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IDAHO PUBLIC  
UTILITIES COMMISSION

Chas. F. McDevitt  
Dean J. (Joe) Miller

December 1, 2006

***Via Hand Delivery***

Jean Jewell, Secretary  
Idaho Public Utilities Commission  
472 W. Washington St.  
Boise, Idaho 83720

Re: UWI-W-06-05

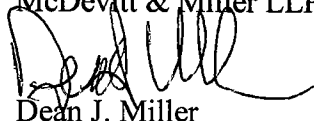
Dear Ms. Jewell:

Enclosed for filing in the above matter please find the original and seven (7) copies of an Application and Request for Modified Procedure, Direct Testimony of Gregory Wyatt, and United Water Idaho's Conservation Plan regarding the above referenced matter.

An additional copy of the documents and this letter is included for return to me with your file stamp thereon.

Very Truly Yours,

McDevitt & Miller LLP



Dean J. Miller

DJM/hh  
Attach.

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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION OF )  
UNITED WATER IDAHO INC., FOR )  
APPROVAL OF ITS WATER )  
CONSERVATION PLAN AND FOR )  
APPROVAL OF A WATER CONSERVATION )  
SURCHARGE AND REQUEST FOR )  
MODIFIED PROCEDURE )

CASE NO. UWI-W-06- 05  
APPLICATION and REQUEST FOR  
MODIFIED PROCEDURE

COMES NOW, United Water Idaho Inc., (“United Water”) and applies to the Commission for an Order approving the Conservation Plan (“Conservation Plan”) filed herewith and for an Order approving a Water Conservation Surcharge (“Surcharge”) as proposed herein and in support thereof respectfully shows as follows, to wit:

**The Conservation Plan**

I.

In Case No. UWI-W-04-04, Order No. 29871 (September 20, 2005), the Commission directed United Water to prepare and file with the Commission an updated Conservation Plan. Originally, the Conservation Plan was to be filed by April 1, 2006. Subsequently, in Order No. 29934, the Commission extended the filing deadline to December 1, 2006.

II.

Filed herewith is the Conservation Plan prepared for United Water by the consulting firm of Maddaus Water Management in compliance with Order Nos. 29871 and 29934.

III.

As explained in the Conservation Plan, Maddaus Water Management, in consultation with United Water Idaho and interested stakeholders, evaluated ninety one (91) potential conservation measures. Seventeen (17) measures were selected for further study and were evaluated using a Water Demand Management Least Cost Planning Decision Support System. This analysis produced a list of seven (7) conservation measures that were found to be cost effective.

**[Intentionally Left Blank]**

IV.

The conservation measures recommended by the Plan, including maintaining the current conservation effort, and their estimated annual cost are as follows:

<b>Conservation Measure</b>	<b>Measure Description</b>	<b>Average Cost Per Year (\$)</b>	<b>Start Year</b>
Continue Current Program	Continue current outreach and educational programs.	\$124,200	2006
Additional Xeriscape demonstration gardens	Develop additional demonstration garden(s) displaying living examples of low water-using gardens and landscaping. United Water Idaho would create and manage the gardens and provide signs and brochures to educate those people visiting the garden(s).	\$17,400	2008-2009
Continue/Expand WELs	Continue and expand the Water Efficient Landscaping (WELs) program to greatly increase the number of participants. Incentives could include landscape and drip system vouchers.	\$11,200	2007-2008
Residential school education programs	United Water Idaho would sponsor school conservation programs with workbooks and presentations; teaching materials and other educational tools to teach the students the importance of conserving water.	\$6,700	2007-2008
Rain-sensor (shut off device) retrofit on irrigation controllers	United Water Idaho pays for a rain sensor giveaway or voucher, and homeowner pays for the optional installation (\$35).	\$35,600	2008-2009
Trigger shut-off valves and hose timers	United Water Idaho would offer a voucher, or otherwise provide to the customer at no cost, hose timers and shut-off valves. This would enable homeowners to use water outdoors more efficiently.	\$6,900	2007-2008
Award program for water savings by businesses	United Water Idaho would sponsor an annual awards program for businesses that significantly reduce water use. They would receive a plaque, presented at a lunch with the mayor.	\$1,300	2008-2009
Restaurant low flow spray rinse nozzles	Provide free installation of 1.6 gpm spray nozzles for the rinse and clean operation in restaurants and other commercial kitchens.	\$40,900	2008-2009
<b>TOTAL</b>		<b>\$244,200</b>	

V.

