



Final
Healdsburg
Urban Water Management Plan

2005

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KEY ACRONYMS AND ABBREVIATIONS USED IN THIS DOCUMENT

<i>ABAG</i>	Association of Bay Area Governments
<i>Act</i>	Urban Water Management Planning Act
<i>ADWF</i>	Average Dry-Weather Flow
<i>AFY</i>	Acre-feet per year
<i>AWWF</i>	Average Wet-Weather Flow
<i>BMPs</i>	Best Management Practices
<i>CDHS</i>	California Department of Health Services
<i>cfs</i>	Cubic foot (feet) per second
<i>City</i>	City of Healdsburg
<i>Corps</i>	United States Army Corps of Engineers
<i>County</i>	County of Sonoma
<i>CSA</i>	County Service Area
<i>CSIP</i>	Catastrophic Supply Interruption Plan
<i>CUWCC</i>	California Urban Water Conservation Council
<i>DMM(s)</i>	Demand Management Measure(s)
<i>DWR</i>	California Department of Water Resources
<i>EIR</i>	Environmental Impact Report
<i>EOP</i>	Emergency Operations Plan
<i>ETo</i>	Evapo-transpiration of Common Turf Grass
<i>gpcpd</i>	Gallons per capita per day
<i>mgd</i>	Million gallons per day
<i>MOU</i>	Memorandum of Understanding
<i>NMFS</i>	National Marine Fisheries Service
<i>O&M</i>	Operations and Maintenance
<i>PG&E</i>	Pacific Gas & Electric
<i>SCPWD</i>	Sonoma County Public Works Department
<i>SWRCB</i>	California State Water Resources Control Board
<i>UWMP</i>	Urban Water Management Plan
<i>Water Agency</i>	Sonoma County Water Agency
<i>WWTP</i>	Wastewater Treatment Plant

Section 1.0 Introduction

1.1 Purpose

The purpose of developing an Urban Water Management Plan (UWMP) is to evaluate whether a water supplier can meet the water demands of its water customers as projected over a 20-year period. This evaluation is accomplished through analysis of current and projected water supply and demand for normal or average conditions, as well as during water shortages.

The City of Healdsburg (City) supplies water to approximately 12,200 residents and 500 businesses within its service area, according to the Association of Bay Area Governments (ABAG) projections.¹ The City's potable water sources come from wells that are adjacent to the Russian River and Dry Creek.

1.2 Law

The State of California Urban Water Management Planning Act (Act) requires each urban water supplier with 3,000 or more connections, or who supplies at least 3,000 acre-feet per year (AFY) of water, to submit UWMPs to the California Department of Water Resources (DWR) every five years in years ending in 0 or 5. The City has approximately 4,600 connections, representing the approximately 12,200 residents and 500 businesses.² Please see Appendix A for a copy of the Act.

1.3 Structure of Plan

The outline of this UWMP generally follows the January 18, 2005 "Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan" developed by the DWR. Some sections of the outline presented in the guidelines have been combined or moved into a different order than the guidelines, but all the information requested in the UWMP guidelines and Act are described within this document. The UWMP is organized into eight sections and appendices, as described below:

- Plan development and public participation;
- Service area descriptions, including population projections and climate;
- Water supply sources, water system description, and water rights;
- Reliability of water supply, including the factors that might contribute to inconsistency of supply, as well as transfer and exchange opportunities;
- Water demands, describing water diversion for the last five years, as well as projected water demands through year 2025;
- Comparisons of water supply and demands for a normal, single dry, and multiple dry years.

¹ City of Healdsburg Water System Master Plan Final, October 2003, HDR. Note the Master Plan also uses the figure of 11,500 residents as a population estimate for the year 2005. This UWMP uses the "worst case scenario" in terms of population growth.

² City of Healdsburg Water System Master Plan, October 2003.

- City water demand management measures (DMMs), describing water conservation programs implemented and cost analyses for other possible programs;
- A Water Shortage Emergency Plan including estimates of minimum supply and preparation actions for a catastrophe;
- Planned water supply projects, including the Gauntlett/Fitch Water Treatment Facility to restore temporarily impaired Russian River supplies; and
- Potential use of recycled water.

1.4 Appropriate Level of Planning

The Act specifies the required content of each UWMP and allows for the level of detail provided in each UWMP to reflect the size and complexity of the water supplier. The Act requires projections in five-year increments for a minimum of 20 years.

1.5 Agency Coordination

The City is the direct water supplier for parcels within City limits. The City used information gathered from the DWR and California Department of Health Services (CDHS) for the preparation of this UWMP. Otherwise, all other data was gathered from the City’s own records.

	Commented on the Draft	Attended Public Meetings	Contacted for Assistance	Received a Copy of Draft
(Other water supplier)	Sonoma County Water Agency (Water Agency)			Water Agency
Water Management Agencies			CDHS; DWR	
Other	Sonoma County Public Works Department (SCPWD)			SCPWD

Section 2.0 Public Participation

2.1 Introduction

As an urban water supplier, the City is required by the Act to encourage active involvement of the community within the service area prior to and during the preparation of the UWMP. The City is also required to make the draft of the UWMP available for public review and to hold a public hearing regarding the findings of the UWMP prior to its adoption.

2.2 Public Scoping Meeting

On April 6, 2005, at 7:00 p.m., in an effort to obtain public input in the development of the UWMP, the City's Public Works Department (Public Works Department) held a public scoping meeting at the City Hall Council Chambers. The purpose of the meeting was to inform the public of the elements of the UWMP and the regulatory background, which requires the City to complete one.

A public notice was posted at City Hall 72 hours prior to the meeting and placed in the Healdsburg Tribune on March 23 and 30, 2005 (Appendix B). Additionally, all City water customers were notified of the meeting with a notice placed in the March 2005 utility bill mailing. The bill stuffer was presented in English and Spanish. One City resident mailed a letter to the Public Works Department in response to the Public Notice, commenting that water conservation be implemented through a change in the water billing rates ("conservation pricing").

At the April 6, 2005 meeting, Winzler & Kelly Consulting Engineers (Winzler & Kelly) made a presentation to the public about the elements of the UWMP and requested the public's input. A copy of the PowerPoint® presentation is presented in Appendix B. Additionally, the City encouraged members of the public to ask questions and provide comments regarding any aspect of the UWMP. Two members of the public attended the meeting. The public asked questions to clarify what the water system consisted of and how the Water Agency's proposed changes to the instream flows for the Russian River would affect the City. The public did not verbalize specific concerns regarding the UWMP, but stated that they were at the meeting for information purposes. A copy of the meeting sign-in sheet and meeting notes are included in Appendix B.

2.3 Public Hearing

On October 2, 2006, a public hearing was held before the City Council. A summary of the conclusions of the UWMP was presented before the public and the City Council. Comments from one member of the public were received by the City Council.

2.4 Plan Adoption

On November 6, 2006, the UWMP will be adopted. The City Council's Resolution to adopt the UWMP presented in Appendix B.

Section 3.0 Service Area

3.1 Introduction

The City of Healdsburg is located in the County of Sonoma (County), approximately 12 miles north of the City of Santa Rosa (Figure 3-1). The water service area is defined as the Healdsburg city limits, mostly between Highway 101 and the Russian River, which flows southward on the east side of the City and crosses through the southern portion of the City in a westerly direction (Figure 3-2). Historically, the City’s economy was supported by agriculture and logging. In more recent years, the City has experienced an increase in urban development and a diversification of the local economy.

3.2 Population: Current and Projected

The current population of the service area is approximately 12,200 with projections of nearly 15,000 by the year 2025.³

Table 3-1
Population – 2000 and Projected to 2025

Year	2000	2005	2010	2015	2020	2025
Population	10,700	12,200	13,000	13,800	14,200	14,900

3.3 Climate

The City lies within the Russian River watershed. The City lies in a region which has a “Mediterranean” climate, meaning the typical weather pattern is a dry summer season with little or no rain. Typically, the five months of May through September provide only 4% of the annual rainfall. Annual mean temperature is 59.9°F with the extreme temperatures ranging from 14°F to 116°F.⁴

The average annual rainfall for the region is approximately 42 inches per year, and the average annual rate of evapo-transpiration of common turf grass (ETo) is approximately 50.5 inches per year. ETo is a measurement of evaporation combined with transpiration and is expressed in the form of a rate, typically inches per time period (day, month, or year). ETo can be generally described as the amount of water needed for turf to grow in a specific region. Monthly evapo-transpiration, rainfall and temperature averages, along with annual totals are summarized in Table 3-2, below.

³ City of Healdsburg Water System Master Plan, October 2003. Population projections included in the Master Plan were obtained from ABAG.

⁴ Western Regional Climate Center website.

**Table 3-2
 Monthly Climatic Averages**

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual Total or Average
Standard Monthly Average ETo⁵	1.27	1.85	3.26	4.70	5.94	6.99	7.77	6.80	5.21	3.53	1.97	1.22	50.51 inches total
Average Rainfall (inches)⁶	8.97	7.44	5.41	2.59	0.99	0.30	0.04	0.13	0.39	2.24	5.35	8.05	41.9 inches total
Average Temperature (°F)⁷	47.8	51.5	54.5	58.2	63.4	68.4	70.7	70.4	68.7	62.8	54.2	48.3	59.9°F

The average annual ETo for this region is approximately 8½ inches more than the average annual precipitation. Because of this 8½ inch shortfall, and because precipitation in this region is significantly uneven in distribution throughout the year, growing turf in this region requires a significant amount of irrigation.

⁵ ETo data averaged from August 1986 to May 1994. The reference “crop” is typical turf grasses.

⁶ Average rainfall in inches.

⁷ Temperature averaged from 1931 to 2004.

Section 4.0 Water Supplies and Sources

4.1 Introduction

The City has been the water supplier for its service area since 1898, when the City acquired a privately-owned water system.⁸ The City's potable water sources are well fields along the Russian River and Dry Creek directly affected by river water flow. Because the wells are directly affected by the river flow, a groundwater study was not completed for these water supply sources, but rather they are treated as surface water flow. Dry Creek is a tributary to the Russian River, entering the Russian River just south of the City. The Russian River's flow has also been augmented by diversions from the Eel River since 1908 for operation of the Potter Valley hydroelectric power plant.

The City's water supply system consists of three well fields, one of which is on Dry Creek with three operational wells, and two well fields on the Russian River with a total of eight operational wells.⁹ The City's water system also includes well pumps, three booster pump stations, six emergency water storage tanks, seven reservoirs, and approximately 50 miles of water lines.¹⁰

Russian River and Dry Creek water flows are controlled by releases from two dams. Warm Springs Dam is located on Dry Creek and forms Lake Sonoma. Coyote Dam is located on the Russian River to the north of Ukiah and forms Lake Mendocino. Both Lake Sonoma and Lake Mendocino have separate pools for water supply and flood control, determined by the elevation of the water surface. Above a specific elevation, the United States Army Corps of Engineers (Corps) controls releases for flood control; below that elevation the Water Agency controls releases for water supply.

4.2 Current and Planned Water Supplies

The total water supply available to the City based on current water rights for each of the three well fields is 3,376 AFY, as regulated by the DWR and the California State Water Resources Control Board (SWRCB). Currently, the City's ability to supply water from the Fitch well field, located on the Russian River, is limited by the CDHS due to water quality issues. Currently, the City is permitted to divert no more than one cubic foot per second (cfs) from their Dry Creek well field and only from April through October. This is equivalent to a maximum of 420 AFY. The City applied to the SWRCB for an additional water right for Dry Creek in the amount of 880 AFY in December 1997, which would bring the total Dry Creek diversion to 1,300 AFY. This application is still pending, as it has not yet been fully reviewed and approved by the SWRCB; however, the City has been applying this pending water right as needed as the application has been pending for several years. The City will assume that this pending water right would be granted by 2010 at a minimum of 1 cfs year round (724 AFY). Table 4-1 below summarizes the various current water rights, potential for recycled water use (discussed later in the UWMP) and projections for the next 20 years.

⁸ Operations Evaluation Department of Public Works, October 1991, amended January 1992 Brelje & Race Consulting Civil Engineers.

⁹ The City's Water System Master Plan dated October 2003 refers to the Dry Creek water supply as "groundwater". This refers to its characterization as groundwater for water quality regulator purposes. For the purpose of water rights, the Dry Creek well field is considered surface water and subject to appropriate water rights.

¹⁰ Water System Master Plan (reference 1) and Operations Evaluation (reference 2).

The characterization of the Dry Creek and Russian River wells as groundwater or surface water depends on the regulatory context. For the purposes of water quality, CDHS considers the Dry Creek wells to be “groundwater not under the direct influence of surface water,” and the Fitch and Gauntlett wells to be “groundwater under the direct influence of surface water.” These determinations were based on prior water quality studies of the well water at each well field, and only affect how the wells are regulated for potable water quality. For the purposes of water quantity and availability, all of the City’s Fitch and Gauntlett wells and Dry Creek wells are considered surface water because of their proximity to the Russian River and Dry Creek, and all are subject to appropriative water rights from the SWRCB.

The total water supply available to the City based on current water rights for each of the three well fields is 3,376 AFY, as regulated by the CDHS and the SWRCB. The City applied to the SWRCB for an additional water right for Dry Creek in the amount of 880 AFY in December 1997. This application is still pending, as it has not yet been approved by the SWRCB. Table 4-1 below summarizes current water rights, potential for recycled water use (discussed later in the UWMP) and projections for the next 20 years. The table below indicates “724” AFY rather than “880” AFY as a conservative estimate. The City is conservatively assuming the SWRCB will not approve 100% of the requested additional water.

**Table 4-1
 Current and Planned Water Supply (Without CDHS Restrictions)**

Water Supply Sources (AFY)	2005	2010	2015	2020	2025
Russian River Fitch	1,096 ¹¹	1,385 ¹²	1,385	1,385	1,385
Russian River Gauntlett	1,860	1,860	1,860	1,860	1,860
Dry Creek Well Field¹³	420	724	724	724	724
Recycled Water	0	210	210	210	210
Total	3,376	4,179	4,179	4,179	4,179

Dry Creek Well Field

The Dry Creek well field is located above the 100-year floodplain along the east bank of Dry Creek next to the City’s corporation yard on Westside Road. The geology of the Dry Creek well field consists of a uniform sequence of blue clay overlain by 30 to 50 feet of alluvial sand and gravel, which in turn is overlain by a surficial zone of sand, silt, or silty clay.

The Dry Creek well field has a total of five wells (DC-01 through DC-05), which are permitted for use in the City’s domestic water system. The City’s CDHS permit allows the use of DC-01 and DC-02 only in conjunction with ortho-polyphosphate sequestration treatment for manganese. In practice, the City minimizes the use of these two wells to avoid introducing manganese to the distribution system, even with the sequestration treatment. The operation of the wells is controlled to maintain the water level in the Dry Creek clear well.

¹¹ With CDHS turbidity restriction, intended to be removed in 2008. See discussion under Russian River Well Fields.

¹² Without CDHS turbidity restriction.

¹³ Table assumes 880 AFY pending application is approved for a minimum of 1 cfs year round, which is an increase of 304 AFY (from 420 to 724) or a total of 724 AFY by SWRCB by 2010.

