



**SONOMA COUNTY
PERMIT AND RESOURCE MANAGEMENT DEPARTMENT**

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SONOMA COUNTY GENERAL PLAN UPDATE 2020

**DRAFT
WATER RESOURCES ELEMENT**

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Table of Contents

	Page
1. INTRODUCTION	
1.1 PURPOSE	1
1.2 RELATIONSHIP TO OTHER ELEMENTS	1
1.3 SCOPE AND ORGANIZATION	2
2. WATER RESOURCES BACKGROUND	
2.1 WATER RIGHTS	2
2.2 WATER CYCLE	3
2.3 WATERSHEDS	4
2.4 AQUIFERS	5
2.5 BIOTIC RESOURCES AND WATER	6
3. WATER RESOURCES GOALS, OBJECTIVES, AND POLICIES	
3.1 WATER QUALITY	6
3.2 GROUNDWATER	10
3.3 PUBLIC WATER SYSTEMS	14
3.4 CONSERVATION AND RE-USE	18
3.5 IMPORTING AND EXPORTING	19
3.6 WATERSHED MANAGEMENT	20
4. WATER RESOURCES IMPLEMENTATION PROGRAM	21
 DEFINITIONS	 23

1. INTRODUCTION

1.1 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 usage, conservation methods, water storage limitations, the growing re-use of water and continuing changes in state and federal regulations.

In order to address these issues, more information is required regarding the many aspects of the water environment in the different areas of the County. 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 is to ensure that Sonoma County's water resources are sustained and protected. To achieve this purpose, water resource management will be in an integrated manner throughout all jurisdictions in the County and be on a sustainable yield and quality protection basis which considers 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.

1.2 RELATIONSHIP TO OTHER ELEMENTS

The Water Resources Element addresses a range of water related issues in Sonoma County. Some other water-related topics are also addressed in other elements. Water availability as a factor in land use plan 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 on pages XX-XX, water-oriented recreation on pages XX-XX, soil erosion on pages XX-XX, forestry on pages XX-XX, and mineral resources on pages XX-XX, the Public Facilities and Services Element addresses connections to public water systems on pages XX-XX. The Public Safety Element addresses flood hazards, fire suppression, and hazardous materials on pages XX-XX. The Agricultural Resources Element addresses aquaculture on pages XX-XX.

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.

1.3 SCOPE AND ORGANIZATION

The Water Resources Element is organized as follows. Section 2.0 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 3.0 states the County's goals, objectives, and policies in each of five topical areas. The implementation programs are described in section 4.0.

2. WATER RESOURCES BACKGROUND

2.1 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 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 nonuse 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 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 State Board considers an application for a permit, it evaluates whether water is available during the requested season and potential environmental impacts, including any impacts on the rights of the public to use the waterway for navigation, commerce, fishery, recreation, aesthetic

enjoyment and the preservation of open space, ecological study areas and wildlife habitat. Based on this evaluation, the State Board 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 nonuse. 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 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. The SWRCB determined in 1989 that the Mendocino County portion of the Russian River is fully appropriated from July 1 to October 31 of each year.

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 Rights: Except for groundwater flowing in subterranean streams through known and definite channels, 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 which 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.

2.2 WATER CYCLE

Overview: Water moves continuously from Earth's surface into the air and then back to the land, changing only in form. This movement is commonly referred to as the hydrologic cycle and is powered by sunshine and gravity. When the sun heats up water in streams, lakes and oceans, the water evaporates into vapor or steam in the atmosphere. As the moisture-laden air cools, particularly where it is forced higher by steep slopes, the vapor condenses into water which 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 which 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 oceans.

There is as much water today in the water cycle as there ever was, but 97 percent of Earth's water is contained in the oceans and is too salty for most land-based uses. Since the salt is left behind during evaporation, the resulting precipitation is fresh water. Of the 3 percent of the water on Earth that is fresh water, most is locked in icecaps and glaciers. Streams and lakes contain only about one-fiftieth of one percent of Earth's water, and ground water constitutes only about half of one percent. Although nearly all water becomes air-borne vapor at one time or another, the atmosphere contains only one-thousandth of one percent of Earth's water.

Sonoma County: Due to the range of temperatures and cloud cover found in the County, the moisture and evaporation levels vary widely. From a water availability perspective, these small variations in weather pattern 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 global warming could change precipitation patterns, regional availability and temperature of water, surface runoff and sea level elevation.

2.3 WATERSHEDS

The term “watershed” refers to the surface water drainage area that is tributary to or drains into a particular stream. Hydrologically, most land in Sonoma County falls within the three main watersheds: Russian River, Gualala River and San Pablo Bay. The watersheds and sub-basins within Sonoma County are shown on Figure WR-A. The portions of the watersheds that lie within the County are:

Russian River Watershed	921 square miles
Big Sulphur Creek	80 square miles
Maacama Creek	69 square miles
Dry Creek	175 square miles
Mark West Creek	83 square miles
Laguna de Santa Rosa	89 square miles
Santa Rosa Creek	81 square miles
Green Valley Creek	37 square miles
Austin Creek	70 square miles
	237 square miles outside above sub-basins
Gualala River Watershed	269 square miles
Coastal Watersheds	167 square miles
North Coast	49 square miles
South Coast	9 square miles
Salmon Creek	37 square miles
Estero Americano	50 square miles
Stemple Creek	22 square miles
San Pablo Bay Watershed	282 square miles
Sonoma Creek	170 square miles
Petaluma River	112 square miles

The portions of these watersheds outside Sonoma County are:

Russian River	Mendocino & Lake Counties	564 square miles
Gualala River	Mendocino County	31 square miles
Estero Americano	Marin County	13 square miles
Stemple Creek	Marin County	28 square miles
Petaluma River	Marin County	34 square miles

In general, subbasins 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. Over time, management of natural resources in these subbasins has resulted in erosion and sedimentation of waterways and subsequent degradation of water quality.

