

### **3.0 SONOMA COUNTY WATER AGENCY SUPPLY**

The Agency supply is one of three supply sources available to the City. This section describes the Agency supply, its hydrologic availability, its water quality, various contracts that affect its use including provisions for transfers and exchange, its reliability and vulnerability, and the water supply plans and programs being undertaken by the Agency. This information is used to project the Agency supply that is reasonably available to the City under all hydrologic conditions.

This Plan projects that 6,372 AFY of Agency supply will be available to the City based on analysis of the legal and hydrologic constraints on the Agency's system.

#### **3.1 Summary of Analysis**

The water supply available to the City from the Agency is measured in two ways, hydrologic availability and legal availability.

Hydrologic availability is a measure of how much water is available because of rainfall, runoff and storage in the Russian River watershed. Normal Year, Single Dry Year and Multiple Dry Year are ways to describe the hydrologic availability of water supply under a variety of rainfall conditions. The Agency's hydrologic models, described in detail below, indicate that its water supply is most constrained under the Single Dry Year condition when between 85,000 and 86,000 acre feet per year (AFY) are available to the system.

Legal availability is a measure of how much water the Agency is allowed to divert under the water rights permits it receives from the State Water Resources Control Board (SWRCB). The Agency currently has permits to divert and re-divert 75,000 AFY. At the present time, legal availability is the largest constraint on the Agency supply because current water rights are less than even the Single Dry Year supply. This means that even in the driest of years, the Agency is not legally able to divert all the water that is available to its Russian River System.

Because legal availability, not hydrologic availability, presents the greatest constraint to the Agency's supply, the City has analyzed its Agency water supply using 75,000 AFY as the maximum available supply. This supply will be available under all hydrologic conditions because even in the driest years, there is more than 75,000 AFY in the Russian River system and available for diversion by the Agency.

#### **3.2 Description of the Agency Supply**

The Agency provides wholesale water service primarily from its Russian River System. Groundwater from the Santa Rosa Plain subbasin can be used to supplement the Russian River System. The Agency supplies water to eight prime contractors (the cities of Santa Rosa, Rohnert Park, Cotati, Petaluma, and Sonoma; the Town of Windsor; North Marin Water District and Valley of the Moon Water District, hereinafter the Contractors) under the Restructured Agreement for Water Supply, and to other customers.

The Russian River System includes Lake Mendocino, Lake Sonoma, six Raney collectors and seven conventional wells located in the gravels of the Russian River, generally between Windsor and Forestville. Lake Sonoma, which provides the principal supply to the Agency's Contractors, has a water supply pool capacity of 245,000 AFY. Water is released from Lake Sonoma and carried through Dry Creek and the Russian River. The Raney collectors and wells re-divert Russian River underflow for potable supply. Water is delivered through the Agency's Transmission System, which is a network of pipelines, pump stations and storage tanks extending through central and south Sonoma County into Marin County. Figure 3.1 illustrates the Russian River System and the Agency's Transmission System. These facilities are more specifically detailed in the Agency's 2005 Plan.

The Agency is currently planning its Water Project to expand the capacity of various Agency storage and transmission system facilities and increase its diversion rights from 75,000 AFY to 101,000 AFY. The Agency's 2005 Plan indicates that the Water Project facilities will be available after 2020.<sup>6</sup>

### **3.3 Hydrologic Availability of the Russian River Supply**

The Agency currently maintains an operations model called the Russian River System Model (RRSyM) which performs water balance routing through the Russian River System and is used as a planning tool to simulate the effects of hydrology, demand and operational criteria on the amount of water available in the Russian River System. To determine the relationship between the hydrologic capacity of the Russian River system and the demands upon that system, the RRSyM was run using hydrologic data from statistically selected Normal, Single Dry and Multiple Dry years and all demands in the Santa Rosa sub-unit of the Russian River System, which includes demands on the Agency's system, agricultural demands and demands by other public purveyors.

