County-Wide Master Plan

Final Version - February 25, 2022

County-Wide Master Plan

Description and Purpose

The purpose of this document is to provide an overview of the County-Wide Master Plan (CWMP) and the associated funding process. The CWMP is a dynamic project database that contains potential projects and information from eligible entities and Placer County Water Agency (PCWA) that identify county-wide water and power resource needs. The CWMP was developed to facilitate the prioritization and funding needs of eligible projects and programs based on the project's primary benefit.

The foundation of the CWMP is rooted in the following Guiding Principles that were created based on the Agency Act to reflect the purpose of PCWA's formation:

1. Provide access to safe and reliable drinking water
2. Water and power resource stewardship
3. Maintain and improve water supply and power reliability
4. Maintain and improve infrastructure reliability
5. Support the well-being of Placer County and its residents through water, energy, and stewardship programs.

History

In 2010, the PCWA Board of Directors directed staff to commence the development of a CWMP to identify, evaluate, track and fund water and power stewardship needs throughout the County. In 2019 PCWA began accepting online project funding requests for the Financial Assistance Program (FAP) from the CWMP Database.

Elements

The benefits and characteristics of a project are identified and categorized according to the following Elements:

1. Unserved Areas
2. Water Infrastructure Reliability
3. Water Supply Reliability
4. Renewable Energy Development
5. Watershed Stewardship

6. Agriculture
7. Conservation and Water Use Efficiency
8. Public Education and Outreach

Categorizing the projects by primary element produces an understanding of the magnitude of resource needs and assists PCWA's Board in setting strategic objectives to prioritize these needs to best match funding opportunities that exist.

Financial Assistance Program (FAP)

The CWMP is used by PCWA's FAP for funding purposes. The PCWA Board adopted the FAP Policy which defines eligible entities, provides for the allocation of funding, details the CWMP Elements, establishes the Board setting of strategic objectives and sets funding request submission requirements, timeline, evaluation, recommendation and award.

Overview of the CWMP Process

Step #1 – Determine Eligibility and Register (Entity)

The entity's eligibility is set in the definition of "District" as presented in PCWA Policy. It is the entity's responsibility to determine its eligibility, request registration from PCWA and keep the information contained in the Project Database current.

Step #2 – Project Entry into the CWMP (Entity and PCWA)

Once an entity is registered, a project may be entered into the CWMP Database. PCWA's webpage, www.pcwa.net, has a link to the CWMP. The CWMP is accessible to the general public to view but only eligible and registered entities have the ability to enter and edit projects in the CWMP. To learn how to register and/or enter a project into the CWMP Database contact PCWA Engineering Division at (530) 823-4886. In order for a project to be recognized and eligible to apply for funding, the following information, at a minimum, should be available prior to entering the project:

- Project Name – A descriptive project name.
- Entity Name – Select from a drop-down menu the entity submitting the project.
- Project Location – The option to enter an address or to use a map tool is provided to select the project location.
- Project Statement – Description of the issue being addressed by the project.

- Project Type – Select from a drop-down menu Planning, Design/Construction, Study, or Other.
- Project Description – This description would describe the overall project.
- Project Cost and FAP Request – The total project cost for the project described in "Project Description," the amount of the funding request "FAP Request," and to what portion of the project does the funding relate.
- Contact Information – Contact information of the entity's individual who PCWA should contact if there are project related questions.
- Primary Element identified – Element or Elements the project best fits. This will be reviewed by PCWA.

Including projects in the CWMP is important to identify the magnitude of resource needs by Element so that the PCWA Board can consider this information in setting the Strategic Objectives defined in the FAP Policy for upcoming funding opportunities.

Entities may enter projects into the CWMP at any time. To help ensure the CWMP is current, in May or June of each year, PCWA will reach out to the entities to receive input of resource needs and recommends the entities enter all projects in the CWMP. It is of particular importance that projects are entered and up to date by mid-July for inclusion prior to the allocation of funds defined in the FAP Policy.

Step #3 – Summarize County-Wide Resource needs by Element (PCWA)

Towards the end of July, information from the CWMP Database is downloaded and analyzed by PCWA staff. The information is summarized to illustrate the overall resource needs by Element identified in the CWMP. The summary includes the Project Name, Entity, FAP Request and Project Cost sorted by Element.

Step #4 – Recommendation of Initial Allocation and Strategic Objectives (PCWA)

Based upon the needs summarized in Step #3, PCWA staff will recommend an initial allocation of funds along with Strategic Objectives. At a meeting/teleconference in August or September, the proposed funding allocation and strategic objectives are discussed with the entities, after which staff then presents the recommendations to PCWA's Board for consideration.

The Board has discretion to allocate funds to CWMP projects and other resource needs. Based upon available resources, the Board may allocate the Agency Wide funds in an initial allocation of funds ("Initial Allocation of Funds" shown on **Figure 1**), to CWMP projects with

funds allocated to projects to be implemented by PCWA (Stewardship) and amounts available for Financial Assistance Program (FAP) funding.