Russian River Well Fields

Studies performed by the City in 1998 to 1999 indicate that the Russian River alluvial deposits provided sufficient river bank filtration for the Gauntlett and Fitch well fields from May through October, allowing the City to use the well fields between these months without a treatment system. CDHS concurred with these findings; however, also determined that during the rainy season, when turbidity levels of the Russian River increase, well water turbidity levels increase, and the alluvium does not provide a sufficient filtration barrier. Subsequently, the CDHS reissued the City's Domestic Water Supply Permit in June of 1999, placing a seasonal restriction on the use of the Gauntlett and Fitch well fields. This permit did not allow the Gauntlett and Fitch well fields to be operated between November 1st and April 30th.

Until late 2005, this seasonal restriction on the Gauntlett and Fitch well fields prevented the City from fully utilizing its Russian River water rights. In 2004 and 2005, the City constructed the Gauntlett/Fitch Water Treatment Facility, which is currently providing micro-filtration for water produced from the Gauntlett wells, beginning in September of 2005. Water from the Fitch well field will be directed through this treatment facility by 2008. In August 2005, the City submitted an application to modify the CDHS permit to eliminate the seasonal restriction on the use of the Gauntlett well field. The CDHS responded in October 2005, lifting the seasonal restrictions for those wells now being treated. This now allows the City to use of the Gauntlett wells year round.

The City will apply for a permit modification to eliminate the seasonal restriction on the use of the Fitch well field when the second phase of this project, scheduled for 2008, is completed. Further descriptions of the Gauntlett and Fitch well fields are provided below.

Fitch Well Field

The Fitch well field is located along the north bank of the Russian River, just south of Fitch Mountain Road (Figure 3-2), and is situated within the 100-year flood plain. The well field is characterized by a consistent stratigraphic section described as a blue clay overlain by 30 to 50 feet of alluvial sand and gravel, in turn overlain by brown sand, silt, or silty clay with occasional gravels.

Only four of the six wells at the Fitch well field (F-01, F-02, F-05, and F-06) are active and permitted for use in the domestic water system. Well F-03 has a collapsed casing. Well F-04 has been disconnected from the potable water system due to high manganese levels, but is used to irrigate the Tayman Park Golf Course. Of the four active potable water wells, the number of those wells in use and rate of production is varied to maintain minimum water levels in the Tayman Reservoirs.

Gauntlett Well Field

The Gauntlett well field is located along the west bank of the Russian River. The well field is situated within the 100-year flood plain. The geology consists of a uniform stratigraphic sequence of gray-green massive shale from the Franciscan formation, overlain by alluvial stream channel and over-bank deposits of coarse-grained sand and gravel.

There are five wells at the Gauntlett well field, four of which (G-01 through G-04) are permitted for use in the potable water system. Well G-05 is disconnected from the system and is currently leased to the property owner for vineyard irrigation. The number of wells operating and the rate of production are based on demand and are controlled to maintain a minimum level in the Gauntlett Reservoir. When the well field is in use, the City typically operates G-01 and G-03 wells, and then brings G-04 online if needed to meet demand. Overlapping cones of depression and elevated turbidity levels have limited the simultaneous operation of all four wells in the past. Treatment at the Gauntlett/Fitch Water Treatment Facility, completed in 2005, eliminated the seasonal restriction on the use of these wells.

Recycled Water

The City does not currently produce effluent treated to a level allowable for reuse for irrigation purposes. However, on July 11, 2005, the City certified an Environmental Impact Report (EIR) and approved a preferred alternative for its Wastewater Treatment Plant (WWTP) Upgrade Project. The project that was approved includes extensive recycled water use for agricultural and urban irrigation.

4.3 Water Rights

The City presently holds three existing water rights permits for diversion from Dry Creek and the Russian River. In addition, the City has one application pending with the SWRCB for additional water rights on Dry Creek. Summaries of each existing and pending water rights permit are provided in Tables 4-2 and 4-3.

**Table 4-2
 Existing Water Rights and Diversion Limits**

Permit Number	Location	Water Right (AFY)	Diversion Rate Limit (cfs) ^a	Diversion Season
8594	Dry Creek (Dry Creek Well Field)	420 ^b	1.0	April through October
7847	Russian River (Fitch Well Field)	1,385	3.0	April through October
11039	Russian River (Gauntlett Well Field)	1,860	4.0	Year Round ^c

Notes:

- ^a Cubic feet per second
- ^b There is a diversion limit applicable to water right 8594 of 1 cfs from April through October. This is equal to a maximum of 420 AFY.
- ^c Since the issuance of the City's current Domestic Water Supply Permit in 1999, operation of the Gauntlett and Fitch well fields was restricted to May 1st through October 31st due to elevated levels in turbidity. This is a temporary condition that was eliminated on the Gauntlett well field in October 2005.

**Table 4-3
 Pending Water Rights and Diversion Limits**

Application Number	Location	Water Right (AFY)	Diversion Rate Limit (cfs)	Diversion Season
30663	Dry Creek	880 (Assume: 304) ^a	1.6/2.6 (Assume: 1.0) ^a	April through October/ November through March (Assume: Year round) ^a

Note:

^a Currently, there is a limitation of 1 cfs diversion rate between April and October. The pending Dry Creek application, if approved in full, would be added to the current water right for a total of 420 + 880 = 1,300 AFY. However, the City will assume a minimum of 1 cfs year round, which increases the current 420 AFY by 304 AFY for a total of 724 AFY.

Dry Creek

Existing Rights

The City’s existing Dry Creek well field water right (Permit 8594) allows for the diversion of water at a rate of 1 cfs between April and October. No diversion from the Dry Creek well field is allowed during the remainder of the year.

Pending Rights

On December 5, 1997, the City filed for an additional water right for Dry Creek water (Application No. 30663). The application seeks an appropriative right to divert water from the five existing Dry Creek wells at the rates of 1.6 cfs from April 1st through November 1st, and 2.6 cfs from November 1st through April 1st. This corresponds to an additional 880 AFY. The application was publicly noticed by the SWRCB in 2001 and is still under consideration, as the City and the SWRCB attempt to resolve public protests received against the application. The most significant of the protests was from the National Marine Fisheries Service (NMFS) concerning the listing of Coho and Steelhead salmon under the Endangered Species Act. These issues may take some time to resolve, and may involve further modification of the application. For planning purposes, the City assumes the current diversion of 1.0 cfs in April-November (420 AFY) will be expanded to a minimum of 1 cfs year round (+304) for a total of 724 AFY and will use this number in future water supply calculations, until the application is approved.

Russian River

The water right for the Fitch well field, located along the Russian River, allows the diversion of up to 3 cfs year round, with an annual maximum of 1,385 acre-feet. This diversion is currently limited by CDHS water quality restriction. These are expected to be lifted in 2008, as discussed in previous sections of this report. The water right for the Gauntlett well field, also located along the Russian River, allows the diversion of up to 4 cfs year round, with an annual maximum of 1,860 acre-feet.

Section 5.0 Reliability of Supply

5.1 Introduction

The Act requires that each UWMP include an assessment of its water supply reliability in normal, dry, and multiple dry water years. Factors influencing the City's water supply reliability are discussed below. A comparison of supply versus demand in these three scenarios projected to 2025 in five-year increments is presented in Section 7.

Several factors affect the reliability of the City's supply, as described below.

- The reliability of the City's supply is insured by the Water Agency's diversion requirement to maintain the flow of the Russian River at minimum levels at specific points in the Russian River.¹⁴ As described above, the Water Agency has the responsibility for maintaining these minimum flows with releases from Warm Springs Dam, which insures adequate flows at the Dry Creek well field, located below the dam.
- As described in Section 4.0 of this UWMP, the flow of the Russian River has been augmented by diversions from the Eel River since 1908 for operation of the Potter Valley hydroelectric power project. This water diversion has become controversial due to concerns over impairment of Eel River salmonid populations over the life of the project. In January 2004, the Federal Energy Regulatory Commission issued a decision that amended the plant's operational license, currently held by Pacific Gas & Electric (PG&E). The amended plan generally reduced the allowable annual diversion from the Eel River by 15%. This license expires in the year 2022.¹⁵ Because PG&E has voluntarily reduced its diversions from the Eel River by 15% since 1999, this decision is unlikely to further impact the City's water supply during the planning horizon of the 2005 UWMP.
- The presence of endangered salmonid species in the Russian River has triggered a Section 7 Consultation under the Endangered Species Act. The Water Agency and the Corps are conducting studies, overseen by the NMFS, of various impacts to the fish species. The Water Agency and the Corps have completed a biological assessment of the impacts of the operations of water diversion, flood control, hydroelectric generation, etc., on a stretch of the Russian River and some of its tributaries. The NMFS will prepare a biological opinion based on the biological assessment, which will include recommendations.¹⁶ A possible outcome is that the Russian River and Dry Creek flows may be reduced seasonally to improve salmonid rearing habitat, though minimum flows would still be required.

The City's Russian River well fields are not within the reach of the Russian River that the biological assessment found to be affected by lower minimum flows.¹⁷ Regarding possible reductions to Dry Creek flows, the City's construction of a new water treatment facility to treat water from its Russian River wells has allowed the City to shift its primary water supply reliance away from Dry Creek and back to the Russian River.

¹⁴ Sonoma County Water Agency UWMP 2000, pgs. 3-5.

¹⁵ Sonoma County Water Agency, Draft 2005 Urban Water Management Plan, October 2006.

¹⁶ Water Agency website May 25, 2005.

¹⁷ Section 3.1.3, "Water Supply Operations" Russian River Biological Assessment, Entrix, Inc., September 29, 2004.

- The City has an agreement with the Water Agency dated November 17, 1992, that would allow the City’s water diversions to be reported under Water Agency water rights permits for the Russian River and Dry Creek when appropriated water is not available under the City’s own appropriative water rights. The Water Agency filed the necessary petitions to add the City’s wells to Water Agency’s water rights permits as new points of diversion on April 20, 1998. The SWRCB approved the petition in September 2006. The agreement is not operational until the City chooses to activate it.

5.2 Supply Reliability

Supply is the amount of water that can be provided to the City’s water customers based on water rights, water quality, the delivery system capabilities, and the physical availability of the water. Currently, the system is designed to meet both peak and annual demand. Each of the three well fields that supply the City’s water has been shown to derive its recharge from surface water provided by either the Russian River or Dry Creek flows.

Supply availability to the City’s water customers is not expected to decrease in single- or multiple-year drought scenarios, primarily because the Water Agency is required to meet minimum flows at three points on the Russian River, all downstream of the Dry Creek and Russian River confluence; therefore, downstream of all City well fields. The flows are controlled by releases from the Warm Springs and Coyote Valley Dams. Additionally, the water rights permits held by the City presently do not require diversion reductions during droughts.

**Table 5-1
 Supply Reliability – Example of Allowable Diversions in 2010 in AFY**

Water Rights	Normal Water Year	Single Dry Year	Multiple Dry Water Years		
			Year 1	Year 2	Year 3
Existing	3,376	3,376	3,376	3,376	3,376
Existing and Pending	4,179	4,179	4,179	4,179	4,179

The above table illustrates single-year drought and multi-year drought scenarios based on actual historical droughts. Seasonal restrictions are not included, as the purpose of the table is to illustrate that the City’s water supply will not be restricted during drought conditions comparable to the historical droughts of 1976/1977 and 1990 to 1992.

5.3 Basis of Water Year Data

The City based its single dry and multiple dry water year scenarios on the drought conditions that occurred in 1976/1977 and from 1990 to 1992, as summarized in Table 5-2. These are the same drought years selected by the Water Agency for analysis of water supply reliability. The year 1962 is considered as most representative of an average water year.

Table 5-2
Basis of Water Year Data¹⁸

Water Year Type	Base Year(s)	Historical Sequence
Normal Water Year	1962	
Single Dry Water Year	1977	1903 to 2000
Multiple Dry Water Year	1990 to 1992	

5.4 Factors Resulting in Inconsistency of Supply

The factors that cause or have the potential to cause inconsistent supply are summarized below.

- The pending status of the 880 AFY appropriative Dry Creek water rights application discussed in Section 4.2.
- The potential environmental factor for all three well fields is the currently unknown outcome of the Section 7 Endangered Species Act Consultation for the salmonid species in the Russian River, discussed above in Section 5.1.3.
- The water quality factors are the manganese and turbidity concerns, discussed in Sections 4.2.

5.5 Transfer and Exchange Opportunities

As described above, the City has a 1992 agreement with the Water Agency, which would allow the City's water diversions to be reported under Water Agency water rights Permit Nos. 12947A, 12949, and 12950 (Russian River), and 16596 (Dry Creek). The agreement allows the City to report its diversions under the Water Agency's water rights permits, if and when appropriated water is not available under the City's own appropriative water rights. The Water Agency filed the necessary petitions to add the City's wells to Water Agency's water rights permits as new points of diversion on April 20, 1998. The SWRCB approved the petition in September 2006. This agreement is not operational until the City chooses to activate it.

¹⁸ Sonoma County Water Agency UWMP 2000 (pg. 6-30).

Section 6.0 Water Demands

6.1 Introduction

The Act requires that the City review its available water billing records to quantify water use for the years 2000 and 2005 and to project anticipated water use from 2005 to 2025 in five-year increments. The City's water demands in the year 2000 were summarized in the City's Water System Master Plan dated October 2003. Because this UWMP is being developed prior to having data from the end of 2005, the water billing database for 2004 is used and reported to represent approximate water use in 2005. Also, in projecting future water demands, it is assumed that full build-out would be realized in the year 2025, rather than the year 2020 as used in the City's Water System Master Plan. The year 2025 is used in this UWMP at the direction from the City based on current conditions.

The population, per capita demand, and average demand figures included in Table 6-1 below were obtained from ABAG, which are consistent with Table 28 of the City's Water System Master Plan and with the California Department of Finance population updates for the year 2003. This data was used for the years 2000 and 2005, average total water demand (residential and non-residential combined) was calculated from actual well production data, provided by the City for the years 2000 and 2004, respectively. The gross gallons per capita per day (gpcpd) water demand averaged 202 gpcpd in the City's Water System Master Plan. Actual water use data for 2000 and 2004, when compared to population figures for 2000 and 2004, also averaged 202 gpcpd (Table 6-1). Because these calculations were based on well production figures, the 202 gpcpd includes all uses, including commercial and industrial, as well as water losses and unmetered uses. According to billing records, calculating the gpcpd for residential uses only, the average is 127 gpcpd.¹⁹ The 127gpcpd is presented for comparison of gross per capita demand (202 gpcpd) only, and was not used in the water demand calculations.

The breakdowns of residential, commercial, and landscape water use came from calculating the percentage of water use represented by each sector for actual billing data from the year 2004. The residential accounts represented approximately 70% of the total billings, the commercial/industrial accounts represented was approximately 20%, and the landscape accounts represented approximately 10%. Those same percentages were used to estimate the sector breakdowns for projected water use.

The calculations are summarized in Table 6-2, and are discussed in Section 6.2.

¹⁹ Calculated from City water customer billing table for fiscal year 2003-2004 and population data from the California Department of Finance.

