Sonoma County
Local Coastal Plan

WATER RESOURCES ELEMENT
PRELIMINARY DRAFT

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Sonoma County Permit and Resource Management Department
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WATER RESOURCES ELEMENT
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WATER RESOURCES ELEMENT

1. INTRODUCTION

Purpose

Water is an essential element of all life forms. Plants and animals are mostly composed of water and need water and the nutrients carried by water. An adequate and high quality water supply is therefore required for continued human survival, development and use of the land, and the health of the entire natural environment.

Due to its critical importance, water is legally considered a public resource, an adequate and high quality water supply is considered a basic human right, and the use and quality of water have long been regulated by government. Since water moves easily across city and county boundaries, much of the regulation is at the regional, State, and Federal levels. However, since cities and counties have legal authority over development and land use, they are involved in considering the adequacy of water supplies and how development affects the quantity and quality of water available for other beneficial uses.

As development has continued, the long-term adequacy of groundwater and surface water resources has become a major public concern. Water-related issues include lowered groundwater levels, increased storm water runoff, sediment and pollutants in runoff, water diversions into and out of the Russian River basin, summer rationing in dry years, the water needs of fish and wildlife, the rates of water use, conservation methods, water storage limitations, the growing re-use of water, and continuing changes in State and Federal regulations.

In order to address the conditions of groundwater and surface water in the Sonoma County Coastal Zone that would be effective in future water management, more information is required. As a result, an organized data collection and problem identification effort is a necessary step to formulate a prudent management strategy.

The primary purpose of this Element, an optional Element to the Sonoma County Local Coastal Plan, is to ensure that coastal water resources are sustained and protected. To achieve this purpose, water resource management should consider the amount of quality water that can be used over the long-term without exceeding the replenishment rates over time or causing long-term declines or degradation in available surface water or groundwater resources. Nothing in this Element should be construed to encourage or condone illegal use of water.

Relationship to Other Elements

The Water Resources Element addresses a range of water related issues in the Sonoma County coastal zone. Some other water-related topics are also addressed in other Elements. Water availability as a factor in Land Use Map densities is addressed in the Land Use Element. The Open Space and Resource Conservation Element addresses riparian corridors, wetlands, wildlife

protection, tree protection, fishery resources and other biotic resources, soil erosion, forestry, and mineral resources. The Public Access Element addresses water oriented recreation. The Public Facilities and Services Element addresses connections to public water systems. The Public Safety Element addresses flood hazards, fire suppression, and hazardous materials. The Agricultural Resources Element addresses aquaculture.

The Water Resources Element has been developed to be consistent with other Elements. References to policies in other Elements are provided where they support or implement the objectives of the Water Resources Element.

Scope and Organization

The Water Resources Element is organized as follows. Section 2 reviews the relevant water rights law, the hydrologic system, the major streams and drainage basins, the role of vegetation in the water cycle, and the natural underground water storage in the County. Section 3 states the County's goals, objectives, and policies for each of six topics.

2. WATER RESOURCES BACKGROUND

Water Cycle

In Sonoma County, the hydrologic cycle of water movement is dominated by the frequent inflow of moisture-laden air from over the Pacific Ocean. As the moisture laden air cools, particularly where it is forced higher by steep slopes, the vapor condenses into water that falls as rain or, if the vapor is chilled enough, it forms solid ice crystals and falls as snow. Most of the rain and snowmelt runs off into surface water bodies that drain back to the sea. Some of the precipitation is absorbed into the Earth and becomes "groundwater," some of which moves slowly through subsurface layers to streams, lakes, and the ocean. When the sun heats up this surface water, it evaporates into vapor steam in the atmosphere and again becomes potential precipitation.

The range of temperatures, cloud cover, and moisture and evaporation levels, when combined with the effects of topography, vegetation, and development, can result in varying rainfall levels at any particular time in each of the watersheds in the County. In addition, long-term changes in snowpack and precipitation related to climate change could change precipitation patterns, the regional availability and temperature of water, surface runoff, and sea level elevation.

Watersheds

The term "watershed" refers to the area of land that includes a particular river or lake and all the rivers, streams, and creeks that flow into it. Hydrologically, most land in Sonoma County falls within the three main watersheds: Russian River, Gualala River, and San Pablo Bay. **Table C-WR-1** and **Figures C-WR-1a-c** show the area and location, respectively, of the Watersheds and Sub-watersheds of the Sonoma County Coastal Zone, which lay both inside and outside Sonoma County.

In general, watersheds in the northern areas of the County (Gualala River, Austin Creek, Dry Creek, Big Sulphur Creek, and Maacama Creek) consist of mountainous, rugged terrain with little urban development. Land use in these upper watersheds is predominantly rural, with timber production and grazing being the primary uses.

Most of central Sonoma County is part of the Russian River watershed and ultimately drains west to the Pacific Ocean. This area has moderate topography and lies in the ancient alluvial floodplain of the Russian River. Much of the suburban and urban development of Sonoma County is located within these central sub-watersheds, including Healdsburg, Windsor, Santa Rosa, Sebastopol, Rohnert Park and Cotati.

The watersheds for the Petaluma River and Sonoma Creek in the southern portions of the county are tidally influenced. They have their headwaters on the steep grass and oak foothills of the Sonoma Mountains and Coast Range, pass through small valleys where the Petaluma and Sonoma urban areas are located, and open up to wide marshlands that interact with the San Pablo Bay. Land use in these subbasins is varied and includes agriculture and rural and urban residential use.

Many small watersheds in the Coastal Zone consist of streams that drain relatively small watersheds and flow a short distances from the first coastal ridgeline directly to the Pacific Ocean. These individual small coastal drainage basins are collectively referred to as the "Frontal Pacific Ocean watershed." Streams in these watersheds flow though areas of steep terrain and marine terraces. Coastal streams typically enter the ocean at small sandy beach inlets periodically along steep rocky coastal bluffs.

Aquifers

Groundwater is an important source of agricultural, industrial, and domestic water supply in Sonoma County. While the Russian River is the primary source of domestic water for the County's urban areas, most rural areas are served by groundwater. Groundwater resources are tapped by both municipal and private wells. However, not all groundwater in the County is of sufficient volume, has a reasonable rate of recharge, or is suitable for drinking water or other purposes.

Some groundwater naturally contains dissolved substances that can cause health problems, depending on the concentrations and combinations of the substances present. According to the RWQCBs, groundwater is also often polluted by human activities that generate contaminants such as microorganisms, gasoline and diesel fuels, solvents, nitrates, pesticides, pharmaceuticals, and metals. The underground flow and concentration of these contaminants, as well as the intrusion of ocean saltwater into groundwater, can be influenced by the extraction of groundwater and changes in levels of groundwater and surface water.

The California Department of Water Resources (DWR) has identified the groundwater basins and subbasins in Sonoma County in DWR Bulletin 118. In the Sonoma County Coastal Zone, they include the Bodega Bay Area (DWR 1-57, 2,680 acres), Wilson Grove Formation Highlands (DWR 1-59, size unavailable), Lower Russian River Valley (DWR 1-60, 10 square miles), and Fort Ross Terrace Deposits (DWR 1-61, 3.5 square miles in Sonoma County). **Figure C-WR-2a-c** shows the locations of the groundwater basins in the Coastal Zone. None of these

groundwater basins are currently designated by DWR as medium- or high-priority groundwater basins.

Table C-WR-1: Area of Watersheds and Sub-Watersheds of the Sonoma County Coastal Zone

Watershed	Sub-Watershed	Total Area (Square Miles)	Area within Coastal Zone (Square Miles)
Abbotts Lagoon-Frontal Pacific Ocean		107	<1
Gualala River		299	2
	South Fork Gualala River	44	2
Lower Russian River		148	15
	Dutch Bill Creek-Russian River	55	<1
	Willow Creek-Russian River	24	15
Salmon Creek-Frontal Pacific Ocean		256	52
	Bodega Harbor-Frontal Pacific Ocean	55	11
	Russian Gulch-Frontal Pacific Ocean	166	36
	Salmon Creek	35	4
Tomales Bay-Bodega Bay		160	17
	Bodega Bay	16	1
	Bodega Harbor	9	7
	Estero Americano	38	9

Most of the County's groundwater basins are centered along major creek and river valleys. Recharge of groundwater typically occurs along the major streams as well as their principal tributaries. The principal water bearing formations in Sonoma County groundwater basins are typically alluvium. While other geologic units can yield adequate amounts of water in some areas, much of the County may not have dependable groundwater supplies.

