implementation of any other projects.

PROJECT MAPS





CABY Region High-Priority System Efficiency, Conservation and Reliability Projects and Water Shortage Contingency and Comprehensive Conservation Plans



High-Priority System Efficiency, Conservation and Reliability Project Nevada City

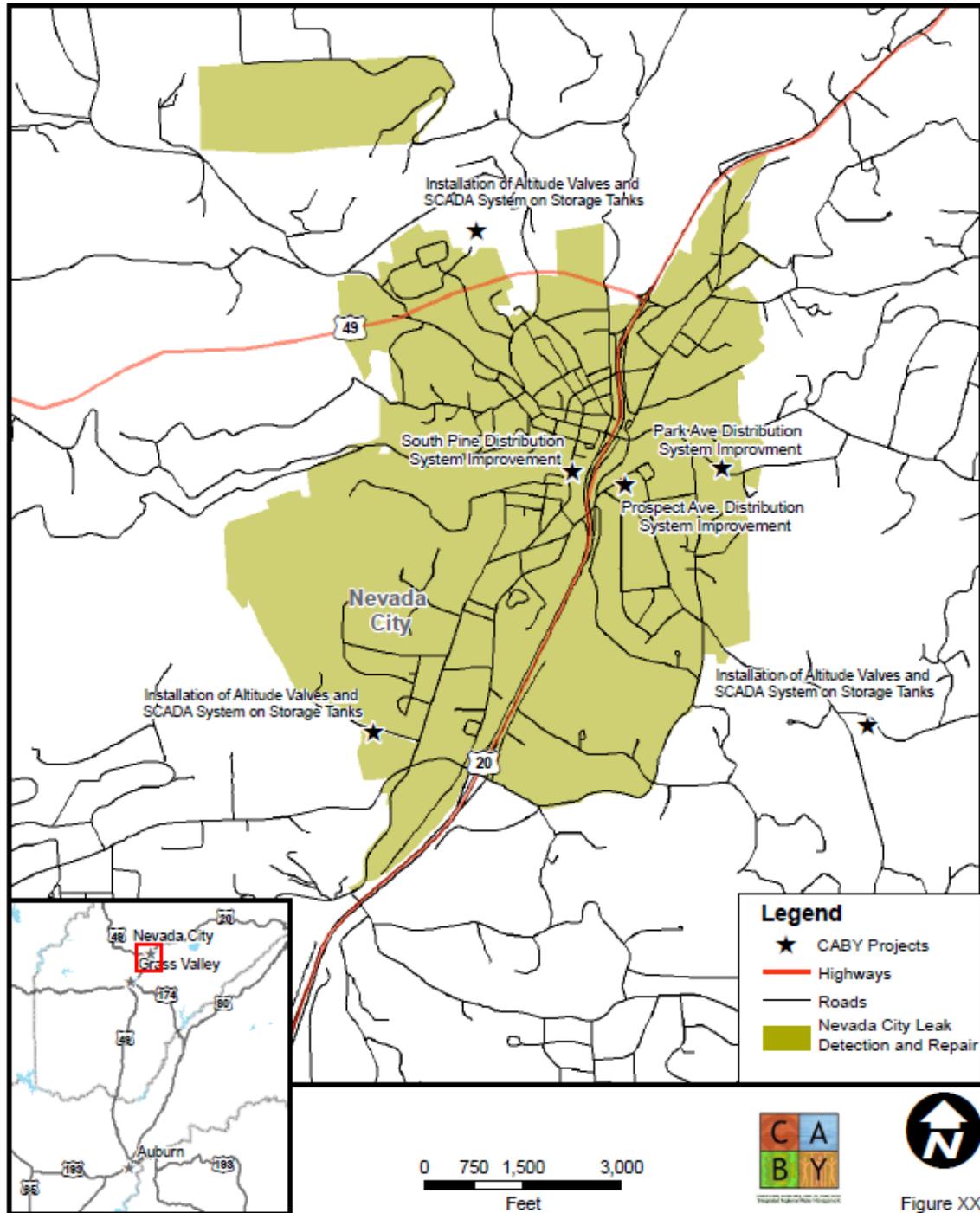
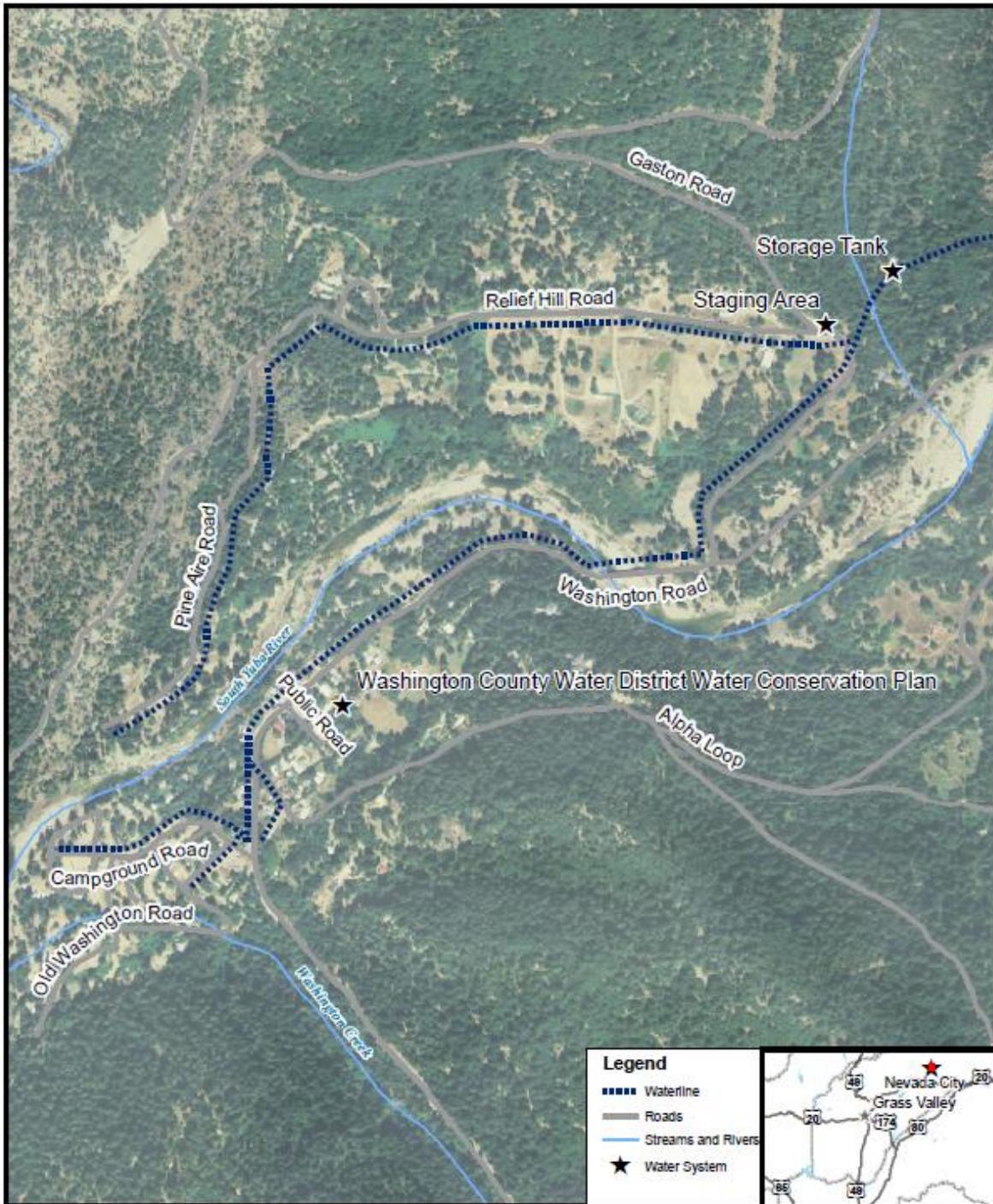
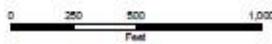
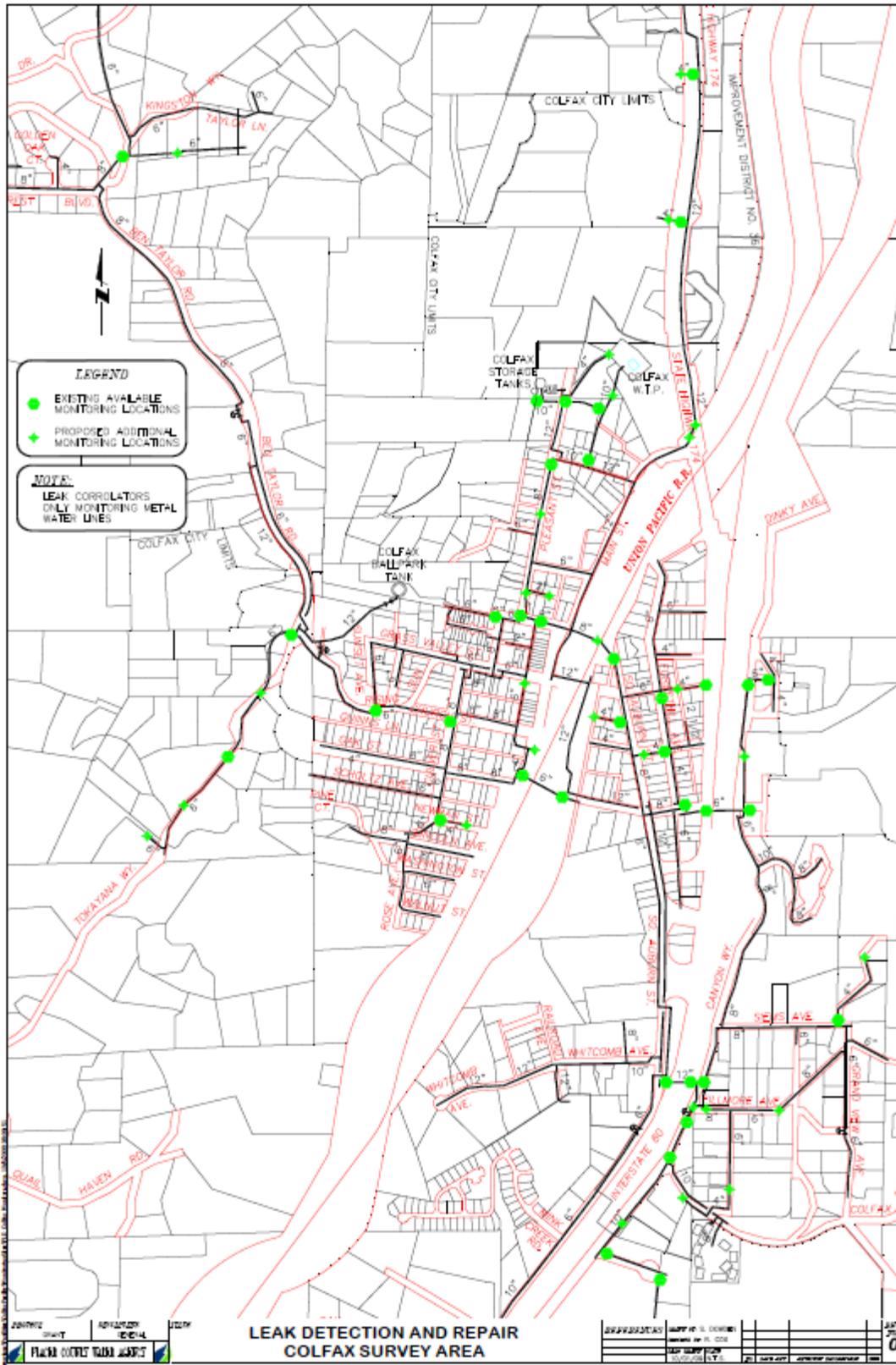