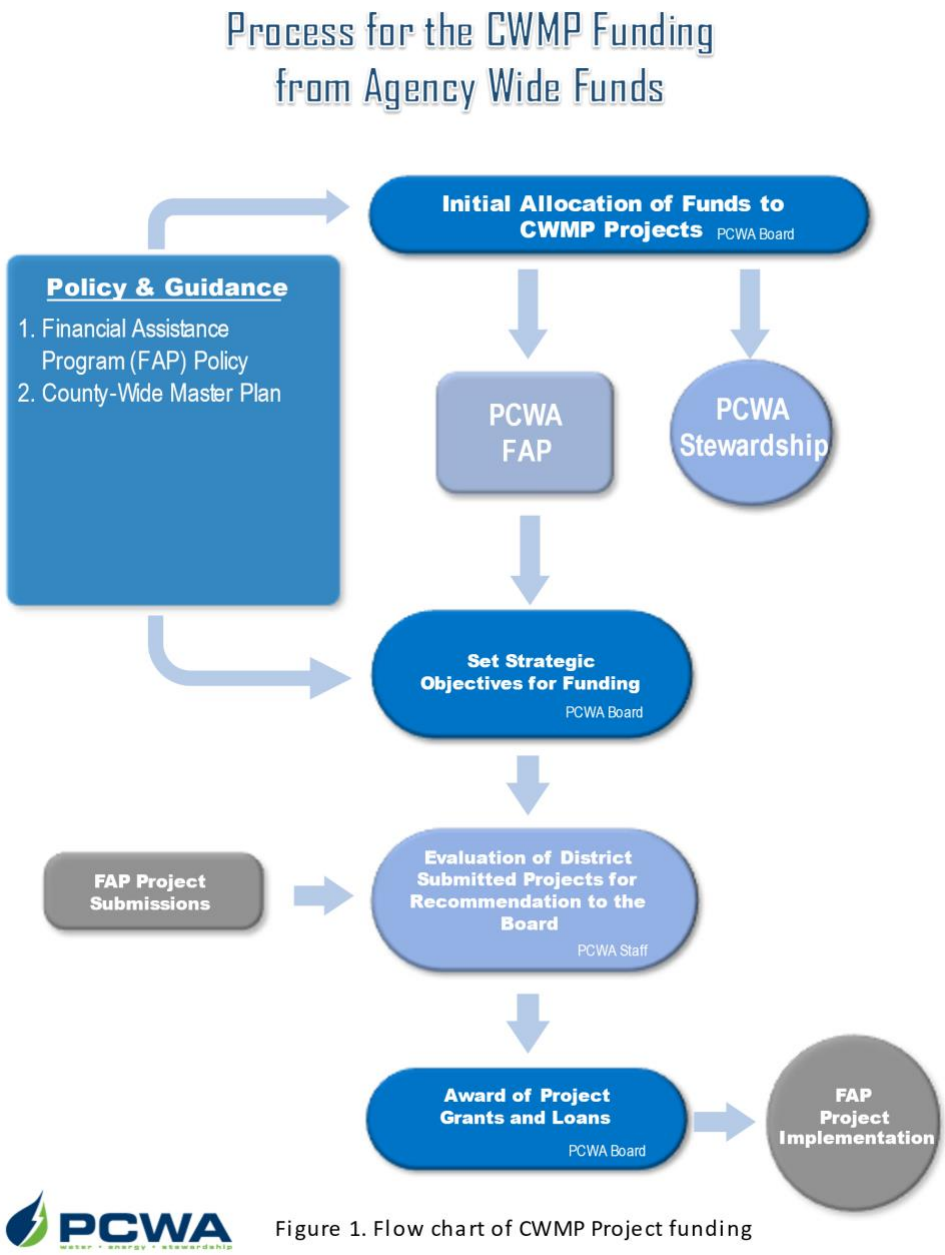

Figure 1. Flow chart of CWMP Project funding

As noted in **Figure 1** Process for CWMP Funding from Agency Wide Funds **above**, once the Board has determined and authorized the Initial Allocation of Funds to either PCWA Stewardship and/or PCWA FAP, then each of these two authorized allocations follow different processes for appropriation and funding. The funding of PCWA Stewardship will

need project identification and appropriation. The funding of PCWA FAP will need the Board to set the annual Strategic Objectives, evaluation of the entity FAP funding request submission, Staff recommendation and award by the Board.

Typically, in the Fall, the PCWA Board holds a meeting on the County's East Slope to discuss the Preliminary Proposed Budget for the upcoming year and any input received is included in the budgeting process.

Step #5 – Budget Approval (PCWA)

Traditionally, the Proposed Budget, including the allocation of funds, for the following year is then considered by the Board in November or December which includes a public hearing.

Step #6 – FAP Funding Request Submission (Entity)

The process to submit CWMP projects for financial assistance would commence with the Board's approval of next year's Budget. Within a few days after PCWA's Budget is approved, PCWA Staff notifies entities of the Budget's approval, which commences the online funding request submission period. The notification also includes the amount appropriated to the FAP, as well as the funding request submission deadline on February 20th of the following year. Only projects included in the CWMP are eligible for funding request submission.

Once the FAP submission process commences, entities may submit projects online from the CWMP for funding consideration. The funding request submission should state whether the funding request is for a loan or a grant, or both, as well as the entity's matching funds, if any. Because funding resources are limited, entities should submit their higher priority projects as funding request submissions, even if the entity has multiple projects existing in the CWMP. Additionally, for best results, submit those projects from the CWMP that best meet the Board's set strategic objectives for that year.

Step #7 – Evaluation and Award Process (PCWA)

All FAP funding request submissions received by the deadline will be reviewed by PCWA's evaluation team. The evaluation team consists of appropriate staff from various PCWA departments. If necessary, for evaluation of specific technical matters or special project circumstances, the evaluation team will be supported by consultants with specific expertise. The evaluation team will objectively consider each project and make recommendations for the amount of financial assistance, if any. Projects will be evaluated based on the Board's established Strategic Objectives, along with the General Criteria and Element Criteria. Funds

may be distributed to multiple projects or only to higher ranking projects as appropriate based upon availability of funds.

The evaluation team will summarize a project recommended for consideration by the Board of Directors for award.