**Table 6-1
 Population, Water Demand, and Per Capita Averages**

	2000	2005	2010	2015	2020	2025
	Actual		Projections			
Population ^a	10,700	12,200	13,000	13,800	14,200	14,900
Gallons Per Capita Per Day (gpcpd)	202	202	202	202	202	202
Average Water Demand (mgd ^b)	2.11	2.53	2.63	2.79	2.87	3.01
Residential Demand (gpcpd)	NA ^c	127	127	127	127	127

Notes:

- ^a From ABAG Population forecasts, which is consistent with Table 28 of the City's Water System Master Plan, October 2003.
- ^b Million gallons per day
- ^c Not Available

**Table 6-2
 Past, Current, and Projected Water Demand (for City Customers)^a**

	2000 ^c	2005 ^d	2010	2015	2020	2025
	Actual		Projections			
Residential (AF)		1,664	1,859	1,969	2,025	2,124
Commercial/Institutional (AF)	2,112	437	531	563	579	606
Landscape ^b /Irrigation (AF)		224	265	281	289	305
Average Annual Demand (AFY)	2,112 ^{c,e}	2,325 ^d	2,655	2,813	2,893	3,035

Notes:

- ^a This table does not include unmetered uses.
- ^b Referred to as "Open Space" in City's Water System Master Plan, October 2003.
- ^c Year 2000 average annual demand is based on actual billing data from the year 2000.
- ^d Year 2005 average annual demand is based on actual billing data from the year 2004.
- ^e SCPWD accounts 7866 and 7867 are not included in this table (see Table 6-3 for this demand).
- ^f Year 2005 data based on actual deliveries in 2004.

6.2 Water Use by Customer Type

2000 – Past Deliveries

The 2000 water delivery billing records were not broken down by user sector and so only are reflected by the total demand for the year. This is shown as a matter of comparison in future years to see the increase in total demand.

2005 – Current Deliveries

The 2005 water delivery records were broken down by user sector and reflect the demand by residential, combined commercial and institutional and combined landscape and irrigation for the year. At the writing of the UWMP, the totals for 2005 were not available so data from 2004 was used to represent 2005 deliveries. The purpose of showing 2005 deliveries is to compare with water deliveries in future years.

2010 to 2025 – Projected Deliveries

As of March 2005, there was a potential for 698 new housing units on vacant or underutilized properties designated or zoned for residential use within the City, based on City planning staff updates to the numbers presented in the “Healdsburg General Plan Policy Document” revised January 15, 2004. In addition, current buildout projections allow development of approximately 306,051 additional square feet of office, retail, and other commercial uses, and an additional 901,587 square feet of mostly light industrial uses. Because an analysis of the anticipated water use per square foot of anticipated development has not been calculated, for the purposes of this UWMP, a different method of projecting future water use was utilized. Projected average water demands in mgd, as developed in the Water System Master Plan, were used to calculate projected total annual demands. Ten percent of those totals, representing unmetered water uses, were subtracted. The remaining 90% is assumed to be the projected customer demand. The projected customer demands are presented in three customer categories, under the assumption that water will be used in the same proportion as it is currently described in Section 6.1.

The City’s current water billing database tracks billing data in three broad categories: residential, commercial, and landscape. The City does not currently track billing data in subcategories such as single- and multi-family categories within the residential category. In the future, the City may adopt a new water billing database system that will make a distinction between the different types of sectors identified in Water Code Section 10631(e)(1), which will facilitate determining water demand projections in future UWMPs, as the guidelines recommend.

6.3 Sales to Other Agencies

Since the mid 1990s, the City has sold water to the SCPWD for the County’s operation of the Fitch Mountain County Service Area (CSA) #41 Zone (SCPWD Fitch Service Area), a small water system located outside of the City’s limits. The SCPWD has its own Russian River water right (Permit No. 13059); therefore, to the extent allowed under the permit limits, water produced from the City’s Russian River wells and sold to the SCPWD is reported against the County Permit No. 13059.

Between 1999 and October 2005, the City had a seasonal restriction on the use of its Gauntlett well fields, and since 1999 to the present, the City has a seasonal restriction on its Fitch well field that prohibits pumping from November through April. As a result, during these months, the City has been producing water from only the Dry Creek well field. Because the SCPWD does not have a Dry Creek water permit, the water purchased by the SCPWD during these months is reported under the City’s Dry Creek permit.

For projected future water demands, it is assumed that when the second phase of the Gauntlett/Fitch Water Treatment System is completed in 2008, the entire SCPWD water use will be reported under the SCPWD permit and no deliveries to SCPWD will be reported under the City’s permits. For this reason, the SCPWD demand shown in Table 6-3 for years 2010 through 2025 is zero.

The past, current, and projected SCPWD water demands, under the City’s permits, are summarized in Table 6-3. The sale of water to SCPWD permit is not included as a future demand in Table 6-2 since it will not count against the City’s water rights permits after 2008.

Table 6-3
Sales to Other Agencies (SCPWD – CSA Zone #41)^a (AFY)

	2000	2005	2010	2015	2020	2025
SCPWD Permit No.13059 ^b	45	52	76	76	76	76
City Dry Creek Permit ^c	39	24 ^e	0	0	0	0
TOTAL	84 ^d	76	76	76	76	76

Notes:

- ^a Customer account numbers 7866 and 7867.
- ^b Water produced from the City’s Russian River wells, but reported under SCPWD’s Russian River permit.
- ^c Beginning in 2008, 100% of the water sold to SCPWD will be produced by the City’s Russian River wells.
- ^d A total of 84 acre-feet was purchased by SCPWD in 2000. Based on the seasonal proportions of water purchased in 2004, according to the water billing database, the same proportions were assumed for 2000: 46% of the total SCPWD water use in 2000 was reported under the City’s permit. Forty-six percent of 84 acre-feet is approximately 39 acre-feet.
- ^e The figures reported for 2005 are actual data for 2004. A total of 76 acre-feet was purchased by SCPWD in 2004. Fifty-two acre-feet were billed during the months when the SCPWD could report the water under their permit, while 24 acre-feet was billed during the months when they could not.

6.4 Additional Water Uses and Losses

This section presents the additional water uses and losses that occur from the City’s water delivery system, including unaccounted for system losses, and well flushing operations. The past, current, and projected water demands associated with these uses and losses are summarized in Table 6-4.

System Losses

The City’s unaccounted for water system losses fluctuate from year to year. In 2004, water losses and unmetered uses amounted to 18% of total water production. To project future water demands, the City is assuming an average loss of 10% due to leaks, malfunctioning meters, and unmetered water. The City is/will be controlling its system losses by conducting a leak detection survey and implementing a meter replacement program. Both of these programs will help to more accurately determine the extent of system losses and control or reduce those losses. It is anticipated that by 2010, the unaccounted for water percentage will be reduced to 10%.

In addition to unaccounted for water, the City loses water during well flushing and field operations. In 2000 and 2004, this loss was not well documented. Losses due to well flushing are estimated to be approximately 5% of well production. It is expected that this loss will diminish now that the Gauntlett/Fitch Water Treatment Facility is operating, since much of the flushing occurred when the Russian River well fields were re-started each year.

**Table 6-4
 Additional Water Uses and Losses (AFY)**

	2000 ^a	2005 ^b	2010 ^c	2015	2020	2025
Average Unaccounted For System Losses	252	514	295	312	322	337
Total	252	514	295	312	322	337

Notes:

- ^a Water loss figures for 2000 are based on actual production and billing data for the year 2000.
- ^b Water loss figures for 2005 are based on actual production and billing data for the year 2004.
- ^c Water loss figures for 2010 and future years assume a 10% loss.

6.5 Total Water Use

Table 6-5 summarizes the City’s total past, current, and projected water demands as determined in Sections 6.1 through 6.4. The amounts presented in this table will be used in the comparison of supplies and demands in this UWMP.

**Table 6-5
 Total Water Use (AFY)**

	2000	2005	2010	2015	2020	2025
City Customer Demand Total (From Table 6-2)	2,112	2,325	2,655	2,813	2,893	3,035
Sales to SCPWD – CSA Zone #41 ^a (From Table 6-3)	39	24	0	0	0	0
Losses and Unmetered Water Use (From Table 6-4)	252	514	295	312	322	337
Total	2,403	2,863	2,950	3,125	3,215	3,372

Notes:

- ^a The amount of water sold as shown in this table includes only the amount counted against the City’s own Water Rights.

Section 7.0 Water Supply and Demand Comparisons

7.1 Projected Normal Water Year Supply and Demand

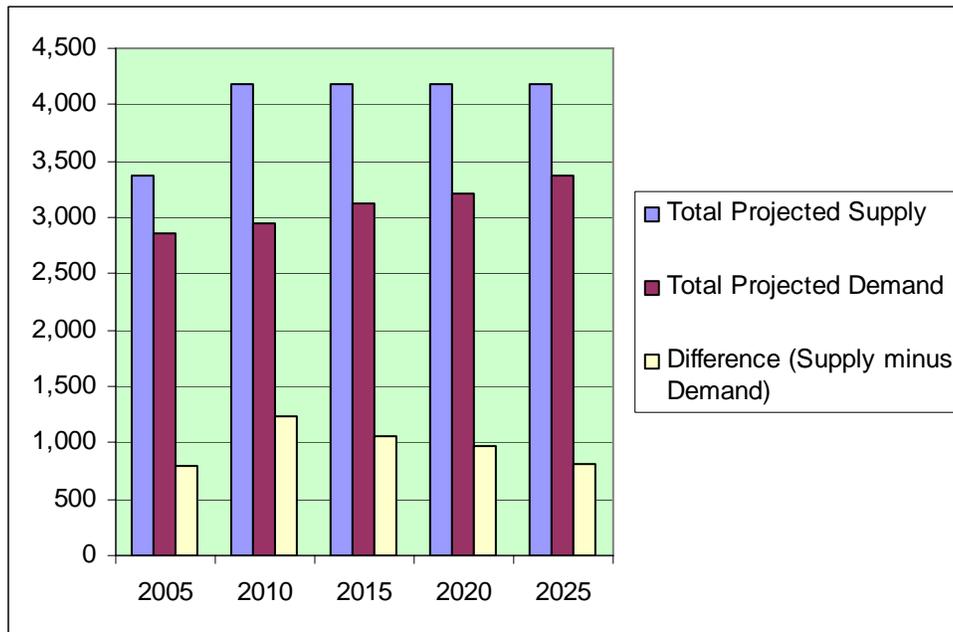
This section presents comparisons between projected water supplies and demands for normal, single dry, and multiple dry scenarios. For normal water years, the City is projected to have a surplus water supply through year 2025. Table 7-1 below presents projected normal year supply and demand comparisons and Graph 7-1 presents water supply and demand comparison in graphical form.

**Table 7-1
 Projected Normal, Single Dry, and Multi Dry Year Supply and Demand Comparison (AFY)**

	2005	2010	2015	2020	2025
Total Projected Supply (From Table 4-1)	3,376	4,179	4,179	4,179	4,179
Total Projected Demand (From Table 6-5)	2,863	2,950	3,125	3,215	3,372
Difference (Supply minus Demand)	+513	+1,229	+1,054	+964	+807
Percent of Supply Difference (Surplus)	+15%	+29%	+25%	+23%	+19%
Percent of Demand Difference	+18%	+42%	+34%	+30%	+24%

As described in Section 5.2 Supply Reliability, the City does not expect a reduction in water supply under the single dry year or multi dry year scenarios presented. Therefore, under all three conditions, the City is projected to have the same surplus water supply up to 2025.

**Graph 7-1
 Projected Normal, Single Dry, and Multi Dry Year Supply and Demand Comparison (AFY)**



Section 8.0 Demand Management Measures

8.1 Introduction

The Act requires water suppliers to consider specific water conservation measures by describing their DMMs.²⁰ These specific DMMs come directly from the California Urban Water Conservation Council (CUWCC). The CUWCC is a group created to assist in increasing efficient water use State-wide through partnerships among urban water agencies, public interest organizations, and private entities. The Council's goal is to integrate urban water conservation Best Management Practices (BMPs) into the planning and management of California's water resources.

In December 1991, a Memorandum of Understanding (MOU) was signed by nearly 100 urban water agencies and environmental groups. Those who voluntarily signed the MOU pledged to develop and implement 14 comprehensive water conservation BMPs. These BMPs are referred to in the UWMP as DMMs consistent with the Act.

Although the City is not a signatory to the MOU and is not required to be, some of these DMMs are reasonable to implement. Other DMMs are too costly or not justified for the results that may be obtained. The Act lists these 14 DMMs and requires the supplier to either implement or justify non-implementation. The DMMs are listed below.

- Residential Water Use Surveys (DMM 1)
- Low-Flow Plumbing Fixture Replacement (DMM 2)
- Water Loss Detection and Leak Repair (DMM 3)
- Metering (DMM 4)
- Large Landscapes (DMM 5)
- High-Efficiency Clothes Washer Rebates (DMM 6)
- Public Outreach and Education (DMM 7)
- School Programs (DMM 8)
- Commercial, Industrial, and Institutional Programs (DMM 9)
- Wholesale Agency Programs (DMM 10)
- Conservation Pricing (DMM 11)
- Water Conservation Coordinator (DMM 12)
- Water Waste Prohibition (DMM 13)
- Low-Flow Toilet Retrofit (DMM 14)

²⁰ "Demand Management Measures" are referred to as "Best Management Practices" by the CUWCC. This UWMP will use the DWR term, Demand Management Measure.

The 14 DMMs are described below under one of two heading sections: Implemented or Not Implemented. Again, the City is not required to implement these DMMs, but has implemented several programs that correspond to the DMMs. The City will continue to explore water conservation opportunities that benefit the community and are compatible with the City's budget.

The City has considered factors other than direct cost in its evaluation of DMMs, and in particular whether any reductions in the City's Russian River or Dry Creek diversions due to water conservation measures would produce discernable fisheries benefits. As described above in Section 5.0, lower minimum flows are being considered to improve salmonid rearing habitat. This applies in particular to Dry Creek, and to a lesser extent in the Upper Russian River. As described above in Section 5.0, the City's construction of a new water treatment facility to treat water from its Russian River wells has already allowed the City to shift its primary water supply reliance away from Dry Creek and back to the Russian River. The biological assessment also notes that under current demands, during a normal summer, the Water Agency must release 300 cfs or more from Lake Mendocino to allow for water supply demands above Healdsburg and still meet the 185 cfs minimum flow at Healdsburg. During the summer months, flow targets must be at least 10 to 20 cfs above the minimum flows at Healdsburg to ensure that instream flow requirements are met regardless of fluctuating demands. Considering that the City's maximum total Russian River diversions would be 7 cfs, and that savings from potential water conservation measures would comprise a fraction of that amount, marginal reductions by Healdsburg as a result of water conservation measures are not likely to produce a significant or measurable change in flows.

8.2 DMMs Implemented

The DMMs implemented by the City include the following:

- Water Loss Detection and Leak Repair (DMM 3)
- Metering (DMM 4)
- Large Landscapes (DMM 5)
- Public Outreach and Education (DMM 7)
- Conservation Pricing (DMM 11)
- Water Conservation Coordinator (DMM 12)

Each of the implemented City programs is described below.