In the Coastal Zone, groundwater aquifers consist mainly of fractured bedrock of the Franciscan Complex, a large area of Jurassic and Cretaceous sedimentary, metamorphic, and igneous rocks from the ocean's crust that were mixed by shearing along faults and stuck to the continental edge as the ocean floor slid down under the edge of western North America.

In fractured rock aquifers, groundwater is stored in the fractures, joints, bedding planes, and cavities of the rock mass. The Franciscan Complex is generally considered to be non-water bearing; water availability largely depends on the nature of the fractures and their interconnection. Groundwater is derived from local rainfall that has percolated down into the rock, existing in small fractures in the zone of saturated rock below the water table.

Poor groundwater quality can be the result of geologic conditions such as the highly mineralized water extracted from the Sonoma Volcanics or brackish water from the Petaluma Formation. Also, some groundwater naturally contains dissolved elements such as arsenic, boron, selenium, mercury or radon (a gas formed by the natural breakdown of uranium in the soil).

Water Rights

The California Constitution requires that water be used in a reasonable and beneficial manner and prohibits misuse and waste of water. Water is used beneficially when, for example, it is used to drink, grow crops, or wash cars. What is reasonable water use depends on the circumstances. For example, it could be unreasonable to wash cars during a severe drought. All types of water rights are subject to this constitutional policy, and a State agency, the State Water Resources Control Board (SWRCB), is authorized to take action to prevent unreasonable uses of water.

There are two principal types of surface water rights in California, riparian rights and appropriative rights.

Riparian Water Rights

A riparian water right allows a landowner bordering a watercourse to share the water flowing past his property with other riparian landowners. Riparian rights are not defined by California statutes but have been established by common law and court decisions. Permits or other government approvals are not required to exercise riparian rights. However, a permit from the Army Corps of Engineers or some other regulatory agency, or an agreement with the California Department of Fish and Game, may be necessary to construct diversion facilities needed to exercise riparian or appropriative rights.

Riparian rights extend only to natural flow and do not apply to water imported into a stream system or water released from storage in an upstream reservoir. Riparian rights do not allow a water user to store water in a reservoir during the wet season for use during the dry season. In times of water shortage, riparian rights are entitled to share the supply before any appropriators may divert water. The water from riparian rights can only be used on the riparian lands and cannot be transferred or exported for use on other properties or outside the watershed.

Riparian rights ordinarily cannot be lost through non use and generally remain with property when it changes hands. However, a riparian right may be impaired or lost if a parcel is subdivided or the land otherwise severed from its water source, if the SWRCB approves a prescriptive appropriative right, or if a court approves allocation of a stream's water among users.

Appropriative Water Rights

Since 1914, all new appropriations of surface water have required a permit from the State. The permits are issued by the SWRCB and specify the amount of water that may be diverted; purposes for the water use; seasons of diversion; and the locations of diversion, storage (including underground storage), and use. An appropriative water right permit may allow the

use of water at locations outside the watershed. When the SWRCB considers an application for a permit, it evaluates whether water is available during the season requested for the diversion; and the potential environmental impacts of the diversion, which include potential impacts on the rights of the public to use the waterway for navigation, commerce, fisheries, recreation, and aesthetic enjoyment; and potential impacts on the preservation of open space, ecological study areas, and wildlife habitat. Based on this evaluation, the SWRCB decides whether or not to issue a permit and, if it issues a permit, what conditions to include in the permit.

Appropriative rights are limited to the amount of water that may be put to beneficial use, and a right may be lost after a period of non-use. Appropriative water rights are based on a "first come, first served" principle; the first to take water has a superior right over later appropriators. In times of water shortage, all appropriators must stop diverting water, if necessary to satisfy riparian rights. There is no sharing of a shortage among appropriators; instead, senior appropriators are entitled to exercise their rights to satisfy all of their reasonable needs before junior appropriators may divert any water.

Water flowing in subterranean streams through known and definite channels is subject to diversion, use, and regulation under riparian and appropriative rights as described above. Water is considered to be flowing in a subterranean stream through a known and definite channel if it is in contact with surface water and moving in the same direction in a relatively defined channel. Groundwater not flowing in any subterranean stream through a known and defined channel is known as "percolating groundwater" and is not subject to surface water rights.

Groundwater Rights

Except for groundwater flowing in subterranean streams, there is no statewide statutory regulation of groundwater in California. Landowners overlying groundwater have rights to share the groundwater under their property with other overlying landowners without obtaining a permit from any State agency. Groundwater may also be used on lands that are not overlying, but this right is subordinate to the prior use of any overlying landowners. Surface water can be diverted or pumped into aquifers for later extraction, with SWRCB approval.

The courts have held that cities and counties may regulate groundwater use under their police powers to protect the public's health, safety, and welfare. In addition to those powers, the State Water Code provides other regulatory tools including the adoption and implementation of a groundwater management plan under the Groundwater Management Act (Water Code Section 10750-10755.4; AB 3030). Several California counties have adopted groundwater regulation programs. Litigation has also resulted in court decrees regulating groundwater use in some cases.

The Sustainable Groundwater Management Act of 2014 requires development of sustainable groundwater management plans for groundwater basins designated by Department of Water Resources as medium- or high-priority groundwater basins. The Act provides for the formation of Groundwater Sustainability Agencies and grants these agencies new authorities to manage groundwater use, recharge, and environmental impacts. Sonoma County is currently in the process of meeting the schedule for compliance with the new state law.

Biotic Resources and Water

The policies in the Water Resources Element recognize the importance of natural vegetation and wildlife habitat, both as beneficial water uses whose needs must be considered but also as factors in maintaining adequate water quality and quantity. The supporting biotic resource goals, objectives, and policies are contained in the Open Space and Resource Conservation Element.

Trees and other natural vegetation depend on water, but their presence also affects the long-term quality and quantity of water resources in several ways. The natural vegetation found around wetlands, streams, and lakes benefits water quality by filtering out sediment and pollutants from stormwater runoff before it enters surface water bodies. Vegetation can also block stream flows and increase the retention of stormwater, thereby recharging groundwater, absorbing pollutants, and modifying peak flood levels. Vegetation on stream banks reduces bank erosion as a source of sediment. Trees and shrubs provide shade which can lower the temperature of the water and increase its value as fishery habitat in a warm climate. Streamside trees that fall into stream channels may aid fishery habitat by providing shelter, diverting flood flows, and scouring deep holes. The Open Space and Resource Conservation Element also includes discussion of the relationship of biotic resources to water.

Trees and other vegetation need and use water but also help maintain year-round water levels in streams and groundwater. In the fall, many trees stop absorbing water. Trees in exposed foggy areas reportedly increase precipitation. Trees in any location provide shade that cools the ground surface and reduces evaporation. Plants add moisture to the air through transpiration of water from their leaves.

3. WATER RESOURCES POLICY

Water Quality Regulations

Water quality protection has long been a priority at all levels of government. In California, programs implementing the Federal Clean Water Act and the State Porter-Cologne Act are administered by the SWRCB and the nine regional water quality control boards (Regional Water Boards).

California's Non-point Source Pollution Control Program (CA NPS Program) addresses federal requirements under both the Clean Water Act and the Coastal Zone Management Act (Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990), by implementing California's Coastal Nonpoint Pollution Control Program on a statewide basis. The lead State agencies responsible for implementing the CA NPS Program are the SWRCB (designated as the lead water quality agency) and the California Coastal Commission (designated as the lead coastal zone management agency), along with the nine Regional Water Boards.