Figure XX

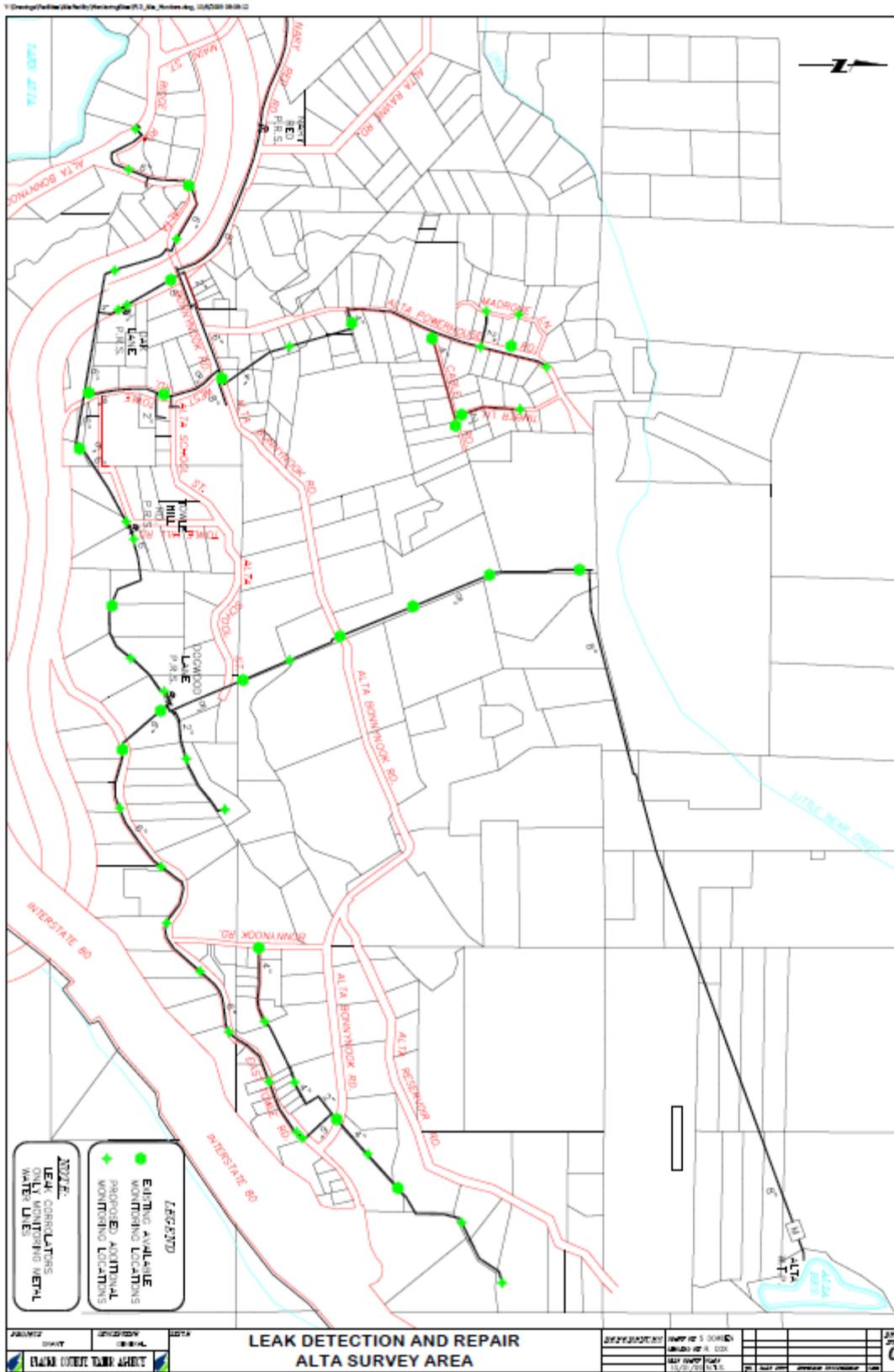


Washington County Water District Conservation Plan
Leak Detection and Meter Installation