Water Loss Detection and Leak Repair (DMM 3)

To meet this DMM, water suppliers should annually calculate the percentage of water lost from the water distribution system and determine whether that loss is less than 10%. In the years that water loss is greater than 10%, water suppliers are to conduct a water system leak audit and repair the leaks found, as feasible.

The City's water losses are currently estimated at approximately 15%. The City is currently actively repairing and replacing leaking water mains and services. The City currently spends approximately \$250,000 per year replacing leaking water services, which comprise the vast majority of the City's leakage. A water leak detection survey will be conducted City-wide by 2010 (the next UWMP update) to search for leaks in the water mains after the City has repaired the currently known leaks.

The cost-effectiveness of this DMM will not be measured. These repairs will be conducted regardless of a cost-effectiveness analysis.

The effectiveness of this DMM in terms of water conservation will be measured by estimating the amount of water saved by the leaks detected during the survey.

Metering with Commodity Rates (DMM 4)

This DMM states that all new connections be metered and that all metered accounts be billed by volume of use. For water suppliers who have accounts that are not metered, this DMM includes establishing a program for installing meters at existing connections. Metering is essential for water conservation as it allows for volumetric billing as well as tracking water consumption by individual accounts or sectors.

All of the City's water accounts are metered and all water is billed by volume. The City is in the process of implementing a \$2 million meter and pipe replacement program. Many of the City's meters are old and are not measuring water use accurately. The City is reviewing individual accounts for water use and inspecting the meters of those accounts whose metered water use is significantly lower than the amount expected for the characteristics of the account. Those accounts found to have unusually low water are prioritized for meter replacement.

The cost-effectiveness of implementation of this DMM will be evaluated by comparing the volume of water billed immediately prior to and after the installation of the upgraded meter. The revenue gained by accurate meter reading will be compared to the cost of meter replacement; however, the City completes these replacements regardless of cost.

The effectiveness in conserving water will be evaluated by observing whether water consumption for that water customer declines after their water bills increase with more accurate readings.

Large Landscapes (DMM 5)

In this DMM, water suppliers would provide support to non-residential customers with large landscapes to improve the efficiency of their irrigation. Some voluntary elements of this DMM include installing dedicated irrigation meters at non-residential accounts and installing climate-appropriate landscaping at agency owned properties. The City already offers dedicated irrigation meters to commercial customers.

As discussed further in the recycled water section of this UWMP, the City has prepared and certified an EIR which discusses options for upgrading the WWTP to tertiary treatment and options for delivering some or all of that treated water to customers for irrigation of large landscapes.

Although recycled water use for large landscapes is not strictly considered an element of this DMM, if recycled water is used for this purpose in the future, it will offset potable water use for large landscapes, and is therefore mentioned in this section.

The method used to determine water conservation by implementing this DMM will be to measure the reduction in potable water use for irrigation by the recycled water customers.

Public Outreach and Education (DMM 7)

For this DMM, water suppliers agree to promote water conservation by a variety of means such as direct mailers, Internet, public events, and placement of articles in local newspapers.

The City has a water conservation section on the Public Works Department's webpage of the official City website. The water conservation section provides background information about water supply and water use on a global scale and provides suggestions for reducing indoor and outdoor water use.

The City also periodically includes water conservation messages with utility bills. The City will continue to provide information to its water customers through the webpage and utility bill stuffers.

The success of public outreach and education programs to reduce actual water use is not considered quantifiable by the CUWCC. The City's methods to measure effectiveness of public outreach efforts are intended to reduce water use for the duration of an emergency and are described in Section 9.

Conservation Pricing (DMM 11)

DMM 9 is conservation pricing and consists of implementing water and sewer rates designed to recover the cost of providing service and based on volume of use rather than a flat rate. Additionally, one or more of the following must be implemented:

- The unit rate must be constant or increase as the quantity used increases (tiered rates); or
- The rates are seasonally tiered or have excess-use charges to reduce peak demands during summer months; or
- Rates are based upon the long-term marginal cost of adding the next unit of capacity to the system.

The City's water rate structure contains several of the above-listed elements of conservation pricing. The unit rates cover the cost of providing the water service and are based on volume

measured by individual meters. Additionally, the unit rates are constant, rather than decreasing as volume of use increases.

Water Conservation Coordinator (DMM 12)

This DMM requires a conservation coordinator be assigned, at least 25% of their time to implement this program. The City's Senior Civil Engineer is assigned the duties of Water Conservation Coordinator, but spends less than 25% of his time on water conservation. The Water Conservation Coordinator oversees the DMMs being implemented, as necessary.

8.3 DMMs Not Implemented and Not Scheduled for Implementation

Several of the DMMs listed below are not being implemented and are not scheduled for implementation.

- Residential Water Use Surveys (DMM 1)
- Low-Flow Fixture Replacement (DMM 2)
- High-Efficiency Clothes Washer Rebates (DMM 6)
- School Programs (DMM 8)
- Commercial, Industrial, and Institutional Programs (DMM 9)
- Water Waste Prohibition (DMM 13)
- Low-Flow Toilet Retrofit (DMM 14)

The cost-effectiveness of an agency's implementation of water conservation programs is measured by comparing the cost of the water conservation program per unit of water saved to the cost of developing or purchasing a new water supply source. Because of the difficulty in obtaining new water sources in California, the cost of a new water supply is typically more than the cost of a water conservation program. The City does not anticipate having to obtain new sources of potable water during the horizon of this UWMP, through 2025, nor in the foreseeable future beyond 2025. The City is therefore not actively seeking new sources of water and does not intend on implementing the seven cost-ineffective DMMs until such time as it becomes necessary and cost-effective.

The total cost of supplying water to the City's water customers is captured by the rate payers. Therefore, from the City's perspective, funding water conservation programs that do not directly capture lost water or lost revenue is not cost-effective. From an individual water customer's perspective, it may be cost-effective to invest in water conservation technologies in a home or business, for example, replacing non-conserving toilets with ultra-low-flush toilets, which the City encourages. The City does not waste water, nor does it encourage water waste. Therefore, despite the availability of adequate water supply sources, the City will continue to implement DMMs as described above.

Conservation Programs for Wholesalers (DMM 10)

DMM 10 consists of conservation programs for the water wholesalers that would purchase water from the City. Though the City provides water to the SCPWD for the CSA #41, the City does not wholesale the water. The City allows the SCPWD to obtain water based on CSA #41 water rights using the City's wells. Although a portion of the SCPWD water use is currently being reported under the City's water rights, it will cease in 2008 when the Russian River wells are able to produce year-round. Thus, this DMM does not apply.

Water Waste Prohibition (DMM 13)

Implementation of this DMM consists of adopting and enforcing water waste prohibitions. The ordinance or other mechanism shall prohibit gutter-flooding, single-pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains.

The City currently does not have a water waste prohibition ordinance in place; however, such an ordinance will be considered during the next five years, after the meter and pipe replacement projects and leak detection surveys have been conducted. The City intends to set the example for water conservation before placing prohibitions and potential penalties on City residents for water waste.

It should be noted that many elements of this measure are in place or will be soon, due to other economic factors. These include recirculating systems in automated car washes, recycling decorative fountains, and recycling commercial laundry systems.

Section 9.0 Water Shortage Emergency Plan

9.1 Introduction

The UWMP requires a Water Shortage Emergency Plan to be prepared to address methods to react to an emergency situation, which reduces the supply of up to 50% of water available to the City. Conservation measures encouraged or required during an emergency shortage are temporary measures to last for the duration of the emergency shortage only. This UWMP looks at several different stages of action for a 10%, 20%, and 50% shortage of supply. Each of these stages is discussed below.

9.2 Stages of Action

In the event of temporary impairments to the transmission system or water supply shortages, the three stages of action can be implemented based on the level of water supply shortage conditions. The first stage is in response to a 10% shortage and calls for a voluntary reduction in water consumption by 10%. The second and third stages of action include mandatory water conservation actions for water consumption reductions of 20% and 50%, respectively. These stages are identified here, but discussed in later sections of the UWMP.

Table 9-1
Water Conservation Stages and Demand Reduction Goals (%)

Stage 1	Stage 2	Stage 3
Voluntary Conservation	Mandatory Conservation	Mandatory Conservation
10%	20%	50%

9.3 Estimate of Minimum Supply for Next Three Years

This component of the Water Shortage Emergency Plan requires the City to quantify the minimum water supply available during the next three years based on the driest multiple-year historic sequence for its water supplies.

As discussed in previous chapters, there is no water supply shortage expected during the next 20 years or during a drought. Table 9-2 below assumes full water rights entitlement, and illustrates that if there were to be a drought over the next three years of the same severity of the drought which occurred in 1990 to 1992, there would not be a water supply shortage expected.

Table 9-2
Estimated Three-Year Minimum Water Supplies (AFY)

Source	Normal ^a	2006	2007	2008
Fitch	1,096	1,096	1,096	1,385
Gauntlett	1,860	1,860	1,860	1,860
Dry Creek	420	420	420	420
Total	3,376	5,382	5,383	5,673

Notes:

^a Based on full water rights (including pending Dry Creek permit water) available to the City.

9.4 Prohibitions, Penalties, and Consumption Reduction Methods

The City is currently developing a water shortage emergency plan ordinance that will codify the prohibitions, penalties, and emergency rates that will take effect during a water shortage. This ordinance will remain in draft form until such time as it is needed. The following sections outline the essential elements of the City's UWMP.

The City Council, with direction from the City Engineer, has the authority to declare a state of water shortage based on climate or other conditions. A water shortage stage shall also be declared (Stage 1, 2, or 3) based on the severity of the water shortage. The prohibitions of the three stages are listed in the table below.

A Stage 1 water shortage will be declared when there is a need for a City-wide reduction in water consumption by 10%. Stage 1 includes voluntary water use prohibitions as listed in the table below.

Stage 2 will be declared when a 20% reduction in water consumption is necessary. The prohibitions for Stage 2 are mandatory. Additionally, when Stage 2 is in effect, the voluntary prohibitions of Stage 1 become mandatory.

Stage 3 is declared when a 50% reduction in water consumption is necessary. Stage 3 prohibitions are mandatory and also include the Stage 1 and Stage 2 prohibitions.

For each of these stages, the percent water consumption reduction goal is City-wide. The water consumption of individual water customers would not necessarily be tracked for a specific percent reduction in water use. For those customers who engage in water conserving activities or who have homes or businesses already fitted with water conserving plumbing fixtures and appliances, conservation would be more difficult, and requiring the same amount of conservation from them as normally non-conserving water customers would serve as a penalty to those water customers who conserve on their own.

Table 9-3 lists the prohibition uses at each stage, estimated reduction goals and when the prohibitions become mandatory. Table 9-4 lists methods the City would use to ensure reductions.

**Table 9-3
 Water Use Prohibitions**

Stage	Compliance	Non-Essential Uses of Water/Water Waste Prohibitions	Water Reduction Goal
1	Voluntary	Washing sidewalks, driveways, and other hard surfaces Excessive plumbing leaks not repaired Excessive irrigation run-off Washing cars without a shutoff valve on hose Water for single-pass evaporative cooling systems Water for new non-recirculating industrial clothes wash systems Irrigation during the hottest part of the day, when evaporation rates are at their highest Fire suppression systems are exempt Apply irrigation water during evening or early morning only Vary irrigation amount with season and weather conditions Reduce irrigation cycle when run-off occurs Utilize water conservation incentives and rebates to replace plumbing fixtures and appliances Utilize City information for water efficient landscaping	10%
2	Mandatory	Stage 1 prohibitions become mandatory Street cleaning with potable water Filling or refilling swimming pools Non-commercial washing of privately-owned motor vehicles, trailers, and boats except from a bucket and except that a hose equipped with a shut-off nozzle may be used to rinse a vehicle Using water from a fire hydrant for non-essential uses Use of potable water for dust control at construction sites	20%
3	Mandatory	Stage 1 and 2 mandatory prohibitions remain in effect Watering any residential, commercial, or industrial lawn with potable water, at any time of day or night Irrigation sprinkling with hand held nozzle only Planting new landscape or annuals Mandatory water rationing may take effect	50%

**Table 9-4
 Consumption Reduction Methods**

	Public Outreach	Drive-by Inspections	Rate Increases for High Use	Penalties	Projected Reduction
Stage 1	X				10%
Stage 2	X	X	X	X	20%
Stage 3	X	X	X	X	50%

During conservation Stage 1, in order to accomplish the 10% water use reduction, public outreach would be implemented. Informing water users of the water shortage stage, the cause of the water shortage, and the voluntary prohibitions would be included in utility bill stuffers and in

public notices placed at public buildings and in the local newspaper. These outreach efforts will be repeated and ongoing for the duration of the water shortage.

During Stage 2 and 3 water shortages, all Stage 1 voluntary prohibitions would continue to be in effect. Public outreach would continue to be implemented during Stages 2 and 3. Additionally, during Stages 2 and 3, “drive-by inspections” could be conducted for evidence of violations. Door hangers could be placed on the doors of homes or businesses where violations are observed informing the water customer of the water use prohibitions and specifically which were violated.

Persons or businesses that do not correct or desist from committing the violations within a specific amount of time may be subject to enforcement. Under City of Healdsburg Ordinance No. 960, adopted July 19, 1999, the City has the authority to curtail or ration the use of any services, including water service, in times of shortages or emergencies.

Table 9-5 describes which penalties take effect at various stages. These penalties are to be used at the discretion of City authorities. Excess use penalties are, essentially, fines. Temporary tiered rates would be an adjusted water rate schedule which would charge customers an increasingly higher per unit charge as water use increases. The installation of a flow-restricting device would be used in only the most extreme examples of willful water waste.

**Table 9-5
 Penalties and Charges**

Penalty or Charge	Stage When Penalty Takes Effect
Excess Use Penalty	2
Temporary Tiered Rates (for duration of drought)	2
Installation of Flow-Restricting Device	3

9.5 Analysis of Revenue Impacts of Reduced Sales during Shortages

Although revenues would decrease due to a decrease in water use, there would be some corresponding decrease in expenditures due to reductions in water pumping and treatment chemical use. See Table 9-6 for the estimated reduction in revenue corresponding to a reduction in sales and Table 9-7 for associated costs to the City.

**Table 9-6
 Actions and Conditions that Impact Revenues**

Type	Anticipated Revenue Reduction
Reduced Sales 10%	5%
Reduced Sales 20%	12.5%
Reduced Sales 50%	35%

During a drought, it is estimated that an increase in public outreach would cost \$5,000. This would cover the cost of placing notices in water bills and advertisements in the local newspaper. It is anticipated that there would be no increases in the costs of staff, operations and maintenance (O&M), or treatment in the event of a drought.

**Table 9-7
 Actions and Conditions that Impact Expenditures**

Action Category	Anticipated Cost
Increased Staff Cost	None (in drought)
Increased O&M Cost	None
Increased Cost of Supply & Treatment	None
Public Outreach (bill stuffers, advertisements)	\$5,000.00

Proposed Measures to Overcome Revenue Impacts

There are measures that could be used to overcome impacts to reduced revenue as well as impacts to increased expenditures during a water shortage emergency. These measures are listed in Table 9-8.