The Local Coastal Program provides water quality protection measures in accordance with Coastal Act requirements for development in the Coastal Zone, which supplement the SWRCB's regulations. The Local Coastal Program is the standard of review for the Coastal Act

Development Permits, issued by Sonoma County, including appeals to the Coastal Commission of Coastal Development Permits issued by Sonoma County.

In Sonoma County, the Sonoma Creek and Petaluma River watersheds are in the Bay Area Regional Water Board's jurisdiction, and the remainder of the County is governed in the jurisdiction of by the North Coast Regional Water Board. Waste discharge requirements are set by each Regional Water Board for point sources of pollution, including industrial and commercial uses, community wastewater management systems, and individual septic systems. Implementation of point source controls has led to substantial increases in the level of water quality treatment and improvements in the quality of discharges.

Over time, development and land use management of natural resources have resulted in erosion, sedimentation, and degradation of surface water quality in the Russian River watershed and elsewhere. Surface water quality concerns in some watersheds include low levels of dissolved oxygen; high temperatures; and high levels of coliform bacteria, ammonia, nutrients, pathogens, metals, herbicides, pharmaceuticals and exotic species. These watershed conditions often impact coastal waters, especially in lagoons and coastal estuaries.

The California Coastal Act mandates protection and restoration of water resources in the Coastal Zone, including water quality. The following sections of the California Coastal Act apply to are most relevant to water quality:

> ***Section 30230 Marine resources; maintenance.*** *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long term commercial, recreational, scientific, and educational purposes.*
>
> ***Section 30231 Biological productivity; water quality.*** *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Water quality protection has long been a priority at all levels of government. In California, programs implementing the Federal Clean Water Act and the State Porter-Cologne Act are administered by the SWRCB and the nine regional water quality control boards (Regional Water Board). In Sonoma County, the Sonoma Creek and Petaluma River watersheds are in the Bay Area Regional Water Board jurisdiction, and the remainder of the County is governed by the North Coast Regional Water Board. The entire coastal zone is within the jurisdiction of the North Coast Regional Water Board. Waste discharge requirements are set by each Regional Water Board for point sources, including industrial and commercial uses, community wastewater management systems, and individual septic systems. Implementation of point source controls has led to substantial increases in the level of treatment and quality of discharges.

Over time, development and management of natural resources has resulted in erosion, sedimentation and degradation of surface water quality in the Russian River watershed and elsewhere. Surface water quality concerns in some watersheds include low levels of dissolved oxygen; high temperatures; and high levels of coliform bacteria, ammonia, nutrients, pathogens, metals, herbicides, pharmaceuticals and exotic species.

National Pollutant Discharge Elimination System

The focus of regulatory efforts has expanded in recent years to address surface runoff and pollutants into entering drainage channels, streams and groundwater. The National Pollutant Discharge Elimination System (NPDES) program requires individual permits for construction sites that disturb over one acre, and for certain industrial and commercial activities. The NPDES program, also regulates and requires "municipal" area wide permits for urbanized areas under the Municipal Separate Storm Sewer System (MS4) permit program. Sonoma County's coastal area is not currently regulated under the MS4 permit program. However, long-term post-development requirements have been included in this LCP to provide a similar standard of water quality protection in the Coastal Zone.

Total Maximum Daily Load Program

The other major Clean Water Act program affecting the County in the future is the Total Maximum Daily Load (TMDL) program. The Water Boards are required to determine which surface water bodies are "impaired" by certain pollutants limiting beneficial uses of water and then to assess pollutant sources, determine acceptable levels, allocate allowable pollutant loads to various sources, and establish implementation programs. Water bodies in Sonoma County that have been identified as impaired are the Russian River, Gualala River, Lake Sonoma, Santa Rosa Creek, Laguna de Santa Rosa, Estero American, Stemple Creek, Sonoma Creek, Petaluma River, and San Pablo Bay. Pollutants of concern typically are sediment/siltation, nutrients, pathogens, and temperature but also include low dissolved oxygen, mercury, other metals, herbicides and exotic species. The listing of impaired water bodies is periodically re-evaluated by the Regional Water Boards. The time frames for completing the TMDL processes in Sonoma County vary over the course of the next decade or so. In the meantime, Sonoma County will continue to be proactive in addressing water quality issues through a combination of education, restoration, and development policies. TMDLs have been adopted for excess sediment and pathogens in Sonoma Creek and for urban pesticides in Petaluma River watershed as part of the Bay Area Regional Water Board's "Urban Creek's Pesticide" TMDL. TMDLs are also being developed for the Russian River and Gualala rivers.

Minimize Water Pollution from Runoff and Other Sources

Goal C-WR-1: **Protect, restore and enhance the quality of surface and groundwater resources to meet the needs of all reasonable beneficial uses.**

Objective C-WR-1.1: Protect and, where feasible, restore the quality of coastal waters to implement Coastal Act policy (in particular Sections 30230 and 30231). Coastal waters include the ocean, rivers, streams, wetlands, estuaries, lakes, and groundwater.

Objective C-WR-1.2: Protect water quality and improve water quality of impaired surface waters. Focus water quality improvement efforts in coastal waters and watersheds which contain surface waters that are the most impaired, have the highest value for fish and wildlife, or are at most risk from future development.

Objective C-WR-1.3: Plan, site, and design development to minimize the transport of pollutants in runoff from the development, to avoid pollution of coastal waters.

Objective C-WR-1.4: Plan, site, and design development to minimize post-development changes in the site's runoff volume, flow rate, timing, and duration, to prevent adverse changes in the hydrology of coastal waters.

Objective C-WR-1.5: Reduce the degradation of surface water quality from the failure of septic and other wastewater treatment systems.

Objective C-WR-1.6: Educate the public about practices and programs to minimize water pollution, and provide educational and technical assistance to agriculture in order to reduce sedimentation and increase on-site retention and recharge of storm water.

Objective C-WR-1.7: Secure funding sources for development of Sonoma County Coastal Zone groundwater quality assessment, monitoring, remedial and corrective action, and awareness/education programs.

The following policies, in addition to those in the Land Use, Open Space and Resource Conservation, and Public Facilities and Services Elements shall be used to accomplish these objectives:

Interagency Coordination

Policy C-WR-1a: Coordinate with the North Coast Regional Water Quality Control Board (Regional Water Board), public water suppliers, Resource Conservation Districts, watershed groups, stakeholders, and other interested parties to develop and implement public education programs and water quality enhancement activities; and to provide technical assistance to minimize storm water pollution, support Regional Water Board requirements, and manage related County programs. Where appropriate, use watershed planning approaches to resolve water quality problems. **(GP2020 Revised)**

Policy C-WR-1b: Work with the California Coastal Commission, North Coast Regional Water Quality Control Board, Sonoma County Water Agency, public water suppliers, and other interested parties to minimize polluted runoff from development, and to continue to develop and implement effective water quality plans and measures. **(GP2020 Revised)**

Policy C-WR-1c: Work with the North Coast Regional Water Quality Control Board (Regional Water Board) in development of Total Maximum Daily Loads (TMDLs), TMDL Implementation

Plans, water quality monitoring, and programs and projects for water quality restoration and remediation for impaired water bodies to improve water quality**. (GP2020 Revised)**

Policy C-WR-1d: Continue to cooperate with Mendocino County, the Regional Board, and CalFire to reduce water quality impacts of timber harvest in the Gualala River watershed. **(New)**

Policy C-WR-1e: Project features and mitigation measures to improve water quality in impaired surface waters shall be required as part of the approval of any development project located within 200 feet of such waters. **(New)**

Reducing Water Quality Impacts from New Development

Policy C-WR-1f: Include as conditions or mitigation measures for new development all Regional Water Board permit requirements, TMDL implementation measures, and discharge prohibitions to stormwater runoff, surface water, and groundwater. **(New)**

Policy C-WR-1g: Address runoff management early in Site Design planning and alternatives analysis, taking into account existing site characteristics that affect runoff (such as topography, drainage, vegetation, soil conditions, natural hydrologic features, and infiltration conditions) in designing strategies that minimize post-development changes in the runoff flow regime, control pollutant sources, and, where necessary, remove pollutants. Require new and redevelopment to incorporation of storm water management measures, consistent with the County's Low Impact Development Technical Design Manual (August 2011 or as amended and approved by the Regional Water Board) to manage the quality and quantity of stormwater runoff from new development.