The PCWA Board shall consider the evaluation team's recommendations at a public meeting. The Board shall make its decision on award of granting or loaning of funds from the FAP, including any terms and conditions for such financial assistance, and specify whether funds shall be given in the form of a loan or a grant or a combination of a loan and a grant to any entity. In all cases, the Board makes the final decision on the project funding amounts awarded.

Those entities with projects that are awarded funding will be required to enter into a funding agreement.

Timeline Summary

Below is a condensed matrix of one complete FAP funding cycle:

	Estimated Timing	Deadline (if applicable)	Involvement	Topic/Action
Current Year	April		PCWA Staff	Budget Kick-off for subsequent years Budget
	May/June		PCWA Staff & Entities	Outreach meeting to hear the needs of the entities; CWMP project entry
	July		Entities	CWMP Project entry cutoff for inclusion in discussion of Initial Allocation and Strategic Objectives
	July/August		Finance Committee & PCWA Staff	Direction to Staff for Initial Allocation of Funds and Strategic Objectives
	August/September		PCWA Staff & Entities	Discussion on proposed funding allocation
	September/October		PCWA Board	Consider the Initial Allocation and Strategic Objectives
	September/October		PCWA Board – East Slope	Discussion on the Initial Allocation of Funds and Strategic Objectives
	November/December		PCWA Board	Consider the subsequent years Budget
	After Budget Adoption		Entities	FAP Funding Request submission period opens
Subsequent Year	February	February 20	Entities	FAP Funding Request submission deadline
	March		Finance Committee & PCWA Staff	Review FAP Funding Request Submissions and determine recommendations
	May/June		PCWA Board	Consider Staff Recommendation for FAP Award
	June		PCWA Staff & Entities	Execute Funding Agreements

County-Wide Master Plan

Project Guidelines

Overview

The Project Guidelines are intended to:

a) Provide an organized structure of Element categories for county-wide needs

b) Establish project Element Criteria

These Project Guidelines are supplemental to the CWMP and detail the various Element Criteria, which is important in determining and entering projects into the CWMP. To determine the project's category, the entity should refer to the appropriate Element section depending on the project's benefit. Additionally, entities shall verify that their projects meet the general criteria prior to moving to the Element Criteria.

The Elements serve as the overarching vision and implementation strategy. Each Element contains the following four sections:

- **Mission Statement** provides the purpose for the Element and desired long-term outcome.
- **Goals** are programmatic areas that support the Element. Projects and efforts should be organized around these main programs to further Element implementation.
- **Description** provides a definition of the Element, background of efforts, and main issues to address to achieve Element implementation.
- **Element Specific Criteria** are criteria that define preferred project benefits and characteristics in support of element implementation. Projects are compared to General Criteria and Element Specific Criteria in the evaluation process to determine prioritization and award ranking.

The Elements provide an overall purpose and goals to achieve the mission of the Element. There are a wide range of possible projects that support each Element. As projects are implemented, the element plans may be modified to update status and address new issues. Entities are encouraged to understand the Element needs and develop projects that best support the mission and goals.

General Criteria

General criteria set forth feasibility and leveragability criteria of the CWMP projects.

Project Feasibility Criteria addresses the overall feasibility/sustainability of the project and the ability to complete the project within a proposed time frame with the following criteria:

a) Alternatives analysis - Project is evaluated through an alternatives analysis, demonstrating sound planning and judgment.

b) Readiness – Entity has conducted all necessary steps required for phase of project that entity is requesting funding, such as environmental review.

c) Project management plan – Entity has a plan demonstrating they can implement the project, are experienced in similar projects, and are aware of probable challenges and how to overcome them.

d) Long-term feasibility – Entity demonstrates sufficient funds and annual budget to maintain project infrastructure into the future.

e) Cost – Project cost is within available FAP funds or funding request is flexible to fit within available FAP funds.

Project Leveragability Criteria addresses how the project takes advantage of other funding opportunities and how the project may provide broader CWMP benefits. These criteria are as follows:

a) Other funding sources - Entity has other funding, such as a grant, or project support to offset full project needs from the FAP.

b) Additional Master Plan benefits - Project substantially benefits Master Plan elements other than the primary element selected for the project.

Element Criteria

Element 1 – Unserved Areas

1.0 Mission Statement

Development of new, or extension of existing, water systems to serve existing homes, neighborhoods and communities that do not have adequate domestic water supplies.

1.1 Goals

- Identify and quantify needs for unserved areas.
- Provide technical assistance to residents in need of potable water service.
- Develop infrastructure alternatives to provide service to areas.
- Implement infrastructure projects that support element mission.

1.2 Description

This element serves to identify, track, and support efforts to provide reliable potable water to Placer County residents. A wide variety of issues and needs will be addressed by this element. Parcels relying on groundwater supplies, particularly fractured rock groundwater, may need to obtain a new supply source from either having a low supply or insufficient quality. Customers currently relying on raw canal water and bottled potable water will need full potable water service.

Historically select areas within Placer County were able to develop their residence utilizing raw water from the local canal systems as their water supply source. These residents are currently required to purchase bottled water and report their usage through delivery of their receipts to their raw water purveyor. There are also localized areas scattered throughout the county with insufficient supply sources or deficient water quality that have an intermittent supply source that may become dry during a drought. Serving these communities through projects meets the objectives of this element. Ideally, projects would serve the maximum number of parcels at a reasonable cost.

The project process will be different for entities seeking supply through PCWA versus through other public water agencies. For entities seeking service from PCWA, the element project must be coordinated with PCWA's existing service extension and improvement district requirements. If entities are not eligible to receive financial assistance through the FAP, the

entities will need to apply through an eligible organization. These project participants will need to coordinate with the requirements, as well as with the Implementation Guidelines and FAP requirements.