**Table 9-8
 Proposed Measures to Overcome Revenue Impacts**

Measures	Effects
Excess Use Penalty	Minimal
Contingency Reserve	To maintain a reserve that is 25% of annual revenue
Temporary Tiered Rates (for duration of drought)	Will compensate for losses not covered by the reserve fund

Excess use penalties may be enforced during times of emergency water supply shortages; however, the effect on revenue would be minimal. If such penalties were to be imposed, the effect would be greater on the conservation of water, rather than recovery of lost revenue. City of Healdsburg Resolution No. 139-2000, passed by the City Council in 2000, requires the City to maintain a minimum contingency reserve of 25% of average annual revenues. The required revenue currently needed to build and maintain this contingency reserve fund is built into the monthly water rates.

During a water shortage of 50%, temporary tiered water rates could be implemented. These rates could be designed to provide incentives for conservation and to reserve funds during water shortage conditions.

Expenses associated with a water shortage due to an emergency, other than a drought, have various unknown factors. For this reason, an extensive analysis of impacts to expenditures due to such emergencies was not conducted and the contingency reserve is expected to cover most emergencies.

9.6 Draft Ordinance and Use Monitoring Procedure

Water use prohibitions and enforcement mechanisms must be approved by City Council resolution. A Draft Water Shortage Emergency Ordinance is presented in Appendix C. The ordinance has been approved by the City Attorney and a resolution approving the ordinance could be approved quickly by the City Council, should an emergency arise. It is not currently approved, as specific conditions of each emergency will likely be added in as each emergency arises.

9.7 Water Use Monitoring Mechanisms

During a drought, water consumption reduction would be monitored City-wide by tracking water use through monthly meter readings and weekly production tracking. Annual water system audits may be conducted in drought years to identify water leaks.

Should the monitoring mechanisms indicate that the water conservation goals of the water shortage stage are not being met, public outreach efforts, and monitoring for water prohibition violations could be increased.

9.8 Catastrophic Supply Interruption Plan

The Act requires each supplier to create a Catastrophic Supply Interruption Plan (CSIP) to ensure readiness to emergencies occurring in the water system. The City's Emergency Operations Plan (EOP) identifies the City's emergency planning, organization, and response policies. The EOP includes a concept of recovery operations, a hazard analysis, responsibilities, and departmentalized standard operating procedures for emergency response. Because several of the hazards identified in the EOP could result in a catastrophic interruption of water supplies, the EOP provides the actions that the City would implement to minimize the impacts of supply interruption. A general summary of the hazards and response protocols identified in the City's EOP related to the water system is provided below.

Hazard Analysis

The City's water system is vulnerable to a wide range of threats. There are three broad categories of hazards: natural, technological, and domestic security threats.

- Natural Hazards
 - Earthquakes
 - Floods
 - Wildland fires
 - Landslides
 - Extreme weather/storms
- Technological/Man-made Hazards
 - Dam failure
 - Hazardous materials spills or contamination
 - Major vehicle accident
 - Train accident
 - Airplane crash
- Domestic Security Threats
 - Civil unrest
 - Terrorism

Concept of Operations

The City's response to disasters is based on four phases:

1. Increased readiness;
2. Initial response operations;
3. Extended response operations; and
4. Recovery operations.

During each phase, specific actions are taken to reduce and/or eliminate the threat of disaster situations. Recovery operations occur in two phases: short-term and long-term. The major objectives of short-term recovery operations include an orderly and coordinated restoration of essential utility services, including water and electricity.

Utility restoration will involve all of the agencies participating in the City's disaster response; however, the main responsibility will be assumed by the Public Works Department. This will include checking critical City facilities and equipment, testing systems, mobilizing personnel, resources, and equipment, performing damage assessments, and repairing/restoring damaged utility systems. The Public Works Department is currently developing standard operating procedures that will contain the detailed actions that are necessary to fulfill these responsibilities in a timely and prudent way should such disasters be realized.

Section 10.0 Water Projects

The Act requires that the UWMP include descriptions of all water supply projects and programs that may be undertaken by the urban water supplier to meet total projected water use. These descriptions are to include the projected amount of water that will be added to the water supply for each project when completed.

The City does not anticipate a water supply shortage in the next 20 years; therefore, does not have potable water supply projects, except for the pending application to increase water rights on the Dry Creek wells from a rate of 1.0 cfs to 1.6 cfs between April 1st and October 31st, and 2.6 cfs between November 1st and March 31st. This will give the City an additional 880 AFY. As stated before, the SWRCB is working with the City to legally attempt to resolve public protests received against the application since 2001.

The City's recycled water project, described below in Section 11.0, will offset potable water use for irrigation when complete. The recycled water project was undertaken in response to wastewater disposal issues, rather than as a water supply project.

The water treatment upgrades the City has undertaken for the well fields with high levels of turbidity will not increase total water available to the City, but will increase the reliability of the water supply, as these wells become available for use year-round. The water quality upgrade is described in Section 6.4.

Section 11.0 Recycled Water Plan

11.1 Introduction

This section of the UWMP provides information regarding the potential for recycled water to be used as a water supply source in the service area. The City does not currently use or provide recycled water to any customers. However, the City will be constructing a seasonal irrigation reuse system as part of a planned WWTP Upgrade Project.

The primary objectives of the City's WWTP Upgrade Project include upgrading the quality of the secondarily treated effluent to disinfected tertiary effluent, complying with their National Pollutant Discharge Elimination System permit for operation of the WWTP, selecting effluent disposal options that could be alternatives to discharging to the Basalt Pond, and to accomplish these tasks while keeping their customers' sewer rates reasonable.

An additional element of the WWTP Upgrade Project is to select options for the beneficial use of the tertiary treated effluent for agricultural and urban irrigation. The City has identified several routes located in close proximity to the WWTP that could make the use of recycled water technically and economically feasible. These routes would provide the means for irrigating approximately 1,350 acres of agricultural and City-owned landscaped areas with recycled water. The use of recycled water by agricultural users will be voluntary.

Agency Participation

The City was the lead agency in the development of an EIR for the WWTP Upgrade Project, which was finalized on July 11, 2005. The Draft EIR was distributed to local, state, and federal agencies for review and comment; however, because the City is the sole owner and operator of the WWTP, there were no other agencies that participated in developing the EIR.

11.2 Wastewater Collection and Treatment System

The City's WWTP currently provides biological secondary treatment using two aeration ponds and one combined aeration/settling pond, followed by two settling ponds and chlorine disinfection. The City's treated effluent is currently discharged year round to a former gravel pit (Basalt Pond) for percolation into the underlying groundwater basin. The Basalt Pond is owned by Syar Industries and was created by terrace mining operations that ended in 1985.

The City is planning to upgrade its WWTP to produce disinfected tertiary effluent as defined by Title 22 of the California Code of Regulations. After completion of the WWTP upgrade, the City's treated effluent is generally expected to be discharged to the Basalt Pond between the days of October 1 and May 15, and used for irrigation between the days of May 16 and September 30. Construction of the project is expected to begin in 2006-2007, with the subsequent use of recycled water for irrigation anticipated to begin in the summer of 2008.

11.3 Quantification of Effluent and Recycled Water

The WWTP is currently permitted for 1.4 million gallons per day (mgd) average dry-weather flow (ADWF). The capacity of the WWTP will not be increased as part of the WWTP upgrade. The City expects that the current capacity will be adequate to accommodate minimal residential buildout, as well as to accommodate connection of the commercial and industrial areas within the City limits that are currently not on the City’s sewer system.

In 2000, the average annual influent flow was 1.2 mgd. When calculating the annual flow using monthly averages, the estimated total influent for the year was 1,297 acre-feet. In 2004, the average annual influent flow was 1.3 mgd, with an annual total of 1,439 acre-feet, when calculating using monthly averages.²¹ Because the City does not have the capacity to store large quantities of recycled water, and because most of the recycled water will be used for irrigation, the total annual amount available for potable offset is considered to be approximately the ADWF.

The WWTP provided treatment for approximately 441 acre-feet and 487 acre-feet respectively, during the dry seasons of 2000 and 2004. It is expected that by buildout in 2025, the ADWF will be 1.4 mgd.²² The average annual influent flow and the projected influent flow for 2010 through 2025 are provided in Table 11-1 below. The projected volumes of wastewater treated in the years 2010 through 2020 were calculated by a straight line projection from 2005 to buildout in 2025.

**Table 11-1
 Wastewater Collected and Treated (AFY)**

	2000 ²³	2005 ²⁴	2010 ²⁵	2015	2020	2025 ²⁶
Wastewater collected and treated in service area	1,297	1,439	1,565	1,690	1,816	1,941
Quantity that will meet recycled water standards	0	0	1,565	1,690	1,816	1,941

**Table 11-2
 Seasonal Breakdown of Wastewater Collected and Treated (AFY)**

	2000	2005	2010	2015	2020	2025
Estimated Wastewater collected and treated between May 1 and September 30 (ADWF)	341	487	530	572	615	657
Estimated Wastewater collected and treated between October 1 and April 30 (Average Wet Weather Flow)	956	952	1,035	1,118	1,201	1,284

11.4 Current Use of Recycled Water

The City does not currently use or provide recycled water to any customers.

²¹ Actual WWTP influent data.

²² Ibid.

²³ Wastewater volume totals for 2000 and 2005 were calculated from actual average daily flow data provided by City for the years 2000 and 2004 respectively.

²⁴ Actual data from year 2004 was used.

²⁵ Projections for 2010 through 2020 were made by straight line extrapolation between 2005 and 2025.

²⁶ The 2025 projection is based on projections for an ADWF of 1.4 mgd.

11.5 Description of Potential Use of Recycled Water

As part of the WWTP Upgrade Project, the City has identified several routes located in close proximity to the WWTP that could make the use of recycled water for irrigation technically and economically feasible. These routes are identified on the map presented as “Exhibit 2-8” in the Draft EIR and are named as follows:

- Foreman Lane to Tayman Park recycled water line – agricultural irrigation/urban reuse;
- Foreman Lane/Mill Creek Road recycled water line – agricultural irrigation reuse; and
- Syar Industries property agricultural irrigation reuse.

There are currently 13 existing vineyards located to the north, south, and west of the WWTP, which together total approximately 1,222 acres that could potentially accept recycled water for irrigation; however, because these vineyards currently irrigate with private irrigation wells, the use of recycled water on these properties would not offset potable water use.

The other potential recycled water use is for City-owned landscape irrigation. This option would offset potable water use. The City plans to extend recycled water lines to 11 public turf areas within the City, which, when combined, total approximately 85 irrigable acres. These turf areas include the Tayman Park Golf Course, Badger Park, Recreation Park, and the Healdsburg cemetery and elementary, middle, and high school sites. The City can expect an offset of approximately 210 AFY starting in 2010 by irrigating these public properties with recycled water.

Other types of recycled water uses, such as wildlife habitat, wetlands, industrial, and groundwater recharge, are not considered viable or necessary for the City’s recycled water use program. Table 11-3 summarizes the City’s projected use of recycled water that will offset potable water use.

**Table 11-3
 Projected Future Use of Recycled Water (Potable Offset Only)**

Type of Use	Potential Recycled Water Use (AFY)			
Year	2010	2015	2020	2025
Landscape	210	210	210	210
Total	210	210	210	210

11.6 Encouraging Recycled Water Use

The City currently plans to provide the recycled water on voluntary basis to vineyard users at a cost designed to be attractive to users. This financial incentive is expected to optimize the use of recycled water. Willing users will begin receiving recycled water for irrigation as the City extends recycled water lines to these areas. The City anticipates having the pipelines constructed for delivery of recycled water in the summer of 2008.

The Draft EIR for the WWTP Upgrade Project was made available for public review and was discussed at public workshops. City staff has been meeting directly with property owners of agricultural properties with potential for receiving recycled water for irrigation.

11.7 Optimizing Recycled Water Use

The 1,350 irrigable acres identified in the City's WWTP Upgrade Project will allow for the disposal of all of the wastewater collected and treated during the summer season, when discharge to the Basalt Pond is prohibited.

The Foreman Lane to Tayman Park recycled water line includes the use of the City's old Tayman Park tanks adjacent to the Tayman Park Golf Course. The two Tayman Park reservoirs, which have a total storage capacity of approximately 700,000 gallons, were originally constructed in 1898 and were part of the City's potable water system until April 2001, when two new replacement tanks at the Tayman Park Golf Course were completed and put into service. The old Tayman Park water tanks were drained and disconnected from the water system at that time, but are still functional. As part of this system, they will be converted to recycled water storage and will serve as terminal storage for water pumped through the recycled water line, keeping the line pressurized to serve the agricultural users and public areas connected to the system.

As part of the Syar Industries property portion of the seasonal irrigation reuse system, the City plans to plant and irrigate vineyard and redwood trees on approximately 134 acres of available land in the Syar Industries property south of and adjacent to the WWTP. This is another example of how the City will maximize its use of treated wastewater.

The WWTP Upgrade Project is scheduled to be complete by the summer of 2008. The City's 2010 UWMP will analyze the actual use of recycled water in comparison to the uses projected in this Recycled Water Plan. The 2010 UWMP will also consider additional actions to optimize the use of recycled water use in the City, as necessary.

Appendix A
California Water Code Urban Water
Management Planning Act

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CALIFORNIA CODES
WATER CODE
SECTION 10610-10610.4

10610. This part shall be known and may be cited as the "Urban Water Management Planning Act."

10610.2. (a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:

(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.

(c) Urban water suppliers shall be required to develop water

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management plans to actively pursue the efficient use of available supplies.

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CALIFORNIA CODES
WATER CODE
SECTION 10611-10617

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. "Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

10616.5. "Recycled water" means the reclamation and reuse of wastewater for beneficial use.

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10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

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CALIFORNIA CODES
WATER CODE
SECTION 10620-10621

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621. (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

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CALIFORNIA CODES
WATER CODE
SECTION 10630-10634

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(1) An average water year.

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- (2) A single dry water year.
- (3) Multiple dry water years.

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

- (A) Single-family residential.
- (B) Multifamily.
- (C) Commercial.
- (D) Industrial.
- (E) Institutional and governmental.
- (F) Landscape.
- (G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

- (A) Water survey programs for single-family residential and multifamily residential customers.
- (B) Residential plumbing retrofit.
- (C) System water audits, leak detection, and repair.
- (D) Metering with commodity rates for all new connections and retrofit of existing connections.
- (E) Large landscape conservation programs and incentives.
- (F) High-efficiency washing machine rebate programs.
- (G) Public information programs.
- (H) School education programs.
- (I) Conservation programs for commercial, industrial, and institutional accounts.
- (J) Wholesale agency programs.
- (K) Conservation pricing.
- (L) Water conservation coordinator.
- (M) Water waste prohibition.
- (N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being

implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

(j) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

(k) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

10631.5. The department shall take into consideration whether the urban water supplier is implementing or scheduled for implementation, the water demand management activities that the urban water supplier

identified in its urban water management plan, pursuant to Section 10631, in evaluating applications for grants and loans made available pursuant to Section 79163. The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities.

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

(f) Penalties or charges for excessive use, where applicable.