(1) Give precedence to a Low Impact Development (LID) approach to stormwater management in all development. LID integrates Site Design strategies with small-scale, distributed BMPs to replicate the site's natural hydrologic balance through infiltration, evapotranspiration, harvesting, detention, or retention of stormwater close to its source. Prevent, to the maximum extent practicable, pollutants from reaching stormwater conveyance systems.

(2) Use pollutant Source Control Best Management Practices (BMPs), which can be structural features or operational actions, in all development to minimize the transport of pollutants in runoff from the development. Ensure, to the maximum extent practicable, that discharges from regulated municipal storm drains comply with water quality objectives.

(3) Plan, site, and design development to maintain or enhance on-site infiltration of runoff, where appropriate and feasible. Minimize the installation of impervious surfaces, especially directly-connected impervious areas, and, where feasible, increase the area of pervious surfaces in re-development, to reduce runoff. Limit, to the maximum extent practicable, stormwater flows from post development sites to pre-development quantities by using on-site infiltration where feasible and safe or other equivalent on-site retention Best Management Practices.

(4) Plan, site, and design development to protect and, where feasible, restore natural hydrologic features such as groundwater recharge areas, natural stream corridors, floodplains, and wetlands. Plan, site, and design development to preserve or enhance non-invasive vegetation to achieve water quality benefits such as transpiration, interception of rainfall, pollutant uptake, shading of waterways to maintain water temperature, and erosion control. Conserve and protect natural areas to the maximum extent practicable. (GP2020 Revised)

(5) In areas adjacent to an Environmentally Sensitive Habitat Area (ESHA), plan, site, and design development to protect the ESHA from any significant disruption of habitat values resulting from the discharge of stormwater or dry weather flows.

Policy C-WR-1h: Post-development peak stormwater runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increased peak stormwater discharge rate will result in increased potential for downstream erosion. **(New)**

Policy C-WR-1i: New development, including single-family development on small subdivision lots shall be subject to the following siting and design requirements:

(1) Preserve the existing hydrologic conditions and drainage system to the maximum extent feasible.

(2) Preserve the existing stormwater runoff infiltration, filtration, and retention functions to the maximum extent feasible.

(3) Maintain the volume and velocity of stormwater and dry weather runoff as close to existing levels as feasible.

(4) Minimize grading and incorporate preserve natural land features to the maximum extent feasible.

(5) Incorporate source control Best Management Practices (BMPs) appropriate to the site.

(6) Incorporate treatment control BMPs to remove pollutants of concern when the combination of site design and source control BMPs are not sufficient to protect water quality, or to meet State and Federal water quality objectives.

(7) Maximize the use of vegetated strips of land or other techniques of increasing stormwater infiltration and filtration before reaching storm drain inlets.

(8) Maximize percent cover by pervious surfaces, and minimize percent cover by impervious surfaces, especially those that are directly connected. **(New)**

Policy C-WR-1j: Encourage the use of permeable pavements such as bricks, gravel, porous asphalt, or porous concrete by providing educational materials about these alternative pavements to development contractors and homeowners. **(New)**

Policy C-WR-1k: Avoid construction of new stormwater outfalls and direct stormwater to existing facilities with appropriate treatment and filtration, where feasible. Where new outfalls

cannot be avoided, plan, site, and design outfalls to minimize adverse impacts to coastal resources from outfall discharges, including consolidation of existing and new outfalls where appropriate. Establish the following criteria for Best Management Practices (BMPs) to use for new development:

(1) Quantitative criteria, including quantity of stormwater and percent of storm event, for the design of source control BMPs.

(2) Criteria for which treatment control BMPs would be required. **(New)**

Policy C-WR-1l: Certain categories of development have a greater potential for adverse impacts to water quality and hydrology due to the extent of impervious surface area, type of land use, or proximity to coastal waters and may require Treatment Best Management Practices (BMPs) for post-construction treatment of stormwater runoff. These categories of development, as defined by the Regional Water Board, shall do the following:

(1) Conduct a polluted runoff and hydrologic site characterization by a qualified licensed professional, early in the development planning and design stage, and document the expected effectiveness of the proposed BMPs.

(2) Conduct an alternatives analysis to demonstrate that there are no appropriate and feasible alternative project designs that would substantially improve on-site runoff retention, if a proposed development will not retain on-site the runoff volume from the appropriate design storm using an LID approach.

(3) Use Treatment BMPs or suites of BMPs designed to treat, infiltrate, or filter the amount of stormwater runoff produced by all storm events up to and including the 85th percentile, 24-hour storm event for volume-based BMPs, and/or the 85th percentile, 1-hour storm event (with an appropriate safety factor of 2 or greater) for flow-based BMPs.

(4) Use Treatment BMPs (or suite of BMPs) to remove pollutants of concern from any portion of the design storm runoff volume that will not be retained on-site using Site Design strategies and LID BMPs, or if additional pollutant removal is necessary to protect coastal waters.

(5) Use a Runoff Control BMP (or suite of BMPs), sized for the appropriate design storm, to minimize adverse post-development changes in the runoff flow regime, for a development that adds a net total of more than 15,000 square feet of impervious surface area, if using appropriate and feasible Site Design strategies and LID BMPs will not retain on-site the runoff from the appropriate design storm.

Policy C-WR-1m: New development permits or approvals shall be required to provide a mechanism for verification of inspection, repair, and maintenance of source control and treatment control Best Management Practices (BMPs) as necessary so that they function properly for the life of the project. The transfer of property to a private or public owner shall require the new owner to continue to provide verification of maintenance for all source or treatment control BMPs. **(New)**

Policy C-WR-1n: Minimize water quality impacts during construction by minimizing the project footprint, phasing grading activities, implementing soil stabilization and pollution prevention measures, and preventing unnecessary soil compaction. Land disturbance from construction activities for development (e.g., clearing, grading, and cut-and-fill), especially in erosive areas (including steep slopes, unstable areas, and erosive soils) shall be minimized to avoid detrimental water quality impacts caused by increased erosion or sedimentation. Soil stabilization Best Management Practices shall be incorporated on disturbed areas as soon as feasible. **(New)**

Policy C-WR-1o: Polluted runoff from construction activities shall be minimized. Erosion, sedimentation, and other polluted runoff from construction activities for development shall be minimized to the maximum extent feasible. **(New)**

Policy C-WR-1p: Grading plans shall be required to include measures to avoid soil erosion. Requirements for grading plans shall be upgraded as needed to avoid sedimentation in storm water to the maximum extent feasible. **(GP2020 Revised)**

Policy C-WR-1q: Soil stabilization and erosion control on construction sites in erosive areas (steep slopes, unstable areas, and erosive soils) shall be required as a condition of grading permits for all new development regardless of the area of land to be disturbed. **(New)**

Policy C-WR-1r: Applicants for new development that would disturb one or more acres of land (or other threshold required by the State Water Resources Control Board or Regional Board) shall comply with the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System General Construction Stormwater Permit and shall file a Notice of Intent (NOI) and prepare a Stormwater Pollution Prevention Plan. Such development shall be conditioned to demonstrate proof that an NOI has been filed and the SWRCB has issued a Waste Discharge Identification Number. **(New)**

Policy C-WR-1s: A Stormwater Pollution Prevention Plan (SWPPP) shall be required for all new development in or adjacent to Environmentally Sensitive Habitat Areas on sites that drain directly to surface waters, regardless of the area of land to be disturbed. The SWPPP shall be required to include a setback of construction from streams. **(New)**

Policy C-WR-1t: Best Management Practices shall be implemented for constructing, maintaining, and repairing roads and trails in County parks, including stabilizing erosion, clearing vegetation, resurfacing, and removing slide debris. **(New)**