Providing new service to areas requires a strategic plan and approach to incorporate the areas within the existing infrastructure and operations, as well as maximize potential customer connections for highest efficiencies. Projects will need to be thoroughly planned and PCWA or other water agencies may add additional pipeline or other infrastructure to maximize project benefits and/or enhance future extension abilities. These types of multi-benefit projects may require additional engineering and program management support by the respective water agency beyond the entity's efforts.

1.3 Element Specific Criteria

Projects that support this element will identify needs and/or provide service to unserved areas, including the development of new, or the extension of existing, water systems. Projects should consider the goals of this element and the following criteria in developing project descriptions and plans for submittal to the CWMP. Refer to the CWMP for a complete list of data requirements and definitions. Each project is also subject to general criteria and Project Guidelines.

a) Provides potable water service

   Project supports development of potable water service from a public water system to a community not currently served. If a water provider already serves the entities, classifying the project under a different element should be considered.

b) Enhances reliability of existing source of potable water

   Project enhances reliability of an existing potable water supply that is at risk of shortage, failure, or insufficient quality. It is demonstrated that there is currently no supply available, existing supply is unreliable, or the quality does not meet minimum standards.

c) Benefit to cost

   Project has a feasible benefit to cost ratio for number of connections, potential number of connections, and population served.

d) Project supports future Element 1 projects

   Projects that install infrastructure that enhance future service opportunities to other areas are considered favorable.

Element 2 – Water Infrastructure Reliability

2.0 Mission Statement

Voluntary consolidation of water systems to streamline and improve governance or water supply reliability, or to reduce customer costs through improved economy of scale. Renewal and replacement of aging infrastructure. Treatment process improvements, including compliance with mandated water quality requirements and projects to improve water treatment process effectiveness or reliability. Reliability improvement projects, including development of alternative water supplies and installation of redundant supply facilities for use during primary supply outages, installation of backup power generation facilities, increased storage capacity, control system improvements, and mapping for improved planning and emergency response. Emergency financial aid in response to infrastructure failure or other matters threatening reliability of water systems.

2.1 Goals

- Implement projects to improve infrastructure reliability.
- Provide technical assistance to water purveyors to improve water quality and/or supply.
- Develop asset management programs to identify asset conditions, risks, maintenance strategies, and reliability improvement priorities.
- Develop and implement preventative maintenance programs.
- Ensure sufficient funding mechanisms to provide for continuous asset management and replacement needs.

2.2 Description

Water system infrastructure consists of reservoirs, canals, water treatment plants, pipelines, storage tanks, and pumping stations to deliver treated water to customers. Water system infrastructure in Placer County is a unique mix of assets developed for varying purposes over the last 150 years. The initial raw water systems in Placer County were developed in the 1850s to support the gold rush mining era. The treated water systems were installed with development, but often relied on the raw water systems for supply delivery. Over time, portions of the raw water systems have been replaced or improved. However, there still exist open ditch canals, wood trestle flumes, dams, and other gold-rush era infrastructure. In addition, many early treated water distribution systems are nearing the end of their expected

asset life or are at full capacity. Water systems throughout Placer County are experiencing infrastructure degradation and failure, with failure consequences ranging from no impacts to system outages.

Many water system infrastructure management programs have been underfunded and consequently were focused on reactive repairs and growth-induced needs. Now that many significant and critical water system infrastructure components are nearing the end of their useful life, they present a higher risk to service reliability with significant negative impacts such as high emergency repair costs, widespread property damage, and bad public image. Repair and replacement needs are more frequent than previous, exceeding financial capabilities of most agencies. Therefore, available finances must be prioritized to minimize risk. Changing the planning process from reactive to a proactive risk-based approach will require dedicated effort with expected implementation challenges. Ideally, this element will support Placer County's public water systems becoming progressively more proactive with water infrastructure repairs.

There are approximately 128 publicly and privately owned public water systems within Placer County. The size, source of supply, reliability of service, and technical, managerial, and financial capacity of each water system can vary widely. There are 44 public water systems regulated by the State Water Resources Control Board that generally represent the larger water systems within Placer County. Supply sources for these agencies are generally surface water supplies supported by diversion and storage water rights and long-term contracts. The Placer County Department of Environmental Health regulates another 84 small public water systems that serve discrete areas that consist of fewer than 200 connections. These systems are generally supplied from small stream diversions, springs, or groundwater wells.

Infrastructure age, condition, and capacity impact water system reliability. Systems that rely on one source, deliver all water through one location, or have much older infrastructure often demonstrate a higher consequence of failure. Asset management efforts identify failure modes, failure affects, risk of failure, and existing conditions to prioritize and schedule infrastructure needs. This element supports efforts to increase water system reliability, including voluntary consolidation of water systems to streamline and improve governance or water supply reliability, or to reduce customer costs through improved economy of scale.

Entities should utilize an appropriate-level asset management program to prioritize projects. Asset management programs can consist of the following components:

- Master plans and facility planning – planning effort to identify future infrastructure needs and alternative analysis.

- Asset data – asset data listed and tracked in a maintenance management system and/or GIS.
- Maintenance/Failure tracking – system to plan and track all plant and equipment maintenance activities and repairs including preventative, predictive, and repair maintenance.
- Asset condition assessment – proactive condition assessment program for all assets.
- Criticality Analysis – develop and maintain an asset failure risk analysis to inform renewal and replacement priorities.
- Life cycle cost – develop and maintain asset life cycle cost analysis protocols and procedures to support renewal and replacement decisions.
- Renewal and Replacement Program – utilize the asset management Program information to develop and maintain renewal and replacement schedules for all assets.
- Financial structure – to support infrastructure replacement needs.