Most subbasins in central Sonoma County are tributaries to the Russian River and ultimately drain west to the Pacific Ocean. These subbasins generally have moderate topography and lie in the ancient alluvial floodplain of the Russian River. Much of the suburban and urban development of Sonoma County is located within these central subbasins, including Healdsburg, Windsor, Santa Rosa, Sebastopol, Rohnert Park and Cotati. The North Coast

Regional Water Quality Control Board has characterized the entire Russian River watershed as an impaired water body due to excessive sedimentation and siltation from such activities as grazing, agriculture, logging, roads, and urban and rural residential development.

Subbasins in the southern portions of the County are tidally-influenced (Petaluma River, Sonoma Creek). 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. Water quality concerns in these subbasins revolve around low levels of dissolved oxygen and high levels of coliform bacteria and ammonia.

2.4 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 of potable quality.

In 1975, the California Department of Water Resources (DWR) identified the following groundwater basins and subbasins in Sonoma County. See Figure WR-B.

Groundwater Basin	Subbasin	DWR Number
Anapolis - Ohlson Ranch Formation*		1-49
Knights Valley		1-50
Alexander Valley	Alexander Area	1-54.01
Alexander Valley	Cloverdale Area	1-54.02
Santa Rosa Valley	Santa Rosa Plain	1-55.01
Santa Rosa Valley	Healdsburg Area	1-55.02
Santa Rosa Valley	Rincon Valley	1-55.03
Bodega Bay Area		1-57
Wilson Grove Formation Highlands*		1-59
Lower Russian River Valley		1-60
Fort Ross Terrace Deposits*		1-61
Petaluma Valley*		2-1
Napa-Sonoma Valley	Sonoma Valley	2-2.02
Napa-Sonoma Valley	Napa-Sonoma Lowlands*	22.03
Kenwood Valley		2-19

(An asterisk indicates the basin is partially in Sonoma County.)

The sizes of the larger basins and basin groups are as follows:

Santa Rosa Valley	158 square miles
Sonoma Valley	70 square miles
Petaluma Valley	70 square miles
Napa-Sonoma Volcanics	65 square miles
Alexander Valley	47 square miles
Anapolis-Ohlson Ranch Formation	13.5 square miles
Kenwood Valley	8 square miles
Knights Valley	6 square miles
Fort Ross Terrace Deposits	3.5 square miles

Most of these groundwater basins are centered along major creek and river valleys in the central and southern portions of the County. 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.

The quality of groundwater in Sonoma County varies greatly, depending on land use, geology, and withdrawal rates. Human activities that degrade groundwater include failing septic systems and livestock and dairy production (high nitrate concentration) and overdraft (salt water intrusion). Poor water quality can also be the result of geologic conditions such as the highly mineralized water extracted from the Sonoma Volcanics or brackish water from the Petaluma Formation.

2.5 BIOTIC RESOURCES AND WATER

Trees and other natural vegetation are dependent on water, but their presence also supports 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 runoff before it enters surface water bodies. Vegetation can also increase the retention of storm water, thereby recharging groundwater, absorbing pollutants, and slowing and diminishing flood peak levels. Vegetation on stream banks reduces bank erosion as a source of sediment. Trees and shrubs provide shade which lowers the temperature of the water and thus increases its value as fishery habitat. Streamside trees which fall into stream channels may aid fishery habitat by providing shelter and scouring of deep holes.

Trees and other vegetation help maintain year-round water levels in streams and groundwater. In the fall, many trees stop absorbing water and release the water they have absorbed. Trees in exposed foggy areas reportedly increase precipitation. Trees in any location provide shade which cools the ground surface and reduces evaporation. Plants add moisture to the air through transpiration of water from their leaves. Natural vegetation can also increase the retention of storm water and recharge of groundwater and slow the passage of flood peaks.

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. However, the supporting biotic resource goals, objectives, and policies are contained in the Open Space and Resource Conservation Element.

3. WATER RESOURCE GOALS, OBJECTIVES, AND POLICIES

3.1 WATER QUALITY

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 (RWQCB). In Sonoma County, the Sonoma Creek and Petaluma River watersheds are in the Bay Area RWQCB jurisdiction, and the remainder of the County is governed by the North Coast RWQCB. Waste discharge requirements are set by each RWQCB 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.

The focus of regulatory efforts has expanded in recent years to address surface runoff pollutants into drainage channels, streams and groundwater. The National Pollutant Discharge Elimination System (NPDES) program requires individual permits for construction sites and certain industrial and commercial activities and requires "municipal" area wide permits for

urbanized areas. Beginning in 2003, Municipal NPDES permits will be required for all local jurisdictions having a population greater than 10,000. In addition, an existing cooperative NPDES permit with the City of Santa Rosa, County of Sonoma, and the Sonoma County Water Agency (SCWA) will include an expanded area of the Santa Rosa Plain. Other areas in both the North Coast and Bay Area RWQCB areas will likely be required to develop similar permits and programs. Similar approaches to controlling storm water pollution are being developed in the County's Coastal Zone in response to California Coastal Commission policies. The requirements for NPDES permits include the "California Toxics Rule" and State and Federal criteria for metals, pesticides and other pollutants which could affect aquatic life and human health.