Policy C-WR-1u: Construction sites shall be inspected to verify implementation of approved erosion control plans and Stormwater Pollution Prevention Plans. **(New)**

Policy C-WR-1v: All projects which involve construction of new storm drain inlets or maintenance of existing inlets shall be required to add a sign or stencil to each inlet with the equivalent of this language: "No dumping, drains into ocean." **(New)**

Policy C-WR-2w: Require that permits and approvals for new development include evaluation and consideration of naturally-occurring and human caused contaminants in groundwater. **(New)**

Wastewater Treatment

Policy C-WR-1x: Work with the Regional Water Boards and coastal communities to evaluate and monitor impacts on surface and groundwater quality caused by the operation of septic systems in existing and suspected problem areas. **(New)**

Policy C-WR-1y: The abatement of failing septic systems that have been demonstrated as causing a health and safety hazard shall be actively pursued. **(GP2020 Revised)**

Policy C-WR-1z: Operators of commercial and industrial uses shall be required to reduce and pretreat wastes prior to their entering sewer systems. **(GP2020 Revised)**

Policy C-WR-1aa: A review shall be initiated of any sewer system when it persistently fails to meet applicable standards. If necessary to assure that such standards are met, the County may deny new development proposals or impose moratoria on building and other permits that would result in a substantial increase in demand, and may impose strict treatment and monitoring requirements. **(GP2020 Revised)**

Agriculture and Timber

Policy C-WR-1bb: Ensure that agricultural operations comply with Regional Water Board requirements to reduce non-point source pollution, including the development and implementation of ranch plans and farm plans, to avoid, minimize, or mitigate the impact to water quality from agriculture. Continue to implement erosion and sediment control standards for vineyards and orchards in accordance with Vineyard Erosion and Sediment Control Ordinance (VESCO). **(GP2020 Revised)**

Policy C-WR-1cc: Require that Confined Animal Feeding Operations (CAFOs) have nutrient management plans complying with United States Department of Agriculture, Natural Resources Conservation Service Standard 590 and comply with Regional Water Board Best Management Practices and permit requirements for dairies and other CAFOs. **(New)**

Policy C-WR-1dd: Provide educational and technical assistance programs focusing on water quality for owners and operators of agricultural operations including vineyards, orchards, row crops, grazing, ranches, and dairies. Inform owners and operators about Agricultural Commissioner's Best Management Practices for erosion and sediment control, including on-site retention of storm water, maintenance of natural sheetflow and drainage patterns, and avoidance of concentrated runoff, particularly on slopes greater than 35 percent; and for protection of streams and other surface waters from the effects of livestock grazing. **(New)**

Policy C-WR-1ee: Develop and provide educational and outreach programs focusing on water quality for owners and operators of timberland. **(New)**

Marinas and Aquaculture

Policy C-WR-1ff: Develop and require standards for the siting and design of harbors, marinas, and other waterfront development, regardless of the size of the area to be disturbed. Require non-point source Best Management Practices to minimize polluted stormwater runoff from harbors, marinas, and other waterfront development, including installation of trash

receptacles with lids, posting of "No Littering" signs; and installation and maintenance of filters in storm drains. **(New)**

Policy C-WR-1gg: Coordinate with the U.S. Army Corps of Engineers, the Regional Water Board and the Coastal Commission to continue maintenance dredging in Bodega Bay and other areas on the Sonoma County Coast in accordance with the California Coastal Act. Dispose of dredge spoils in a manner that protects water quality in receiving waters. **(New)**

Policy C-WR-1hh: Control discharge of non-point source pollutants from aquaculture facilities, including contents of storage tanks, unconsumed food, excrement, antibiotics, and wash water, into surface waters, particularly in or near Environmentally Sensitive Habitat Areas. Develop and require specific Best Management Practices for aquaculture facilities. **(New)**

Policy C-WR-1ii: Support the owners and operators of harbors and marinas in implementing the California Coastal Commission's "Boating Clean and Green in California" public education and outreach program for owners and operators of motorized boats. **(New)**

County Operations

Policy C-WR-1jj: Design, construct, and maintain County buildings, roads, bridges, drainage, and other facilities to avoid or minimize sediment and other pollutants in storm water runoff. Implement Best Management Practices for their ongoing maintenance and operation. **(GP2020 Revised)**

Policy C-WR-1kk: Encourage the Real Estate Division of the Sonoma County General Services Department to remove abandoned, deteriorated piers and associated buildings in Bodega Bay, particularly those within the alignment of future trails. **(New)**

Policy C-WR-1ll: Request that the Sonoma County Water Agency revise its flood control design criteria to include a section on stream geomorphic analysis, and to update information on bank protection and erosion control to incorporate biotechnical bank stabilization methods for the purpose of preventing erosion and siltation in drainage swales and streams. **(GP2020)**

Policy C-WR-1mm: Resist accepting administrative responsibility for regulatory programs required by State or Federal agencies unless a State or Federal subvention will compensate the County for costs associated with such shift in administrative responsibility. **(GP2020)**

Groundwater

Sonoma County's groundwater plays an extremely important role in our natural environment, communities, industry sectors, and agriculture. In 2002 there were about 40,000 wells in Sonoma County, with 42% of the population supported at least in part by groundwater. Nearly all of the County's population relies on groundwater as either a primary or backup source of water supply. In the Coastal Zone, most users obtain their water from groundwater. Groundwater wells also supply community water systems and occasionally provide a supplemental or backup source for other sheet water flow collection systems. The release of contaminants or pollutants into groundwater from natural sources or human activities may have

adverse impacts on human health, the environment, and property depending on the type, location, and quantity of materials released.

The amount of groundwater in an area varies by the recharge from rainfall, the surface runoff in streams and drainage channels, and the local underground geology. The alluvial soils, sand, and gravel found in valleys generally can hold large amounts of water and thus constitute the largest aquifers in the County. Sandstone and some other sedimentary rocks can still absorb some water. However, many upland areas and the Coastal Zone are comprised of harder rock formations that lack water storage capacity.

The climate of coastal Sonoma County provides abundant rainfall during the winter months, and potentially abundant groundwater recharge on an annual basis. The continual shortage of groundwater supplies in this area can be traced directly to the lack of storage capacity in much of the Franciscan Formation rocks that underlie the area. The Franciscan Formation is a large area of mixed sedimentary, metamorphic, and igneous rocks. Groundwater is stored in the fractures, joints, cavities, and bedding planes of the rocks. Rainfall that would otherwise percolate into the aquifer simply runs off into creeks and streams and then to the ocean for lack of storage space in most of the rocks.

Using information on geology and water yields, the County uses a four tier classification system to indicate general areas of groundwater availability. Class 1 are Major Groundwater Basins, Class 2 are Major Natural Recharge Areas, Class 3 are Marginal Groundwater Availability Areas, and Class 4 are Areas with Low or Highly Variable Water Yield. Since County maps of these areas are used in the development review and well permitting process and the requirements for proving adequate groundwater vary by these classes, a rigorous process is needed to assure that classification mapping is based on the latest available data.

The entire Coastal Zone with three small exceptions is within the Class 4 Groundwater Availability Area. The exceptions are the Fort Ross Terrace Deposits groundwater basin in the vicinity of The Sea Ranch which is Class 3; The Lower Russian River Valley groundwater basin adjoining the Russian River as far west as State Highway 1 which is Class 1; and the Wilson Grove Formation Highlands groundwater basin along State Highway 1 North of the Estero Americano which is Class 2. The remainder of the Coastal Zone is composed of Franciscan Complex rocks whose serpentine and shale members are typically non-water bearing. Chert, greenstone, and sandstone members of the Franciscan may possess water bearing fractures that yield sufficient and occasionally abundant water in some locations. The location of water-bearing bedrock is difficult to predict, so water availability is uncertain.