(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(h) A draft water shortage contingency resolution or ordinance.

(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type,

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place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

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CALIFORNIA CODES
WATER CODE
SECTION 10640-10645

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630).

The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

10641. An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

10644. (a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(b) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the outstanding elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare

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reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

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CALIFORNIA CODES
WATER CODE
SECTION 10650-10657

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

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10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the "Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

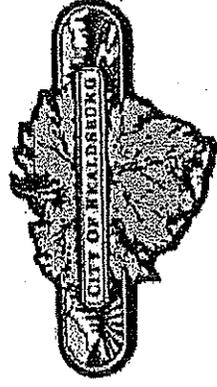
10657. (a) The department shall take into consideration whether the urban water supplier has submitted an updated urban water management plan that is consistent with Section 10631, as amended by the act that adds this section, in determining whether the urban water supplier is eligible for funds made available pursuant to any program administered by the department.

(b) This section shall remain in effect only until January 1, 2006, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2006, deletes or extends that date.

Appendix B
Public Meeting Documentation

Public Workshop
Urban Water Management Plan

April 6, 2005
7:00 p.m.



Agenda

- Introductions
- Purpose of workshop
- Background – UWMP Act
- Contents of plan
- Comments and questions
- Next steps



Introductions

- City Contact

- Jim Flugum, Public Works Department
- Telephone: 431-3346
- Email: jflugum@ci.healdsburg.ca.us

- Project Team

- George Hicks, Public Works Director
- Jim Flugum, City Project Manager
- Toni Bertolero, Winzler & Kelly, Project Manager
- Cristina Goulart, Winzler & Kelly, Public Outreach



Purpose of Workshop

- Inform public of the UWMP process
- Notify public about the preparation of UWMP
- Gather input and comments to help us in our preparation of UWMP



Background

Urban Water Management Planning Act

- California Water Code
- Affects water service providers >3,000 connections
- Plan must be prepared and updated every 5 years
- Healdsburg plan due 2005



Contents of the Plan

Service area information with 20-year projections

Water sources

- Existing
- Planned

Reliability of supply

- Average
- Single Dry
- Multi Dry

Water demands with 20-year projections

Demand management

- Conservation
- Implementation

Water shortage contingency plan

- Driest 3 years
- Catastrophic



Contents of the Plan (continued)

Service area information with 20-year projections

Service area information with 20-year projections

Water sources
• Existing
• Planned

Land management reservation
• Supplemental

Water shortage contingency plan
• Driest 3 years
• Catastrophic



Contents of the Plan (continued)

Service area information with 20-year projections

Water sources

- Existing
- Planned

Water sources

- Existing
- Planned

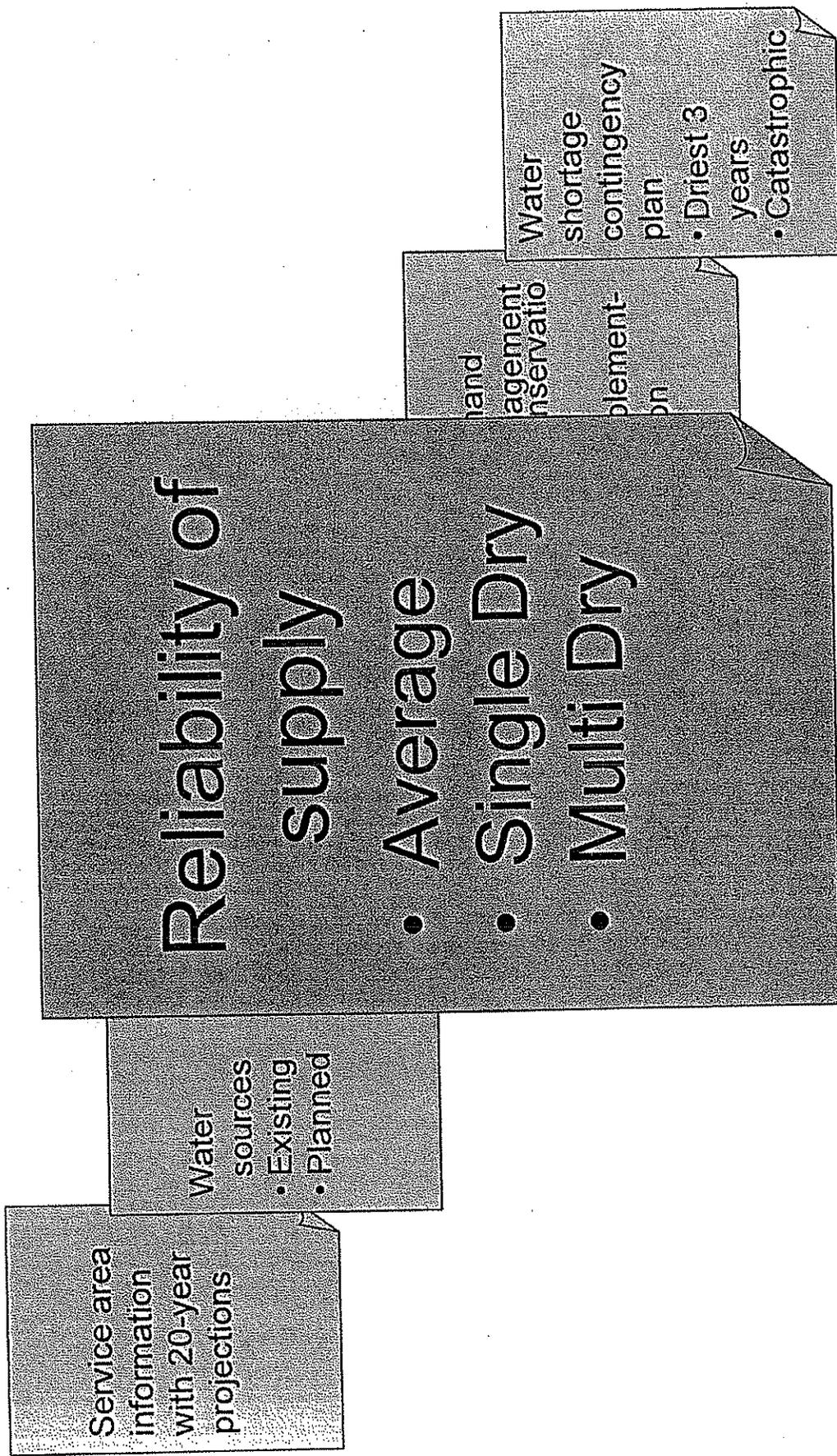
Land management and conservation plan

Water shortage contingency plan

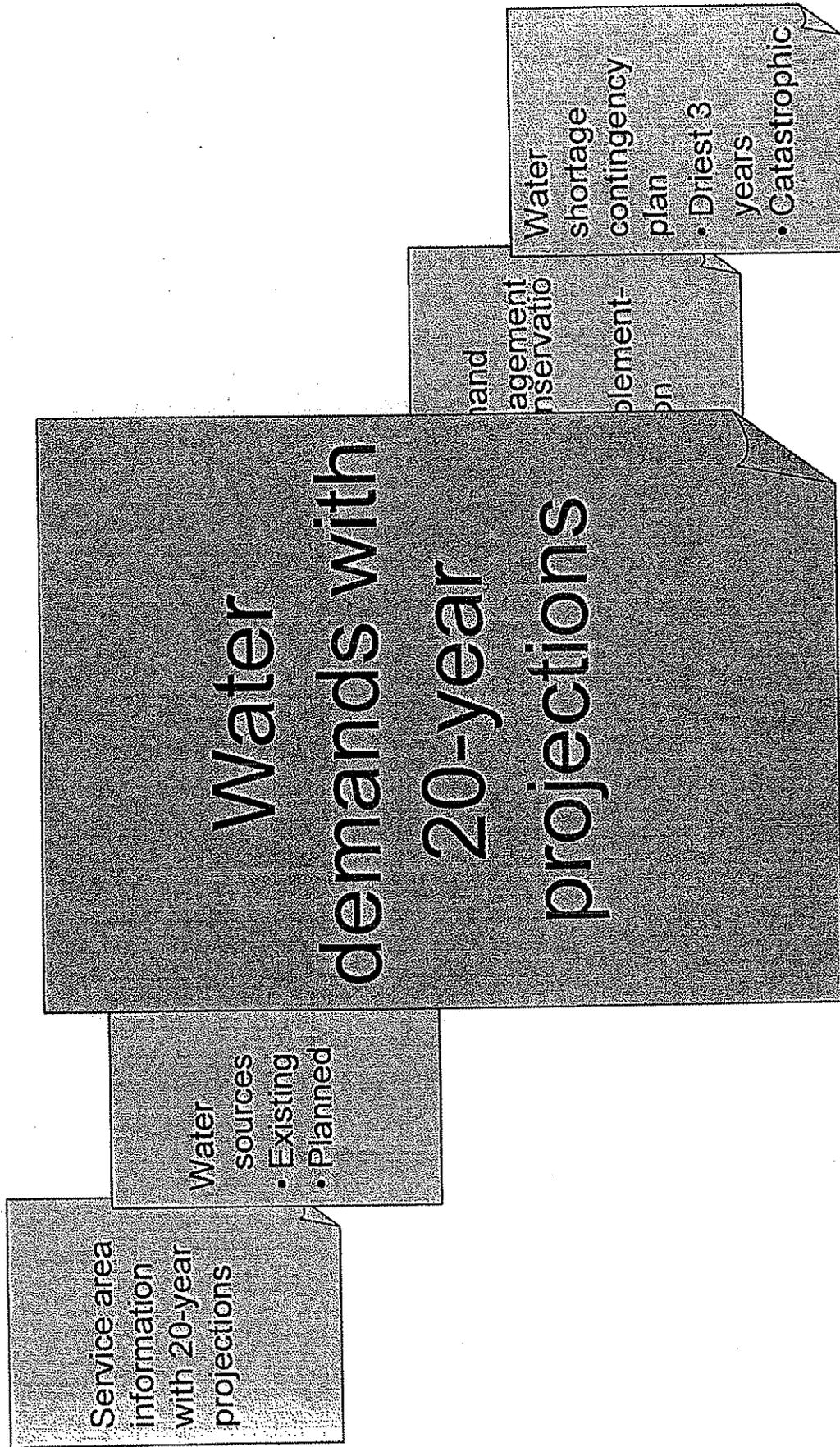
- Driest 3 years
- Catastrophic



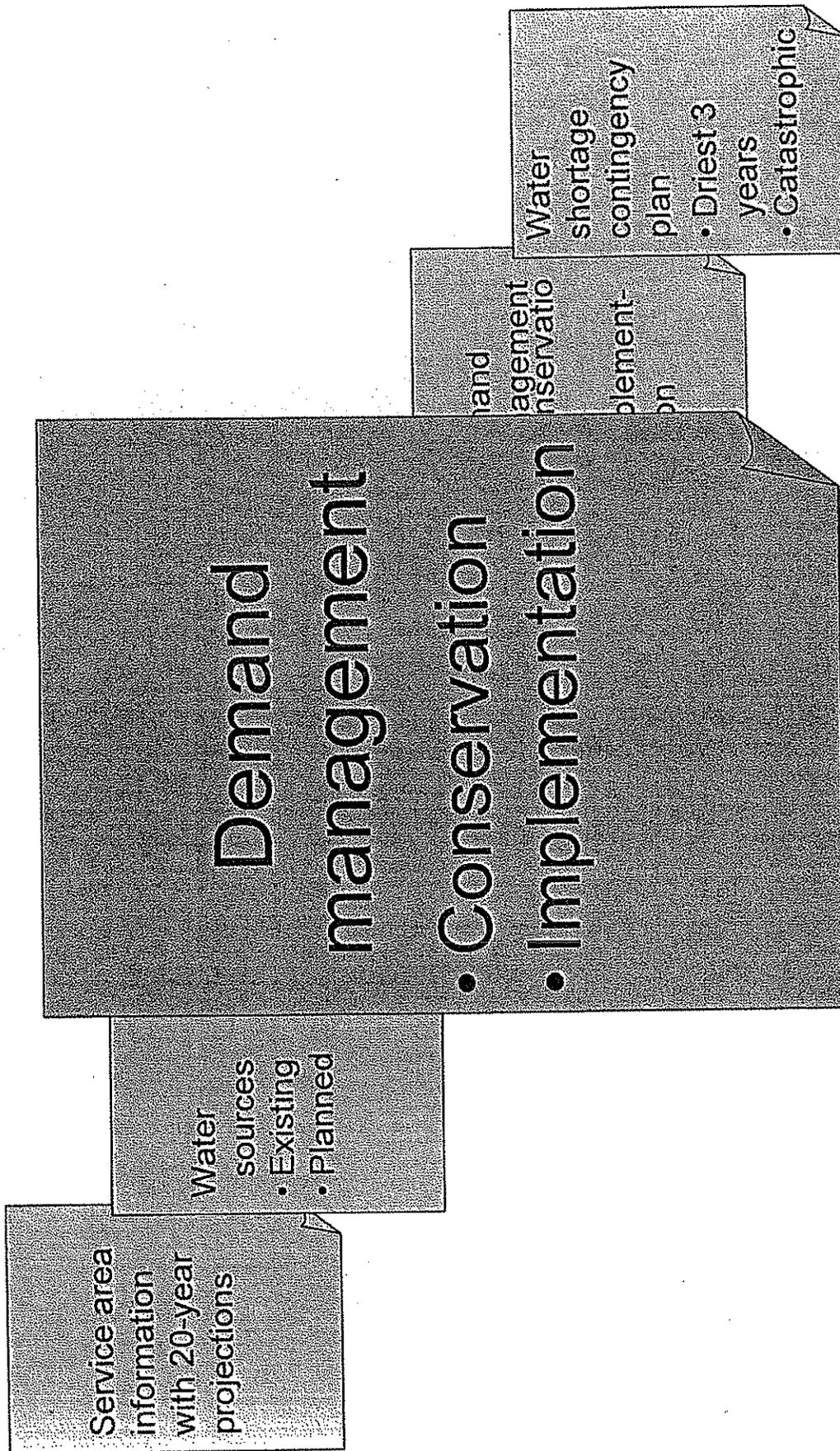
Contents of the Plan (continued)