The other major Clean Water Act program affecting the County in the future is the Total Maximum Daily Load (TMDL) program. The RWQCBs are required to determine which water bodies are "impaired" by certain pollutants limiting beneficial uses of water and then to initiate a public process to assess pollutant sources, determine acceptable levels, allocate allowable pollutant loads to various sources, and establish an implementation program. All of the major streams in the County have been identified as impaired for one or more pollutants, mostly sediment, nutrients, pathogens, and temperature. The following water bodies in the County have been identified as impaired; the Gualala River and Russian River for sediment/ siltation and temperature, two portions of the Russian River for pathogens, Lake Sonoma for mercury, Santa Rosa Creek for pathogens, the Laguna de Santa Rosa for low dissolved oxygen, the Estero Americano for nutrients, Stemple Creek for sediment/siltation and nutrients, and Sonoma Creek and the Petaluma River for nutrients, pathogens, and sediment/siltation. The time frames for completing the TMDL processes in Sonoma County vary greatly with one already underway and others due over the course of the next decade or so. In the meantime, Sonoma County can continue to be proactive in addressing water quality issues through a combination of education, restoration, and development policies.

Some groundwater naturally contains dissolved elements such as arsenic, boron, selenium, or radon (a gas formed by the natural breakdown of radioactive uranium in the soil). Whether these natural contaminants can cause health problems depends on the amount of the substance present. In addition to natural contaminants, groundwater is often polluted by human activities generating contaminants such as microorganisms, gasoline and diesel fuels, solvents, nitrates, pesticides and metals (Reference: Sonoma County Environmental Health Division (SCEHD)).

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

Objective WR-1.1: Work with the Regional Water Quality Control Boards (RWQCB) and interested parties in the development and implementation of RWQCB requirements.

Objective WR-1.2: Require quality of treated water to conform with beneficial water use standards to the maximum extent feasible.

Objective WR-1.3: Establish development standards to maximize retention of runoff and regulate development to avoid, to the maximum extent practicable, pollution of storm water, water bodies and groundwater.

Objective WR-1.4: Encourage new groundwater recharge opportunities and protect existing groundwater recharge areas.

Objective WR-1.5: Inform 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 WR-1.6: Conserve and recognize storm water as a valuable resource.

Objective WR-1.7: Require consideration of naturally occurring and human caused contaminants in groundwater in new development projects. Work with the SCEHD and RWQCB to educate the public on evaluating the quality of groundwater.

Objective WR-1.8: Work with the SWRCB, DWR, California Department of Health Services (DHS), CalEPA, and applicable County and City agencies to seek and secure funding sources for development of County-wide groundwater quality assessment, monitoring, remedial and corrective action and awareness/education programs.

Objective WR-1.9: Ensure that groundwater will not be adversely affected by saltwater intrusion.

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

WR-1a: Coordinate with the RWQCB, SCWA contractors, Cities, Resource Conservation Districts, watershed groups, stakeholders and other interested parties to develop and implement public education programs and water quality enhancement activities and provide technical assistance to minimize storm water pollution, support RWQCB requirements and manage related County programs. Where appropriate, utilize watershed planning approaches to resolve water quality problems.

WR-1b: Design, construct, and maintain County buildings, roads, bridges, drainage and other facilities to minimize sediment and other pollutants in storm water flows. Develop and implement “best management practices” for ongoing maintenance and operation.

WR-1c: Prioritize storm water management measures in coordination with the RWQCB direction, focusing first upon watershed areas that are urbanizing and watersheds with impaired water bodies. Work cooperatively with the RWQCBs to manage the quality and quantity of storm water runoff from new development and redevelopment in order to:

- (1) Prevent, to the maximum extent practicable, pollutants from reaching storm water conveyance systems.
- (2) Limit, to the maximum extent practicable, storm water flows from post development sites to pre-development quantities.
- (3) Conserve and protect natural areas to the maximum extent practicable.

WR-1d: Support RWQCB waste discharge requirements for all wastewater treatment systems and other point sources.

WR-1e: Participate in the development of Total Maximum Daily Loads (TMDLs) for the impaired water bodies and pollutants of concern identified by the RWQCB to achieve to the maximum extent practicable compliance with adopted TMDLs. Work with the RWQCB to develop and implement measures consistent with the adopted TMDLs.

WR-1f: Work closely with the RWQCB, incorporated cities, SCWA and other interested parties in the development and implementation of water quality plans and measures.

WR-1g: Minimize deposition and discharge of sediment, debris, waste and other pollutants into surface runoff, drainage systems, surface water bodies, and groundwater.

WR-1h: Continue to require grading plans to include measures to avoid soil erosion and consider upgrading requirements as needed to avoid sedimentation in storm water to the maximum extent practicable.

WR-1i: Implement erosion and sediment control requirements for vineyards and row crops. Develop and implement educational and technical assistance programs for agricultural activities including vineyard and crop production and maintenance practices and educational programs and technical assistance to grazing, ranch, and dairy operations. Encourage programs to disseminate information on the benefits of on-site retention and recharge of storm waters.

WR-1j: Seek opportunities to participate in developing programs and implementing projects for water quality restoration and remediation with agencies and organizations such as RWQCBs, CDFG and RCDs in areas where water quality impairment is a concern.

WR-1k: Consider development or expansion of community wastewater treatment systems in areas with widespread septic system problems which are a health concern and cannot be addressed by on-site maintenance and management programs.

