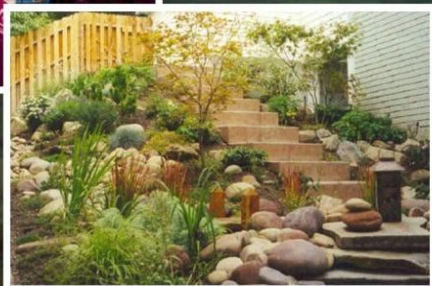




MAGNA WATER DISTRICT WATER CONSERVATION Plan



Rev. 2010



MAGNA WATER DISTRICT
2010 WATER CONSERVATION PLAN
TABLE OF CONTENTS

INTRODUCTION 2

DESCRIPTION OF OUR DISTRICT AND WATER SYSTEM 2

 HISTORY 2

 WATER RESOURCES 3

 SYSTEMS: CULINARY AND SECONDARY WATER.....3

 COMPONENTS3

 WATER RIGHTS3

 WATER DEMAND USAGE5

 PUMPED GROUND WATER..... 5

 BARTON WELL FIELD5

 HAYNES WELL FIELD5

 PURCHASED WATER 6

 WATER BUDGETS 6

 PRESENT WATER USE AND FUTURE WATER DEMAND 7

 SYSTEM WATER DEMAND8

 CURRENT8

 FUTURE PROJECTION8

WATER PROBLEMS, CONSERVATION MEASURES AND GOALS 9

 PROBLEMS IDENTIFIED 9

 WATER CONSERVATION GOALS10

 GOAL I10

 GOAL II10

 GOAL III10

CURRENT CONSERVATION PRACTICES11

 WATER CONSERVATION AND RESTRICTIONS.....11

CURRENT PRICING STRUCTURE.....14

ADDITIONAL CONSERVATION MEASURES15

COST SAVINGS ANALYSIS17

IMPLEMENTATION AND UPDATES TO THE WATER CONSERVATION PLAN18

 APPENDIX A – A RESOLUTION ADOPTING A WATER CONSERVATION PLAN.....19

INTRODUCTION

In 1998, the Utah State Legislature approved the Water Conservation Plan Act which was passed and revised in the 1999 legislative session. Driving this initiative was the response to rapid growth, suburbanization and planning for the future cost of and availability of water to consumers. Under the law, retail drinking water providers are required to prepare a water conservation plan and submit the plan to the Utah Division of Water Resources by July every five (5) years.

The purpose of this Water Conservation Plan is to provide information to Magna Water District's water users, to fulfill the provisions of this Act, and to be included in the District's Master Planning.

DESCRIPTION OF OUR DISTRICT AND WATER SYSTEM

History

Settlement of the area began in 1851 shortly after the Mormon pioneers reached the Salt Lake Valley. Early farmers settled in 1868 at the base of the northern Oquirrh Mountains. By 1900, about 20 families resided in the area. In 1906, the farming community was firmly established.

In the short years following, the Utah Copper Concentrate Mill was established. The community began to transform from an agricultural hamlet to an industrial community.

In 1916, the area began to thrive with an active economy and residential sectors. A new town name was born: Pleasant Green, to describe the lush valley. It was unusual for this region to exist under such arid conditions, but water sources were plentiful due to surface runoff, wells, and natural springs. Finally, as the mine expanded their operations and more and more people immigrated to the area, the name changed permanently to Magna from the Latin meaning *great*. D. C. Jackling, an engineer who founded the Utah Copper Company (currently Kennecott Utah Copper) in 1903 is credited with establishing the name to create an image of strength and prominence for this robust area.

As Magna became more industrialized, the need for expanded, technologically advanced water systems grew. On July 7, 1949, the Magna Water Company, an Improvement District was formed by a resolution of the Board of Salt Lake County Commissioners, as was the Magna Water Board respectively. Beginning in 2009 the District changed its name to Magna Water District due to legislature making changes to classifications of Districts. The District has come a long way from its early beginnings of servicing approximately 950 water and sewer connections to approximately 8,849 connections for nearly 32,579 people today (*Source: Epic Engineering: Magna Water Company Water and Sewer Master Plan, estimated*). Approximately 9.375 square miles comprise the District and include Magna Township, western areas of West Valley City and a corner of south west Salt Lake City. The District continues to master plan to address the growing needs of its population including expansion of a secondary water system to control culinary capital costs and to enhance water conservation efforts. Innovation and responsible thinking make it possible for the District to create long term water resources and supply.

For many years, Magna has maintained its status as one of Utah's most populous unincorporated communities. Urban planning and new ideas continue to shape this area. The District works closely with the Magna Chamber of Commerce and Salt Lake County in building a solid redevelopment agency to ensure a healthy economic infrastructure and sustainable water supply for the future.

Recently, the District has received notoriety and praise for its projects in letters of support from former Utah Governor Olene S. Walker, Utah State Senator and President of the Utah

Taxpayers Association Howard Stephenson, and the State of Utah Department of Environmental Quality Drinking Water Board. As an approved water supplier, the District meets or exceeds all local, state, and federal mandates and remains current on industry trends and advancements.

Water Resources

Systems: Culinary and Secondary Water

The **culinary water system** consists of water sources, EDR treatment facility, storage reservoirs and supply piping throughout the entire District service area. The District supplies water to the culinary water system from several wells and from a connection to the Jordan Valley Water Conservancy District (JVWCD). The District has 15 wells located in two well fields. The combined capacity of the two well fields is 10,550 gallons per minute. Currently the contracted supply from JVWCD is 800 acre-feet per year with an option to use an additional 160 acre-feet if needed. In addition to these water supply sources, the District has six (6) water storage reservoirs, containing a total storage of 17.5 million gallons (mg). This storage volume helps the District meet peak demands on summer high usage days.

The **secondary water system** consists of water sources, an open storage reservoir and supply piping serving a portion of the District’s several large outdoor water users. The District supplies water to the secondary water system from three (3) shallow wells and from the Utah and Salt Lake Canal. The wells have a combined capacity of 500 gallons per minute. The District can also divert 867 acre-feet from the canal.

Components

The District’s ability to supply water for the water needs within its service area depends upon two water resource components. These are the amount of water rights that the Company owns and the water delivery capacity of its water sources.

Water Rights

The District has certified culinary water rights in the amount of 21.140 cfs (cubic foot second) or 15,304.67 acre-feet (ac*ft) per year. Table 1 contains a list of the culinary water rights, including the water right number, location and value of each water right.

TABLE 1
Culinary Water Rights

W.R. NUMBER	LOCATION	STATUS	FLOWRATE (CFS)	VOLUME (AC*FT)
59-1093	Haynes	Perfected	0.29	
59-1094	Haynes	Perfected	0.166	
59-1095	Haynes	Perfected	0.78	
59-1228	Haynes	Perfected	0.29	
59-1285	Haynes	Perfected	1.00	
59-1286	Haynes	Perfected	0.62	
59-1287	Haynes	Perfected	1.00	
59-1288	Haynes	Perfected	0.822	
59-1295	Haynes	Approved	1.00	

59-2910	Haynes	Perfected	0.3275	
59-2955	Haynes	Perfected	0.3275	
59-2956	Haynes	Perfected	0.3275	
59-2957	Haynes	Perfected	0.3275	
59-2958	Haynes	Perfected	0.3275	
59-2959	Haynes	Perfected	0.3275	
59-2960	Haynes	Perfected	0.3275	
59-2961	Haynes	Perfected	0.3275	
Subtotal Haynes Perfected Rights			8.59	6,218.88
59-1289	Barton	Perfected	1.00	
59-1709	Barton	Perfected	2.50	
59-2504	Barton	Perfected	0.071	
59-2506	Barton	Perfected	0.178	
59-2507	Barton	Perfected	0.178	
59-2508	Barton	Perfected	0.178	
59-2509	Barton	Perfected	0.261	
59-2510	Barton	Perfected	0.261	
59-2511	Barton	Perfected	0.105	
59-2512	Barton	Perfected	0.261	
59-2513	Barton	Perfected	0.105	
59-2704	Barton	Perfected	2.228	
59-2948	Barton	Perfected	0.111	
59-2949	Barton	Perfected	0.111	
59-4399	Barton	Approved	5.00	
Subtotal Barton Perfected Rights			12.55	9,085.79
Total All Perfected and Approved Rights			21.14	15,304.67

Table 2 lists the water rights associated with the secondary water system. The District has secondary water rights in the amount of 15.87 cfs or 10,265.54 acre-feet per year. Table 2 contains a list of the water rights, including the water right number, location and value of each water right.

TABLE 2
Secondary Water Rights

W.R. NUMBER	LOCATION	STATUS	FLOWRATE (CFS)	VOLUME (AC*FT)
59-1004	WWTP Outfall – Sec 16	Approved	8.00	5,791.74
59-3598	Shallow Drains – Sec 22	Approved	1.00	723.97
59-4802	2600 So. 8000 W	Approved	5.00	3,619.83
59-1679	130 Locations	Approved	1.87	130.00
Total Secondary Water Rights			15.87	10,265.54

In addition to the well water rights, the District owns 189 shares of stock in the Utah & Salt Lake Canal. Each share of canal stock allows the District to divert 4.59 acre-feet of water for the

Secondary Water System. Therefore, the District can divert up to 867 acre-feet of water each year, as calculated below.

$$189 \text{ Shares} * 4.59 \text{ ac*ft/share} = 867.51 \text{ ac*ft}$$

Water Demand Usage

The District is divided into two pressure zones. The wells pump water into the lower pressure zone and the JVVCD water is delivered into the upper pressure zone. Water is raised from the lower to the upper pressure zone by booster stations at two locations to distribute water from the well fields.