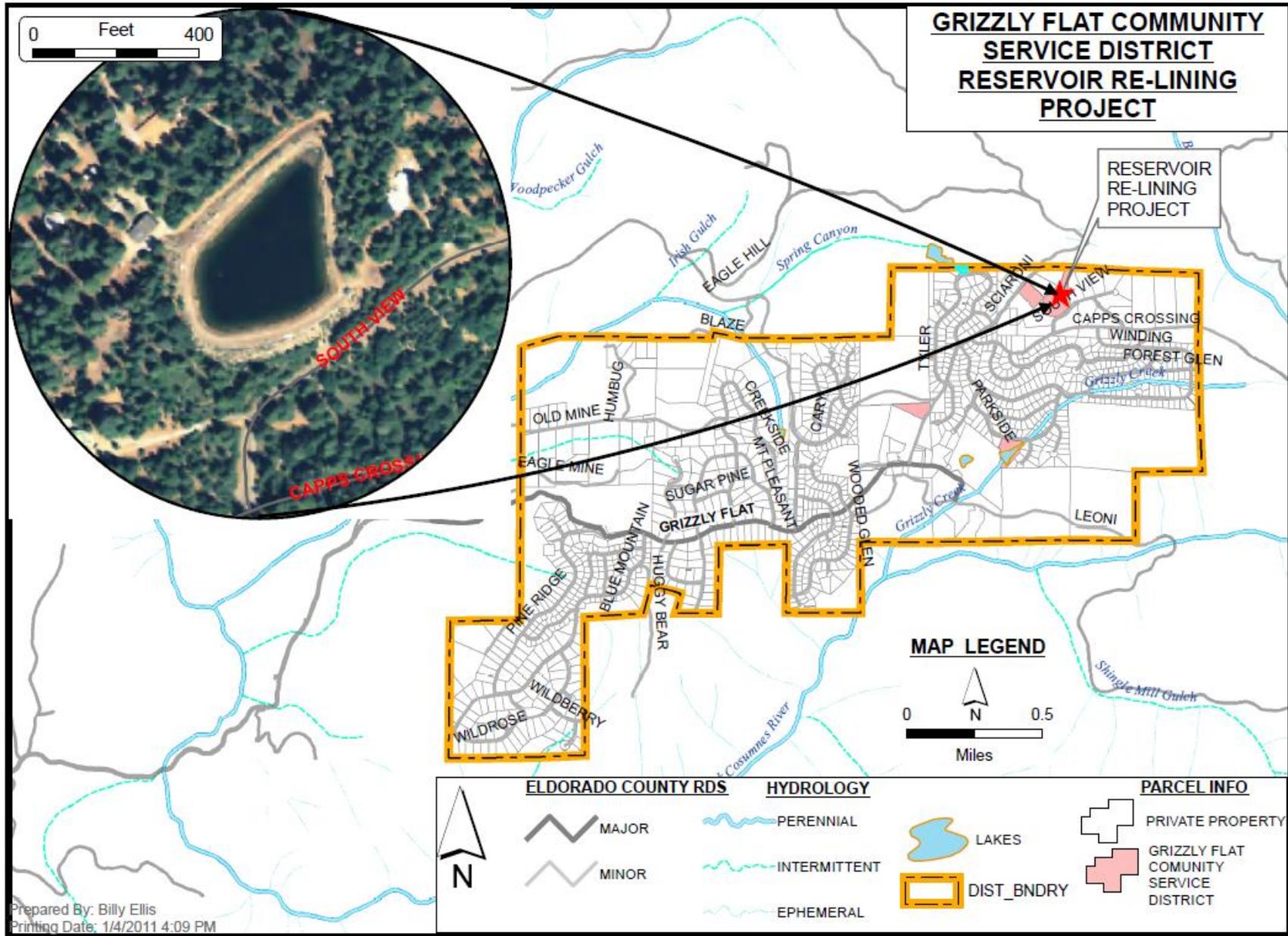


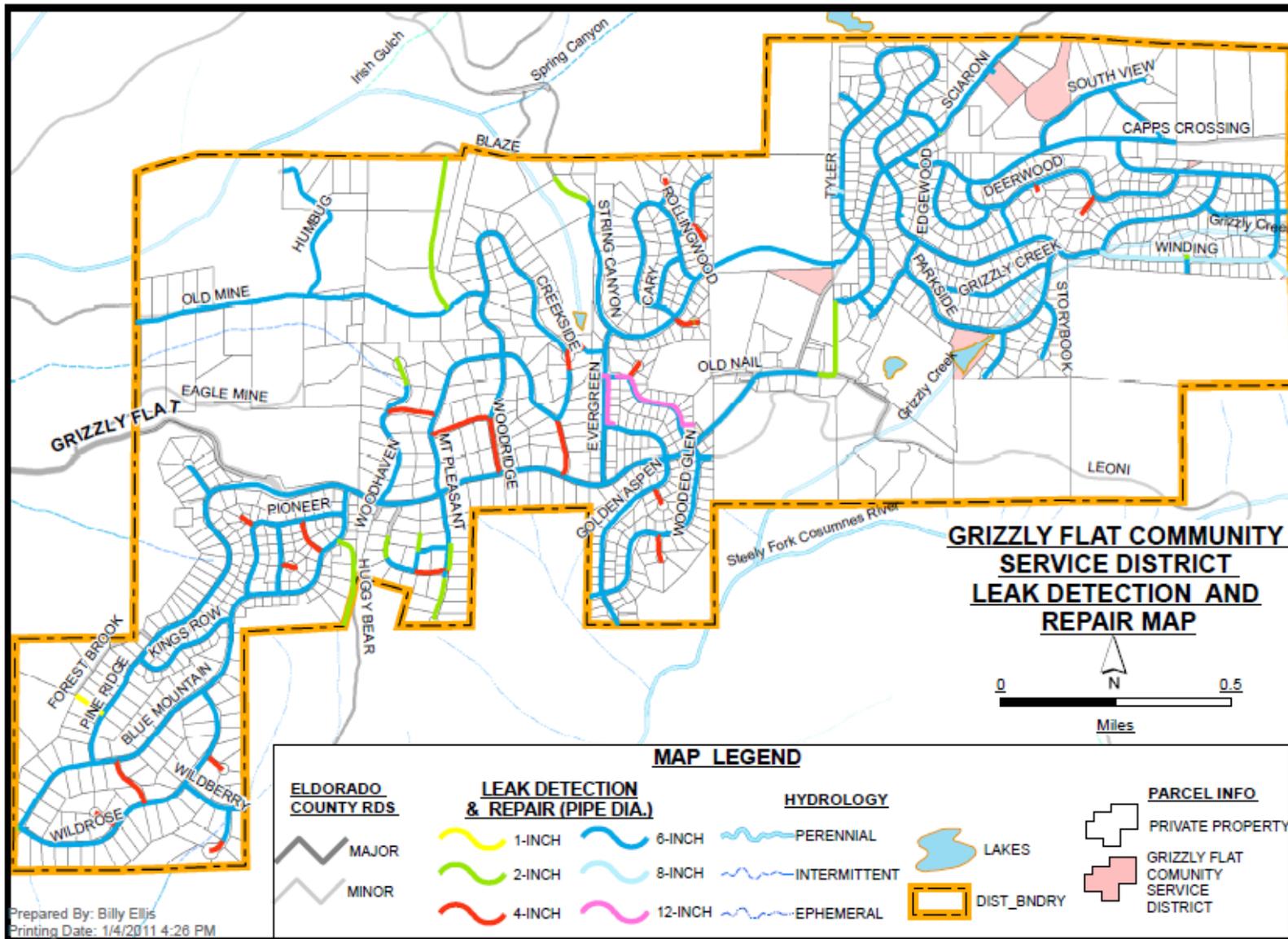


Note: Printed as full-size 11x17 in the Alta/Colfax Work Plan



Note: Printed as full-size 11x17 in the Alta/Colfax Work Plan





STATE OF CALIFORNIA – THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF WATER RESOURCES1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

December 29, 2010

Mr. John Kingsbury
Director of Customer Service
Placer County Water Agency
Post Office Box 6570
Auburn, California 95604

Dear Mr. Kingsbury:

The Department of Water Resources (DWR) has reviewed the Placer County Water Agency's (PCWA) Self-Certification Statement – Tables 1 and 2 submitted on December 21, 2010, regarding implementation of the Urban Best Management Practices (BMPs).