WR-1l: Initiate a review of any sewer systems when they persistently fail to meet applicable standards. If necessary to assure that 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 monitoring requirements.

WR-1m: Encourage pretreatment and waste load minimization of commercial and industrial wastes prior to their connection to sewer systems.

WR-1n: Consider on-site wastewater management districts in areas with septic problems.

WR-1o: Actively pursue the abatement of failing septic systems that have been demonstrated as causing a health and safety hazard.

WR-1p: Require new development projects to evaluate and consider naturally-occurring and human caused contaminants in groundwater.

WR-1q: Work with the SCEHD and RWQCB to educate the general public on evaluating and monitoring the quality of groundwater.

WR-1r: Resist accepting administrative responsibility for regulatory programs required of State or Federal agencies unless a State or Federal subvention will compensate the County for costs associated with such shift in administrative responsibility.

WR-1s: Where area studies or monitoring find that saltwater intrusion has occurred, support analysis of how the intrusion is related to groundwater extraction and develop a groundwater management plan or other appropriate measures to avoid further intrusion and reverse past intrusion.

WR-1t : In the marshlands and agricultural areas south of Sonoma and Petaluma, require all environmental assessments and discretionary approvals to analyze and avoid any increase in saltwater intrusion into groundwater.

3.2 GROUNDWATER

Sonoma County, covering nearly 1,600 square miles, has a population of approximately 470,000 people living in an area characterized by abundant natural resources. Of these resources, Sonoma County's groundwater plays an extremely important role in our natural environment, communities, industry sectors and agriculture. In 2002, there were approximately 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. The release of contaminants or pollutants into this resource from natural sources or human activities has the potential for adverse impacts upon 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 of the county are composed of harder rock formations where groundwater is only found in cracks and fractures.

The County utilizes a four tier classification system to indicate general areas of groundwater availability. Class 1 are the Major Groundwater Basins; Class 2 are Major Natural Recharge Area; Class 3 are Marginal Groundwater Availability Areas; and Class 4 are Areas with Low or Highly Variable Water Yield. County maps of these areas are utilized in the well permitting process and are available for review at the County PRMD offices.

In unincorporated Sonoma County, most users obtain their water from groundwater. Groundwater wells also supply many community water systems and occasionally provide a supplemental or backup source for some of the large municipal systems. As concern over future availability of surface water from the Russian River Basin has heightened in recent years, more municipalities are developing, or considering development of, groundwater resources.

Public concerns over depletion of groundwater supplies have increased as development increases and uses groundwater supplies, but limited factual data about existing groundwater levels and use is currently available upon which to fully assess the problem or to formulate a comprehensive management strategy. Complicating the problem is the proprietary nature of well drilling data, the inconsistent character of the County's varied geology, and water rights law.

The County has initiated a long term program designed to gradually increase the available data on groundwater resources and to systematically organize and use it more effectively as new well permits are sought. In addition, programs are underway to assess the available groundwater in the County's major basins where most of the municipal groundwater supplies are being tapped. It has been since the 1970s that the last basin assessment of groundwater was conducted for the County by DWR. As these data collection and monitoring efforts begin to produce better information, county decision makers will be in a better position to determine what measures may be appropriate in order to properly manage these resources.

GOAL WR-2: Manage groundwater as a valuable and limited shared resource.

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

Objective WR-2.2: Monitor groundwater conditions, require descriptive information for well permits, and analyze, map and publicize the data gathered.

Objective WR-2.3: Be willing to modify policies and programs as new information becomes available, recognizing the difficulty of assessing and resolving groundwater problems.

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

Objective WR-2.5: Work with SWRCB, DWR, DHS, CalEPA, and applicable County and City agencies to seek and secure funding sources for development of groundwater assessment, protection, enhancement and management programs.

Objective WR-2.6: Avoid land subsidence caused by groundwater extraction and reduce subsidence that has occurred.

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 the above objectives:

WR-2a: Encourage and support research on and monitoring of local groundwater conditions, aquifer recharge, watersheds and streams.

WR-2b: Initiate an educational program 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. Implementation would include preparation and distribution of educational materials and public workshops.

WR-2c: Revise ordinance requirements for permits to drill, replace, deepen or repair all wells as follows:

- (1) Show exact locations, depths, yield, drilling logs, soil data, flow direction and water levels of proposed wells and existing wells on the site, locations of known nearby wells, proposed uses of the water, and estimated amount of water use. Review available groundwater data and well permit information in the permit area and make this information available to the applicant to the extent allowed by law.
- (2) Based upon available information indicating a need, require that new wells be located definite distances from property lines and existing wells. Implementation would develop setbacks which could vary by well size, location of nearby wells, water use, groundwater availability, lot size and other appropriate factors.
- (3) Require proof of groundwater quantity and quality sufficient for proposed uses and existing beneficial uses on the site in all Class 3 and 4 areas and in other areas with identified water quality and quantity problems, special area studies underway or where adopted management plans require it. Implementation would develop procedures and quantitative standards for pump tests, well yields, pollutant levels, and water storage.
- (4) Require well monitoring for all wells. Implementation would include procedures for meters, access, testing and reporting water levels, flow direction and quality, and responding to monitoring results. Standards could be less stringent in Class 1 and 2 areas without identified problems.
- (5) Include provisions for applicant fees and other funding of County costs.
- (6) 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.