Pumped Ground Water

The Barton and the Haynes Well Fields are situated in close proximity to each other within the District. All wells in both well fields are assumed to be receiving water from the same aquifer. The aquifer is confined, and the well water flows to the surface in an artesian condition when not being pumped.

Barton Well Field

The Barton Well Field contains five (5) wells. Each of the Barton wells is fitted with a pump. Wells 1, 2, 3 and 4 are connected to a common discharge point. All flows from each of these four wells pass through a common transmission line directly to the EDR water treatment facility with option of bypassing the EDR facility and going directly to a finished water storage tank. Barton well No. 5 discharges directly into the EDR water treatment facility feed tank. A description of the wells is shown in Table 3.

TABLE 3
Barton Well Field

Well	Casing Diameter (in)	Well Depth (ft)	Pump HP	Pump Yield (gpm)
Barton No. 1	12	200	125	1,100
Barton No. 2	12	200	200	1,200
Barton No. 3	12	200	100	850
Barton No. 4	12	200	150	1,200
Barton No. 5	12	200	150	1,200
Total All Wells				5,550

Haynes Well Field

The Haynes Well Field is the oldest well field which contains ten (10) wells. Five of the ten wells are operational. All of the wells discharge into a common transmission line which pumps to the EDR treatment facility. A description of the wells and pumps is shown in Table 4.

TABLE 4
Haynes Well Field

Well	Casing Diameter	Well Depth	Pump HP	Yield (gpm)
Haynes Well No. 1	8	75	N/A	Unmetered
Haynes Replacement Well No. 2	20	250	30	1,200
Haynes Well No. 2 Monitoring Well	8	145	Not Pumped	Monitoring Well
Haynes Well No. 3	8	150	N/A	Not Used
Haynes Well No. 4	8	143	7	500
Haynes Well No. 5	4	126	N/A	Not Used
Haynes Well No. 6	8	83	Not Used	Not Used
Haynes Replacement Well No. 7	20	250	30	1,500
Haynes Well No. 7 Monitoring Well	8	163	Not Pumped	Monitoring Well
Haynes Well No. 8	12	206	10	700
Haynes Well No. 9	8	Unknown	25	1,100
Source Wells Capacity				5,000

Purchased Water

The District receives water from JWWCD through two connection points. Each of these connections consists of a flow meter, pressure reducing valve, and isolating valves. Water is delivered from JWWCD at approximately 110 pounds per square inch (psi), then reduced to 35 psi and injected directly into the District's water supply system. The downstream pressure setting is calibrated to facilitate filling the reservoirs in the District's high-pressure zone.

Water Budgets

The following table shows the amount of water produced and delivered into the water system and the metered deliveries to the end-users for the years 2005-2009.

TABLE 5
District's Water Budget

Year	Water Production			Water Deliveries			
	Wells	JWWCD	Total	Res	Comm	Indus & Inst	Total
2005	4232	928	5160	3973	195	85	4253
2006	4318	886	5205	3771	186	98	4055
2007	4477	886	5363	4636	386	49	5071
2008	5009	811	5820	4380	350	14	4743
2009	4497	848	5345	3728	468	41	4237

Figures are shown in acre footage

Present Water Use and Future Water Demand

Magna is currently experiencing a slower growth rate than projected. Table 6 lists and Figure I-1 shows the historic and projected population for Magna. This 30 year annual average growth rate from 1970 to 2005 was 5.6 percent. From 2000 to 2005 the growth slowed to 1.4% as the population increased from 27,229 to 29,306 people. The projected annual average growth rate during the next 25 years is anticipated to be approximately 3.1 percent. For general comparison, Salt Lake County's projected 20-year annual average growth rate is approximately 2.26 percent.

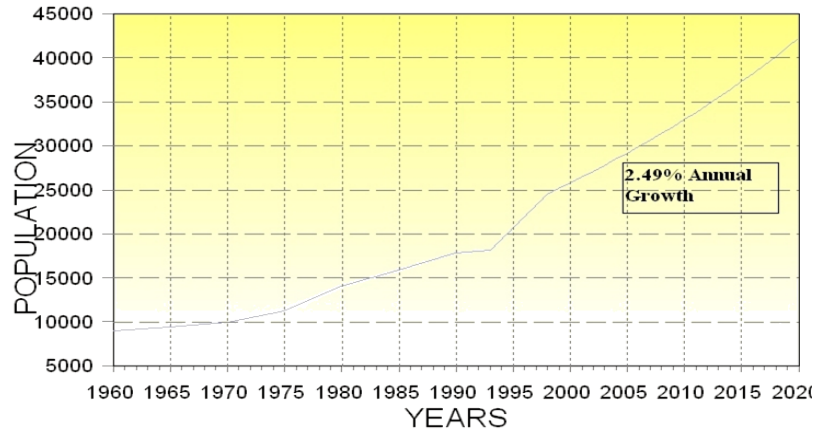
TABLE 6
Historic Population Growth

Period	Beginning Population	Ending Population	Population Growth	Percent Increase	Average Annual Growth Rate
1970 to 1980	9,942	14,098	4,159	42%	3.6%
1980 to 1990	14,098	17,829	3,731	26%	2.3%
1990 to 2000	17,829	27,229	9,400	53%	4.3%
2000 to 2005	27,229	29,306	2,077	7%	1.5%
1970 to 2005	9,942	29,306	19,367	195%	5.6%

Figure I-1 shows the projected number of connections for the District through the year 2020 using the future growth rates discussed above.

There are still large areas within the District boundaries that are not yet fully developed. The District service area is comprised of approximately 5,834 acres. About 62 percent of this area is developed as residential, commercial, schools and community centers. Another 33 percent is yet to be developed, and the remaining five per cent is undevelopable. The most prevalent developed land is residential, which occupies approximately 2,327 acres, or about 40 percent of the total area. Commercial areas comprise some 1,178 acres or 20 percent of total area and schools and community make up 246 acres or about 4 percent. Of the 1,786 acres still to be developed, 820 acres are zoned as residential, 883 acres as commercial and 83 acres are zoned for schools and community.

FIGURE I-1 - MAGNA WATER COMPANY'S HISTORICAL AND PROJECTED POPULATION



System Water Demand

Current

The District's current culinary water connections consist of 8,504 residential connections, 304 commercial connections, and 41 industrial and institutional connections. During the past five years, as shown in Table 5, water deliveries have increased from 5,160.32 acre feet to 5,344.96 acre feet. (An acre-foot of water= 1 acre of land, 1 foot deep). The average residential usage is decreased from 581.3 gallons per day (gpd) per connection to 539.2 gallons per day per connection for the same time period. This calculates to a 3.6 % reduction in water usage due to water conservation.

The District's per capita per day average usage is calculated to be 147 gallons. This is compared to the state's average of 260 gallons per capita per day. By the year 2025, the District may expect to provide for 2,000 gallons per minute in new water demands to serve an additional 12,179 more people. This growth rate equates to an estimated 1,378 residential and commercial connections (*Source: Water and Sewer Master Plan, Final Report August 1999, Amended June 2000, Amended January 2006 Hansen Allen and Luce, Inc. Epic Engineering*).

Future Projection

Future water requirements are estimated by multiplying the projected future population by the per capita water usage rate. Water is consumed by each person within the District at a rate of 147 gpd. A review of the undeveloped areas within the District service area shows that there is an average growth rate over the past five years at approximately 2.14 percent. The District is expected to grow from the current population of approximately 32,579 at an annual growth rate of 2.14 percent, to 44,758 people by the year 2025. The projected population is summarized at five years intervals in Table 6 and shown in Figure I-1. The projected annual water demand is also presented in Table 7 at each five-year interval.

TABLE 7
Projected Future Population and Water Usage in the District

YEAR	2010	2015	2020	2025
POPULATION	32,579	36,217	40,261	44,758
WATER DEMAND ¹ (ac*ft/year)	5,364.87	5,963.95	6,629.89	7,370.42

Note 1: Water Demand = Population * 147 gpd per capita

If the water consumption rate within the District remains consistent with past rates, during the next fifteen years the total water demand within the District will increase to 5,963.95 ac*ft in the year 2015 and 7,370.42 ac*ft by the year 2025.

WATER PROBLEMS, CONSERVATION MEASURES AND GOALS

Problems Identified

The District has identified and prioritized several problems with the current conservation habits and has identified them below.