As explained in the Direct Testimony of Gregory P. Wyatt, filed herewith, United Water agrees with these recommendations and proposes to implement them, upon approval by the Commission.

**Conservation Surcharge**

VI.

As further explained in the Direct Testimony of Gregory P. Wyatt, United Water requests approval of a Conservation Surcharge of 0.33% on amounts billed under United Water's Tariff Schedule 1, General Metered Service, to recover the cost of implementing the conservation measures described above. If approved, United Water will file amended tariff sheets for review and approval incorporating the Surcharge.

**Request for Modified Procedure**

United Water does not believe a hearing is required to consider this matter and, pursuant to IPUCRP 201 *et. seq.* requests it be processed under Modified Procedure. If, however, a hearing is determined to be necessary United Water stands ready for immediate hearing, based on the Direct Testimony of Gregory P. Wyatt.

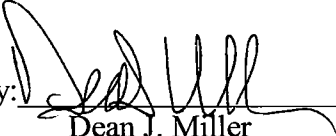
WHEREFORE, United Water respectfully requests of the Commission as follows:

1. That the Commission determine that this matter may be processed under Modified Procedure;
2. That the Commission approve the recommended conservation measures as set forth herein and authorize United Water to implement them;

3. That the Commission approve a Conservation Surcharge in the amount of 0.33% on amounts billed under United Water's Tariff Schedule 1, General Metered Service.

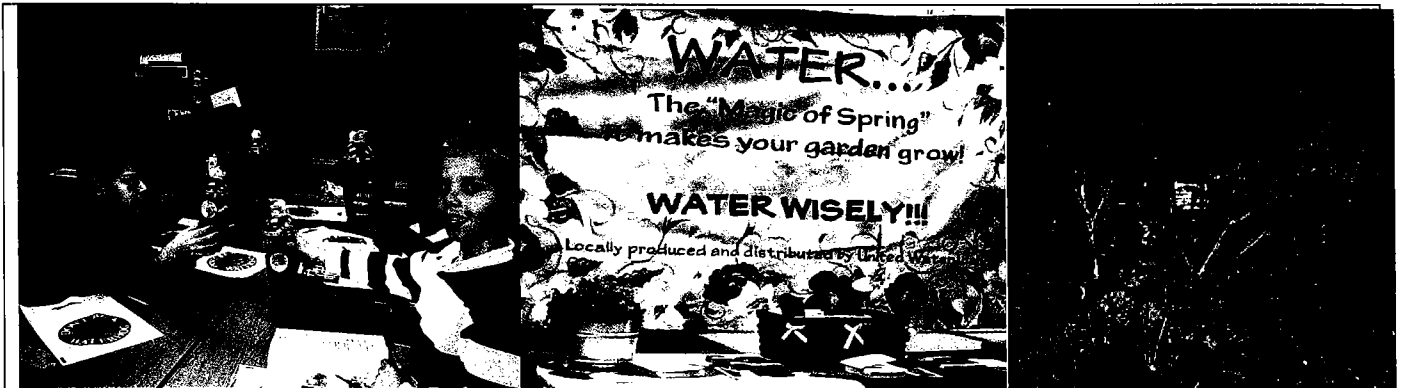
DATED this 1st day of December, 2006

UNITED WATER IDAHO INC.

By:   
Dean J. Miller  
Attorney for Applicant



# United Water Idaho Water Conservation Plan



November 2006

Prepared By:  
Maddaus Water Management  
For  
United Water Idaho



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**United Water Idaho**  
**2006 Water Conservation Plan**  
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# **Water Conservation Plan – Section 1**

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## **SECTION 1: Introduction and Summary**

### **1.1 Purpose of Plan**

The purpose for the 2006 Water Conservation Plan is to provide a planning document for United Water Idaho (UWID) for the next ten years to guide water conservation measures within the service area.