WR-2d: Require proof of groundwater with a sufficient yield and quality to support proposed uses in Class 3 and 4 water areas. Require test wells or the establishment of community water systems in Class 4 water areas. Test wells may be required in Class 3

areas. Deny discretionary applications in Class 3 and 4 areas 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.

WR-2e: Revise procedures for proving adequate groundwater for discretionary projects by adding criteria for study boundaries, review procedures, and required findings that the area's groundwater supplies and surface water flows will not be adversely impacted by the project and the cumulative amount of development allowed in the area and will not cause or exacerbate groundwater overdraft, land subsidence or saltwater intrusion. Procedures for proving adequate groundwater for discretionary projects should be flexible enough to consider the expense of such study in relation to the size of the discretionary project.

WR-2f: Require that discretionary projects, to the maximum extent practicable, maintain or increase the site's pre-development absorption of runoff to recharge groundwater. Implementation would include standards which could regulate impervious surfaces, vary by project type, land use, soils and area characteristics, and provide for water impoundments, protecting and planting vegetation, cisterns and other measures to increase runoff retention and groundwater recharge.

WR-2g: Support the establishment and maintenance by the County, SCWA and other agencies of a system of monitoring wells throughout the County, utilizing existing wells where feasible.

WR-2h: Establish a computerized groundwater data base from available application data, well tests, monitoring results, study reports and other sources; analyze the data collected in an annual report to the Board; provide the data to DWR, and use the data to refine the mapping of groundwater availability classes.

WR-2i: In order to identify areas where groundwater supplies may be declining, in the annual report staff shall review well permit data, monitoring data and reported problems and recommend to the Board of Supervisors the boundaries for areas where comprehensive studies are needed. In each such special study area which is approved by the Board following a public hearing, develop a comprehensive groundwater assessment which includes the following:

- (1) Establish a system of monitoring wells and stream gages.
- (2) Locate and identify water wells.
- (3) Collect and present available data on groundwater levels and contamination.
- (4) Prepare maps and graphs that show past and present data and changes in precipitation, surface water imports, groundwater levels, groundwater quality, and rates of extraction.
- (5) Use drillers' logs, geologic data and monitoring data to estimate water yields in the area.

- (6) Estimate future rates of imports, recharge, extraction, exports, changes in groundwater levels, and possible changes in groundwater quality.
- (7) Determine a water budget for the area which estimates the total amount of water that flows into the area through precipitation and surface water imports and the total amount of water extracted by area wells and exported out of the area.
- (8) Determine any needed changes in well monitoring, data collection and reporting.
- (9) Provisions for applicant fees and other funding of County costs.

If an area assessment indicates that future groundwater availability or surface water flows are threatened and there is a demonstrated need for additional management actions to address groundwater problems, prepare a plan for managing groundwater supplies, pursuant to AB 3030, the County's police powers or other legal authority, 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 affected water users and well drillers in development of alternatives addressing specific problems and a review of legal and fiscal issues for each alternative. The County shall seek the participation and concurrence in the groundwater management plan from local agencies, private water companies and landowners which are or may be extracting groundwater from the affected basin. In recognition of apparent overdraft condition in the south Santa Rosa Plain groundwater basin, give a high priority to preparation of a groundwater assessment and adoption of a management plan or other appropriate actions in this area prior to approval of any city annexations and changes in land use or density in this area of the County.

WR-2j: As resources permit, coordinate with the incorporated cities, SCWA, DWR, US Geological Survey, groundwater industry representatives, agricultural interests, and all water users and purveyors in the development of a comprehensive groundwater assessment for each major groundwater basin in the County and the priorities, sequence and timing for such studies. The contents and process shall meet the requirements of the California Water Code for a "groundwater management plan" and may include, but are not limited to, 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.
- (6) Provisions for applicant fees and other funding of County costs.

If a basin assessment indicates that future groundwater availability and surface water flows may be threatened and there may be a need for additional management actions to address groundwater problems, prepare a plan 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 development of alternatives addressing specific problems and a review of legal and fiscal issues for each alternative.

WR-2k: Encourage and support comprehensive studies of long-term changes in climate and precipitation patterns in the County and region.

WR-2l: Increase institutional capacity and expertise within the County to competently review hydrogeologic reports and data for critical indicators and criteria.

WR-2m: Work with SWRCB, DWR, DHS, CalEPA, and applicable County and City agencies to seek and secure funding sources for development of groundwater assessment, protection, enhancement and management programs.

WR-2n: Coordinate the County's land use decisions and actions to be consistent with the Water Resources Element.

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 to avoid further subsidence and reverse past subsidence.

3.3 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 water supply services provided by public and private entities.

Large water systems serve the county's cities as well as some of the larger unincorporated communities. The largest system is operated by the SCWA in the Russian River watershed. This system stores runoff from rainfall in the Eel and Russian River watersheds in the Lake Mendocino and Lake Sonoma reservoirs, diverts it from large collector wells beside the Russian River, and transmits it primarily to the Cities of Santa Rosa, Petaluma, Rohnert Park, Cotati, and Sonoma, the unincorporated Forestville and Valley of the Moon areas, and the North Marin Water District. The supply of water has been generally adequate to meet demand in the past, but challenges remain to supply water to Russian River water users in the future, including potential reduction in water diverted from the Eel River, the capacity of water transmission systems, and the ability to secure water rights. More critical, however, is the potential effect of the recovery of threatened and endangered anadromous fish species on water supply and system operations in the Russian River basin.

Other large water systems in the County include those serving such communities as Bodega Bay, Sea Ranch, Occidental, Geyserville, Larkfield, Camp Meeker, Kenwood, and Guerneville.