Public concerns over depletion of groundwater supplies have increased as development that relies on groundwater supply has increased. The County fully participates in the California Statewide Groundwater Elevation Monitoring (CASGEM) and continues to collect data about existing groundwater levels, water quality, and water use to best inform planning decisions.

In response to reports that groundwater levels have declined in some areas, the County has initiated a long-term program to increase the available data on groundwater resources and to systematically organize and use it as development is planned and new well permits are sought. Programs are underway to assess the available groundwater in the County's three major basins, Santa Rosa Plain, Sonoma Valley and Petaluma Valley. In the fractured rock areas of the Coastal Zone data from monitoring will improve our understanding of available groundwater

resources. This growing body of data will produce better information for County decision makers to determine what further measures may be appropriate in order to properly manage groundwater resources.

Goal C-WR-2: **Manage groundwater as a valuable and limited shared resource.**

Objective C-WR-2.1: Conserve, enhance, and manage groundwater resources on a sustainable basis that assures sufficient amounts of clean water required for future generations, the uses allowed by the Local Coastal Plan, and the natural environment.

Objective C-WR-2.2: Develop a scientifically based program to collect the data needed to assess and understand groundwater conditions.

Objective C-WR-2.3: Encourage new groundwater recharge opportunities and protect existing groundwater recharge areas.

Objective C-WR-2.4: Increase institutional capacity and expertise within the County to competently review hydrogeologic reports and data for critical indicators and criteria.

Objective C-WR-2.5: Avoid land subsidence caused by groundwater extraction.

The following policies, in addition to those in the Public Facilities and Services, Land Use, and Open Space and Resource Conservation Elements, shall be used to accomplish these objectives:

Policy C-WR-2a: Encourage and support research on and monitoring of local groundwater conditions, aquifer recharge, watersheds, and streams where needed to assess groundwater quantity and quality. **(GP2020)**

Policy C-WR-2b: Initiate and support educational programs to inform residents, agriculture, businesses, and other groundwater users of best management practices in the areas of efficient water use, water conservation, and increasing groundwater recharge. **(GP2020)**

Policy C-WR-2c: Continue to work with well drillers and other parties familiar with groundwater conditions in Sonoma County to improve the well permit standards in Chapter 7, Section 12 (Building Regulations) and 25B (Water Wells) of the Sonoma County Code in order to:

(1) Improve the data collected on locations, depths, yields, use, flow direction, and water levels of existing and proposed wells.

(2) Establish standards to reduce the potential for well interference and drawdown.

(3) Ensure sufficient groundwater quantity and quality for existing and proposed uses using the subject well through standards for pump tests, well yields, pollutant levels, and water storage, particularly for higher capacity wells.

(4) In areas where a groundwater management plan has been approved and has been accepted by the County, require the issuance of well permits and any limitations imposed on well permits to be consistent with the adopted plan. **(GP2020)**

Policy C-WR-2d: Continue the existing program to require groundwater monitoring for new or expanded discretionary commercial and industrial uses using wells. Where justified by the monitoring program, establish additional monitoring requirements for other new wells. **(GP2020)**

Policy C-WR-2e: Proof of groundwater with a sufficient yield and quality to support proposed uses in Class 3 and 4 Groundwater Availability Areas shall be required. Require test wells or the establishment of community water systems in Class 4 Groundwater Availability Areas shall be required. Test wells may be required in Class 3 Groundwater Availability Areas. Discretionary applications in Class 3 and 4 Groundwater Availability Areas shall be denied unless a hydrogeologic report establishes that groundwater quality and quantity are adequate and will not be adversely impacted by the cumulative amount of development and uses allowed in the area, so that the proposed use will not cause or exacerbate an overdraft condition in a groundwater basin or subbasin or fractured rock aquifer. Procedures for proving adequate groundwater shall consider streamflow, groundwater overdraft, land subsidence, saltwater intrusion, and the expense of such study in relation to the water needs of the project. **(GP2020 Revised)**

Policy C-WR-2f: Discretionary projects in Urban Service Areas, where the density of development thus extent of impervious surface area is greater than in Rural Communities, shall be required to maintain the site's pre-development recharge of groundwater to the maximum extent practicablefeasible. Develop voluntary guidelines for development in Rural Communities that would accomplish the same purpose. **(GP2020 Revised)**

Policy C-WR-2g: In cooperation with the Sonoma County Water Agency, California Department of Water Resources, other public agencies, and well owners, establish and maintain a system of voluntary monitoring of wells throughout the County, using public water system wells and private wells where available. Encourage participation in voluntary monitoring programs and, if funds are available, consider funding of well monitoring where determined necessary in order to stimulate participation. **(GP2020)**

Policy C-WR-2h: In cooperation with the Sonoma County Water Agency, California Department of Water Resources (DWR), and other public agencies work to implement the Sustainable Groundwater Management Act and maintain a groundwater data base; provide annual report to the Board of Supervisors; provide required data to DWR; and use the data along with other available information to refine the mapping of groundwater availability classifications. Protect the proprietary nature of well drilling data and release it only in summary form. **(GP2020)**

Policy C-WR-2i: In order to identify areas where groundwater supplies may be declining, in the annual report identified in Policy C-WR-2h, review well permit data, monitoring data, and reported problems; and recommend to the Board of Supervisors areas where comprehensive groundwater studies are needed. In each such special study area that is approved by the

Board following a public hearing, develop a comprehensive groundwater assessment that includes the following:

(1) An existing system of monitoring wells and stream gauges;

(2) Locations of water wells;

(3) Available data on groundwater and surface water levels and contamination;

(4) Maps and graphs that show past and present data and changes in precipitation, imports, groundwater levels, groundwater quality, rates of extraction, and the relationship of groundwater to surface water;

(5) Drillers' logs, geologic data and monitoring data needed to estimate water yields in the area;

(6) Estimated future rates of imports, recharge, extraction, exports, changes in groundwater levels, and possible changes in groundwater quality;

(7) A water budget for the area that estimates the total amount of water gain or loss in the area;

(8) Any needed changes in well monitoring, data collection and reporting; and

(9) Provisions for applicant fees and other funding of County costs.

If an area assessment, as defined above, demonstrates a need for additional management actions to address groundwater problems, a plan for managing groundwater supplies shall be prepared pursuant to the California Water Code or the County's land use or other legal authority. Include involvement by the affected water users, well drillers, local agencies, private water companies and landowners. **(GP2020 Revised)**

Policy C-WR-2j: Consider allowing expanded treatment options for contaminated water from individual wells. **(New)**

Policy C-WR-2k: Cooperate with the unincorporated Coast communities, Sonoma County Water Agency, California Department of Water Resources, U.S. Geological Survey, well drillers, and all water users and purveyors to assess groundwater conditions along the coast and identify the priorities, sequence, and timing for development of groundwater management plans taking into consideration Department of Water Resources priority basins. Future groundwater assessments shall be prepared to meet the applicable requirements of the California Water Code for a groundwater management plan and, where appropriate, include the following:

(1) Computer models of groundwater recharge, storage, flows, usage and sustainable yield;

(2) Assessment of nitrates, boron, arsenic, saltwater and other water quality contaminants;

(3) Analysis of resource limitations and relationships to other users for wells serving public supply systems and other large users;

(4) Opportunities for changing the sources of water used for various activities to better match the available resources and protect groundwater;

(5) Possible funding sources for monitoring, research, modeling, and development of management options; and

(6) Provisions for applicant fees and other funding of County costs.