Infrastructure repair, rehabilitation, and replacement is costly. From replacing one section of pipeline, all the way up to constructing a new dam and reservoir, costs could require specific financial programs. It is expected that infrastructure needs will exceed existing financial capabilities of most agencies and will therefore be a limiting factor in infrastructure reliability and implementing this element.

This element supports different project types. Asset management program projects will initiate or build upon current asset management practices to identify levels of infrastructure risk and associated system reliability. Planning projects will identify and evaluate alternatives to improve system reliability. Design and construction projects will implement the selected alternatives through new infrastructure, rehabilitation, or replacement of existing infrastructure.

2.3 Element Specific Criteria

Projects should consider the goals of this element and the following criteria in developing project descriptions and plans for submittal to the CWMP. Refer to the CWMP for a complete list of data requirements and definitions. Each project is also subject to general criteria identified in Part 1 of the Implementation Guidelines.

Due to the wide range of possibilities for improving infrastructure reliability, a variety of criteria for this element is provided. A single project will typically not satisfy all these criteria.

a) Provide redundant infrastructure and/or supply

Project improves the reliability of existing infrastructure and/or supply, such as installation of backup power generation facilities, increased storage capacity, and control system improvements.

b) Improve operational and maintenance flexibility and/or efficiency

Project demonstrates and quantifies operational flexibility and efficiency improvements, such as renewal and replacement of aging infrastructure.

c) Improve water quality

Project demonstrates and quantifies improvements to water quality, such as treatment process improvements, including compliance with mandated water quality requirements.

d) Improve fire protection

Project improves existing fire flow conditions. Existing lack of fire flow relative to fire district standards should be demonstrated.

e) Water loss reduction

Project demonstrates and quantifies reducing water loss.

f) Improve asset management program

Project supports and enhances one or more of the asset management program components listed above, such as mapping for improved planning and emergency response or emergency financial aid in response to infrastructure failure.

g) Improve infrastructure security

Project improves infrastructure security and vulnerability. Physical security and other types of security, such as cyber, are eligible.

h) Benefit to cost

Project should have a feasible benefit to cost for number of connections and population served.

Element 3 – Water Supply Reliability

3.0 Mission Statement

Water rights protection, including environmental, engineering, and legal services. Water supply development, including needs assessment and supply feasibility studies. Groundwater management, including monitoring, planning, and implementation of programs.

3.1 Goals

- Strengthen and protect existing water supply rights, contracts, and sources.
- Identify and develop additional supply sources including surface water, reclaimed water, groundwater, raw water, and others.
- Develop and maintain a climate change impact and risk analysis strategy.
- Identify and develop local, regional, and state-wide partnerships that support and enhance the water supply portfolio.
- Optimize available supply sources to maximize supply reliability.

3.2 Description

Water agencies obtain water to serve their customers through a mix of supply and storage contracts and rights, riparian rights, and groundwater. Past efforts have provided most of Placer County with sufficient water supply. However, there are many threats to maintaining a reliable supply source for the future. The existing water allocation through State and Federal water projects cannot provide full supply in most years. Consequently, there are political, legal, and regulatory efforts to modify or even completely change the foundational basis of surface and groundwater contracts, rights, and allocations.

Environmental and climatic changes are also influencing current and future water management issues. For instance, climate change could alter the precipitation patterns and type for future supply. The current supply system relies on snowpack as the crucial reservoir in providing supply throughout the year. Any changes in actual precipitation types and patterns from the assumed snow pattern have an immense impact to supply reliability. Environmental needs for water were not originally contemplated in water supply allocations. But now, the unique volumes, timing, quality, and temperature requirements must be considered in supply evaluations and can demand significant changes to supply management strategies.

The supply reliability program faces a unique challenge. Future operating rules, laws, and regulations will most likely change due to political, operational, environmental, and societal pressures. Therefore, the water supply reliability program is a fluid process, constantly changing, reacting to policy shifts, proactively shaping policy, developing and creating partners, and investigating new alternatives. The process will never be complete; the program will always be working on modifying the strategy to address current and projected reliability issues.

This element includes a wide variety of project needs and project types. Scientific and technical studies such as watershed and climate modeling provide a range of future supply scenarios. Operations modeling of power development, customer deliveries, Federal and State project operations, and flood control rules identify a range of operating constraints and alternatives. Integrated strategies including surface water, groundwater, recycled water, or storm water will maximize source flexibility and overall reliability. Development of local, regional, and state-wide supply strategies with multiple partners will maximize project beneficiaries and develop wide support for proposed strategies. Environmental and other engineering studies of proposed supply strategies will support implementation. Water rights protection, including environmental, engineering and legal services, will support continued water supply reliability.

3.3 Element Specific Criteria

Projects should consider the goals of this element and the following criteria in developing project descriptions and plans for submittal to the CWMP. Refer to the CWMP for a complete list of data requirements and definitions. Each project is also subject to general criteria identified in Part 1 of the Implementation Guidelines.

a) Existing supply vulnerability

   Project compliments or improves reliability of a water supply that is at risk of loss or failure.

b) Integrated supply approach

   Project integrates into a supply portfolio that is well balanced with different sources and does not rely on one source with no consideration of secondary source development.

c) Conservation and water use efficiency program

   A water use efficiency and demand management program is part of the integrated supply strategy.

d) Support of local and regional supply needs

   Project coordinates with local and regional supply needs to maximize benefits to Placer County.

e) Benefit to Cost

   Project demonstrates a feasible benefit to cost in terms of cost per acre-feet per year and cost over the population served.

Element 4 – Renewable Energy Development

4.0 Mission Statement

Development of renewable energy projects, including hydropower, solar, and biomass sources of generation.