Small water systems supply water to a wide variety of uses such as rural businesses, residences and schools, mobile home parks 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 water systems are responsible for meeting and maintaining water quality standards established by DHS and the RWQCBs. 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 for wells located in the unincorporated area.

In light of concerns over the future availability of water from the Russian River system and from groundwater sources, water conservation, re-use, and alternative water resources such as impoundments, desalinization, etc. are an increasingly important part of all of the supply systems.

GOAL WR-3: Assure that public water systems and their sources provide an adequate supply to meet long-term needs that is consistent with adopted general plans and urban

water management plans and that is provided in a manner that maintains water resources for other water users while protecting the natural environment.

Objective WR-3.1: Assist public water suppliers in the assessment of available water supplies and protection of water quality.

Objective WR-3.2: Work with SCWA and other public water suppliers in the development and implementation of 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 WR-3.3: Work with the SCWA and other public water suppliers in the assessment and provision of sustainable water supplies for the existing customers in those areas under contract for water supply.

Objective WR-3.4: Work with the SCWA CH: and other public water suppliers in the assessment of sustainable water supplies for the planned growth in those areas under contract for water supply.

Objective WR-3.5: Work with the SCWA and public water suppliers to establish a surface and groundwater data management program for Sonoma County which would provide a common information management resource for participating agencies to develop various plans for assessment, management, monitoring and reporting.

Objective WR-3.6: Work with public water suppliers to decrease reliance on groundwater and prevent diminishment of groundwater supplies.

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

WR-3a: Work with public water suppliers in assessments of the sustainable yield of surface water, groundwater, recycled water and conserved water. This work should include the exploration of potentially feasible alternative water supplies. Surface and groundwater supplies must remain sustainable and not exceed safe yields.

WR-3b: Support to the extent feasible the actions and facilities needed by public water systems to supply water sufficient to meet the demands which are estimated in adopted master facilities plans, consistent with adopted general plans, urban water management plans and the sustainable yields of the available resources and in a manner protective of the natural environment.

WR-3c: Request technical assistance and water resource data from public water suppliers and share available water resource information with them and the public.

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.

WR-3e: Support public water suppliers in developing wellhead protection plans which may include County and city land use regulations or other actions needed to maintain quality standards, provided that the water supplier consults with relevant jurisdictions and provides reasonable public notice during the formulation of such plans.

WR-3f: Support water conservation and education programs with measurable targets for public water suppliers.

WR-3g: Assist public water suppliers in assuring that proposed water supplies and facilities are consistent with adopted general plans, that all planning jurisdictions are notified of and consider potential water supply deficiencies during the preparation of such plans, and that adopted general plans accurately reflect secure water sources.

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, 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 which could be used or developed.

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 supply systems to design and construct all facilities in accordance with sustainable yields and the general plans of applicable 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 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.

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.

WR-3j: Seek to maintain consistency between the General Plan, adopted groundwater management plans and the master facilities plans of public water suppliers through meetings between staff of PRMD and public water suppliers, PRMD review of proposed master facilities plans, and referral of General Plan changes to all public water suppliers.

WR-3k: Cooperate with public water suppliers in the planning, development and construction of the storage and transmission facilities needed to supply water pursuant to adopted General Plan policies, urban water management plans, water supply agreements, master facilities plans, and programs to mitigate identified groundwater overdraft conditions, where applicable.

WR-3l: Pursuant to the requirements of Government Code 65400-65402, request that public water suppliers, including cities, the SCWA, 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 Sonoma County General Plan.

WR-3m: Pursuant to an adopted groundwater management plan, require public water suppliers and other water users which use or rely upon groundwater sources to monitor and report groundwater levels and yields in order to avoid long term overdrafting or decline.

WR-3n: Public water suppliers who currently utilize water from the SCWA system will, to the maximum extent feasible, utilize water from the SCWA system and other surface water sources instead of groundwater.

WR-3o: Pursuant to applicable laws, require 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.

WR-3p: Involve public water suppliers in any development of area studies, groundwater management plans and general plans in order to assure full compliance by suppliers with the groundwater management plans and mitigation measures.

WR-3q: Support inter-regional planning efforts by the public water suppliers, their contractors and involved stakeholders in Sonoma County to determine the preferred combination of sources to meet projected demand.

WR-3r: Work with the SCWA in the following ways to provide an adequate water supply for its contractors consistent with this element:

- (1) Support SCWA participation in proceedings of the Federal Energy Regulatory Commission, California Public Utilities Commission, and State Water Resources Control Board involving the Potter Valley Project to ensure that the interests of all water users in Mendocino, Sonoma, and Marin Counties receive consideration and that decisions on the use of Eel River water are made on a sound scientific basis.
- (2) Encourage SCWA working cooperatively with Mendocino County interests to resolve environmental and economic impacts, water rights and supply issues, including assessment of water resource projects, groundwater, recycling or other water supply alternatives.
- (3) Work with agricultural interests along the Russian River and its tributaries to encourage development of water supply alternatives for existing water users.
- (4) Support SCWA actions to define and defend existing water rights and the rights of other existing water users.
- (5) Support SCWA efforts to evaluate acquisition of additional water diversions, recognizing the rights of other existing water users and avoid significant environmental impacts.
- (6) Support SCWA participation in programs to maintain, restore and protect the Russian River fisheries.
- (7) In SCWA evaluations of requests by municipalities, districts or other entities to be added as water contractors, support assessment of the available water resources and the long-term effects on water supply needs of the existing contractors, consider impacts on other existing water users, and, to the greatest extent practicable, require water conservation measures, use of recycled water and bearing risks, responsibilities and costs as required by the existing contractors.
- (8) Cooperate with the SCWA in the planning, development and construction of the storage and transmission facilities needed pursuant to adopted agreements and County policies and support development of the SCWA Water Supply and Transmission System Project.