The purpose of DWR's review is to determine eligibility of the PCWA to receive water management grant or loan funds. DWR has followed the *Draft AB 1420 Compliance Requirements* dated June 1, 2009. For detailed information, please visit <http://www.water.ca.gov/wateruseefficiency/finance/>.

Based on DWR's review of the information in Tables 1 and 2, the PCWA has and is currently implementing the BMPs consistent with AB 1420 and, therefore, is eligible to receive water management grant or loan funds.

DWR reserves the right to request additional information and documentation, including reports from the PCWA to substantiate the accuracy of the information provided in Tables 1 and 2. DWR may reverse or modify its eligibility determination and notify you and the funding agency if inaccuracies are found in the supporting documentation or in Tables 1 and 2.

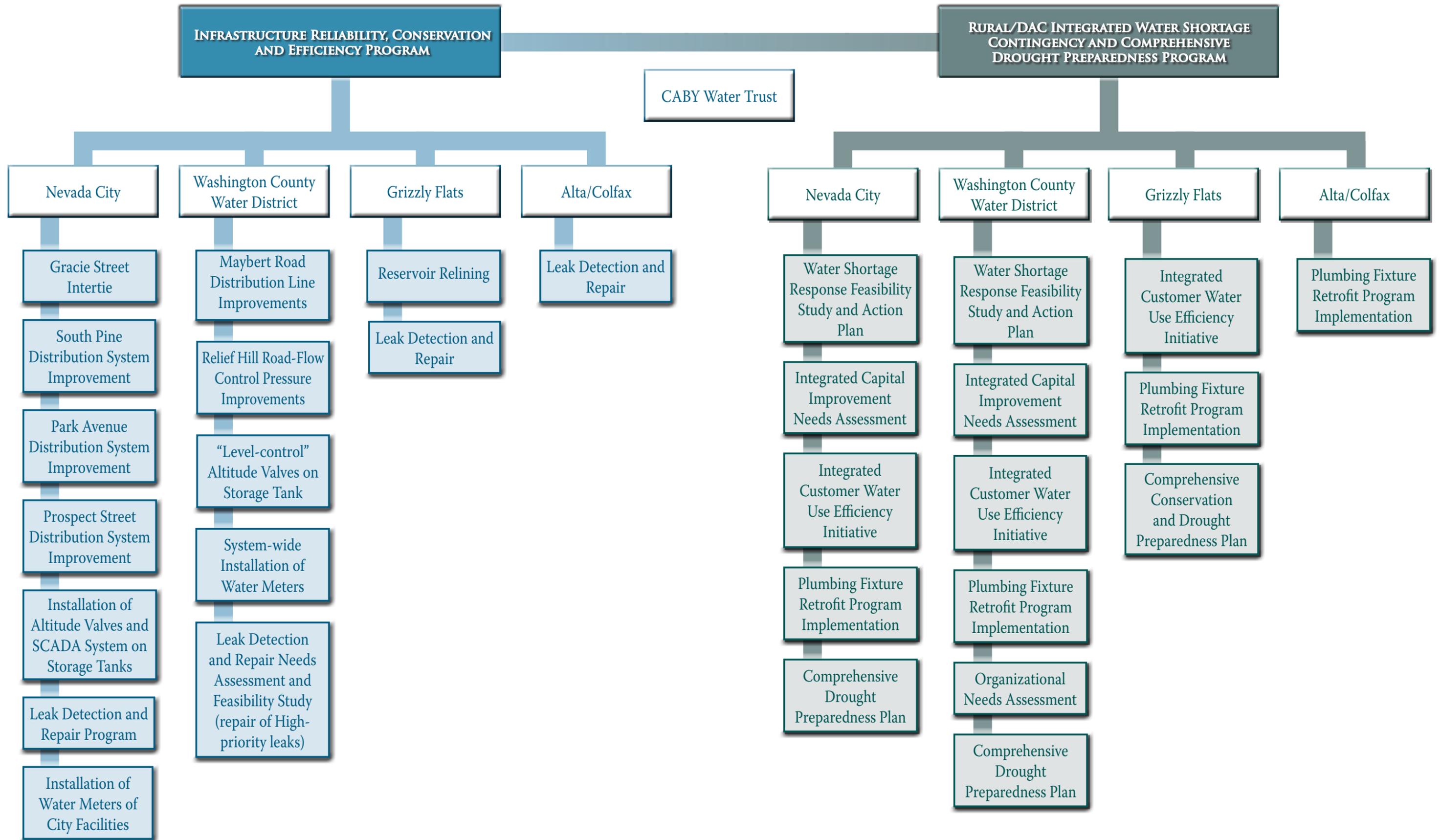
If you have any questions, please contact me at (916) 651-7025 or Jodi Evans at (916) 651-7026.