This Water Conservation Plan has been prepared to review historical efforts since the original 1993 United Water Idaho Water Conservation Plan and to provide a new recommended plan based on a cost-effectiveness analysis of water conservation measures.

Specifically, the Water Conservation Plan provides an assessment of UWID's water efficiency program, analyzes 17 conservation measures, leading to a recommended plan.

### **1.2 Scope of Plan**

The 2006 Water Conservation Plan includes the following elements:

#### **Characterize Water Use Patterns**

The first phase of this project required the collection of data on demographics, historical water use, and future water use forecasts to be used in the conservation analysis. Once the data was collected, the historical water use patterns were analyzed to identify trends specific to United Water Idaho.

#### **Conservation Measure Screening**

Maddaus Water Management compiled a list of potential supply side and demand side water conservation measures that may be applicable to United Water Idaho. A large list including 91 potential conservation measures was developed. This list of measures was then screened by a stakeholder group using five criteria into a short-list of 17 appropriate measures for detailed evaluation.

#### **Benefit and Cost Analysis of Conservation Measures**

The list of 17 short-listed measures was analyzed using the Water Demand Management Least Cost Planning Decision Support System (DSS) Model. This model allowed careful analysis of each measure based on market penetration, costs to the customer and utility, and unit water savings. The best measures were combined into four programs for further analysis.

#### **Recommended Conservation Plan**

Based on the results of the benefit cost analysis of these programs, a comprehensive water conservation program was developed. This program is summarized in detail in this report including strategies for funding such a program.

# **Water Conservation Plan – Section 1**

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## **1.3 Background – 1993 Water Conservation Plan**

United Water Idaho started its water conservation program in the early-1990's. The content of the program was based on the following recommendations provided in the Montgomery Watson 1993 Water Conservation Plan:

- Public information and school education
- Residential home water audits
- Plumbing code
- Management of unaccounted-for water (water loss)

Since the plan, United Water Idaho has successfully implemented a public information and school education program, conducted a number of residential home water audits, and locally supported the implementation of the plumbing code. The management of unaccounted for water has been addressed in the past ten years, and was not included as a measure for further analysis in this 2006 Water Conservation Plan.

## **1.4 Plan Development and Public Participation**

During the preparation of the water conservation plan, Maddaus Water Management coordinated information and held meetings with the following parties: United Water Idaho, Idaho Rivers United and the Idaho Public Utilities Commission.

## **1.5 Economic Evaluation of Conservation Options**

Based on a conservation measure analysis, Maddaus Water Management recommends implementing a program that includes 7 of the 17 measures evaluated for cost-effectiveness. These measures were selected from a list of over 90 potential measures. The results of the analysis along with those selected measures for implementation are presented below in Table 1-1 and further described in Table 1-2.

# Water Conservation Plan – Section 1

Table 1-1 Conservation Measure Evaluation Results

	Conservation Measure	Water Utility Benefit - Cost Ratio	Cost of Savings per Unit Volume (\$/MG)	Included in Recommended Plan
1	Additional Xeriscape demonstration gardens	1.46	\$115.52	X
2	Continue/Expand WELs	1.79	\$105.98	X
3	Residential school education programs	0.42	\$424.18	X
4	Rain-sensor (shut off device) retrofit on irrigation controllers	0.96	\$213.22	X
5	Residential water surveys	0.18	\$1,016.93	
6a	Smart Irrigation Controller Rebates Single Family	0.13	\$1,240.45	
6b	Smart Irrigation Controller Rebates Multi Family, Commercial	0.26	\$600.16	
7	Trigger shut-off valves and hose timers	1.10	\$233.98	X
8	New home efficiency award programs	0.18	\$819.08	
9	Landscape rebate program	0.13	\$1,572.15	
10	Rebates for 6/3 dual flush or 4-liter toilets	0.08	\$1,223.95	
11	Award program for water savings by businesses	1.01	\$113.92	X
12	Commercial toilet replacement	0.10	\$1,116.09	
13	Rebates for replacing high use commercial urinals with 0.5 gal/flush urinals	0.06	\$1,824.55	
14	Replace inefficient water using equipment	0.03	\$2,897.56	
15	Restaurant low flow spray rinse nozzles	0.85	\$127.73	X
16	Landscape water budgets	0.38	\$113.92	
17	Financial incentives, rebates for irrigation upgrades	0.33	\$1,116.09	