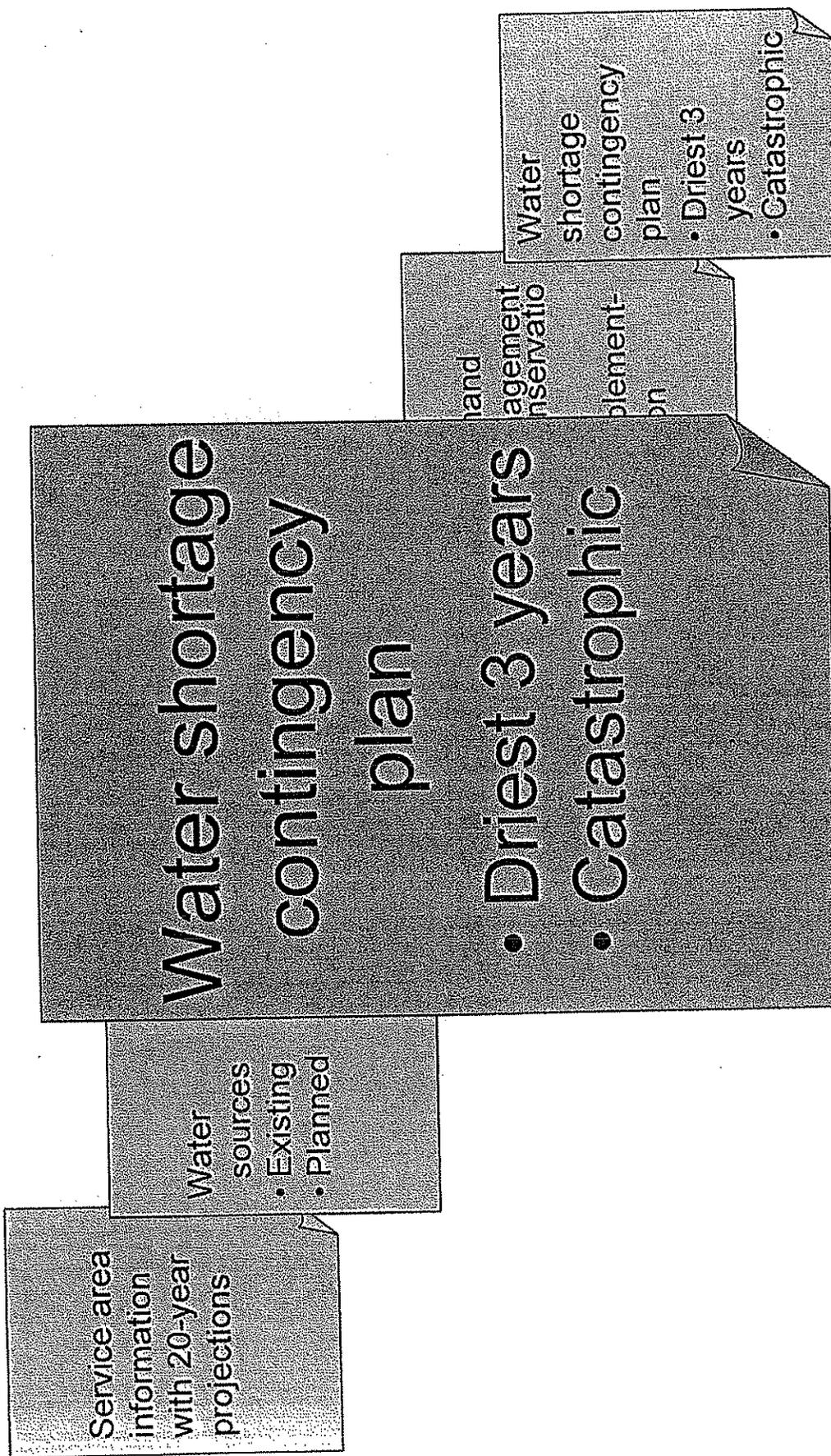
Contents of the Plan (continued)



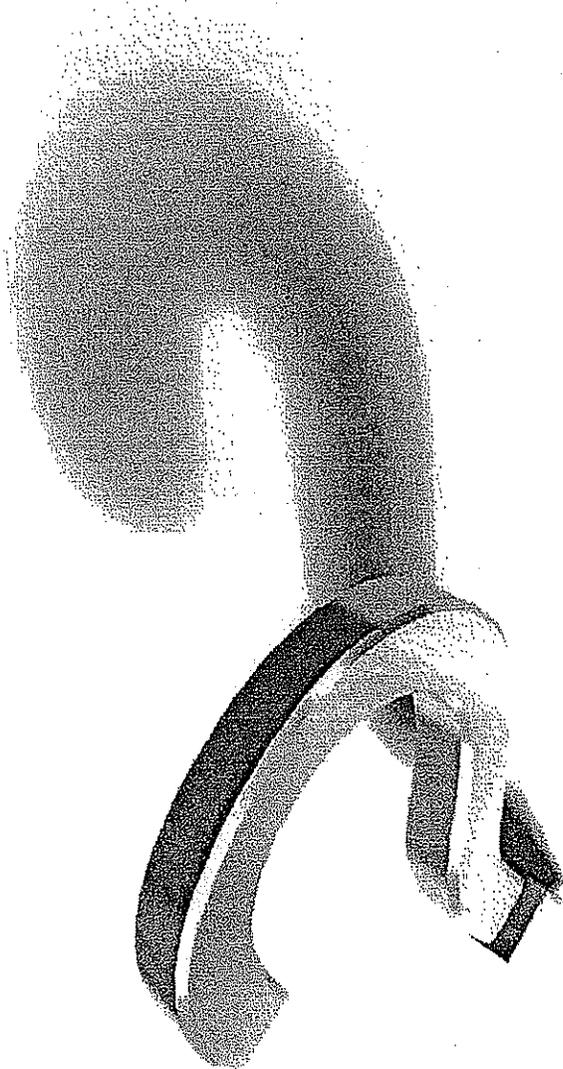
Contents of the Plan (continued)



Contents of the Plan (continued)



Comments and Questions



Next Steps

- Public Meeting #1
□ Scoping Workshop
■ Plan Preparation
■ Public Meeting #2
□ Conservation Workshop
■ Draft Plan
- April 6, 2005
- Ongoing
- May 2005
- July 2005



STANLEY BECKER

507 Tucker Street
Healdsburg, CA 95448

4/1/2005

Jim Flugum
Public Works Department
401 Grove Street
Healdsburg, CA 95448

RECEIVED
APR 04 2005
CITY OF HEALDSBURG
PUBLIC WORKS

Dear Mr. Fulgum:
With regard to the Urban Water Management Plan (UWMP); it appears the current billing does not encourage conservation. My understanding is that we are billed a base charge of \$30.07 for 5 HCF (approximately \$6.01 per) and the additional usage at \$2.68 per HCF. Is this a correct interpretation? If so, I would suggest we lower the base charge (and perhaps the quantity) and raise the usage charge.

Sincerely,



Stanley Becker



City OF HEALDSBURG
Community Development Center

401 Grove Street
Healdsburg, CA 95448-4723

Phone (707) 431-3346
Fax: (707) 431-2710

Visit us at www.ci.healdsburg.ca.us

NOTICE OF PUBLIC SCOPING MEETING CITY OF HEALDSBURG URBAN WATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that the Public Works Department of the City of Healdsburg will hold a public scoping meeting on April 6, 2005 at 7:00 P.M. in the City Hall Council Chambers, 401 Grove Street, to accept comments from the public. The City as a public water supplier is currently undertaking an effort to complete the Urban Water Management Plan (UWMP), required every five years by the California Water Code. Recent amendments to the Urban Water Management Planning Act (implemented through Senate Bill 610) are geared to assuring that elected decision-makers evaluate the available public water supply as they make land use decisions.

The Urban Water Management Plan will consist of the following components:

- Public Participation & Agency Coordination – public scoping session, open house on water conservation opportunities, public meeting to receive comments on draft plan and final approval by the City Council
- Data Collection & Review – collection and review of available documentation including the Water System Master Plan, EIRs, Water System Assessments, well data and the City's General Plan
- Supply Analysis – identifying and quantifying groundwater resources (to the extent possible) including demand comparisons.
- Water Conservation – evaluation of current measures and proposal of future options

The City has not yet prepared its Urban Water Management Plan. The purpose of this meeting is to gather public input on potential water conservation measures before preparation of the plan.

Information: Questions regarding the public scoping session should be directed to Jim Flugum, Project Manager, Public Works Department, 401 Grove Street, Healdsburg, CA 95448, (707) 431-3346.

April 6, 2005
City of Healdsburg
Public Meeting UWP

Signer

Name

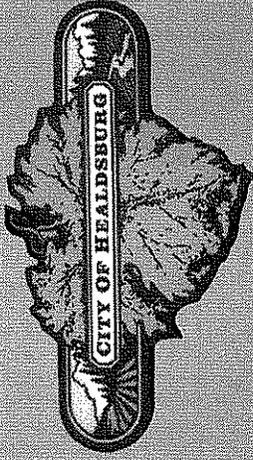
Address

Schwarzinger Ram

771 White Gate Ave.

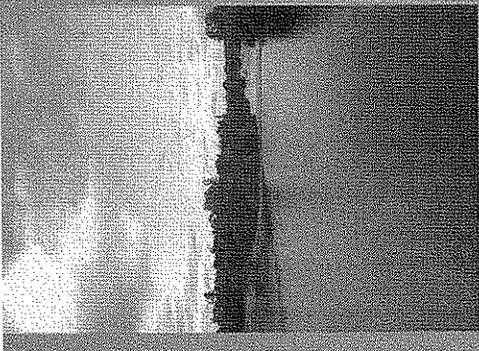
Matt Bradford

885 March Ave



Draft Urban Water Management Plan City Council Presentation

October 2, 2006



Agenda

2005 Urban Water Management Plan (“UWMP”)

1. Background and Purpose of UWMP
2. Summary of Findings
3. Water Supply
4. Water Demands
5. Water Conservation
6. Comparison of Supply and Demand
7. Conclusions
8. Next Steps
9. Questions and Comments



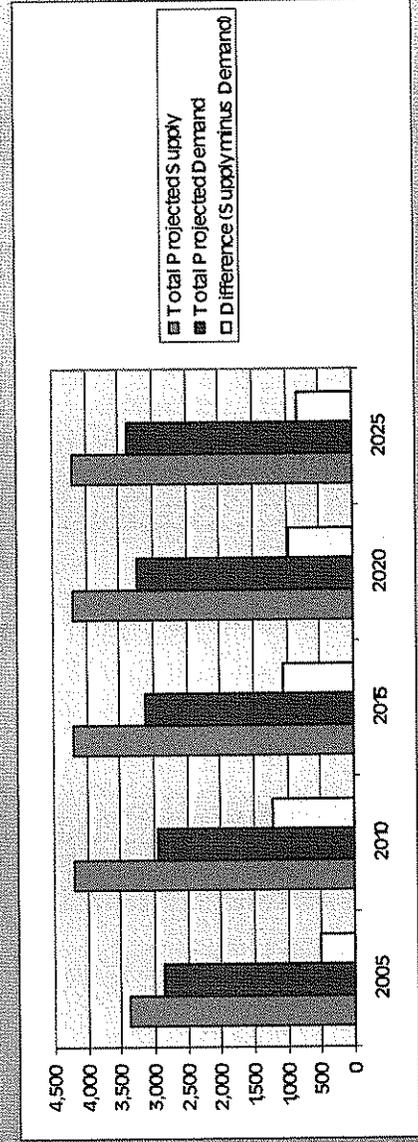
Background and Purpose of UWMP

- Required under State legislation
- Purpose is to identify the City's supply and demand for the next 20 years and to identify how City will address shortfalls under certain water year conditions
- Needed as a prerequisite for obtaining State water grants, loans and drought assistance.
- Must be updated every five years

Summary of Findings

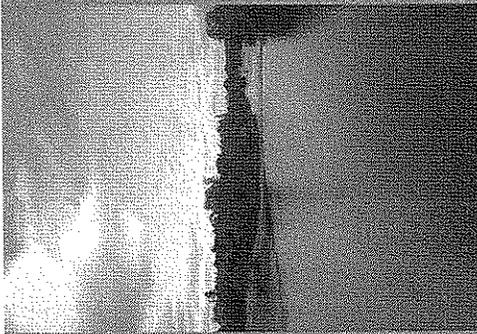
- City is projected to have Surplus through year 2025 (end of study period) and beyond

	2005	2010	2015	2020	2025
Acre – Feet – Year (AFY)					
Total Projected Supply	3,376	4,179	4,179	4,179	4,179
Total Projected Demand	2,863	2,950	3,125	3,215	3,372
Difference (Supply minus Demand)	+513	+1,229	+1,054	+964	+807
Percent Difference (Surplus or Shortfall)	+18%	+42%	+34%	+30%	+24%

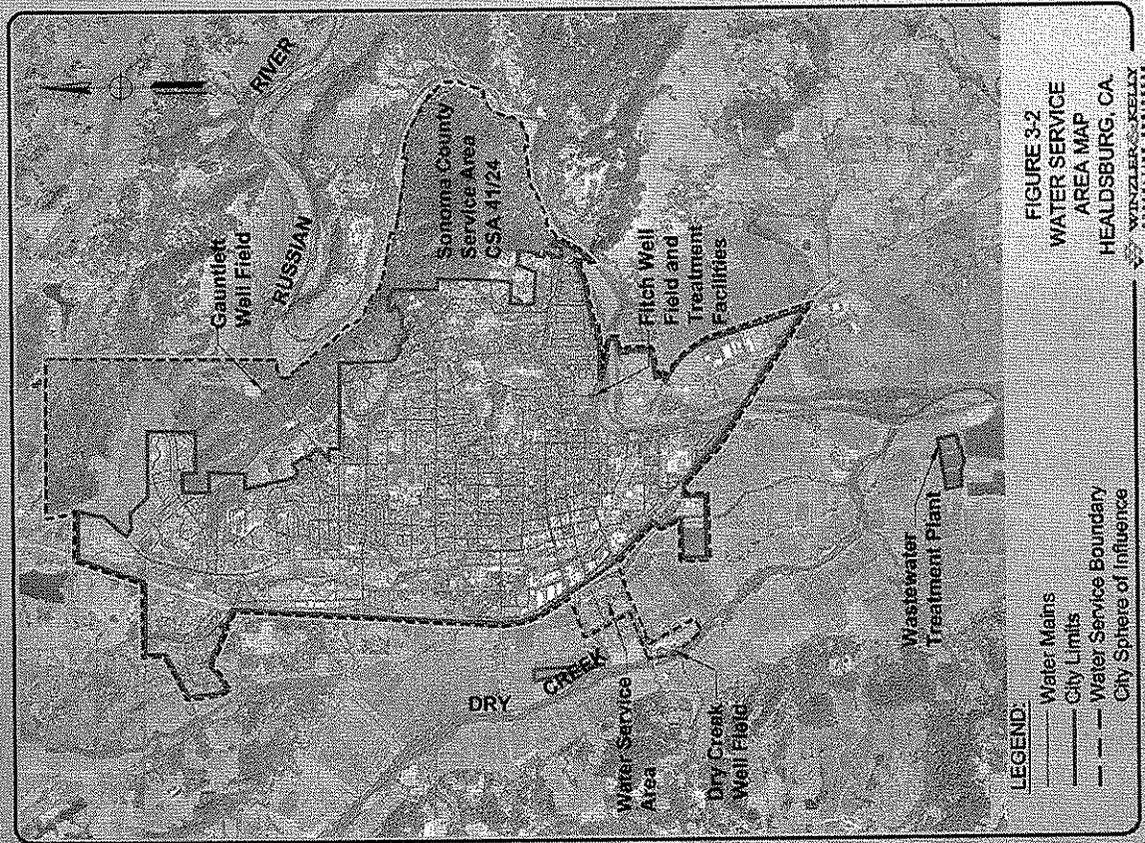


Water Supply

- Water Sources
- Water Permits
- Recycled Water



Water Sources



Total Current Supply Water 3,376 AFA

Water Supply Sources (AFY)	2005	2010	2015	2020	2025
Russian River Fitch	1,096	1,385	1,385	1,385	1,385
Russian River Gauntlett	1,860	1,860	1,860	1,860	1,860
Dry Creek Well Field	420	724	724	724	724
Recycled Water	0	0	210	210	210
Total	3,376	4,179	4,179	4,179	4,179