Sincerely,

A handwritten signature in black ink, appearing to read "Fethi BenJemaa".

Fethi BenJemaa
Ag Water Use Efficiency Section Chief

INTEGRATED PROGRAM



INTRODUCTION TO THE CABY PROGRAM

Integrated Regional Water Use Efficiency & Drought Preparedness Program

As stated elsewhere in the application materials (i.e., Attachment 1, Attachment 12, and the Introduction to the Work Plan) CABY established drought preparedness and water use efficiency as a high priority program focus in 2008. As a result of hundreds of hours of CABY staff outreach and interviews across the region, this initial Planning Committee directive was refined to include three primary focuses: 1) infrastructure reliability, conservation, and efficiency; 2) rural/DAC integrated drought preparedness; and 3) consideration of environmental water needs in the context of “saved water” resulting from increased efficiency and conservation.

Fifteen of the projects included in this proposal were developed in direct response to the CABY outreach activities.

The underlying philosophy behind this outreach effort was that conservation and efficiency alone will not address the long-term regional water needs unless focused drought planning and preparation is undertaken and the needs and values of the natural environment are factored in to long-range water planning.

The CABY infrastructure efficiency outreach concentrated on identifying water system distribution components (primarily pipelines), which are frequently the primary source of water wastage in small, rural communities whose infrastructure frequently dates from the 1800s. Water loss figures as high as 38 percent have been quantified in water systems within the CABY region. This loss of treated water is an expensive burden for the purveyors and, in the face of climate change, is an unsustainable situation.

Climate change projections for the CABY region vary considerably. However, if the worst case projections occur, the region will be hard hit. Small, rural and disadvantaged communities in particular are ill-prepared for the financial and operational consequences of sustained drought. Few of these districts have any contingency plans, needs assessments or feasibility studies to support development of proactive capital improvement planning. The vulnerable populations of these communities need to build capacity to prepare for the consequences of climate change. This proposal includes the preparation of a series of manuals to support DACs’ actions to prepare pragmatically for the future.

Finally, many CABY members have identified watershed health and the natural environment as a high priority. Across the CABY region, there are over 10,000 individual water rights holders, many of whom use the water simply to avoid losing the water right. The CABY region is home to a wide variety of species and habitats that are highly water dependent and considerable attention is being given to restoration of habitats to support threatened and endangered populations. In this context, creating a vehicle for willing participants to dedicate water rights

for beneficial instream uses is of great importance. The creation of a water trust structure to facilitate transfer of water rights will be a groundbreaking effort in California.

Data and studies substantiating proposal need and purpose:

Nevada City (all projects):

Falconi, William. Letter. *Condition of the City Water Plant & Eater System*. Feb. 2009.

Roche, Martin. "Status Report on Water Treatment Manual and Water System Evaluation". To Vern Taylor and William Falconi. Nov. 24, 2008.

Roche Martin. "Improving Nevada City's Water Supply System." Jan 12, 2009

Washington County Water District (All projects)

CABY staff (in conjunction with Cranmer Engineering and the WCWD General Manager). Memorandum. "An Evaluation of the Highest Priority Needs for the WCWD Water Distribution System". August, 2010

Grizzly Flats – Reservoir Lining

Carlton Engineering. Water System Improvements Project (Project Manual). May 2010. United States Department of Agriculture, Rural Development – Rural Utilities Service.

Drought Preparedness Program

A&N Technical Services, Inc. BMP Costs and Savings Study: A Guide to the Data and Methods for Cost Effectiveness Analysis of Urban Water Conservation Best Management practices. July 2000. California Urban Water Conservation Council: Sacramento

Beirmayer, Peter. "Potential Water and Energy Savings form Showerheads". September 28, 2005. Ernest Orlando Lawrence Berkeley National Laboratory.

CABY. "Grizzly Flats Comprehensive Water Conservation Program". CABY Funding Application (PIN 13104). Jan 2008.

Godwin, Patti. *Leak Detection for Small Systems*. Journal AWWA. Nov 2003: American Water Works Association: Denver.