# Water Conservation Plan – Section 1

## 1.6 Summary of Recommended Plan

A detailed description and additional information on the recommended plan is provided in Sections 7 of this report.

**Table 1-2 Recommended Plan Summary**

Conservation Measure	Measure Description	Average Cost Per Year (\$)	Start Year
Continue Current Program	Continue current outreach and educational programs.	\$124,200	2006
Additional Xeriscape demonstration gardens	Develop additional demonstration garden(s) displaying living examples of low water-using gardens and landscaping. United Water Idaho would create and manage the gardens and provide signs and brochures to educate those people visiting the garden(s).	\$17,400	2008-2009
Continue/Expand WELs	Continue and expand the Water Efficient Landscaping (WELs) program to greatly increase the number of participants. Incentives could include landscape and drip system vouchers.	\$11,200	2007-2008
Residential school education programs	United Water Idaho would sponsor school conservation programs with workbooks and presentations; teaching materials and other educational tools to teach the students the importance of conserving water.	\$6,700	2007-2008
Rain-sensor (shut off device) retrofit on irrigation controllers	United Water Idaho pays for a rain sensor giveaway or voucher, and homeowner pays for the optional installation (\$35).	\$35,600	2008-2009
Trigger shut-off valves and hose timers	United Water Idaho would offer a voucher, or otherwise provide to the customer at no cost, hose timers and shut-off valves. This would enable homeowners to use water outdoors more efficiently.	\$6,900	2007-2008
Award program for water savings by businesses	United Water Idaho would sponsor an annual awards program for businesses that significantly reduce water use. They would receive a plaque, presented at a lunch with the mayor.	\$1,300	2008-2009
Restaurant low flow spray rinse nozzles	Provide free installation of 1.6 gpm spray nozzles for the rinse and clean operation in restaurants and other commercial kitchens.	\$40,900	2008-2009
<b>TOTAL</b>		<b>\$244,200</b>	

# Water Conservation Plan – Section 1

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In summary the recommended plan when fully implemented should:

- Save United Water Idaho 0.71 mgd by the year 2030
- Provide these water savings in a cost-effective manner (program benefit-cost ratio is 1.10)

The benefits from the recommended plan include (but are not limited to) the following:

- Reduce peak water demands
- Enhance environmental benefits by leaving more water in the Boise River and groundwater aquifers.
- Save energy and system operation costs

In order to implement the recommended plan United Water Idaho will need to:

- Fund a program with an average budget of \$244,200 per year for the first five years
- Finance the program through surcharges, partnerships, grants and/or water rate increases.
- Provide additional staffing and materials
- Monitor and evaluate performance
- Adjust the plan on an annual basis based on review of program successes and challenges

**Water Conservation Plan – Section 1**

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# SECTION 2: Study Area Characteristics

## 2.1 History of the Water System

United Water Idaho provides water service to about 225,000 people in the 150-square mile area incorporating Boise and surrounding communities. United Water Idaho is the successor to Idaho's first incorporated water system -- the Artesian Water and Land Development Improvement Company founded in 1890. The first water supply in Boise ran from Hulls Gulch, down Eighth Street, to the Eastman Hotel. It consisted of two artesian wells, two and one half miles of water mains, one reservoir, and one service level.

Today United Water Idaho uses a combination of surface water and groundwater. United Water Idaho serves its customers with approximately 77 percent ground water supplied from 90 wells located throughout the Boise area. The remaining 23 percent of water is supplied from the Boise River through two surface water treatment plants (Marden Water Treatment Plant and Columbia Water Treatment Plant). There currently is a total of 1,100` miles of water mains and 10 pressure levels. United Water Idaho currently has 91 employees.