- Citizens lack information and understanding of landscaping water requirements and efficient water-use habits and practices: Very few residents know how much water is required to maintain healthy landscaped areas and how to consistently use water efficiently indoors. Most citizens' irrigation and indoor practices are based on convenience rather than plant needs and water supply considerations.
- Meters are providing inaccurate data due to age and obsolescence. Many meters have been in service for more than 10 years and need to be replaced.
- Political consequences prevent water rates from keeping up with increasing costs: With the currently available methods for setting water rates Board action is required for each rate increase or any adjustments. Raising rates often is deferred as long as possible because of political risks to members of the Board of Trustees.
- Citizens lack understanding of how much water they normally use and therefore leaks go undetected for long periods of time.
- Citizens are under the impression that the drought is over and they do not have to conserve in their outside watering.

Each problem represents an opportunity. Educating the citizens and preparing a new generation of wise-water users will greatly benefit the District in their conservation goals. In addition to educating the citizens, the District can begin a program to replace old meters that will create substantial savings along with showing accurately what water the citizens are using. Along with the new meters the District can then detect leaks quicker and may begin to have the

ability to read meters through the winter months when leaks occur. All this will help in reducing peak demands on the system and the need for expensive water system upgrades.

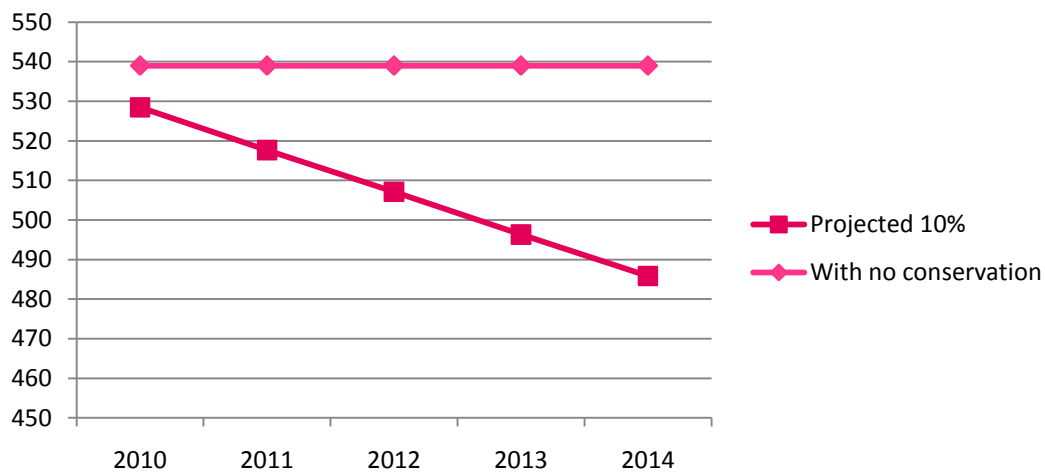
Water Conservation Goals

Magna Water has always been keenly aware of the challenges that an arid state has in supporting the growing needs of an increasing dense area. Our master plan and contingency plan have identified critical areas and provided solutions to ensure ample sources for years to come.

Goal I

Reduce the District's per capita water use by 10% in five years. Since 2004, Magna Water has consistently shown a drop in water usage from 581.3 gallons per day per connection, to 539 gallons per day per connection in 2009, a 3.6% reduction. Trends show that we can continue to maintain this reduction while still being able to irrigate the community. Table 8 as shown below is a timeline for the 10% reduction of water use in five years. A reduction of 10% would indicate 497.34 gallons of water usage per day per connection and a usage of 132 gpcd.

**Table 8
Timeline for projected conservation**



Goal II

Maintain a pricing system to encourage reduction of water use. The pricing system should encourage the customers to reduce use without creating a revenue shortfall.

Goal III

Expand the Secondary Water System. Expanding the secondary water system will have a direct effect on the amount of culinary water that is being consumed. Delivery of secondary

water is much less costly than that of the culinary and will prolong necessary costly expansion of the culinary water system.

CURRENT CONSERVATION PRACTICES

Magna Water has already implemented several water conservation measures and is always searching for additional practices to assist our customers in conserving. Current measures include a Water Conservation and Restrictions policy, water rate structure, water education, phase I secondary water system, and wetland preservation and revitalization.

Resolution adopting a Water Conservation Plan. On April 13, 1999, the District adopted and implemented a water conservation plan pursuant to Utah Code Annotated § 73-10-32. This resolution allows us to “promote the wise and efficient use of water so as to protect and preserve this valuable” resource.

During times of drought and other emergency issues, we have implemented and monitor the following irrigation schedule:

Water Conservation and Restrictions

The District has the following four distinct levels of water conservation requirements, restrictions, and penalties that may be imposed by the District’s Board of Trustees, in any order or sequence:

Level 1 Voluntary Water Conservation

This includes the three-tiered water rate structure which encourages the conservation of water through pricing. It also includes conservation awareness and education efforts, and all other voluntary efforts by the District and/or the public to conserve and make wise use of this limited resource.

Level 1 is always in effect, unless a higher level has been imposed, and there are no notice requirements associated with Level 1. Level 1 encourages voluntary water conservation practices such as:

- no outdoor watering during the heat of the day;
- efficient sprinkler systems;
- use of drought-tolerant plants and grasses;
- use of low-use water fixtures; and
- any other means of reducing the use of water.

As a general and ongoing conservation requirement, it is the policy of the District that no outdoor watering shall be allowed with water provided by the District between the hours of 10:00 AM and 6:00 PM, except in special, temporary situations where frequent waterings are required, such as with newly planted lawns.

Level 2 Mandatory Water Conservation

This includes directives imposed by the District's Board of Trustees which limit the manner of use, but not directly the quantity of use, such as limitations as to the time of day and/or the days of the week when outdoor water is permitted.

Notice of Level 2 requirements shall be given by mail to the billing addresses or by publishing once a week for two weeks in a newspaper of general circulation locally. The four step enforcement procedure associated with this level is as follows:

1. Upon the first violation, the District shall send a Notice of Violation by regular mail to the billing and service addresses for the subject property and shall include a copy of this Section 9.19.3 and any other appropriate conservation information. This step will be used to educate users to assist in the changing of water use habits.
2. Upon the second violation, the District shall hand-deliver a Warning Letter setting forth the specific requirements violated and any measures that must be taken in order to avoid further violations. This warning shall also state that violation fees will be imposed on all subsequent violations in that calendar year.
3. Upon the third violation, the District shall impose a Conservation Violation Fee as set forth in the District's Fee Schedule and notice of the assessment of the violation fee shall be given by regular mail to the billing and service addresses of the subject property.

For each subsequent violation, the District shall impose a violation fee that is twice the amount of the Conservation Violation Fee set forth in the District's Fee Schedule. Notice of the assessment of the violation fee shall be given by regular mail to the billing and service addresses of the subject property.

Level 3 Mandatory Water Restrictions

This include directives imposed by the District's Board of Trustees which limit the quantity of use of water by the adoption of temporary, emergency increases in the third tier, or the second tier and the third tier, of the District's water rate structure, and/or other restrictions imposed by the Board, such as temporary bans on the installations on new lawns which will require intensive waterings. The amount of the increase shall include a water restriction violation fee and the increased rates shall apply to all water usage in the tier(s) upon which the increased rates are imposed.

Notice of Level 3 Restrictions shall be by direct mailing to the billing and service addresses following a duly noticed public hearing as required for a rate increase. The Resolution imposing Level 3 restrictions shall state when the increase rates and other Level 3 restrictions expire.

Level 4 Emergency Water Restrictions

This may include restrictions in both the quantity and/or the manner of use of water, such as no outdoor watering, or outdoor watering for a limited time or times each week, or such other restrictions as the Board of Trustees deems is appropriate under the specific conditions and circumstances. The District shall give whatever notice is practical under the circumstances, including announcements through the radio, television, and/or daily print media, followed up by direct mailing to the billing and service addresses and a duly noticed public hearing as soon as possible. Level 4 Restrictions may be for a fixed period of time or until the Board of Trustees revokes them. The three step enforcement procedure at this level is as follows:

1. Upon the first violation, the District shall mail a Notice of Violation by regular mail to the billing and service addresses for the subject property and shall hand-deliver a copy thereof to any owner, resident, employee or agent that can be found at the subject property. This warning shall set forth the specific requirements violated and any measures that must be taken in order to avoid further violations. A copy of this Section 9.19.3 and of the Resolution imposing the Level 4 restrictions shall be included with the notice. This warning shall also state that violation fees will be imposed on all subsequent violations in that calendar year and that water service may be suspended upon or after the third violation.
2. Upon the second violation, the District shall impose a Conservation Violation Fee as set forth in the District's Fee Schedule and any additional fees set forth in the Resolution imposing the Level 4 restrictions. The District shall also mail a Notice of Serious Violation by regular mail to the billing and service addresses for the subject property and shall hand-deliver a copy thereof to any owner, resident, employee, or agent that can be found at the subject property. This Notice shall set forth the specific requirements violated and any measures that must be taken in order to avoid further violations and/or suspension of service.
3. Upon any subsequent violations, the District shall impose the Serious Violation Fee set forth in the District's Fee Schedule and the District Manager shall determine whether and when suspension of service is appropriate under the circumstances. The District shall provide notice by mail to the billing and service addresses of each such Serious Violation Fee imposed and/or that water service has been suspended.

Violations must be duly verified by a District employee. Each day that a violation continues is considered to be a new violation. The number of violations received is calculated on calendar year basis. Violations at one level are not counted in the violation total of any other level. All violation fees will be assessed on the culinary water bills.