Chesnutt, Thomas W., Casey N McSpadden and David M. Pekelney> "What is the Reliable Yield form Residential Home Water Surveys Program? The Experience of the Department of Water and Power". 1996: A&N Technical Services, Inc.

Georgia Environmental Protection Division Watershed Protection Branch. "Water Leak Detection and Repair Program: EPD Guidance Document". August 2007.

Office of Water, EPA. Check Up Programs for Small Systems (Users Guide)> Releases 1.3.5., Feb 2010. EPOA

http://water.epa.gov/infrastructure/drinkling_water/pws/cupss/index.cfm.11/8/2010

American Water Works Association. CAP: Capacity Assistance Program Self Assessment Workbook Checklist. 1st Edition, 2002. American Water Works Association: Denver

SCADA Systems (Nevada City and Grizzly Flats)

Ehrenreich, Dan. "Operating Benefits Achieved with SCADA for Water Distribution".

British Columbia Water and Waste Association (CWWA) Conference. Web. 5 Nov 2005.

Series of documents prepared by the California Department of Public Health that are aimed specifically at small water systems:

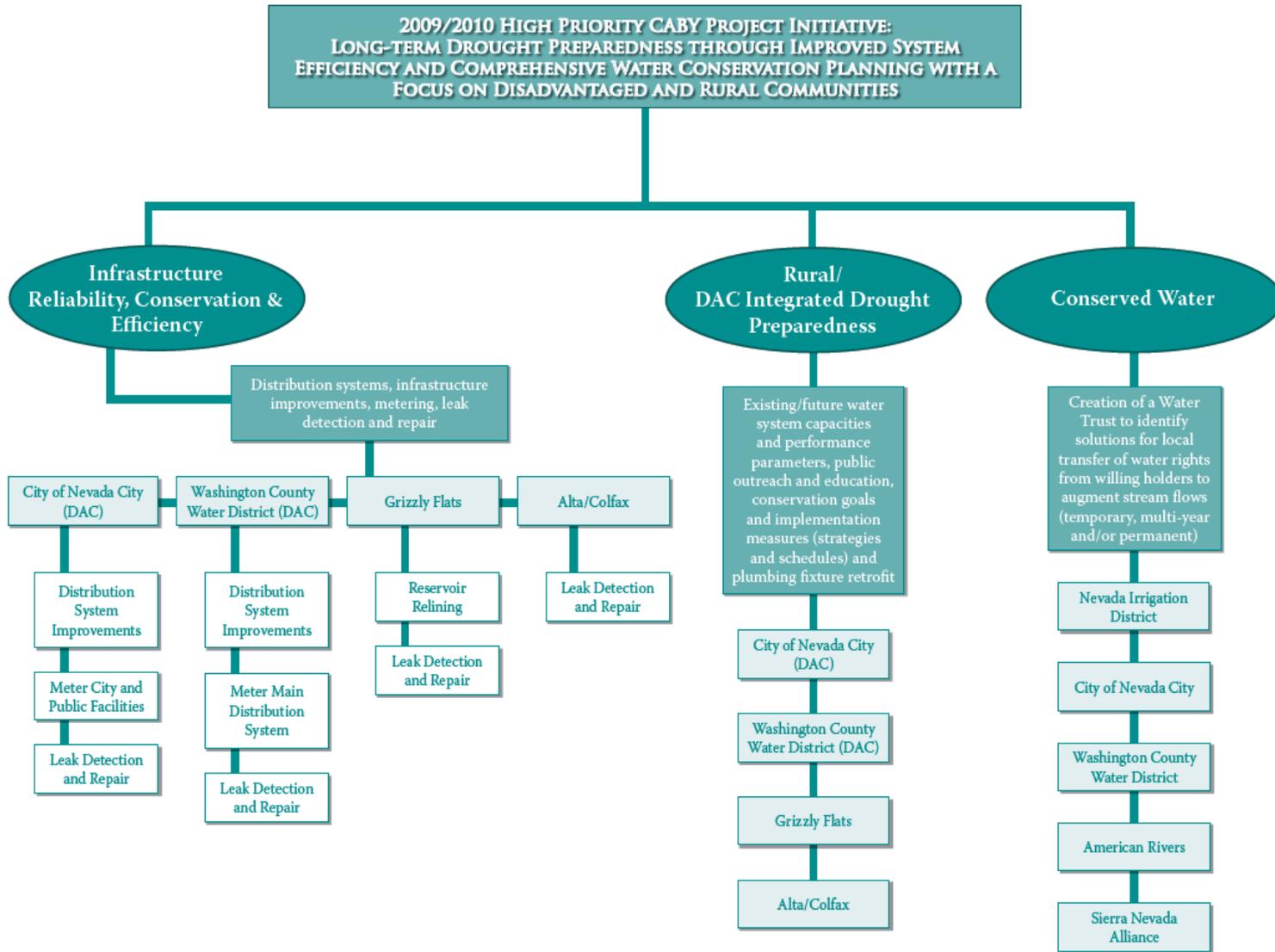
TMF Assessment Information For All Water System Types