4.1 Goals

- Develop climate change analysis to identify and manage risk of impacts to power generation strategies.
- Monitor, advance, and implement applicable renewable energy opportunities throughout Placer County.
- Promote and support energy efficiency programs.
- Optimize existing renewable energy systems.
- Acquire energy assets associated with water delivery systems necessary for continued delivery of water.

4.2 Description

The 2011 California landmark legislation, AB 32, set state-wide goals to reduce energy production greenhouse gas emissions 33 percent by 2020. Subsequent legislation and governor executive orders set goals to increase renewable energy to 33 percent of total portfolio by 2020, and 40 percent by 2030. The current 2016 renewable energy portion is approximately 17 percent. These goals create a need and demand for PCWA's existing generation facilities, as well as potential new renewable sources.

Past hydropower generation schedules and operating rules may be changed in the future. Changing climate patterns could result in less snowpack, reducing the amount of in-stream water available for generation during the peak summer months. Increased rainfall during winter months could alter flood control operations of reservoirs, also impacting power generation schedules. Downstream statewide water operations for the State and Federal water projects, as well as delta and other environmental needs, will also place changing demands on reservoir releases that will likely impact power generation potential. Water rights contracts and diversion schedules may also be changed, affecting power generation schedules.

There are a variety of potential renewable resources available throughout Placer County such as small hydro, wind, solar, biomass, and others. Existing facilities may also require improvements to increase efficiency or extend their useful life. A suite of power generating

resources throughout Placer County should be developed to maximize reliability and flexibility over a range of potential energy market needs.

Integrating new renewable energy projects into the watershed, infrastructure, and environmental needs of Placer County will require partnerships and coordination between potentially competing element needs. However, this also offers the opportunity to maximize cross-element benefits when properly planned and implemented. For example, biomass generation could also support watershed stewardship forestry efforts. Maximizing existing hydropower facilities and operations will prove challenging with potential future operational constraints, regulations, and changing snowpack and precipitation patterns. The program will require flexibility and responsiveness to predict and react to energy market needs.

4.3 Element Specific Criteria

Projects should consider the goals of this element and the following criteria in developing project descriptions and plans for submittal to the CWMP. Refer to the CWMP for a complete list of data requirements and definitions. Each project is also subject to general criteria identified in Part 1 of the Implementation Guidelines.

a) Life cycle and payback analysis

   Project demonstrates favorable results relative to the asset life and other industry-standard life cycle expectations.

b) Impacts to existing power generation reliability

   Project improves existing power generation capabilities with respect to generation reliability.

c) Enhance water supply reliability

   Project should enhance water supply reliability for entity and other downstream water agencies.

d) Supports State and/or Federal program initiatives

   Project supports existing State or Federal alternative energy programs and is eligible to leverage applicable funding opportunities.

e) Power generation efficiency

   Project enhances overall power generation efficiency and reduces greenhouse gas footprint.

Element 5 – Watershed Stewardship

5.0 Mission Statement

Source water quality protection programs including projects intended to reduce or prevent contaminants from entering the water system or enhance the quantity and timing of runoff. Watershed forest restoration and fuel load reduction for control of potential forest fires, including biomass disposal. Support for habitat conservation plans and aquatic systems management plans that benefit water supply development, delivery or reliability. Support for rehabilitation, creation or enhancement of recreation facilities and opportunities associated with water supply facilities.

5.1 Goals

- Develop and maintain a program to mitigate catastrophic fire impacts.
- Develop and maintain a program to support endangered and listed species.
- Identify and integrate recreation opportunities into watershed stewardship projects.
- Develop and maintain a program to identify, quantify, and mitigate water quality and quantity impacts.
- Coordinate needs and management efforts between watershed land managers.
- Support watershed research and study.
- Enhance watershed understanding through coordination with Element 8, Public Education and Outreach.

5.2 Description

Water supply is intricately tied to the watershed. The health of the watershed directly impacts the quality and reliability of the water supply. The watershed provides natural filtration, sediment retention, groundwater absorption, food sources, and a variety of other elements, that when properly balanced, maximize watershed sustainability. Placer County's watersheds also support economic sectors such as wood products, power generation, tourism, recreation, and agriculture. In the past, oftentimes, specific uses were not integrated with other watershed needs or users, and it was assumed the watershed would still support all its existing uses.

Recent impacts from forest fires, climate change, invasive species, and other factors have demonstrated the need to consider the watershed holistically in order to maximize sustainability and water reliability. Forest fire prevention has resulted in large understory fuels that, when they do burn, burn with intense heat. Soil, trees, and other flora are severely

damaged, taking much longer to return. This leaves soils unprotected and frequently results in erosion, silting up reservoirs and reducing storage capacity. Loss of soil, meadows, and other forest floor elements also can impact water quality and reliability.

This element supports programs and efforts to improve watershed stewardship. Efforts will study and implement projects that improve the understanding of the myriad of interactions throughout the watershed. The goal is for these programs to improve the balance and sustainability of all watershed activities. This element also recognizes the downstream benefits of watershed stewardship. This effort will look to partner with all state-wide beneficiaries of proper watershed management within Placer County.

Watershed stewardship projects cover a wide range of opportunities. Planning and studies include efforts to better understand watershed interactions and define current and future issues. Efforts will involve multi-party collaborations with local, regional, and state-wide agencies as well as corporate and other watershed stakeholders. Implementation efforts will develop and deliver specific projects to improve watershed stewardship. Projects could cover a wide range of subjects such as forestry management, urban-forest boundary interface, storm water, meadow and creek restoration, sediment management, and others.

Identifying and understanding the importance of watershed stewardship is the first step in a successful program. The near term challenges include identifying partners and developing collaboration and coordination efforts. Other challenges will include multi-party and stakeholder involvement and management towards the ultimate stewardship goal.