Where hand-delivery is specified in this Section 9.19.3, if the District's staff is unable to locate the water user during three attempts to do so, the required delivery may be made by regular mail to the billing and service addresses.

Benefits achieved:

Ongoing reduction allows for consumer cost savings as well as savings in operation and maintenance (O&M) expenses. The District is able to use less energy for pumping and less chemicals for water acquisition, treatment, and disposal. Currently, the public has voluntarily conserved through inter-neighborhood outreach and complying with the incentive tier structure which is evidenced in their monthly water statements. Education, water audits, and adjustments to their water pressure are also offered to residents and business owners.

Tiered Rate Structure. The District implemented a four tiered rate structure as an incentive to water users to conserve usage due to long drought years.

Benefits achieved:

Adopting a tiered rate structure has accomplished a public awareness of water management and the consequence of wasting water. The public awareness has significantly contributed to more responsible utilization and commitment to conservation.

System Upgrades. The District is replacing inefficient water meters with state-of-the art automated reading meters. This action will allow us to reduce our field work orders by 15% provide improved accuracy in water usage reading, enhance customer service and response times, and utilize our workforce for other innovative District projects.

Benefits achieved:

Enhanced controls on water accounting and increased revenues due to new efficient meters.

Wetland Preservation and Revitalization. The District has diligently pursued work on the wetlands within its service area during 2004. With the purchase of a mowing machine and chemical treatments, the District is able to treat and begin destroying non native noxious vegetation. Once completed, the natural re-vegetation of desired native wetland plants will grow.

Benefits achieved:

In 2005, West Valley City completed construction of their storm water facilities to reintroduce storm water to the part to encourage the natural re-vegetation of the wetlands.

CURRENT PRICING STRUCTURE

During 1995, the District has operated a three-tiered water overage rate structure illustrated in Table 9. This structure was implemented to encourage water conservation and continues to be very successful. In 2004, a fourth tier was added to include the secondary water system. Since 2006 the District has gradually increased the culinary water rates. The current rates are shown below in Table 9.

**TABLE 9
Tiered Rates**

Culinary Water Rates		
Tiers	Base Rate	# of Thousand Gallons per Month (gpM)
Tier 1	\$14.31	First 6,000 gpM (Minimum Fee)
Tier 2	\$1.35	6,001 -18,000 gpM
Tier 3	\$1.51	18,001 - 35,000 gpM
Tier 4	\$1.72	35,001 gpM and over
Secondary Water Rates		
Lot Size: 0.00 – 0.49 acres Base Rate \$4.50 per month year-round regardless of usage min. fee		
Tiers	Base Rate	# of Thousand Gallons per Month (gpM) Seasonal
Tier 1	\$0.55	First 45,000 gpm
Tier 2	\$0.65	45,001 - 75,000 gpm
Tier 3	\$0.98	75,001 gpm and over
Lot Size: 0.50 to 0.99 acres Base Rate \$9.00 per month year-round regardless of usage min. fee		
Tiers	Base Rate	# of Thousand Gallons per Month (gpm) Seasonal
Tier 1	\$0.55	First 90,000 gpm
Tier 2	\$0.65	90,001 - 150,000 gpm
Tier 3	\$0.98	150,001 gpm and over
Lot Size: 1.00 acre or more Base Rate \$22.50 per month year-round regardless of usage min. fee		
Tiers	Base Rate	# of Thousand Gallons per Month (gpm) Seasonal
Tier 1	\$0.55	First 225,000 gpm
Tier 2	\$0.65	225,001 - 375,000 gpm
Tier 3	\$0.98	375,001 gpm and over

ADDITIONAL CONSERVATION MEASURES

In order to accomplish the District’s goal of water use reduction, the District recognizes the need for additional conservation measures. These conservation measures include System water audits, leak detection, and meter repairs. Appoint a Water Conservation Coordinator, additional expansion of the secondary water system; establish a regular maintenance and replacement program for existing meters. Offer rebates for smart controller technology, and additional school education programs and increasing public awareness.

System water audits, leak detection and meter repairs

The District proposes to inform the citizens the availability of system water audits by determining large water users and sending them information regarding a water audit. Informing them that with this audit they could conserve additional water and their water costs could be reduced. By evaluating the large water users the District will be able to also detect leaks in the customer’s home or outside watering.

Appointment of Water Conservation Coordinator

The District proposes to appoint a water conservation coordinator in order to assist in implementing these water conservation measures.

Expand the Secondary Water System

In 2004, the District installed the first phase of a secondary water system. This initial phase targeted large water users such as schools, churches, parks and some homes. By implementing this alternative to culinary irrigation, culinary usage in large turf areas dropped by 100%. This was a direct result of the conversion to the secondary water system. Private residences connecting to the secondary water system will see culinary usage drop by an estimated 50%. The District has the goal to expand the secondary water system throughout the District. In the long term plan, the objective is to eliminate culinary water for outdoor irrigation.

Benefits achieved:

Phase I of the secondary water system is demonstrating that implementation of a secondary water system will achieve a direct and major reduction in the use of culinary water.

Regular maintenance and replacement program for existing meters

The District currently is actively replacing old meters and maintaining the broken meters. The District is unable to read during the winter months due to weather. In replacing the meters to a newer technology that is radio transmitted, the District will be able to read year round which will then allow leaks to be detected during the winter.

Smart Controller technology and rebate program

The District is now engaging in investing in the smart controller technology to offer to customers at a rebate.

Strengthen the Public Education outreach. The District has always been committed to open dialogue with the consumers we serve by raising public awareness through the use of various communication tools including open Board meetings, annual consumer confidence reporting, an information hotline, open door policy to meet with District management, and intermittent communication in the monthly water statements. Our plan is to enhance our current outreach through:

- ◆ Website – the site offers tips on conservation, contact information, news releases, comment section, newsletter, and other resources.
- ◆ Indoor/Outdoor water usage – offer suggestions to consumers on managing their water needs and provide consumers with updates on implementation of low flow water devices throughout Salt Lake County.
- ◆ Xeriscape workshops – provide local resources and schedules for these classes. Working on ways the District can incorporate funding into sponsoring some of these workshops to demonstrate effective xeriscape models.
- ◆ Elementary education – work with local schools in teaching students simple gardening techniques for responsible irrigation of vegetable crops and flower beds.

COST SAVINGS ANALYSIS

During the past five years conservation measures have reduced the unit water usage from 581.3 gallons per day (gpd) per connection, equal to 157 gpcd, in 1999 to 539.2 gpd per connection in 2009, equal to 147 gpcd. This is a 83.9 gpd or 3.6% reduction in water usage.

Based upon this reduction in usage, it is estimated that over the past five years about 706.24 acre feet of water was conserved. This water conservation equates to a savings of \$451,836.37 to the District customers at the Conservation rate of \$1.72 per 1000 gallons. These conservation values are shown in Table 10 below.

TABLE 10
Past Cost Saving

	2005	2006	2007	2008	2009
Population	29,306	29,933	30,574	31,228	31,896
Old Usage Rate (gpcd)	157	157	157	157	157
Non-Conservation Usage (Ac*ft)	5154.19	5264.47	5377.20	5492.22	5609.70
New Usage rate (gpcd)	157	155	153	150	147
Conservation Usage (Ac*ft)	5154.19	5197.40	5240.20	5247.35	5252.40
Usage Difference (Ac*ft)	0	67.07	137.00	244.87	357.30
Cost Savings	\$0.00	\$37,587.65	\$76,778.11	\$137,231.06	\$200,239.55
Total Savings					\$451,836.37

Note: Numbers shown in Bold are recorded quantities. All other numbers are calculated.

A projection of the proposed reduction of 10% in gpcd water use in the next 5 years shows that this water conservation will result in a savings of \$1,141,684.89. The water usage amounts and the cost savings for each five year period from 2010 to 2025 are shown in Table 11 below.

**Table 11
Projected Cost Saving**

	2010	2015	2020	2025
Populations	32,579	36,217	40,262	44,758
Old Usage Rate (gpcd)	147	147	147	147
Non-Conservation Usage (Ac*ft/yr)	5364.87	5963.95	6,630.06	7,370.42
New Usage rate (gpcd)	147	132	132	132
Conservation Usage (Ac*ft/yr)	5364.87	5355.39	5953.52	6618.34
Usage Difference (Ac*ft/yr)	0	608.56	676.54	752.08
Cost Savings	0	\$341,051.73	\$379,149.36	\$421,483.80
Total Savings				\$1,141,684.89

IMPLEMENTATION AND UPDATES TO THE WATER CONSERVATION PLAN

Well before the Water Conservation Plan Act was passed, Magna Water District was proactive in setting an example for effective and practical water usage. From innovative master planning, to progressive technologies to improve production and efficiency, Magna Water District will continue to implement the following:

1. Protects its water systems and preserves its water rights through constant monitoring and research;
2. Researches funding sources for systems expansions and developments;
3. Educates the public through diversified communication efforts; and
4. Provides exceptional customer service so that we can be a solid resource of information for our consumers.
5. Participated in the development of the West Valley City Landscape Ordinance (see Appendix B).