WR-3s: Coordinate the County's land use decisions and actions to be consistent with the Water Resources Element.

3.4 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 1976/77 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, 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. Most of the larger municipal water systems, particularly those which rely upon the Russian River Water Supply and Transmission System, have water conservation programs, including low-water use appliances and landscaping, various education and promotional programs, and water rate incentives.

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

Objective WR-4.1: Increase the use of treated water where the quality of the recycled water is maintained, meets all applicable regulatory standards and is appropriate for the intended use and beneficial uses of other water resources will not be significantly impacted.

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

Objective WR-4.3: Avoid water reuse which could significantly adversely affect the quality of groundwater or surface water.

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

WR-4a: Encourage disposal methods which minimize reliance on discharges into natural waterways. If discharge is proposed, review and comment on projects and environmental documents and request that projects maximize reclamation, conservation and reuse programs to minimize discharges and protect water quality and aquifer recharge areas.

WR-4b: Use water effectively and reduce water demand by:

- (1) Requiring water conserving design and equipment in new construction.
- (2) Encouraging water conserving landscaping and other conservation measures.
- (3) Encouraging retrofitting with water conserving devices.
- (4) Designing wastewater systems to minimize inflow and infiltration to the extent economically feasible.
- (5) Limiting impervious surfaces to minimize runoff.

WR-4c: Support programs to monitor, establish and publicize per capita or per unit water use in each community and area and utilize this data in groundwater management plans, master facilities plans, and wastewater treatment plans.

WR-4d: Encourage monitoring for all water use and water metering and pricing systems for public water suppliers which require water users to pay all costs of the amount of water

used. Encourage pricing mechanisms for public water suppliers which provide incentives for water users employing conservation and reuse programs.

WR-4e: Require water-conserving plumbing and water-conserving landscaping in all new development projects and require water-conserving plumbing in all new dwellings. Educate and promote programs to minimize water loss and waste by public water suppliers. Require County-operated water systems to minimize water loss and waste.

WR-4f: Educate and promote programs for retrofitting plumbing, providing cost rebates, identifying leaks, changing landscaping, irrigating efficiently and other methods of reducing water consumption by existing users.

WR-4g: Require that development and redevelopment projects, where feasible, retain storm water for on-site use which offsets the use of other water. Implementation could include standards for runoff retention and storage, impervious surfaces, vegetation removal, landscaping, and preservation of wetlands and riparian areas.

WR-4h: Encourage and support conservation for agricultural activities which increase the efficiency of water use for crop irrigation, frost protection and livestock. Work with RWQCB and DWR to promote storm water impoundments for agricultural uses.

WR-4i: Assess water use by County buildings and facilities and reduce water consumption to the maximum extent practicable.

WR-4j: Ensure that wastewater disposal systems are designed to reclaim and reuse treated water on agricultural crops, and for other irrigation and wildlife enhancement projects to the extent practicable.

WR-4k: Encourage participation in programs for reuse of treated water, including the establishment of wastewater irrigation districts.

WR-4l: Support the use of recycled water to offset use of other water where the quality of the recycled water is maintained, meets all applicable regulatory standards, and is appropriate for the intended use and beneficial uses of other water resources will not be significantly impacted.

WR-4m: Coordinate with the cities and other wastewater treatment entities in the planning of uses and minimizing of impacts for treated water in agricultural activities, geothermal facilities and other uses in the incorporated and unincorporated areas.

WR-4n: Support the use of treated water for irrigation, landscaping, parks, public facilities and other appropriate uses.

WR-4o: Encourage graywater systems, roof catchment of rainwater and other methods of re-using water and minimizing the need to use groundwater.

3.5 IMPORTING AND EXPORTING

For years, Sonoma County municipalities have relied to some degree upon importation of water from sources outside of the County borders. Russian River water is also exported to Marin County. However, as statewide water supplies are falling behind demand, areas with relatively abundant water supplies are likely to be targeted for additional exports. An example is the

proposal to export water from the Gualala and Albion Rivers to Southern California. While such proposals are within the jurisdiction of the SWRCB, Sonoma County needs to be proactive in protecting its water resource interests.

GOAL WR-5: Assure that new proposals for surface and groundwater imports and exports are consistent with Sonoma County's ability to sustain an adequate and quality water supply for its water users and dependent natural resources.

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

Objective WR-5.2: Consider 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 this objective:

WR-5a: Require or request full assessment of the environmental impacts and impacts on Sonoma County water users of any proposals to physically export water to new locations outside Sonoma County or to substantially increase water supply to existing out-of-county locations. Any consideration of exporting additional water resources shall place primary priority upon the benefit of and need for the resources in Sonoma County and shall assure that water resources needed by urban, rural and agricultural water users in Sonoma County will not be exported outside the County.

WR-5b: Require or request full assessment of the environmental impacts of any proposals to import additional water into Sonoma County.

3.6 WATERSHED MANAGEMENT

GOAL WR-6: Foster understanding, valuation and sound management of the water resources in Sonoma County's diverse watersheds.

Objective WR-6.1: Correlate the quality and quantity of water captured, stored and contained within each unique watershed to the needs of beneficial water uses by all county residents, local industry, agriculture and the natural environment.