The RRSyM output includes the minimum storage in Lake Sonoma for each hydrologic condition under a range of demand scenarios. The Agency's water rights permits require it to maintain a minimum storage volume in Lake Sonoma and to restrict diversions, if necessary to maintain that minimum storage volume. Table 3-1 below summarizes the RRSyM output. This output indicates that Russian River System has the hydrologic capacity to meet all demands in all cases except for the Single Dry Year condition after 2020.

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<sup>6</sup> 2005 Urban Water Management Plan Sonoma County Water Agency, Table 4-9

**Table 3-1 Summary of Lake Sonoma Storage and Agency Water Rights under a Range of Hydrologic Conditions<sup>7</sup>**

Scenario Year	Lake Storage (AFY)			Agency Water Right (AFY)	
	Normal Year	Single Dry Year	Multiple Dry Year	Current	Proposed
2010	206,028	75,083	132,893	75,000	
2015	205,741	70,587	131,596	75,000	
2020	202,599	58,773*	121,510	75,000	101,000
2025	197,958	48,933*	100,236		101,000
2030	196,560	50,483*	94,038		101,000

\*Lake Sonoma Storage is below permitted minimum. Potential for curtailed diversions

The Agency’s 2005 Plan indicates that the Single Dry Year Supply available in 2030 is 85,520 AFY, which, as noted earlier, is greater than the Agency’s currently permitted rights.<sup>8</sup> Additional detail on the RRSyM and the modeling effort is found in the Agency’s 2005 Plan.

### 3.4 Hydrologic Availability of the Agency’s Groundwater Supply

The Agency’s three groundwater supply wells are located in the Santa Rosa Plain, a subbasin of the Santa Rosa Valley Basin and generally north, east and southeast of the City of Sebastopol. As detailed in its 2005 Plan, the Agency monitors groundwater levels in seventeen dedicated monitoring wells in order to assess the effects of these wells on local groundwater conditions. There are no physical constraints on the ability of the Agency’s wells to continue to provide this groundwater supply. The Agency’s 2005 Plan indicates it will utilize 3,870 AFY of groundwater annually through 2030. This amount of projected groundwater use is less than the Agency’s recent historical pumpage (i.e., pumpage during 2003-2005 was 4,701 AF in 2003, 4,585 AF in 2004 and 5,906 AF in 2005). As discussed in Section 4.5, the Agency’s updated analysis of basin wide groundwater conditions finds that the basin remains about in balance.

In estimating its allocation of Agency water supply for this Plan, the City has assumed that Agency groundwater is not available.

### 3.5 Water Rights and Contracts for Agency Supply

The City’s use of Agency supply is subject to a number of decisions and contracts. This section describes the water rights held by the Agency and the various agreements and issues that influence the water supply. The Restructured Agreement for Water Supply and the Temporary Impairment MOU, which are the City’s contracts for Agency supply, are also described.

<sup>7</sup> 2005 Urban Water Management Plan Sonoma County Water Agency , Table 4-6 through 4-8

<sup>8</sup> 2005 Urban Water Management Plan Sonoma County Water Agency, Table 4-14

### 3.5.1 Agency's Water Rights<sup>9</sup>

The Agency currently diverts and re-diverts water from the Russian River System under four permits issued by the SWRCB. These permits (Numbers 12947A, 12949, 12950 and 16596) provide the Agency with the rights to divert and re-divert up to 75,000 AFY, and to store water in Lake Mendocino and Lake Sonoma. These permits also set minimum in-stream flow requirements to protect fish and wildlife and maintain recreation in the Russian River. The SWRCB's Decision 1610 provides for varying minimum in-stream flow requirements under different hydrologic cycles (i.e., in-stream flow requirements are lower in dry water years than in normal water years). The Agency works with the SWRCB on a regular basis to implement the various in-stream flow requirements of its permits based on hydrologic conditions at the time. The Agency's current water rights are secure and there is currently no activity pending before the SWRCB that would affect the Agency's ability to divert and re-divert water under its current permits<sup>10</sup>.

However, there are a number of issues that could affect the Agency's proposed Water Project. The issues that could affect the cost and schedule for implementing the Water Project are described below. Because of these issues, the City has assumed that the Water Project will not be completed until after 2030.