In 2025, Supply Reaches 4,179 AFA

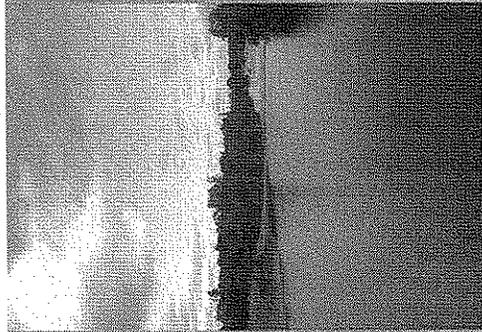
Recycled Water

- **Currently No Customers**
- **Seasonal Irrigation Reuse as part of the WWTP Upgrade Project**
- **Approximately 1,350 acres of Ag and City owned landscape identified for future irrigation.**

Type of Use	Potential Recycled Water Use for Potable Water Offset for Potable Water Offset (AFY)			
	2010	2015	2020	2025
Landscape	210	210	210	210
Total	210	210	210	210

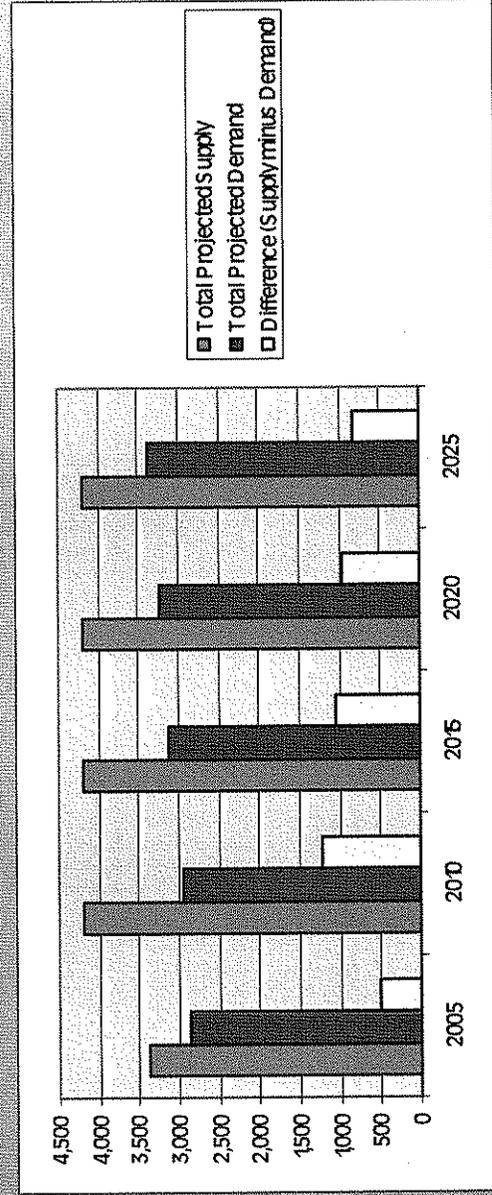
Water Conservation

- **California Urban Water Conservation Council developed 14 BMPs (referred to in the UWMP as DMMs)**
- **City is currently doing 6 of the 14 BMPs ranging from conservation pricing to public outreach**
- **5 to 15% savings due to water conservation (145 to 435 AFA)**



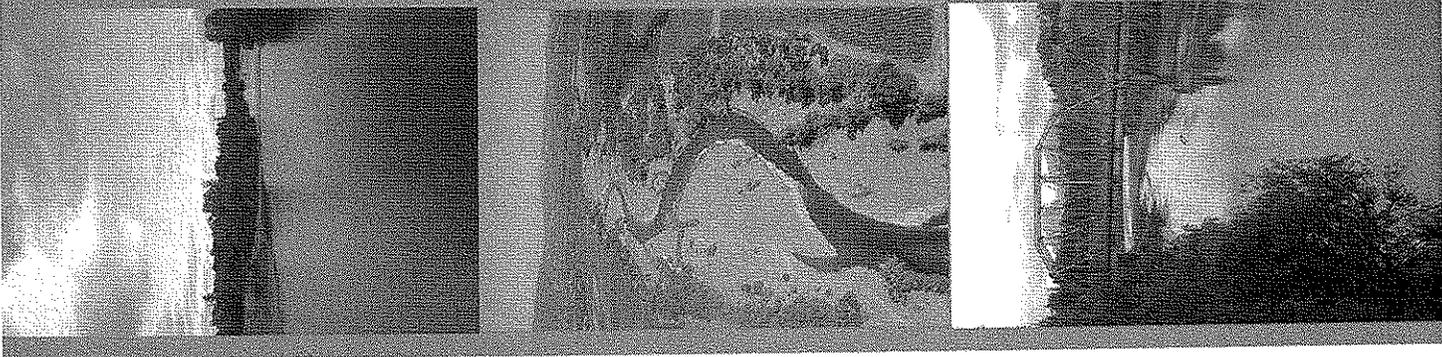
Comparison of Supply and Demand

	2005	2010	2015	2020	2025
Acre - Feet - Year (AFY)					
Total Projected Supply	3,376	4,179	4,179	4,179	4,179
Total Projected Demand	2,863	2,950	3,125	3,215	3,372
Difference (Supply minus Demand)	+513	+1,229	+1,054	+964	+807
Percent Difference (Surplus or Shortfall)	+18%	+42%	+34%	+30%	+24%



Conclusions

- **City currently has approximately 15% surplus of water supply over the next 20 years, due mostly to a low growth rate.**
- **The City's water supply is very reliable**
- **Recycled Water will offset potable water use and is good water management**
- **Although the City's water supply is reliable even during drought conditions, City staff is recommending continuing implementing water conservation BMPs**



Next Steps

- **City Council and Public Review the Draft Plan**
- **Incorporate Council and Public Comments**
- **Finalize and Adopt Plan**
- **Send to California Department of Water Resources**

Appendix C
Draft Water Shortage Emergency Ordinance

DRAFT
AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF HEALDSBURG
ESTABLISHING
A WATER SHORTAGE EMERGENCY PLAN

The City Council of the City of Healdsburg does ordain as follows:

SECTION 1. Section XX.XX of the Healdsburg Municipal Code is added to *Title XX Water, Sewers and Electrical, Division III, Other Utility Regulations*, to read as follows:

ARTICLE I. TITLE, PURPOSE, AND GENERAL PROVISIONS

XX.xx.xxx Title

This chapter shall be known as the "Water Shortage Emergency Plan" of the City of Healdsburg and may be so cited.

XX.xx.xxx Purpose and Intent

The purpose of this ordinance is to have a plan for a water shortage emergency resulting from a reduced supply of water such as may result from drought, water supply shortages, or limitations of water delivery conditions.

Nothing in this ordinance will preclude the City Council from passing an emergency resolution for the immediate curtailment of water use by its customers due to water supply shortages and delivery limitations caused by catastrophic events and conditions, either natural or unnatural.

XX.xx.xxx Definitions

The terms used in this chapter shall have the following meanings:

- A. The "City" means the City of Healdsburg acting by and through the City of Healdsburg public works department as operator of the City of Healdsburg water system.
- B. "Manager" is the city manager of the City of Healdsburg.
- C. "Customer" means any person, firm, partnership, association, corporation, company, organization, or governmental entity, whether within or without the geographic boundaries of the City of Healdsburg, who uses water supplied by the City.
- D. "GPD" means gallons per day.
- E. "Water" means potable water.

XX.xx.xxx Authorization

The City Manager or his or her designee is authorized and directed to implement the applicable provisions of this chapter upon adoption of a City Council resolution determining that such implementation is necessary to protect the public health, safety, and welfare.

XX.xx.xxx Application

The provisions of this chapter shall apply to all Customers, and property served by the City's water system.

XX.xx.xxx Water Conservation Stages

No customer of the City shall make, cause, use, or permit the use of water from the City for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this chapter, or in an amount in excess of that use permitted by either Conservation Stage 2 or 3 when in effect as declared by separate resolution of the City Council, in accordance with the provisions of this chapter.

- A. Stage 1. Voluntary Conservation. In order to achieve an overall system-wide reduction goal of 10 percent, all potable water customers of the City shall be requested to:
1. Apply irrigation water only during the evening and early morning hours to reduce evaporation losses (8pm to 7am).
 2. Inspect all irrigation systems, repair leaks, and adjust spray heads to provide optimum coverage and eliminate avoidable over-spray.
 3. For irrigation valves controlling water applied to lawns, vary the minutes of run-time consistent with fluctuations in weather.
 4. Reduce minutes of run-time for each irrigation cycle if water begins to run-off to gutters and ditches before the irrigation cycle is completed.
 5. Utilize water conservation incentive, rebate and giveaway programs to replace water guzzling plumbing fixtures and appliances with water efficient models.
 6. Utilize City information regarding using water efficiently, reading water meters, repairing ordinary leaks, and water efficient landscape.
- B. Stage 2. Mandatory Compliance -- Water Alert. The City Council may by resolution declare a Conservation Stage 2 based on water supply and delivery projections by the City Engineer that an overall system-wide reduction of 20 percent is necessary. Following a declaration of Conservation Stage 2 status, and in order to achieve an overall system-wide reduction of 20 percent, the following activities shall be prohibited:
1. Non-essential uses of water, including the following:
 - a. Refilling or initial filling of a swimming pool;
 - b. Non-commercial washing of privately-owned motor vehicles, trailers and boats except from a bucket and except that a hose equipped with a shut-off nozzle may be used to rinse a vehicle; and
 - c. Any use of water from a fire hydrant, except for fighting fires, line flushing required by regulatory agencies, or essential construction needs.
 2. Use of any water except recycled water for dust control at construction sites.
 3. Water use by a vehicle washing facility in excess of 80 percent of the water used by the facility from corresponding billing period in the prior year, unless such washing facility treats and recycles wash water in which this provision shall not apply.
 4. Water use for any non-residential use in excess of 80 percent of the water used by the customer during the corresponding billing period in the prior year.

- C. Stage 3. Mandatory Compliance -- Water Emergency. The City Council may, by resolution, declare a Conservation Stage 3, based on water supply and delivery projections by the City Engineer that an overall system-wide reduction of 50 percent is necessary. Following a declaration of Conservation Stage 3 status, and in order to achieve an overall system-wide reduction of 50 percent, the following activities shall be prohibited:
1. Any activities prohibited during a Conservation Stage 2.
 2. Watering any residential lawn or any commercial or industrial area lawn irrigated with potable water, at any time of day or night.
 3. Planting any new landscaping, except for designated drought resistant landscaping prescribed by the city manager or designated representative.
 4. All day and night-time irrigation sprinkling unless only a hand held nozzle is used. This prohibition shall not apply to drip irrigation systems for established perennial plants and trees using manual or automatic time-controlled water application.
 5. Planting of new annual plants, vegetables, flowers, or vines.

XX.xx.xxx Exceptions and Application Procedures for Exceptions

Any customer of the City may make written application for an exception to the regulations and prohibitions described in this chapter. Said application shall describe in detail why applicant believes an exception is justified.

- A. The City Engineer may grant exceptions for use of water otherwise prohibited by this section upon finding and determining that failure to do so would cause an emergency condition affecting the health, sanitation, fire protection or safety of the applicant or public; or, cause an unnecessary and undue hardship on applicant or the public, including but not limited to, adverse economic impacts, such as loss of production or jobs.
- B. The decision of the City Engineer may be appealed to the City Council by submitting a written appeal to the City Clerk within seven (7) calendar days of the date of the decision. Upon granting any appeal, the City Council may impose any conditions it determines to be just and proper. Exceptions granted by the City Council shall be prepared in writing and the City Council may require the exception be recorded at applicant's expense.

XX.xx.xxx Violation – Enforcement

- A. Any violation of any provision of this Chapter is hereby declared to be a public nuisance and shall be enforced in accordance with the provisions of Healdsburg Ordinance No. 985 (Code Enforcement Ordinance), including without limitation the imposition of administrative penalties, notice and hearing requirements and appeals procedures.
- B. Any violation of the provisions of this Chapter for which the enforcing officer chooses to use criminal enforcement shall be deemed an infraction.
- C. In addition to the enforcement remedies provided in Healdsburg Ordinance No. 985, upon a violation of any provision of this Chapter, the City Engineer may authorize the installation of a flow-restricting device on the services line and the cost of installation of such a device shall be charged to the person(s) or entity(ies) responsible for payment of water service charges.

- D. The City Council shall, from time to time, establish a water waste fee to be used as a guideline for determining the amount of an administrative or criminal fine or penalty to be imposed for a violation of this Chapter.

XX.xx.xxx Additional enforcement Remedy

Before either installing a water restrictor or terminating water service, the City shall give written notice to the person responsible for the service connection to be either restricted or terminated of its intention to do so. The person or persons to whom notice is given shall have five business days from the date of service of the notice to request a hearing before the city manager or his or her designee in order to present any and all evidence they may have as to why a restrictor should not be installed or service terminated. If a hearing is requested, the City Manager or his or her designee shall schedule a date and time for said hearing as soon as possible after the request is filed, but not later than five business days after the filing or such request for hearing. At the hearing, the person whose service connection is to be restricted or terminated and the utilities personnel may offer evidence. The City Manager or his or her designee shall make a final determination as to whether service should be restricted or terminated and under what conditions.

XX.xx.xxx CEQA Determination

The City finds that the Ordinance is categorically exempt from the provisions of the California Environmental Quality Act ("CEQA"), Public Resources Code section 21000 et seq. Section 21084 instructs the Secretary of the Resources Agency to adopt regulations exempting certain categories of activities from CEQA in the CEQA Guidelines, California Code of Regulations, Title 14, section 15000 et seq. The CEQA Guidelines designate actions by regulatory agencies for the protection of natural resources and by regulatory agencies for the protection of the environment as categorically exempt from CEQA. (California Code of Regulation, Title 14, §§ 15307, 15308.) The Ordinance will protect both natural resources and environment by limiting the unnecessary use of water during a drought, thereby preserving this important natural resource for vital uses by both the residents of the City and the natural environment.

SECTION 2. Severability

If any section, subsection, sentence, clause, phrase or word of this ordinance is for any reason held to be invalid and/or unconstitutional by a court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this ordinance.

SECTION 3. Effective Date

This ordinance shall become effective 30 days after the date of adoption.

SECTION 4 Posting

The City Clerk shall cause this ordinance to be published and/or posted within fifteen days after its adoption.

IT IS HEREBY CERTIFIED that the foregoing ordinance was duly introduced at a regular meeting of the City Council of the City of Healdsburg on the (number) of (month), (year) and legally adopted on the ____ day of _____, year by the following vote, to wit:

Council member:
Council member:
Council member:
Council member:
Council member:

APPROVED:

Mayor

ATTEST:

Deputy City Clerk

APPROVED AS TO FORM: _____

City Attorney