If a basin assessment indicates that future groundwater availability, water quality, and surface water flows may be threatened and there may be a need for additional management actions to address groundwater problems, a plan shall be prepared for managing groundwater supplies which may require limitations on water extraction and use and other special standards for allowed development, wells, extraction, or use. Consideration of new management actions shall include involvement by the interests and parties stated above in developing alternatives addressing specific problems and a review of legal and fiscal issues for each alternative. **(GP20202 Revised)**

Policy C-WR-2l: Work with the State Water Resources Control Board, California Department of Water Resources, California Department of Health Services, California Environmental Protection Agency, public water suppliers, and applicable County agencies to secure funding sources for developing groundwater assessment, protection, enhancement, and management programs. **(GP2020 Revised)**

Policy C-WR-2m: Encourage and support comprehensive studies of long-term changes in climate and precipitation patterns in the County and region. **(GP2020)**

Policy C-WR-2n: Increase institutional capacity and expertise within the County to competently review hydrogeologic reports and data for critical indicators and criteria**.** **(GP2020)**

Policy C-WR-2o: Where area studies or monitoring find that land subsidence has occurred, support analysis of how the subsidence is related to groundwater extraction and develop a groundwater management plan or other appropriate actions, where feasible, to avoid further subsidence. **(GP2020)**

Policy C-WR-2p: Where area studies or monitoring find that saltwater intrusion into groundwater has occurred, support analysis of how the intrusion is related to groundwater extraction; and support development of a groundwater management plan or other appropriate measures to avoid further intrusion and, where feasible, reverse past intrusion. **(GP2020)**

Policy C-WR-2q: Work with the Sonoma County Water Agency, the North Coast Regional Water Quality Control Board, and future Sustainable Groundwater Management Agency to educate the general public on evaluating, monitoring, and protecting the quality of groundwater. **(GP2020 Revised)**

Public Water Systems

An adequate and sustainable water supply is essential if Sonoma County is to serve projected increases in population, housing, employment, business, and agriculture. The main purpose of this section is to address what the County can do to help maintain the long-term adequacy of water supply services provided by public and private entities, given the legal limitations on the County's authority over such services.

The California Coastal Act mandates protection of water resources in the Coastal Zone. The following sections of the California Coastal Act most relevant to water supply:

> ***Section 30231 Biological productivity; water quality.*** *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*
>
> ***Section 30236 Water supply and flood control.*** *Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (l) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat*.

The Sonoma County Coast has about 16 water systems which fall under the regulatory authority of the State Water Resources Control Board (SWRCB) as a "public water system". Section 2.1 (Water Services) and **Table C-PF-1** in the Public Facilities and Services Element provides more information about the public water systems on the Coast.

The large public water systems on the Coast are The Sea Ranch Water Company with 1,684 connections and the Bodega Bay Public Utilities District with 1,792 connections. The small public water systems range from the Sereno del Mar Mutual Water Company with 168 connections to the Blue Heron Restaurant with one connection. The small public water systems supply water to a wide variety of uses such as businesses, residences, schools, and small unincorporated communities. Most are owned by mutual companies or other private entities, and a few are operated by special districts. These systems have small revenue bases and relatively high per capita costs and often have difficulty financing major capital investments needed to replace aging facilities or accommodate growth.

All public water systems must meet and maintain water quality standards established by the Sonoma County Department of Health Services and the Regional Water Quality Control Boards. The suppliers are required to prepare and adopt wellhead protection plans that will avoid future contamination. To the extent that these plans may need to rely upon the regulation of land uses around supply wells, the County's cooperation may be necessary.

In light of concerns over the future availability of water from surface water supplies and groundwater sources, water conservation, water re-use, and alternative water resources such

as impoundments and desalinization are increasingly important to providing adequate water supplies in the future.

Goal C-WR-3: **Encourage public water suppliers to provide an adequate water supply to meet long-term needs that is consistent with the adopted Local Coastal Plan and community water management plans, and that is provided in a manner that maintains water resources for other water users while protecting the natural environment.**

Objective C-WR-3.1: Assist public water suppliers in collecting and disseminating surface and groundwater data, assessing available water supplies, and protecting water quality.

Objective C-WR-3.2: Work with public water suppliers in developing and implementing long-term plans for water supply, storage, and delivery necessary to first meet existing water demands; and secondly to meet planned growth within the designated service areas, consistent with the sustainable yield of water resources.

Objective C-WR-3.3: Work with public water suppliers to balance reliance on groundwater and surface water to assure the sustainability of both resources.

The following policies, in addition to those in the Land Use and Public Facilities and Services Elements, shall be used to accomplish these objectives:

Policy C-WR-3a: Work with public water suppliers in assessments of the sustainable yield of surface water, groundwater, recycled water, and conserved water, including during possible drought periods. This work should include the exploration of potentially feasible alternative water supplies. Surface and groundwater supplies must remain sustainable and not exceed safe yields. **(GP2020)**

Policy C-WR-3b: Support to the extent feasible the actions and facilities needed by public water suppliers to supply water sufficient to meet the demands that are estimated in adopted master facilities plans, consistent with the adopted Local Coastal Plan, community water management plans, and the sustainable yields of the available resources; and in a manner that protects the natural environment. **(GP2020 Revised)**

Policy C-WR-3c: Request technical assistance and water resource data from public water suppliers and share available water resource information with them and the public. **(GP2020)**

Policy C-WR-3d: Assist public water suppliers in complying with Federal and State water quality standards by assuring that water sources used for public water systems are not contaminated by land uses or pollutants in the watershed, by supporting continued study and monitoring of water quality, and by encouraging acquisition of critical watershed areas by the water suppliers or the Sonoma County Agricultural Preservation and Open Space District. **(GP2020)**

Policy C-WR-3e: Work with public water suppliers in developing and implementing wellhead protection plans. **(GP2020)**

Policy C-WR-3f: Support water conservation and education programs which provide measurable targets for public water suppliers. **(GP2020 Revised)**

Policy C-WR-3g: Assist public water suppliers in assuring that proposed water supplies and facilities are consistent with the adopted Local Coastal Plan. **(GP2020 Revised)**

Policy C-WR-3h: Help public water suppliers to disseminate and discuss information on the limits of available water supplies, how the supplies can be used efficiently, the possible effects of drought conditions, acceptable levels of risk of shortage for various water users, priorities for allocation of the available water supply, conditions for use of limited supplies, and limits of alternate sources that could be used or developed. **(GP2020)**

Policy C-WR-3i: Prepare or encourage the preparation of master facilities plans, and urban water management plans where required by State law, for all public water suppliers to design and construct all facilities in accordance with sustainable yields and the general plans of applicable planning jurisdictions. A master facilities plan should contain but not be limited to the following:

(1) Maps showing future service area boundaries;

(2) Forecasted growth and relationship to General Plan and Local Coastal Plan projections and limits;

(3) Projected service and facility needs;

(4) Estimated costs and revenues for needed improvements;

(5) System design parameters and assumptions;

(6) Monitoring and mitigation measures to assure long-term adequacy of sources, including during possible drought conditions; and

(7) Water conservation measures.

In the event that a master plan or monitoring fails to show adequate public water facilities or supplies for planned growth, consider moratoria on plan amendments, zoning changes, building permits, or other entitlements in order to protect services to existing residents. **(GP2020)**

Policy C-WR-3j: Maintain consistency between the adopted Local Coastal Plan, adopted groundwater management plans, and the master facilities plans of public water suppliers through meetings between the Permit and Resource Management Department (PRMD) and public water suppliers, PRMD review of proposed master facilities plans, and referral of Local Coastal Plan changes to all public water suppliers. **(GP2020 Revised)**

Policy C-WR-3k: Cooperate with public water suppliers in planning, developing, and constructing storage and transmission facilities needed to supply water pursuant to adopted

Local Coastal Plan policies, urban water management plans, water supply agreements, master facilities plans and, where applicable, programs to mitigate identified groundwater overdraft conditions. **(GP2020 Revised)**

Policy C-WR-3l: Pursuant to the requirements of Government Code 65400-65402, request that local public agencies that are public water suppliers, including county-dependent districts, special districts, and other local public agencies, consult with the County prior to acquiring a site or developing any well or facilities for public water supplies in the unincorporated area; and request a determination of consistency with the Local Coastal Plan. **(GP2020 Revised)**

Policy C-WR-3m: Encourage public water suppliers that are developing or have adopted groundwater management plans to monitor and report groundwater levels, yields, and other information on groundwater conditions. **(GP2020)**

Policy C-WR-3n: Encourage public water suppliers to avoid or minimize significant adverse impacts on the environment resulting from water supply, storage, and transmission facilities, including impacts on other water users. **(GP2020)**

Policy C-WR-3o: Support cooperative inter-regional planning efforts by the public water suppliers, their contractors, other existing water users, and the County to consider future demand projections concurrently with the availability of sustainable water supplies. **(GP2020)**

Water Conservation and Re-Use

Water conservation has long been a practice in Sonoma County households, businesses, and agriculture. The rise of environmental consciousness in the 1970s and a prolonged drought in 1976 and 1977 led to the early efforts by some water suppliers to reduce demand. Planned re-use of treated water in the Santa Rosa Plain was initiated by the City of Santa Rosa during this same period as part of its regional wastewater system. Most of these earlier conservation efforts were not well publicized and, due to the relative abundance of fresh water sources (outside the Coastal Zone), were not thought to be significant as a water supply strategy.