#### 3.5.1.1 The Section 7 Consultation<sup>11</sup>

The Russian River watershed is designated as critical habitat for threatened stocks of Coho salmon, Chinook salmon, and steelhead. The Agency and the U.S. Army Corps of Engineers are undertaking a Section 7 Consultation under the Federal Endangered Species Act with the National Oceanic and Atmospheric Administration to evaluate affects of their various operations and maintenance activities on fish production and passage. The Biological Assessment prepared as part of this consultation recommends modifications to the minimum in-stream flow requirements contained in the Agency's water rights permits. These modifications do not affect the Agency's existing water rights.

For the purposes of preparing its 2005 Plan, the Agency assumed that the Section 7 Consultation would not reduce the amount of water it could supply, principally from Lake Sonoma, under both its current and proposed permits. The City has assumed that the Section 7 Consultation will not reduce current permitted diversions principally because there are no actions before the SWRCB that would affect the Agency's current permits. The City has assumed that proposed additional permitted diversions will not be implemented within the horizon of this Plan.

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<sup>9</sup> California Environmental Protection Agency, State Water Resources Control Board, WR Order 2004-0035 EXEC.

<sup>10</sup> Personal Communication, Erica Phelps, Sonoma County Water Agency, November 22, 2004.

<sup>11</sup> Sonoma County Water Agency Web site, [www.scwa.ca.gov](http://www.scwa.ca.gov).

### 3.5.1.2 Friends of the Eel River et al. v. Sonoma County Water Agency (108 Cal. App. 4<sup>th</sup> 859)

On May 16, 2003, the California First District Appellate Court issued a decision that the EIR prepared for the Agency's Water Supply and Transmission System Project (a predecessor to the Water Project) provided inadequate information on the project and its impacts. This decision directly affected the Agency's ability to increase its water right above the currently permitted 75,000 AFY and to make improvements to its Transmission System because it required revisions to the Agency's EIR. The decision, however, does not affect the Agency's current water rights in any way.

For the purposes of preparing its 2005 Plan, the Agency assumed that this decision would not reduce the amount of water it could supply, principally from Lake Sonoma under both its current and proposed permits, because it believed it could prepare and certify a new EIR that addressed the Court's concerns and implement the Water Project by 2020. The City has assumed that this decision will not effect current permitted diversions principally because there are no actions before the SWRCB that would affect the Agency's current permits. The City has assumed that proposed additional permitted diversions will not be implemented within the horizon of this Plan.

### 3.5.1.3 Federal Energy Regulatory Commission June 2004 Order on Rehearing and January 28, 2004 Order Amending License

This decision by the Federal Energy Regulatory Commission (FERC) affects the way Pacific Gas and Electric Company operates its Potter Valley Project. This operation is relevant to the Agency's water supply because water is diverted from the Eel River to the Russian River through the Potter Valley Project. The FERC decision reduces the amount of water diverted from the Eel to the Russian, where it becomes available to the Agency's Russian River System. The RRSyM modeled the re-operation of the Potter Valley Project, required by this decision and the effects that this re-operation has had on the hydrologic availability of the Agency supply in Normal, Dry and Multiple Dry Years.

For the purposes of preparing its 2005 Plan, the Agency assumed that the January 28, 2004 Order Amending License would not be substantially modified in a way that would reduce the amount of water available for diversion by the Agency through its Russian River System, beyond that which it had already modeled. This assumption is reasonable and supported by substantial evidence which is described in Section 1.6 of the Agency's 2005 Urban Water Management Plan. The City has utilized the Agency's RRSyM modeling effort as a basis for the hydrologic analysis in this Plan.

### 3.5.2 The Restructured Agreement for Water Supply

The Restructured Agreement for Water Supply (the Restructured Agreement) is the contractual document that outlines how the Agency's proposed 101,000 AFY water right is allocated among the Agency's Contractors and other customers. The Restructured Agreement was executed on

June 20, 2006 and has a term of at least forty years<sup>12</sup>. The Restructured Agreement allocates 7,500 AFY to the City, with an average day maximum month pumping rate of 15.0 mgd under Normal Year conditions.