Surface water from the Boise River is treated at the Marden Plant using upflow clarification and direct filtration processes to remove particulate matter, followed by disinfection with chlorine to destroy any harmful bacteria. In addition, they adjust pH to reduce the corrosivity of the water and decrease the possibility of dissolving metals from household plumbing. The Columbia Treatment Plant uses state-of-the art membrane filtration technology with disinfectant added to the finished water.

## 2.2 Description of the Service Area

### Climate

Boise is situated in a wide river valley at the foot of the Rocky Mountains. The Boise River runs out of a canyon to the south and through the center of the city, joining the Snake River about 40 miles to the northwest. The Boise area has a moderate continental climate characterized by hot, dry summers and moderately cold and wet winters. The semi-arid climate is tempered year-round by air from the Pacific Ocean. Summers are dry with hot periods that may last more than a few weeks. Winter storms produce much of the yearly precipitation; cold spells are common, but warm Chinook winds (moist air from the Pacific) bring periods of mild weather.

The majority of precipitation in the valley falls in the winter and spring. The mountains to the north of the city receive large accumulations of snow in the winter, which then melts in the spring and early summer to supply the majority of stream flow in the Boise River and its tributaries. Humidity is generally low and moderate winds are a frequent occurrence.

**Elevation:** 2,842 feet above sea level

**Average Temperatures:** January, 29.9° F; August, 72.2° F; annual average (mean): 50.9° F

**Average Annual Precipitation:** 12.11 inches of rain, 20.9 inches of snow



## Water Conservation Plan – Section 2

\*Data is for 1940 to 2005 as per Boise Airport Weather Service Office. [www.wrh.noaa.gov/boi/](http://www.wrh.noaa.gov/boi/)

### Customers

Since 1988 the number of metered customers in the UWID service area has increased at an annual average rate of nearly 3.6 percent. In total, counting customers added with the acquisition of other service areas, the UWID service area customer count increased by 36,983 during the 1988 to mid-2006 period as shown in Table 2-1. The majority of those new customers, 32,812 or 88.7 percent, are residential. In mid-2006 residential customers accounted for 89.4 percent of the total customers in the UWID service area.

**Table 2-1 United Water Idaho Historical Customer Summary**

Year	Number of Customers <sup>a</sup>			Total <sup>d</sup>	Growth Rate (%)
	Residential <sup>b</sup>	Commercial <sup>c</sup>	Municipal		
1988	38,078	4,114	79	42,271	2.27
1989	38,143	5,199	63	43,405	2.68
1990	40,064	5,519	69	45,652	5.18
1991	41,356	5,745	89	47,190	3.37
1992	42,825	5,900	65	48,790	3.39
1993	44,372	6,148	102	50,622	3.75
1994	46,041	6,403	102	52,546	3.80
1995	47,078	6,588	46	53,712	2.22
1996	48,455	6,697	36	55,188	2.75
1997	50,028	6,799	32	56,859	3.03
1998	51,177	7,024	123	58,324	2.58
1999 <sup>e</sup>	57,638	7,343	50	65,031	11.50
2000	59,950	7,420	45	67,415	3.67
2001	61,715	7,566	124	69,405	2.95
2002	62,767	7,852	126	70,745	1.93
2003	64,948	7,906	125	72,979	3.16
2004	66,971	8,098	125	75,194	3.04
2005	69,243	8,154	125	77,522	3.10
Mid-2006	70,891	8,237	126	79,254	2.23
<b>1987-2005 Annual Average Compound Rate of Growth</b>					<b>3.58</b>

a. Year-end number of customers per UWID year end reports

b. Single family residential customers

c. Includes multi-family residential customers

d. Does not include private fire services

e. Includes the acquisitions of South County Water, Barber Water, and Warm Springs

Source: 2006 United Water Idaho Master Plan Chapter 3 and UWID annual sales reports.