Objective WR-6.2: Seek and secure funding to evaluate the quality and quantity of water resources in each of the watershed basins.

WR-6a: Where there is a problem identified, promote and seek funding for the evaluation and remediation of the problem through a watershed management approach.

WR-6b: Work with the RWQCBs, watershed-focused groups and stakeholders in the collection, evaluation and use of watershed-specific water resource information.

4. WATER RESOURCE IMPLEMENTATION PROGRAMS

Water Resources Program 1: Education and Technical Assistance

Program Description: Develop a public education and technical assistance program that provides property owners, applicants and the general public with information regarding storm water pollution, efficient water use, public water supplies, water conservation and re-use, and groundwater. (Policy reference: WR-1a, -1i, -2a, -2b, -2h, -3a, -3b, -3c, -3d, -3e, -3f, -3h, -4b, -4h, -4o)

Water Resources Program 2: County Facilities

Program Description: Prepare and implement a “best management practice” manual for minimizing storm water pollutants associated with construction and maintenance of County buildings, roads, and other facilities. Assess water use in County operated facilities and implement programs for efficient water use and wastewater re-use. (Policy reference: WR-1b, -4b, -4e, -4i, -4n)

Water Resources Program 3: Storm Water Management Regulations

Program Description: Work with the RWQCBs during the official formulation and adoption process for storm water pollution management regulations affecting Sonoma County (Policy reference: WR-1c, -1f, -1g)

Water Resources Program 4: Total Maximum Daily Load (TMDL) Regulations

Program Description: Work with the RWQCBs during the official formulation and adoption process for TMDL regulations affecting Sonoma County. (Policy reference: WR-1e)

Water Resources Program 5: Grading Ordinance and Erosion and Sediment Control

Program Description: Prepare, adopt, and implement a revised erosion and sediment control ordinance to include row crops similar to that which was adopted for vineyards. (Policy reference: WR-1g, -1h, -1i)

Water Resources Program 6: Well Permits and Procedures

Program Description: Prepare, adopt, and implement a revised well ordinance which provides for improved data collection and monitoring of ground water supply and quality. Prepare revised procedures for proving adequate ground water for discretionary projects. (Policy reference: WR-2c, -2d, -2e)

Water Resources Program 7: Groundwater Monitoring and Annual Report

Program Description: Establish a ground water database and monitoring program consisting of well permit data and basin studies. Prepare an annual report to the Board of Supervisors assessing the current status of groundwater conditions in the unincorporated area and evaluating the need for any special studies and/or management actions that may be necessary in problem areas. (Policy reference: WR-1s, 2g, -2h, -2i, 2j, -2k, -2o, -3a, -3i, -3m, -4c)

Water Resources Program 8: Public Water Supply Plans

Program Description: Develop an information sharing program in cooperation with public water suppliers as necessary to make appropriate data available to the public pertaining to water supply and water use in each supplier’s jurisdiction. Cooperate with public water suppliers in the development and implementation of measures necessary to protect the water quality of its water supply sources. (Policy reference: WR-3a, -3c, -3d, -3e, -3h, -4d, -4e, -4f).

Water Resources Program 9: Integrated Water Resources Funding

Program Description: Work with public water suppliers, utility districts, stakeholder groups and interested parties to seek and secure outside funding sources for Water Resources Element programs and associated plans. Sources considered should include establishing a stewardship

fund derived from the use and off-site sale of extracted groundwater to provide a financial base for the on-going protection, monitoring and management of the groundwater resource. (Policy reference: Implementation programs 1-8 above.)

Water Resources Program #10: Watershed Planning

Program Description: Seek funding opportunities for collaborative watershed planning approaches to water quantity and quality enhancement and protection, where such an approach is the desired method of accomplishing the program objectives. (Policy reference: WR-1a, -1c, -1e, -1f, -2j, -3r, -6a, -6b).

DEFINITIONS: The following definitions will be added to the glossary for the Draft General Plan. For now, they are included here so that readers can utilize them in the review of the element.

Sustainable yield is defined as the amount of water that can be used over the long term without exceeding the replenishment rates over time or causing long term declines in available surface or groundwater resources.

Public water supplier is defined as one of the following types of entities:

- (1) Sonoma County Water Agency.
- (2) Incorporated Cities.
- (3) The following suppliers for urban service areas:
 - Bodega Bay Public Utility District
 - Sea Ranch Water System
 - Occidental Community Services District
 - Geyserville Water Works
 - Forestville County Water District
 - Sweetwater Springs County water District
 - Citizens' Utilities Company
 - Penngrove Water Company
 - Valley of the Moon Water District
- (4) The following County-operated community systems:
 - Sonoma County Service Area 41 - Fitch Mountain
 - Sonoma County Service Area 41 - Freestone
 - Sonoma County Service Area 41 - Jenner
 - Sonoma County Service Area 41 - Salmon Creek
 - Sonoma Mountain County Water District
 - Timber Cove County Water District
- (5) The following other community systems serving more than 500 year-round residents:
 - Camp Meeker Water System
 - Kenwood Village Water Company
 - Russian River County Water System
- (6) Any new public water suppliers which meet any of the following criteria:
 - Incorporated cities.
 - Suppliers for urban service areas.
 - County-operated community systems.
 - Community systems serving more than 500 year-round residents.

Water user is defined as a person or entity whose diversion, appropriation, extraction, acquisition, storage or usage of water meets all applicable legal requirements.