Section 3.5 of the Restructured Agreement (the Water Shortage Provisions) defines how the water supply and transmission system capacity would be allocated in case of shortage. Shortages could occur as a result of hydrologic conditions (such as those predicted by RRSyM for Single Dry Years after 2020) or legal or physical constraints on the Agency's supply and transmission system. On April 18, 2006, the Agency's Board of Directors adopted a Water Shortage Allocation Methodology that provides a mathematical quantification of the Water Shortage Provisions. This allows the Contractors to calculate their reasonably expected Agency allocation under a range of supply scenarios.

#### 3.5.2.1 Transfers and Exchanges

Currently, the City does not transfer and/or exchange water with other entities. While it is not anticipated that transfers or exchanges will occur in the future, such transfers are authorized under the Restructured Agreement. Such transfers and exchanges between Agency Contractors have occurred in the past and may be necessary in the future to improve water reliability (Sonoma County Water Agency, 2000a).

#### 3.5.3 The Temporary Impairment MOU

As indicated in Section 3.2, the Agency is planning but has not yet undertaken upgrades to its Transmission System. These upgrades would allow the Contractors to receive their full "average day maximum month" allocations from the Agency. The Memorandum of Understanding Regarding Water Transmission System Capacity Allocation during Temporary Impairment (the Temporary Impairment MOU), which is effective through September 30, 2008, outlines each Contractor's voluntary allocation of Transmission System capacity during the peak usage periods of June through September. Under the Temporary Impairment MOU, the City agreed to use its best efforts to limit its demand during Periods of Temporary Impairment to 5.4 million gallons per day. The Temporary Impairment MOU affects only transmission system capacity and in no way modifies the City's annual volume entitlement of 7,500 AFY.

### 3.6 Quality of the Agency Supply

The Agency supply meets all primary and secondary drinking water standards established by the California Department of Public Health (CDPH) and is suitable for potable use. There are not water quality constraints that would limit supply.

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<sup>12</sup> Section 1.3 of the Restructured Agreement describes the Term of the Agreement. The term is for at least forty years or until all outstanding revenue bonds have been paid. The language includes provisions for renewal agreements.

### 3.7 Reliability and Vulnerability of the Agency Supply

#### 3.7.1 Hydrologic Reliability and Vulnerability

The RRSyM analysis confirms that the Agency's current water supply is very reliable from a hydrologic perspective. The Agency's current rights of 75,000 AFY can be supported, without constraint, in the Normal, Single Dry and Multiple Dry Years. The RRSyM analysis indicates that Single Dry Year reliability would constrain the Agency's proposed 101,000 AFY diversion rights to just over 85,000 AFY.

The City has based its analysis only upon current water diversion rights, which provides a high degree of hydrologic reliability.

#### 3.7.2 Contractual Reliability and Vulnerability

The Agency's current water rights are highly reliable and, as stated above, there are no actions pending before the SWRCB that would in any way modify the Agency's current diversion rights. However, the Agency's current water rights will not allow it to meet all of the water allocation commitments in the Restructured Agreement, which is based on a total Agency water right of 101,000 AFY.

Because of this contractual vulnerability, the City's analysis is based not upon 101,000 AFY of proposed permitted diversions but rather the current 75,000 AFY of current permitted diversions.

### 3.8 City's Existing and Projected Agency Supply

The City's water supply allocation from the Agency is described in the Restructured Agreement and includes two limits: an annual maximum entitlement and an "average day maximum month" entitlement. The City's annual maximum entitlement from the Agency is 7,500 AFY (approximately 6.8 million gallons per day). The City's "average day maximum month" entitlement is 15 million gallons per day. The "average day maximum month" entitlement is higher than the average of the annual maximum entitlement. This allows the City to meet peak demands, as long as it does not exceed its annual entitlement. Currently, the Temporary Impairment MOU asks that the City voluntarily limit its "average day maximum month" entitlement to 5.4 million gallons per day during the months of June through September. The Temporary Impairment MOU does not affect the City's annual maximum entitlement or its "average day maximum month" entitlement outside of the June through September period. Table 3-2 presents prior year deliveries from the Agency to the City.