## Water Conservation Plan – Section 2

### 2.3 Current and Projected Water Supply

United Water Idaho has never experienced a water shortage. Based on this information, a lack of water supply does not appear to be driving a factor for this Water Conservation Plan Update. Table 2-2 and Table 2-3 provide an overview of the current water supply and water usage for UWID. Note that the total water delivered and the use per customer has been declining significantly as presented in Table 2-3.

**Table 2-2 United Water Idaho Source of Supply**

Supply	Description
Delivery capacity	97 million gallons per day
Water treatment plants	2 with a combined capacity of 24.3 million gallons per day
Operating wells	90
Average well pumping rate	560 gallons per minute
Average well depth	550 feet
Deepest well	1,120 feet

**Table 2-3 Water Usage 2000 to 2005**

	2000	2001	2002	2003	2004	2005
Water delivered, Billion Gallons	16.1	16.0	15.7	15.7	15.5	14.8
Average daily usage, MGD	44.3	43.8	43.0	43.0	43.0	40.5
Average Use per Customer, gal/day	657.1	631.0	607.8	589.2	571.8	522.4
Peak usage, MGD	83.0	83.0	90.6	93.0	93.0	91.0
Minimum day usage, MGD	18.0	18.6	17.6	18.0	20.0	17.0

### 2.4 Demographic Forecasts

The following information was obtained from the 2006 United Water Idaho Master Plan. It was out of the scope of this project to develop new demographic forecasts for United Water Idaho. Instead, population projections were provided to Maddaus Water Management by United Water Idaho from the Master Plan as shown in Table 2-4.

According to the 2006 United Water Idaho Master Plan: "The Economic and Demographic projections for the Boise Metro area represent a look into the likely future economic and demographic conditions that United Water Idaho must prepare for and plan to serve. These projections include a forecast of the local area economy (employment and personal income), as well as forecasts of the future demographic conditions (population, households and persons per household) that the company is likely to face.

## Water Conservation Plan – Section 2

These economic and demographic concepts are important because they have a significant affect upon the area's water usage and the rate of increase in water usage. Historical and projected demographics for Ada County are continuously tracked by the Community Planning Association of Southwest Idaho (COMPASS) with input from local real estate developers and agents, community planners, the Cities of Boise, Eagle, Garden City, Kuna and Meridian, Ada County government, Boise State University, Idaho Power and others from other local taxing districts. Because of this breadth of input the information available from COMPASS is believed to be very reliable in terms of it's insight into the potential future spatial distribution of population, households, and employment in Ada County. However, since COMPASS only officially updates its economic and demographic projections once every five years, the forecasts can be dated and not reflective of the most recent economic events and current economic outlook for Ada County and the Boise area.

In order to overcome this shortcoming United Water Idaho retained the services of John Church, a well known Idaho economist and principal of the consulting firm Idaho Economics, to provide up-to-date and detailed projections of future population, households, and employment for the United Water Idaho service area. It is John Church's economic forecasts of Ada and Canyon Counties that COMPASS uses as a basis for its periodic economic and demographic forecasts."

**Table 2-4 UWID Population and Household Growth Projections (2000-30)**

Total Service Area	2000	2005	2010	2015	2020	2025	2030
Total Population	205,833	228,258	248,868	270,331	300,211	335,941	373,067
Annual Average % Change	---	2.1%	1.7%	1.7%	2.1%	2.3%	2.1%
Total Households	80,832	91,804	100,710	108,731	121,265	137,311	154,973
Annual Average % Change	---	2.6%	1.9%	1.5%	2.2%	2.5%	2.4%

Source: 2006 United Water Idaho Master Plan, Section 3 Table 3-3.

Data based on Idaho Economics projections of population and households within service area boundaries.

### **SECTION 3: Analysis of Historical and Projected Water Demand**

For this Water Conservation Plan historical and projected demand forecasts were provided by United Water Idaho from the 2006 United Water Idaho Water Master Plan. These projections were developed by Idaho Economics using econometric forecasting methods using historical water use characteristics for UWID in conjunction with water demand forecasting. This section presents the historical and projected water use for the study area.