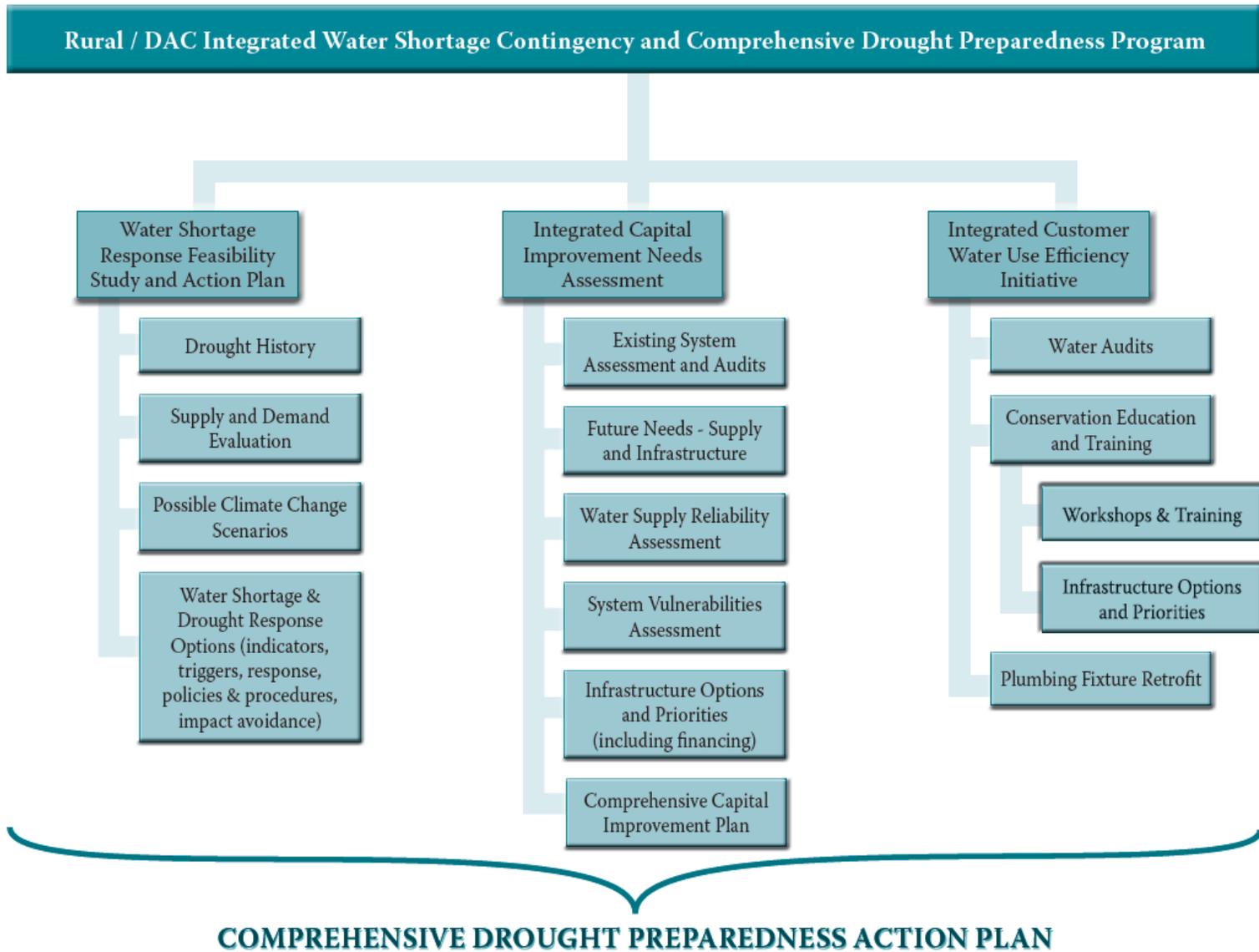
[TMF Assessment Form \(PDF\)](#)

[TMF Capacity Criteria \(Word\)](#)

[TMF Staff Evaluation Form \(Word\)](#)

[Documentation Requirements for TMF Assessments \(PDF\)](#)





Elements of Program Implementation

CABY Webpage and Data Management

As part of this proposal, individual webpages will be created for each project. Project sponsors will post regular updates concerning their projects and will use the webpage to document project outcomes and post-project monitoring and other activities. These webpages will serve to provide CABY members, other IRWMPs and organization across the region with an easy access point to not only learn about the individual projects but also upload templates, manuals, forms, and sample materials to support importing similar project activities into their own region.

Creating a Network of Project Sponsors

A mandatory component of participating in the CABY proposal is the agreement to engage in formal collaboration with other project sponsors for the duration of project implementation. This requirement is an intentional effort to build strong relationships across the region to support data transfer, development of “lessons learned” white papers, identify joint project development opportunities, provide a venue for capacity building workshops, and create a cadre of experienced leaders who can outreach both within and outside the CABY region.

Labor Compliance

CABY is committed to fair labor practices and as a result has developed a durable relationship with a labor compliance administrator, North Valley Labor Compliance (NVLCS).

A preliminary contract has been reviewed and prepared, ready for signature should the Proposal be approved for funding. The duties that have been identified in the contract materials include but are not limited to:

- ◆ Conduct a labor compliance workshop with the Prime and sub contractors
- ◆ Provide all necessary forms so each contractor is meeting the state labor law requirements.
- ◆ Monitor and maintain certified payroll and supporting documents for each contractor.
- ◆ Make certain that the apprentice ratio is met; all apprentices are registered and paid the correct rates.
- ◆ Make certain contractors are paying their workers travel and subsistence, when applicable.
- ◆ Conduct random onsite interviews with the workers to cross reference with the certified payroll and make certain the workers are classified correctly and being paid the prevailing wage. Interview efforts would be shared between city staff, the Nevada City Project Manager for the grant agreement and the NVLCS.
- ◆ File a written report and audit to the Labor Commissioner and request a forfeiture of payments if willful violation has occurred and the contractor will not correct the issue NVLCS will then continue the violations process and enforcement procedures.