The water conservation plan of Magna Water District, adopted July of 2005, and revised on this 18th day of November, 2010, is hereby readopted. The plan will be amended no less than every five years and will continue to play a vital role in the future development of Magna.

APPENDIX A – A RESOLUTION ADOPTING A WATER CONSERVATION PLAN

RESOLUTION

A Resolution Regarding Amendments to the District's Fee Schedule in Order to Implement the District's Secondary Water System and Other Rate Changes

WHEREAS, Magna Water Company, an Improvement District (the "District"), provides water services and sewer services to residents of the District; and

WHEREAS, the District has determined that in order to: (1) maximize the utilization and efficiency of limited resources; (2) promote conservation; and (3) to promote the general public welfare, it is necessary and appropriate to create a secondary water system and to adopt a new Fee Schedule that revises certain existing fees and implements new fees pertinent to the new secondary water system; and

WHEREAS, the District has determined that it is necessary and appropriate to revise certain fees listed in the District's Fee Schedule such as those pertaining to "re-connection" fees in order to more accurately reflect the District's costs; and

WHEREAS, the District has determined that it is necessary and appropriate to provide relief and recognition to military reserve personnel who are activated to active duty by way of a discount on monthly minimum service fees charged by the District while they are active duty.

NOW, THEREFORE, BE IT RESOLVED by the District's Board of Trustees as follows:

1. That a fourth tier be and hereby is added to the District culinary water rates in order to promote both conservation of culinary quality water and the wise use of water resources through increased use of the District's secondary water system. The new fourth tier rate shall be \$1.25 per 1,000 gallon of culinary water used over 35,000 gallons per month and the quantities of water at the second and third tiers shall be adjusted to 6,001 to 18,000 gallons per month for Tier 2 and 18,001 to 35,000 gallons per month for Tier 3.
2. That a rate structure be and hereby is established for secondary water service provided by the District through its new secondary water system as set forth in the attached Fee Schedule on page 207 thereof.
3. That the District's "Re-connection Fee" be and hereby is increased to \$50.00 per service re-connected, plus the actual costs of disconnection, re-connection, and inspection, if any.
4. That a twenty percent (20%) discount be and hereby is authorized on the District's monthly minimum service fees for all military reserve personnel that are activated to active duty for each month in which the reservist is on active duty for at least part of that month and if the reservist's account with the District is current.

5. That the District's Fee Schedule be revised to properly identify which rates are applicable to culinary water service, secondary water service, or both water services, also as set forth in the attached Fee Schedule on pages 207 through 212 thereof.
6. That the other miscellaneous and/or technical changes contained in the attached pages 207 through 212 of the District's Fee Schedule be and hereby are adopted.
7. That the District's Fee Schedule attached as Addendum A to the District's Administrative Rules and Regulations Manual be and hereby is amended as set forth in the attached pages 207 through 212 of said Manual to reflect the above changes.
8. That any rule, regulation, or resolution of the District pertaining to these matters is hereby modified as necessary to properly reference and implement these changes and any rules, regulations, or resolutions inconsistent with this Resolution are hereby repealed to the extent necessary to effectuate these changes.
9. That the effective date of this Resolution shall be March 16, 2004.

ADOPTED AND APPROVED by majority vote at a duly called meeting of the Board of Trustees on this 16th day of March, 2004.

MAGNA WATER COMPANY
An Improvement District

By: _____
H. T. Dyches, Chairman
Board of Trustees

ATTEST:

LeIsle Fisher, Board Clerk

ADDENDUM A

CULINARY WATER RATES

<u>Tier</u>	<u>Description</u>
Tier 1/Base Rate	Minimum Fee, includes first 6,000 gallons per month
Tier 2	Rate per 1,000 gal. between 6,001 & 18,000 gal./mon.
Tier 3	Rate per 1,000 gal. between 18,001 & 35,000 gal./mon.
Tier 4	Rate per 1,000 gal. over 35,000 gal./mon.

<u>Tier</u>	<u>Rates</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>
Tier 1		\$11.45	\$12.13	\$13.23	\$13.76	\$14.31
Tier 2		\$1.04	\$1.11	\$1.21	\$1.28	\$1.35
Tier 3		\$1.17	\$1.25	\$1.36	\$1.44	\$1.51
Tier 4		\$1.33	\$1.42	\$1.55	\$1.64	\$1.72

SECONDARY WATER RATES:

Lot Size: 0.00 to 0.49 acres:

Base Rate	\$4.50 per month year-round regardless of usage (Minimum Fee)
Tier 1	\$0.55 per 1,000 gal. for the first 45,000 gal./mon. (Seasonal)
Tier 2	\$0.65 per 1,000 gal. between 45,001 & 75,000 gal./mon. (Seasonal)
Tier 3	\$0.98 per 1,000 gal. over 75,000 gal./mon. (Seasonal)

Lot Size: 0.50 to 0.99 acres:

Base Rate	\$9.00 per month year-round regardless of usage (Minimum Fee)
Tier 1	\$0.55 per 1,000 gal. for the first 90,000 gal./mon. (Seasonal)
Tier 2	\$0.65 per 1,000 gal. between 90,001 & 150,000 gal./mon. (Seasonal)
Tier 3	\$0.98 per 1,000 gal. over 150,000 gal./mon. (Seasonal)

Lot Size: 1.00 acre or more:

Base Rate	\$22.50 per month year-round regardless of usage (Minimum Fee)
Tier 1	\$0.55 per 1,000 gal. for the first 225,000 gal./mon. (Seasonal)
Tier 2	\$0.65 per 1,000 gal. between 225,001 & 375,000 gal./mon. (Seasonal)
Tier 3	\$0.98 per 1,000 gal. over 375,000 gal./mon. (Seasonal)

SEWER RATES:

Residential \$16.22 per month

Commercial See Tiers 1 & 2 below

Tier 1/Base Rate Minimum fee per month, includes the first 267 gallons per day of metered culinary water
 Tier 2 Rate per 1,000 gallons of metered culinary water in excess of 267 gallons per day

<u>Tier</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>
Tier 1	\$16.22	\$17.03	\$17.71	\$18.24	\$18.79
Tier 2	\$0.46	\$0.48	\$0.50	\$0.52	\$0.53

CONNECTION/IMPACT FEES:

Culinary Water Impact Fee: The District selects the appropriate size and type of meter. The AWWA recommended safe maximum operating capacities (peak flows) are shown for each size and type of meter as shown in the meter set fee table.
 (Does not include any District provided on-site facilities)

Culinary Water connection/impact fees for single family residential units and duplexes. These fees are per residential unit for 5/8", 3/4", & 1" meters:

\$2,758.00 5/8" or 3/4" culinary connection
 \$4,597.00 1" culinary connection

Culinary Water connection/impact fees for multi-unit residential developments not using a separate meter for outdoor water use:

\$2,758.00 per residential unit
 (The meter will be sized as required)

Indoor water connection/impact fees for multi-unit residential developments using a separate meter for outdoor water use:

\$1,655.00 per residential unit
 (60% of impact fee for standard connection)
 (The meter will be sized as required)

Culinary Water connection/impact fees for all other meters from 1-1/2" to 12" (including meters for outdoor water use at multi-unit residential developments) shall be determined by the following procedure:

(a) Determine the Residential Equivalent (RE) for the proposed development. The RE is defined as the annual average daily demand (in gpd) of the proposed development divided by 620 gpd. (See Note 1.) Each connection shall have a minimum RE of 1.0. The RE is determined by the District Engineer's estimated water use tables for similar developments. The District Engineer may adjust the estimate as necessary to be appropriate for the proposed development.

(b) Determine the Peaking Factor using the following formula:

$$PF = \text{Water Meter Capacity (MC)} \text{ (in gpm) divided by the Annual Average Daily Demand (in gpm) of the proposed connection.}$$

(c) Calculate the District's Culinary Water Impact Fee using the following formula:

$$\text{Impact Fee} = \$ 2,758 \times ((0.48 \times RE) + (0.52 \times MC/30 \times (PF/59 - 1/59)))$$

where: RE = Residential Equivalent demand in gpd
 MC = Meter Capacity in gpm
 PF = Peaking Factor

Minimum Culinary Water Impact Fee Table For Larger Meters

Meter Size	Meter Type (gpm)	Meter Capacity Water Use (gpd)	Minimum Average Fee	Minimum Impact
1-1/2"	Pos Displ	100	2,300	\$9,903
2"	Pos Displ	160	3,700	\$15,844
1-1/2"	Turbine	100	2,300	\$9,903
2"	Turbine	160	3,700	\$15,844
3"	Turbine	350	8,200	\$34,656
4"	Turbine	600	14,000	\$59,410
6"	Turbine	1,250	29,200	\$123,770
8"	Turbine	1,800	42,000	\$178,229

2"	Compound	160	3,700	\$15,844
3"	Compound	320	7,500	\$31,685
4"	Compound	500	11,700	\$49,508
6"	Compound	1,000	23,400	\$99,016
8"	Compound	1,600	37,400	\$158,426

Secondary Water Impact Fee: The District's Secondary Water Impact Fees Impact Fees are as follows:
(Does not include any District provided on-site facilities.)