#### **3.1 Historical Water Use**

This section provides an evaluation of UWID water production and sales from 1997 through 2005 and information on historical water use characteristics and relative growth over the years. This section also presents a description of these characteristics, including water use patterns, unmetered water, and water consumption and peaking factors.

##### **Description of Available Data**

United Water Idaho maintains several information databases that characterize water production and use. Idaho Economics used the following UWID sources to develop historical water demand and water use patterns:

- Daily production reports
- Daily production SCADA print-outs
- Annual and monthly sales reports
- Annual and monthly production reports
- Archived production and consumption Supervisory Control and Data Acquisition (SCADA) data for 2003 and 2004
- Engineering database spreadsheets

The data used to characterize the UWID historical water requirements does not include water use and production in the miscellaneous or small areas that are served by UWID around its core service area. These smaller areas for which water sales and production statistics were not utilized in the forecast of the UWID core service area are in the residential subdivision developments of: Island Woods, Warm Springs Mesa, Coventry, Danskin, Belmont, and Floating Feather. Forecasted water use in these smaller service areas are, in this analysis, considered to be similar to the overall water use characteristics within the core service area of the UWID system.

## Water Conservation Plan – Section 3

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### 3.2 Analysis of Water Use by Customer Group

#### Historical Water Consumption

The total water consumption within the UWID core service area includes actual water sales, found in United Water Idaho's monthly and year-end sales reports, and its reports of unmetered water use, which is determined from the Company's monthly and annual production records, less water sales.

**Water Sales** Water sales in the UWID system vary year to year due to changes in the weather, changes in the number of metered connections (customers), and changes in the water use characteristics of those customers served.

Figure 3-1 shows that water sales for the combined commercial and residential sectors increased approximately 10 percent, from 12,560 million gallons in 1997 to 13,885 million gallons in 2005. The increase in 1999 is due mostly to the addition of approximately 4,000 customers from the South County Water Company. Figure 3-2 and 3-3 show further detail on a use per account and also monthly basis. From these figures it can be seen that annual use per account has been decreasing since 2001. The decrease in commercial account usage from 2001 to 2002 was caused by the large decline in use by one of UWID's biggest customers and relatively high growth in number of accounts in 2002.

**Alternate Irrigation System** One reason the water sales have decreased over the past four years, despite increased connections is the extensive use of "alternate irrigation" in new development. Since the Ada County and Boise City Ordinances adopted in the mid-1990s, all new subdivisions built in areas where formerly irrigation water for agriculture was distributed, the developer is required to provide a second distribution system of untreated surface water for irrigation of lawns and landscaping. Each new home in these developments has a connection to this underground, pressurized system. Water is sold to the customer by Nampa-Meridian Irrigation District and other districts on a flat rate, such as \$60/year for unlimited irrigation water. In these areas UWID's water is only being used for potable, indoor, uses. In some areas, existing developments are being retrofitted with this type of system. This is leading to 69 percent of new connections to UWID's system having access to this water and using significantly less water, tempering the growth in demand.