5.3 Element Specific Criteria

Projects should consider the goals of this element and the following criteria in developing project descriptions and plans for submittal to the CWMP. Refer to the CWMP for a complete list of data requirements and definitions. Each project is also subject to general criteria identified in Part 1 of the Implementation Guidelines.

Due to the wide range of possibilities for stewarding Placer County watersheds, a variety of criteria for this element are provided. A single project will typically not satisfy all these criteria.

a) Support of further monitoring/defining watershed needs
   Project identifies and further defines watershed stewardship needs through study and assessment.

b) Response to impending threats

Project mitigates potential impending impacts from events such as drought, fire, flood, contamination, or other threat, such as watershed forest restoration or fuel load reduction for forest fire control (including biomass disposal).

c) Water quality enhancement

Project improves water quality and/or increases water quality security and protects watershed from contamination, such as runoff control.

d) Recreation enhancement

Project enhances, rehabilitates or creates recreation opportunities or facilities in the watershed.

e) Climate change impacts

Project identifies, addresses, and mitigates potential climate change impacts to the watershed.

f) Supports beneficial use of water

Project support beneficial use of water as identified in the California Water Code and the Code of Regulations, such as power generation, recreation, irrigation, incidental domestic, municipal, and/or industrial uses.

g) Endangered/listed species habitat impacts

Project benefits endangered or listed species habitats, such as habitat conservation plans or aquatic systems management plans that benefit water supply development, delivery or reliability.

h) Long-term operations and maintenance plan

Project is sufficiently supported with budget, staff, and other necessary resources to maximize project life and benefits.

Element 6 – Agriculture

6.0 Mission Statement

Programs and projects that promote sustainable agriculture, including water supply and delivery systems, water use efficiency, and minimization of water loss.

6.1 Goals

- Develop and maintain an agriculture water needs and risk assessment.
- Preserve and support agriculture opportunities in western Placer County.

- Maximize beneficial uses of water supplies.
- Enhance and improve infrastructure to optimize operational efficiency.

6.2 Description

Agriculture varies throughout Placer County. The western portion includes large tracts with crops typical of the Sacramento Valley including rice. Irrigation is provided by raw water from open canals, other surface water supplies, and self-supplied groundwater. Foothill agriculture includes smaller diverse farms and ranches that are mostly supplied through the raw water canal systems. Agriculture and agro-tourism is an important facet of Placer County economy and character.

Ensuring reliable irrigation supplies and delivery infrastructure is critical to maintaining the agriculture economy. Surface water availability during irrigation season is critical for the raw water system. State-wide issues with over-allocation, drought, and climate change, and additional environmental demands could impact existing supply availability and reliability. Aging diversion and canal systems decrease the delivery reliability with increasing frequency of failures and outages. Aging infrastructure is also susceptible to leakage, further reducing available supplies. Many raw water deliveries utilize existing natural waterways that are under increasing pressure to provide more environmental benefits and other benefits that can impact delivery reliability. Significant portions of agriculture within the western portion of Placer County rely on groundwater to provide supply needs when surface water is insufficient. The groundwater basin is under pressure from other users adjacent to Placer County who are also experiencing less reliable surface water supplies. Maintaining sustainable management of the groundwater basin is therefore paramount to this conjunctive use strategy. Additional alternative sources may be necessary during drought or other supply reducing events to maintain reliability.

Project requirements include two main categories; supply and infrastructure. Supply projects include alternative source development such as reclaimed water and efforts to improve groundwater management and sustainability. Supply efforts also include improving reliability and management of the natural waterways used to deliver supply. Infrastructure projects include rehabilitation and replacement efforts of the canal system to improve reliability and minimize water loss.

Projects will also include infrastructure linked to sustainable groundwater management strategies. Developing a sustainable groundwater management plan requires coordination between multiple counties, urban water agencies, private well owners, and other

stakeholders. In addition, the State's recent groundwater management mandates will add additional layers of regulation and compliance activities.

Increasing environmental and other stakeholder needs will continue to alter and restrict supply delivery functions of the natural waterways. Defining and maintaining sustainable agricultural will likely be an evolving process, adding complexity to element and policy decisions. In addition, increasing environmental and other stakeholder needs will continue to alter and restrict supply delivery functions of the natural waterways, affecting agricultural supply operations.

6.3 Element Specific Criteria

Projects should consider the goals of this element and the following criteria in developing project descriptions and plans for submittal to the CWMP. Refer to the CWMP for a complete list of data requirements and definitions. Each project is also subject to general criteria identified in Part 1 of the Implementation Guidelines.

a) Existing supply vulnerability
   Project improves reliability of an existing agricultural water supply that is at risk of loss or shortage.

b) Integrated supply approach
   Project integrates into a supply portfolio that is well balanced with different sources.

c) Agriculture water efficiency program
   A water use efficiency program exists that is part of the integrated supply strategy.

d) Placer County Conservation Plan (PCCP) support
   For projects within the PCCP area, support of PCCP objectives.

e) Agriculture support
   Project supports sustainable agriculture in Placer County.

f) Water loss reduction
   Project demonstrates and quantifies benefits to reducing water loss.

g) Benefit to cost
   Project demonstrates a feasible benefit to cost for area of land directly irrigated, in terms of cost per acre of irrigated land.

Element 7 – Conservation and Water Use Efficiency

7.0 Mission Statement

Water conservation and water recycling programs, including program development studies, meter installation or replacement, installation of advanced meter infrastructure or other devices to promote water use efficiency and leak detection, conservation education programs, and conservation rebate and incentive programs.