**Table 3-2 – Prior Year Agency Deliveries**

2000	2001	2002	2003	2004	2005	2006
2,713 AF	2,976 AF	2,870 AF	3,194 AF	5,126 AF	4,697 AF	5,163 AF

The City is aware of schedule delays affecting the Agency's ability to implement the Water Project and acknowledges that these delays are likely to impact the Agency's ability to deliver its

full allocation under the Restructured Agreement. The City has, since 2004, made estimates of the Agency allocation it can reasonably expect assuming that the Water Project is not completed.

In 2004, the City used the Agency's 2004 Summary Report – Expected Future Water Demands for Existing and Proposed Development Projects, to estimate that it could reasonably expect to receive 6,476 AFY in Agency supply given the current constraints on water rights, the documented needs of other Contractors, and the potential for additional recycled water use in the City.

On April 18, 2006 the Agency's Board of Directors adopted a Water Shortage Allocation Methodology in order to “inform each of its customers of the water available in the event of reasonably anticipated shortages”.<sup>13</sup> The Water Shortage Allocation Methodology is attached as Appendix B of this Plan.

In its 2005 Plan, the Agency utilized the Water Shortage Allocation Methodology to estimate the water supply available to each contractor under a variety of planning scenarios. In order to prepare this Plan, the City also used the Water Shortage Allocation Methodology to estimate the amount of water it could expect if the Agency's water rights remain limited to 75,000 AFY and Agency groundwater was not used. This analysis yielded an expected Agency supply of 6,372 AFY, which is within two percent of the estimates that the City used in its previous planning.

Notwithstanding the City's contractual allocation of 7,500 AFY, the Agency's physical facilities and current water rights are likely to limit the amount of water that can be delivered to the City and other Contractors. The adopted Water Shortage Allocation Methodology provides the City with a reasonable estimate of the water supply available to it from the Agency under legal or hydrologic constraints.

Table 3-3 below summarizes the City's projections of water supply available from the Agency.

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<sup>13</sup> Resolution of the Board of Directors of the Sonoma County Water Agency Approving a Water Shortage Allocation Methodology, April 18, 2006.

**Table 3-3 Summary of City's Anticipated Supply from Agency**

Hydrologic Condition	Water Supply Available to Agency (AFY)			Water Supply Available to City (AFY)		
	Russian River System	Groundwater ***	Agency Supply Used to Estimate City Supply	City Supply Available from Agency ****	Percentage of Contract *****	
	Hydrologic*	Permitted**				
Normal Year	101,000	75,000	0	75,000	6,372	85%
Single Dry Year	85,520	75,000	0	75,000	6,372	85%
Multiple Dry Year 1	101,000	75,000	0	75,000	6,372	85%
Multiple Dry Year 2	101,000	75,000	0	75,000	6,372	85%
Multiple Dry Year 3	101,000	75,000	0	75,000	6,372	85%

\* Based on RRSyM Analysis and Table 4-14 of the Agency's 2005 Plan.

\*\* Based on Agency's Current Permitted Rights.

\*\*\* City has assumed that Agency's groundwater supply is only for emergency use.

\*\*\*\* Based on the Water Shortage Allocation Model with 75,000 AFY of Agency Supply available.

\*\*\*\*\* Presented as a percentage of the City's allocation in the Restructured Agreement for Water Supply

### 3.9 Water Supply Plans and Programs Related to the Agency Supply <sup>14</sup>

In February 2005, the Agency released a Notice of Preparation for its Water Project EIR. The objective of the Water Project is to provide a reliable water supply to meet the defined current and future needs in the Agency's service area. The Water Project EIR will include the analysis necessary to document the construction of Transmission System Improvements and the increase of the Agency's water rights under the California Environmental Quality Act (CEQA).

For the purposes of preparing its 2005 Plan, the Agency assumed that it would be able to implement the Water Project including the increase in permitted diversions by 2020.

The City has assumed that proposed improvements will not be implemented within the horizon of this Plan.

<sup>14</sup> Sonoma County Water Agency, Diversion Alternatives Status Update.