IMPACT FEES IN THE PHASE 1 AND 2 SERVICE AREA

Single Family Residential Lots:

<u>Lot Size (acres)</u>	<u>REs</u>	<u>Impact Fee</u>
0.01 to 0.49	1 RE	\$1,560
0.50 to 0.99	2 REs	\$3,120
1.00 or more	5 REs * Irr. Acreage	\$7,800/Irrigated Acre

All Other Lots:

<u>Lot Size (acres)</u>	<u>REs</u>	<u>Impact Fee</u>
0.01 or more	Determined by District Engineer based on 5 REs/Irr. Acre	\$1,560/RE

IMPACT FEES IN THE SERVICE AREA FOR THE REMAINDER OF THE DISTRICT

Single Family Residential Lots:

<u>Lot Size (acres)</u>	<u>REs</u>	<u>Impact Fee</u>
0.01 to 0.49	1 RE	\$1,780
0.50 to 0.99	2 REs	\$3,560
1.00 or more	5 REs * Irr. Acreage	\$8,900/Irrigated Acre

All Other Lots:

<u>Lot Size (acres)</u>	<u>REs</u>	<u>Impact Fee</u>
0.01 or more	Determined by District Engineer based on 5 REs/Irr. Acre	\$1,780/RE

REs are rounded up to the next whole RE.

The District selects the appropriate size and type of meter.

The implementation policy for these impact fees is contained in Section 10.10 of the District's Administrative Rules and Regulations Manual.

Sewer Impact Fee: \$2,216.00 per unit

(Does not include any District provided on-site facilities) Commercial and industrial sewer impact fees shall be determined on the basis of Residential Equivalent (RE) by the following formula:

Sewer connection fee = RE x \$ 2,216

For multi-unit residential developments the RE is the number of residential units. For commercial or industrial developments the RE is to be determined by the District Engineer's estimated water use tables for similar developments. The District Engineer may adjust the estimate as necessary to be appropriate for the proposed development. RE is determined by the estimated annual daily average sewer flow divided by 330 gpd per unit.

(See Note 1.)

Notes:

- (1.) According to the District's 2005 Master Plan Update, 620 gpd and 330 gpd are the District's average daily water demand and sewer volume per connection, respectively.

METER SET FEES:

Culinary Water

(Includes District's meter, strainer & labor to install meter in customer supplied meter box or vault. The District will determine the meter type for each connection.)	Meter Size	Meter Type Operating Capacity (gpm)	AWWA Safe Set Fee	Meter
	5/8"	Pos Displ	20	\$387.00
	3/4"	Pos Displ	30	\$443.00
	1"	Pos Displ	50	\$499.00
	1-1/2"	Pos Displ	100	\$611.00
	2"	Pos Displ	160	\$892.00
	1-1/2"	Turbine	100	\$791.00
	2"	Turbine	160	\$1,150.00
	3"	Turbine	350	\$1,599.00
	4"	Turbine	600	\$2,261.00
	6"	Turbine	1,250	\$3,788.00
	8"	Turbine	1,800	\$5,303.00
	2"	Compound	160	\$2,138.00
	3"	Compound	320	\$2,441.00
	4"	Compound	500	\$3,283.00
	6"	Compound	1,000	\$5,124.00
	8"	Compound	1,600	\$6,505.00

Secondary Water

(Includes District's meter and labor to install meter in the customer-supplied meter box or vault. The District will determine the meter type for each connection.)	Meter Size	Set Fee
	3/4"	\$443.00
	1"	\$499.00
	1-1/2"	\$791.00
	2"	\$1,150.00
	3"	\$1,599.00
	4"	\$2,261.00
	6"	\$3,788.00
	8"	\$5,303.00

Fire Mainline Detector Check Meter \$337.00 per 5/8" meter

MISCELLANEOUS FEES AND PENALTIES:

Delinquency Fee	\$10.00 - \$20.00
Conservation Violation Fee	\$25.00
Re-connection Fee	\$50.00 per service being re-connected, plus actual costs of disconnection, re-connection, and inspections, if any
Tampering Fee	\$35.00 plus 1.5 times actual costs, if any
Serious Rules Violation Fee	\$100.00 plus 1.5 times actual costs, if any
Permit Violation Fee	\$500.00 plus 1.5 times actual costs, if any
Non-Resident Rate	2.5 times the normal rate
Discount on Multiple Units	\$0.66 per unit for culinary water service \$0.50 per unit for sanitary sewer service
Discount for Activated Military Reservists	20% off the normal minimum monthly service fees
Fire Hydrant Meter Deposit	\$561.00
Fire Hydrant Meter Usage Fee	\$56.00 setup + \$12.00 per week + \$2.50 per 1,000 gallons used
Wastewater Discharge and Dumping Permit	a) \$500.00/yr. Industrial Permit b) \$50.00/yr. Commercial Permit
Dumping Fee	a) \$12.00 Generator Permit b) \$12.00 Hauler Permit c) \$196.00/ton Holding Tank/Septage Waste
Legal Review Fee	\$150.00
Service Availability Letter	\$30.00 per letter per service
Preliminary Engineering and the Engineer's Service Availability Letter	\$900.00
Engineering Review Fee	\$350.00 + \$0.45/foot of pipeline. A separate fee is calculated for each service (e.g., culinary water, secondary water, and sewer service). This fee is for project and plan review by District Staff and the District Engineer and includes facilities design review.
Meter Flow Test Fee	\$25.00 per test
Relocation of Water Lateral and Meter Box	\$1,736.00 per box, if done by the District
Permanent Water or Sewer Line Disconnection (cut & cap) and Removal of Meter Box	\$901.00 per connection, if done by the District

INSPECTION FEES:

Fee	Amount	Paid by *	
		D	H
Water Mainline Construction Inspection Fee	\$259 + \$0.45/foot for inspection of culinary or secondary lines	x	
Sewer Mainline Construction Inspection Fee	\$259 + \$0.68/foot for inspection of sewer lines	x	
Sewer Mainline Video Inspection Fee	\$132 + \$0.63/foot for inspection of sewer lines	x	
Hot Tap or Cut In Mainline Connection Inspection Fee	\$794.00 per mainline connection	x	
Asbestos Cement Mainline Connection Inspection Fee	\$1,072.00 per mainline connection	x	
Manhole Inspection Fee	\$259.00 per manhole	x	
Large Vault Inspection Fee	\$575.00 per vault	x	
Single Fire Hydrant Mainline Connection Inspection Fee	\$339.00 per inspection	x	x
Large Meter Periodic Filter /Sampling Inspection Fee	\$64.00 per inspection or sampling	x	
Water Lateral Tap Inspection Fee	\$64.00 for each new or replacement connection	x	x
Water Lateral Connection Inspection Fee	\$64.00 for each new or replacement connection, each disconnection, and each re-connection		x
Sewer Lateral Connection Inspection Fee	\$179.00 for each new or replacement connection, each disconnection, and each re-connection		x
Sewer Special Wye Construction Inspection Fee	\$64.00 per wye		x
Re-inspections & Inspection Overages	\$48 per hour (used at the discretion of the District to cover the cost of additional inspections caused by contractor)	x	x

Paid by *	
D	H
x	
x	
x	
x	
x	
x	
x	
x	
x	x
	x
	x
	x
x	x

* This "Paid by" chart is a non-binding general guideline as to who typically pays this fee. It may vary by project.

An "x" in the "D" column indicates that the Developer typically pays this fee in accordance with an "Extension Agreement" with the District.

An "x" in the "H" column indicates that typically there is no "Extension Agreement" involved and that the Homeowner or Builder is typically responsible for payment of this fee.

Fees associated with Document Requests under the GRAMA Act:

Reviewing a record to determine whether it is subject to disclosure	No Charge
Inspection of record by requesting person	No Charge

Copy fee for District prepared copies	\$1.00 per page
Computer Disk (including overhead and time of District staff in preparation of information request, with a minimum of \$5.00)	Actual Cost
Other Forms including Maps (including overhead and time of District staff or outside consultant in preparation of information request, with a minimum of \$1.00 per page)	Actual Cost
Miscellaneous Fees (including overhead and time of District staff or outside consultant in preparation of information request, with a minimum of \$1.00 page)	Actual Cost

APPENDIX B - WEST VALLEY CITY LANDSCAPE ORDINANCE

CHAPTER 7-28 WATER EFFICIENT LANDSCAPE

Sections:

7-28-101. Short Title.

7-28-102. Purpose and Intent.

7-28-103. Definitions.

7-28-104. Commercial, Industrial and Multi-family Development.

7-28-105. Residential Single-family Development.

7-28-106. Enforcement and Penalty for Violations.

7-28-101. SHORT TITLE.

This Title shall be known as the “West Valley City Water Efficient Landscape Ordinance.” This Title shall also be known as “Title 7-28, West Valley City Code.” It may be cited and pleaded under either designation.

(Ord. No. 02-44 Added 08/06/2002)

7-28-102. PURPOSE AND INTENT.

The City has developed the regulations set forth in this Chapter for the purpose of:

- (1) Addressing the public interest to conserve public water resources and to promote water efficient landscaping.
- (2) Protecting and enhancing the community’s environmental, economic, recreational, and aesthetic resources by promoting efficient use of water in the community’s landscapes.
- (3) Reducing water waste.
- (4) Establishing a structure for the design, installation, and maintenance of water efficient landscapes throughout the City.