7.1 Goals

- Develop and implement water use efficiency programs for all water users in Placer County.
- Strive to meet all State-mandated water use efficiency standards.
- Support and participate in local, regional, and state-wide water use efficiency policy and standards development.

7.2 Description

Water management and use expectations are going through a unique transformation. Historically, water agencies provided sufficient supply, and reducing demands was only necessary during droughts. Agencies generally were supply-focused; protecting existing supplies and developing new supply options. Due to over-allocation, climate change, drought, increased environmental flow requirements, and other State policies, customer demands are under increasing scrutiny. Additionally, the State is using unit water demands as a decision parameter in water planning. In 2015, unit demands were used to determine mandated reductions and associated fines. Agencies need to be proactive in demand management activities to maximize and protect supplies.

Customer potable usage mostly includes a large outdoor landscape component. The inland climate and developed landscapes require increased water usage as compared to smaller parcels in more mild and coastal climates. Unfortunately, many landscapes and irrigation systems were installed improperly or with inefficient designs, exacerbating higher usage rates. Landscape and irrigation systems are costly and long-term investments. Therefore, affecting landscape design and irrigation usage is a long-term effort that will rely on small gains over many years. Agriculture and raw water system are also an important part of a water efficiency program, though many of these programs are included in Element 3, Water Supply Reliability.

Planning and implementing a demand management culture and practices is an ongoing effort. Indoor and non-residential water efficiency measures, though representing a smaller gain, are important to the overall program. Demand management requires increased customer data collection and analysis. The goal of this element is to re-focus efforts to the proactive management of customer demands and provide tools and programs to improve water use efficiency and meet state requirements for demand criteria.

Water use efficiency requires a shift in water agency culture, and equally important, customer culture. Customers are mostly accustomed to using ample amounts of water with little increase in costs. This has created usage habits de-coupled from the value of water. Improving water use efficiency will require fundamental changes in water use that impact lifestyle and property perceptions. Both water agencies and customers will need to adapt and commit to water efficiency and demand management strategies.

Projects include efforts that improve water use data collection and analysis, specific water efficiency programs, and public outreach. Projects under this element also support other elements such as water supply reliability, agriculture, and public outreach. Examples of projects that might fall under this element would be program development studies, meter installation or replacement, installation of advance meter infrastructure or other devices to promote water use efficiency and leak detection, conservation education programs, and conservation rebate and incentive programs.

7.3 Element Specific Criteria

Projects should consider the goals of this element and the following criteria in developing project descriptions and plans for submittal to the CWMP. Refer to the CWMP for a complete list of data requirements and definitions. Each project is also subject to general criteria identified in Part 1 of the Implementation Guidelines.

a) Improve water use efficiency program

   Project improves and enhances a water conservation or water recycling program and water demand management efforts.

b) Projected water savings

   Project results in quantifiable and beneficial water savings.

c) Cost to benefit

   Project demonstrates a feasible benefit to cost for projected water savings in terms of cost per volume of water saved.

d) Impact to demand stabilization

Project results in a positive effect on customer demand patterns by reducing seasonal or daily peaks.

Element 8 – Public Education and Outreach

8.0 Mission Statement

Programs designed to educate and inform the public on importance of water and energy resources, protection, and sustainability.

8.1 Goals

- Develop and maintain a multi-media, multi-platform outreach program that can be utilized to meet various levels of customer/resident/visitor groups.
- Coordinate outreach programs between all agencies and other County stakeholders.
- Develop, coordinate, and maintain messaging for pertinent issues.
- Coordinate public outreach efforts with emergency planning response needs.

8.2 Description

Water management has largely operated in the background. Ample supplies and satisfactory operations and management have kept water out of public concern. Current and future pressures on water management state-wide have pushed water management concerns to the forefront and for the foreseeable future. Water agencies and water managers are expected to solve the many, often conflicting, state-wide water need conflicts. Though many previous efforts have addressed these issues, agencies are now expected to engage and inform the public in a transparent manner.

Each element of these Implementation Guidelines is an important piece of the overarching strategy to improve water, power, and resources stewardship. A public education and outreach program serves to articulate the overall strategy, element needs, specific project requirements, and program successes. The program provides multiple benefits. It will inform customers and Placer County residents of the proactive efforts to support Placer County's lifestyles and economies. It will be used to discuss and debate water and power management policies. It will also be used to advocate issues, needs, and preferred strategies to other agencies, regulators, and State and Federal lawmakers.

Projects include coordination of water, power, and stewardship outreach programs across multiple disciplines and media. This includes development and implementation of outreach

and information programs, as well as overarching outreach strategies. The element also includes water, power, and stewardship advocacy efforts at State and Federal levels.

Engaging with and informing customers and other stakeholders is complex. Different levels of understanding, information needs, and authority create the need for customized messaging and strategies. The outreach program will develop and maintain central-messaging themes but will need to be flexible and adapt to specific issues or needs.

8.3 Element Specific Criteria

Projects should consider the goals of this element and the following criteria in developing project descriptions and plans for submittal to the CWMP. Refer to the CWMP for a complete list of data requirements and definitions. Each project is also subject to general criteria identified in Part 1 of the Implementation Guidelines.

a) Implementation Guidelines element support

   Outreach efforts support other Implementation Guidelines element goals and projects.

b) Response to potential impending threats

   Project should mitigate potential near-term impending impacts from events such as drought, fire, flood, contamination, or other threat.

c) Water/energy nexus

   Project furthers public understanding of water/energy nexus and impacts of water use to Placer County's water resources and power systems.

d) Outreach and message purpose

   Project outreach and message purpose are clearly identified with descriptions of outreach strategies.

e) Multiple benefit/partners

   Outreach strategy incorporates multiple partners to maximize audience and messaging benefits.