In recent years, both water conservation and re-use programs have expanded considerably. As advanced treatment has become an increasingly standard practice, re-use programs are becoming even more viable. However, the quality of recycled water still remains an issue. Meeting peak water demands in the future will require increased water conservation efforts and water recycling by water users in both urban and rural areas.

The Sonoma County Coast has always been a water scarce area. As described above in Section 3.2 (Groundwater), most of the County's Coastal Zone is in a Class 4 Groundwater Availability Area, underlain by typically non-water bearing Franciscan rocks. Therefore, there is an even greater need within the County's Coastal Zone to increase the efficiency of water use and reduce demand for water by applying new water conservation and re-use technology and implementing water conservation programs.

Goal C-WR-4: **Increase the role of water conservation and safe, beneficial water re-use in meeting water supply needs of both urban and rural users.**

Objective C-WR-4.1: Increase the use of recycled water where it meets all applicable regulatory standards and is the appropriate quality and quantity for the intended use.

Objective C-WR-4.2: Promote and encourage the efficient use of water by all water users.

Objective C-WR-4.3: Conserve and recognize storm water as a valuable resource.

The following policies, in addition to those in other sections of the Water Resources Element and the Public Facilities and Services Element, shall be used to accomplish these objectives:

Policy C-WR-4a: Encourage stormwater and wastewater disposal methods that avoid or minimize reliance on discharges into natural waterways. If discharge is proposed, review and comment on projects and environmental documents and request that projects maximize low impact development practices, reclamation, conservation, and reuse programs to minimize discharges and protect water quality and aquifer recharge areas. **(GP2020 Revised)**

Policy C-WR-4b: Use water effectively and reduce water demand by developing programs to:

(1) Increase water conserving design and equipment in new construction, including the use of design and technologies based on green building principles;

(2) Educate water users on water conserving landscaping and other conservation measures;

(3) Encourage retrofitting with water conserving devices;

(4) Design wastewater collection systems to minimize inflow and infiltration; and

(5) Reduce impervious surfaces to minimize runoff and increase groundwater recharge. **(GP2020)**

Policy C-WR-4c: Support programs to monitor and determine per capita or per unit water use in each community and area, and use these data in groundwater management plans, master facilities plans, and wastewater treatment plans. **(GP2020)**

Policy C-WR-4d: Encourage monitoring for all water use and water metering for public water suppliers that require water users to pay for costs of the amount of water used. Encourage tiering and other pricing mechanisms for public water suppliers that provide incentives for water users to employ conservation and reuse programs. Actively encourage public water suppliers to maximize water re-use and conservation prior to increasing net water use for new development**. (GP2020)**

Policy C-WR-4e: Water conserving plumbing and water conserving landscaping shall be required in all new development projects, and water conserving plumbing shall be required in all new dwellings. County operated water systems shall be required to minimize water loss and waste. Promote programs to minimize water loss and waste by public water suppliers and their customers. **(GP2020 Revised)**

Policy C-WR-4f: To minimize generation of wastewater and encourage conservation of Coastal water resources, require use of water saving devices as prescribed by the local water provider in all new developments. **(New)**

Policy C-WR-4g: Promote programs for retrofitting plumbing, providing cost rebates, identifying leaks, changing landscaping, irrigating efficiently, and other methods of reducing water consumption by existing users. **(GP2020)**

Policy C-WR-4h: Development projects shall be required to retain stormwater for on-site use that offsets the use of other water where feasible. **(GP2020 Revised)**

Policy C-WR-4i: Encourage and support conservation for agricultural activities that increase the efficiency of water use for crop irrigation, frost protection, and livestock. Work with the North Coast Regional Water Quality Control Board and California Department of Water Resources to promote stormwater impoundments for agricultural uses. **(GP2020 Revised)**

Policy C-WR-4j: Assess water use by County buildings and facilities and reduce water consumption to the maximum extent feasible. **(GP2020)**

Policy C-WR-4k: Ensure that public wastewater disposal systems are designed to reclaim and reuse recycled water for agriculture, geothermal facilities, landscaping, parks, public facilities, wildlife enhancement, and other uses to the extent practicable, provided that the water meets the applicable water quality standards and is supplied in appropriate quantities for the intended uses. **(GP2020)**

Policy C-WR-4l: Where consistent with water quality regulations, encourage graywater systems, roof catchment of rainwater, and other methods of re-using water; and minimizing the need to use potable surface water or groundwater. **(GP2020)**

Policy C-WR-4m: Establish a program to revise County Codes to increase, where appropriate, the use of recycled water for new commercial, residential, and agricultural development. **(GP2020)**

Water Importing and Exporting

For many years, Sonoma County has relied to some degree upon importation of water from sources outside of the County borders. Since 1908, water has been diverted from the Eel River watershed through a hydroelectric power plant into the Russian River watershed. This water has increased dry season flows in the Russian River and supplemented water supplies for downstream users.

Goal C-WR-5: **Ensure that new proposals for surface and groundwater imports and exports are consistent with Sonoma County's ability to sustain an adequate supply of high quality water for all its water users and dependent natural resources.**

Objective C-WR-5.1: Protect the interests of current and future water users of Sonoma County in the review of proposals to export water from Sonoma County.

Objective C-WR-5.2: Ensure consideration of the environmental impacts of all proposed water imports and exports.

The following policies, in addition to those in the other sections of the Water Resources Element, shall be used to accomplish these objectives:

Policy C-WR-5a: Assess the environmental impacts and the impacts on current and future water users in Sonoma County of any proposals to physically export water to new locations or to new water users outside of Sonoma County, or to substantially increase water supply to existing out-of-County water users. Request that any consideration to export additional water resources place primary priority upon the benefit of and need for the water resources in Sonoma County, and assure that water resources needed by urban, rural, and agricultural water users in Sonoma County will not be exported outside the county. **(GP2020)**

Policy C-WR-5b: Full assessment of the environmental impacts shall be required for any proposals to import additional water into Sonoma County. **(GP2020 Revised)**

Policy C-WR-5c: Where allowed by State law, require that groundwater not be exported off-site for commercial purposes without prior discretionary approval of the County. **(GP2020)**

Watershed Management

Watershed management is a holistic approach to managing water resources and other watershed functions such as fish and wildlife, riparian functions, and ecological services. Watershed management allows for an integrated approach surface water, groundwater, and water supply management taking into account effects on stream flow, groundwater levels, water quality and habitat conditions.

Goal C-WR-6: **Improve the understanding, valuation, and sound management of the water resources in the diverse watersheds of the Sonoma County Coast.**

Objective C-WR-6.1: Seek and secure funding for addressing water resource issues on a watershed basis.

Objective C-WR-6.2: Ensure consideration of the environmental impacts of all proposed water imports and exports.

The following policies, in addition to those in other sections of the Water Resources Element, shall be used to accomplish these objectives:

Policy C-WR-6a: Work with the North Coast Regional Water Quality Control Board, watershed focus groups, and stakeholders in collecting, evaluating, and using coastal watershed-specific water resource information. **(GP2020 Revised)**

Policy C-WR-6b: Where a problem related to water is identified, promote and seek funding for evaluating and remediating the problem through a watershed management approach. **(GP2020 Revised)**