(Ord. No. 02-44 Added 08/06/2002)

7-28-103. DEFINITIONS.

- (1) Administrative Standards means the set of rules, procedures and requirements set forth in a landscape ordinance associated with making permit application, assembling materials for public review, meeting the requirements of the landscape ordinance, seeking approvals, enforcement, conducting site inspections and filing reports.
- (2) Bubbler means an irrigation head that delivers water to the root zone by “flooding” the planted area, usually measured in gallons per minute. Bubblers exhibit a trickle, umbrella or short stream pattern.
- (3) Designer means a Landscape Architect, Landscape Contractor (General Engineering Contractor), Professional Engineer, or Architect as set forth by State law.
- (4) Drip Emitter means irrigation fittings that deliver water slowly at the root zone of the plant, usually measured in gallons per hour.

- (5) Evapotranspiration means the quantity of water evaporated from adjacent soil surfaces and transpired by plants during a specific time, expressed in inches per day, month or year.
- (6) Extra-Drought Tolerant Plant means a plant that can survive without irrigation throughout the year once established, although supplemental water may be desirable during drought periods for improved appearance and disease resistance.
- (7) Grading Plan means a plan showing all finish grades, spot elevations as necessary and existing and new contours within the developed landscaped area.
- (8) Ground Cover means live and mineral materials used in such a way as to form a continuous cover over the ground that can be maintained at a height of not more than twelve (12) inches. Living ground cover may include: vegetative vines, low-spreading shrubs, perennial flowering or foliage plants. Mineral ground cover may include: rocks, boulders, gravel, or brick.
- (9) Hardscape means patios, decks, and paths. Does not include driveways and sidewalks.
- (10) Irrigated Landscaped Area means all portions of a development site to be improved with planting and irrigation. Natural open space areas shall not be included in the Irrigated Landscaped Area.
- (11) Irrigation Efficiency means the measurement of the amount of water beneficially applied, divided by the total amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system hardware characteristics and management practices.
- (12)(12) Irrigation Contractor means a person who has been certified by the Irrigation Association (IA) to install irrigation systems.
- (13) Irrigation Plan means the plan that shall show the components of the irrigation system with water meter size, backflow prevention, precipitation rates, flow rate and operating pressure for each irrigation circuit, and identification of all irrigation equipment.
- (14) Landscape Architect means a person who holds a license to practice landscape architecture in the state of Utah.
- (15) Landscape Education Package means a set of documents which is intended to inform and educate new homeowners in the City about water efficient landscapes. The package includes the principles of water efficient landscape design, information about the Water Check program, a listing of Water-Conserving Plants, a listing of Designers and certified Landscape Irrigation Contractors, an information packet about Jordan Valley Water Conservancy District's Demonstration Garden and classes, and an information packet about the Water Purveyor's water rates, billing format for water use, and the economics of installing and maintaining a water efficient landscape.
- (16) Landscape Irrigation Auditor means a person who has been certified by the Irrigation Association to conduct a landscape irrigation audit.
- (17) Landscape Plan Documentation Package means the preparation of graphic and written criteria, specifications, and detailed plans to arrange and modify the effects of natural features such as plantings, ground and water forms, circulation, walks and other features to comply with the provisions of this ordinance. The Landscape Plan Documentation Package shall include a project data sheet, a Planting Plan, an Irrigation Plan, a Grading Plan, a Soils Report, a Landscape Water Allowance, and an Irrigation Schedule.
- (18) Landscape Water Allowance means for design purposes, the maximum annual applied water for the established landscaped area. It is based upon the local Reference Evapotranspiration Rate, the ETO adjustment factor and the size of the landscaped area.
- (19) Landscape Zone means a portion of the landscaped area having plants with similar water needs, areas with similar microclimate (i.e., slope, exposure, wind, etc.) and soil conditions, and areas that will be similarly irrigated. A landscape zone can be served by one irrigation valve, or a set of valves with the same schedule.

- (20) Landscaping means the improvement of property through the addition of plants and eradication of weeds and other deleterious material. Landscaping includes any combination of living plants, such as trees, shrubs, vines, ground covers, flowers, or grass; natural features such as rock, stone, or bark chips; and structural features, including but not limited to, fountains, reflecting pools, outdoor art work, screen walls, fences, benches, or berms. All elements of the landscaping shall be combined in a harmonious manner to make the land more attractive for users, to screen unattractive uses, or to act as buffers to visually separate different types of uses.
- (21) Microclimate means an area within the overall landscape which shares similar elements such as slope, exposure, wind, soil conditions, etc.
- (22) Mulch means any material such as bark, wood chips or other materials left loose and applied to the soil.
- (23) Non-Drought Tolerant Plant means a plant that will require regular irrigation for adequate appearance, growth and disease resistance.
- (24) Planting Plan means a plan that shall clearly and accurately identify and locate new and existing trees, shrubs, ground covers, turf areas, driveways, sidewalks, hardscape features, and fences, and which includes a planting schedule showing graphic symbols (if applicable), botanical names, common names, quantity, and plant size.
- (25) Precipitation Rate means the depth of water applied to a given area, usually measured in inches per hour.
- (26) Rain Shut-Off Device means a device wired to the automatic controller that shuts off the irrigation system when it rains.
- (27) Reference Evapotranspiration Rate or ETO means a standard measurement of environmental parameters which affect the water use of plants. ETO is expressed in inches per day, month or year and is an estimate of the evapotranspiration of a large field of four to seven-inch tall, cool season grass that is well watered. The average annual ETO for the West Valley City area is 31.17 inches.
- (28) Rehabilitated Landscaping means site alternations of 75% or more.
- (29) Runoff means irrigation water that is not absorbed by the soil or landscape area to which it is applied and which flows onto other areas.
- (30) Secondary or Reuse Water means non-potable water suitable for irrigation purposes. This water would be available in a pressurized system.
- (31) Soils Report means a report by a soils laboratory indicating soil type(s), soil depth, uniformity, composition, bulk density, infiltration rates, and pH for the topsoil and subsoil for a given site. The soils report also includes recommendations for soil amendments.
- (32) Spray Sprinkler means an irrigation head that sprays water through a nozzle.
- (33) Stream Sprinkler means an irrigation head that projects water through a gear rotor in single or multiple streams.
- (34) Turf means a surface layer of earth containing mowed grass with its roots.
- (35) Water Conserving Plant means a plant that can generally survive with available rainfall once established although supplemental irrigation may be needed or desirable during spring and summer months.
- (36) Water Audit means an on-site survey and measurement of irrigation equipment and management efficiency, and the generation of recommendations to improve efficiency.

(Ord. No. 02-44 Added 08/06/2002)

7-28-104. COMMERCIAL, INDUSTRIAL AND MULTI-FAMILY DEVELOPMENT.

- (1) Applicability. The provisions of this section shall apply to all new and rehabilitated landscaping for public agency projects, private development projects, developer-installed landscaping in multi-family residential projects, and developer-installed landscaping in single-family projects that require a review process. Homeowner-provided landscaping at single family projects is discussed in Section 7-28-105, "Residential Single-Family Development."
- (2) Documentation. Landscape Plan Documentation Package. A copy of a Landscape Plan Documentation Package shall be submitted to and approved by the City prior to the issuance of any permits. A copy of the approved Landscape Plan Documentation Package shall be provided to the property owner or site manager and to the local retail water purveyor. The Landscape Plan Documentation Package shall be prepared by a Designer who certifies that the package satisfies the requirements of the West Valley City Water Efficient Landscape Ordinance (7-28) and its contents have been prepared or reviewed by individuals meeting State Code regulations. The Landscape Plan Documentation Package shall consist of the following items:
 - a. Project Data Sheet. The Project Data Sheet shall contain the following:
 - i. Project name and address;
 - ii. Applicant or applicant's agent's name, address, phone and fax number;
 - iii. Designer's name, address, phone and fax number; and
 - iv. Landscape contractor's name, address, phone and fax number, if available at this time.
 - b. Planting Plan. A detailed Planting Plan shall be drawn at a scale that clearly identifies the following:
 - i. Location of all existing trees and plant materials to be removed and retained and all new plant materials with a planting schedule;
 - ii. Property lines and street names;
 - iii. Existing and proposed buildings, walls, fences, utilities, paved areas and other site improvements;
 - iv. Designation of Landscape Zones, and
 - v. Details and specifications for tree staking, soil preparation, and other planting work.
 - c. Irrigation Plan. A detailed Irrigation Plan shall be drawn at the same scale as the planting plan and shall contain the following information:
 - i. Layout of the irrigation system and a legend summarizing the type and size of all components of the system, including manufacturer name and model numbers;
 - ii. Static water pressure in pounds per square inch (psi) at the point of connection to the public water supply;
 - iii. Flow rate in gallons per minute and design operating pressure in psi for each valve and precipitation rate in inches per hour for each valve with sprinklers; and
 - iv. Installation details for irrigation components.
 - d. Grading Plan. A Grading Plan shall be drawn at the same scale as the Planting Plan and shall contain the following information:
 - i. Property lines and street names, existing and proposed buildings, walls, fences, utilities, paved areas and other site improvements; and

- ii. Existing and finished contour lines and spot elevations as necessary for the proposed site improvements.
- e. Soils Report. A Soils Report will be required where a site's irrigated landscaped areas exceed 2,500 square feet total. The Soils Report shall describe the depth, composition, and bulk density of the topsoil and subsoil at the site, and shall include recommendations for soil amendments. The Planting Plan shall incorporate the recommendations of the Soils Report into the planting specifications.
- f. Landscape Water Allowance Worksheet. The annual Landscape Water Allowance shall be calculated using the following equation:

Landscape Water Allowance = ETO x 1.0 x 0.62 x A, where:

Landscape Water Allowance is in gallons per year
 ETO = Reference Evapotranspiration in inches per year
 = ETO adjustment factor, 100% of turf grass ETO (water year adjustment factor)
 0.62 = conversion factor (to gallons per square feet)
 A = total Irrigated Landscape Area in square feet

NOTE: refer to the worksheet packet for formula data.

- g. Irrigation schedule. A monthly Irrigation Schedule shall be prepared that covers the initial 120-day plant establishment period and the typical long-term use period. This schedule shall consist of a table with the following information for each valve:
 - i. Plant type (for example, turf, trees, low water use plants);
 - ii. Irrigation type (for example, sprinklers, drip, bubblers);
 - iii. Flow rate in gallons per minute;
 - iv. Precipitation rate in inches per hour (sprinklers only);
 - v. Run times in minutes per day;
 - vi. Number of water days per week, and
 - vii. Cycle time to avoid Runoff.
- (3) Landscape Design Standards. Plant Selection. Plants selected for landscape zones shall consist of plants that are well-suited to the microclimate and soil conditions at the project site. Plants with similar water needs shall be grouped together as much as possible.
- a. For projects located at the interface between urban areas and natural open space (non-irrigated), Extra-Drought Tolerant Plants shall be selected that will blend with the native vegetation and are fire resistant or fire retardant. Plants with low fuel volume or high moisture content shall be emphasized. Plants that tend to accumulate excessive amount of dead wood or debris shall be avoided.
 - b. Areas with slopes greater than 33% shall be landscaped with deep-rooting, Water Conserving Plants for erosion control and soil stabilization.
 - c. Mulch. After completion of all planting, all irrigated non-turf areas shall be covered with a minimum four (4)-inch layer of Mulch to retain water, inhibit weed growth, and moderate soil temperature. Non-porous material shall not be placed under the mulch.
 - d. Soil Preparation. Soil preparation will be suitable to provide healthy growing conditions for the plants and to encourage water infiltration and penetration. Soil preparation shall include scarifying the soil to a minimum depth of six (6) inches and amending the soil with organic material as per specific recommendations of the Landscape Designer/Landscape Architect based on the Soils Report (when applicable).

- (4) Irrigation Design Standards. Irrigation design standards for this Ordinance shall be as outlined in the latest version of the “Minimum Standards for Efficient Landscape Irrigation System Design and Installation” prepared by the Utah Irrigation Association. In addition, the following portions of this Section shall also be applicable:
- a. Pressure Regulation. A pressure regulating valve shall be installed and maintained by the consumer if the static service pressure exceeds 80 pounds per square inch (psi). The pressure-regulating valve shall be located between the meter and the first point of water use, or first point of division in the pipe, and shall be set at the manufacturer’s recommended pressure for the sprinklers.
 - b. Landscape Water Meter. A water meter which is separate from the water meter installed for indoor use, shall be installed for landscape irrigation systems when required by the local retail water purveyor for secondary water systems. The size of the meter shall be determined based on irrigation demand.
 - c. Automatic Controller. All irrigation systems shall include an electric automatic controller with multiple program and multiple repeat cycle capabilities and a flexible calendar program. All controllers shall be equipped with an automatic rain shut-off device, and the ability to adjust run times based on a percentage of maximum ETO.
 - d. On slopes exceeding 33 percent, the irrigation system shall consist of Drip Emitters, Bubblers or sprinklers with a maximum Precipitation Rate of 0.85 inches per hour and adjusted sprinkler cycle times to eliminate Runoff.
 - e. Each valve shall irrigate a landscape zone with similar site, slope and soil conditions and plant materials with similar watering needs. Turf and non-turf areas shall be irrigated on separate valves. Drip Emitters and sprinklers shall be placed on separate valves.
 - f. Parking strips and other landscaped areas less than eight (8) feet wide shall be landscaped with Water-Conserving Plants. Drip Emitters or a Bubbler shall be provided for each tree. Bubblers shall not exceed 1.5 gallons per minute per device. Bubblers for trees shall be placed on a separate valve unless specifically exempted by the City due to the limited number of trees on the project site.
 - g. Sprinklers shall have matched Precipitation Rates with each control valve circuit.
 - h. Check valves shall be required where elevation differences will cause low-head drainage. Pressure compensating valves and sprinklers shall be required where a significant variation in water pressure will occur within the irrigation system due to elevation differences.
 - i. Drip irrigation lines shall be underground, except for Drip Emitters and where approved as a temporary installation. Filters and end flush valves shall be provided as necessary.
 - j. Valves with spray or stream sprinklers shall be scheduled to operate between 9 p.m. and 8 a.m. to reduce water loss from wind and evaporation.
 - k. Program valves for multiple repeat cycles shall be required where necessary to reduce runoff, particularly on slopes and soils with slow infiltration rates.
 - l. When secondary or reuse water is available from the local water purveyor, it shall be used in the irrigation system.
- (5) Plan Approval, Construction Inspection and Post-Construction Monitoring. As part of the Building Permit approval process, a copy of the Landscape Plan Documentation Package shall be submitted to the City for approval before construction begins. With the Landscape Plan Documentation Package, a copy of the Landscape Water Allowance Work-sheet shall be completed by the Designer and submitted to the City. Once approved, the Landscape Water Allowance Worksheet will be transmitted to the local water purveyor.

- a. All Landscape Plan Documentation Packages submitted must be certified by a Designer.
- b. All landscape irrigation systems shall be installed by an IA-certified Irrigation Contractor, or under the direct supervision of the Designer. The certified person representing the contracting firm shall be a full-time employee of the firm and shall be directly involved with the project including, at least, weekly site visits.
- c. All installers, Designers, and auditors shall meet state and local license, insurance, and bonding requirements, and be able to show proof of such.
- d. After the landscaping has been installed, the property owner is encouraged to contact a certified water auditor and request a Water Audit. The Water Audit will determine the irrigation system efficiency and make recommendations for improvements.
- e. The City reserves the right to perform site inspections at any time before, during or after the irrigation system and landscape installation, and to require corrective measures if requirements of this Ordinance are not satisfied.

(Ord. No. 02-44 Added 08/06/2002; Ord. No. 05-47 Amended 11/1/2005)

7-28-105. RESIDENTIAL SINGLE-FAMILY DEVELOPMENT.

- (1) Applicability. The provisions of this Section shall apply to all new and rehabilitated landscaping for single-family residential dwellings.
This section does not apply to:
 - a. Residential developments with developer-installed landscapes (refer to Section 7-28-104); or
 - b. Registered historical sites.
- (2) Provisions for New or Rehabilitated Landscapes. A Landscape Education Package shall be given to all new single-family homeowners by the Water Purveyor at the time water connection is made by the resident. The Landscape Education Package shall consist of, but not be limited to, the following items:
 - a. Principles of Water Efficient Landscape Design.
 - b. Listing of Water Conserving Plants.
 - c. Information about the Water Check program.
 - d. Listing of Designers and certified Landscape Irrigation Contractors.
 - e. Information Packet about the Jordan Valley Water Conservancy District Demonstration Garden and classes offered in water wise landscaping.
 - f. Listing of indoor and outdoor water conservation tips.
 - g. Information Packet about the Water Purveyor's water rate schedule, billing format for water use, and the economics of installing and maintaining a water efficient landscape.
- (3) Post Installation. After the landscaping has been installed, the homeowner is encouraged to contact a certified water auditor and request a Water Check. The Water Check will determine the irrigation system efficiency, make recommendations for improvements, and provide the homeowner with an irrigation schedule.

(Ord. No. 02-44 Added 08/06/2002)

7-28-106. ENFORCEMENT AND PENALTY FOR VIOLATIONS.

- (1) Enforcement Authority. The West Valley City Code Enforcement Director and other employees of the Code Enforcement Division of the Community Preservation Department are authorized to enforce all provisions of this Chapter.
- (2) Violation of this Chapter. The consumer who violates any provisions of this Chapter shall be issued a written notice of violation. The written notice shall be affixed to the property where the violation occurred and mailed to the consumer of record and to any other person known to the City who is responsible for the violation and its corrections. Such notice shall describe the violation and order that it be corrected, cured, or abated immediately or within such specified time as the City determines is reasonable under the circumstances. Failure to receive such notice shall not invalidate further actions by the City. If the order is not complied with, the City may issue fines and/or a class "C" misdemeanor citation.

(Ord. No. 02-44 Added 08/06/2002; Ord. No. 10-08 Amended 03/29/2010)