# Water Conservation Plan – Section 3

Figure 3-1 Annual Water Sales (1997-2005) by Customer Category

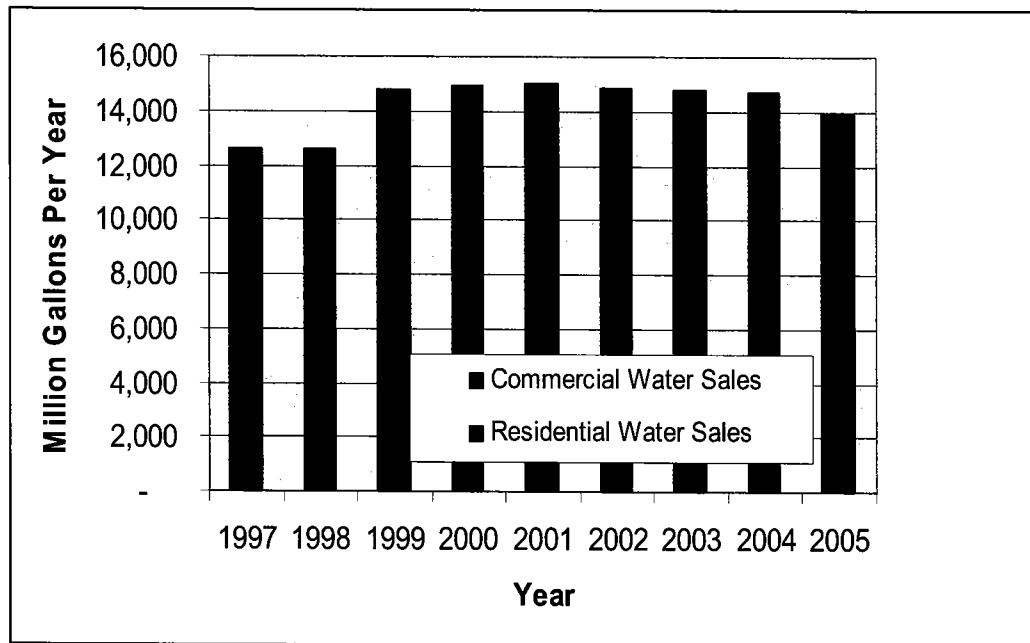
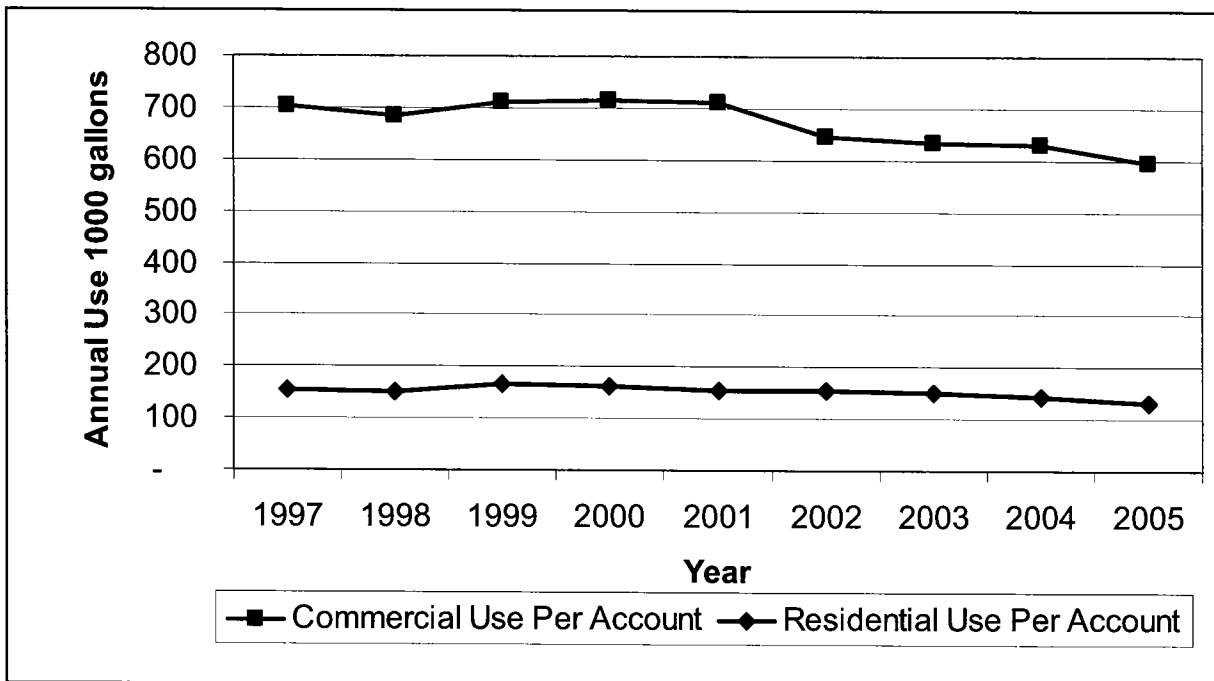


Figure 3-2 Annual Water Use (1997-2005) per Account



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Figure 3-3 Billed Water Use 2005

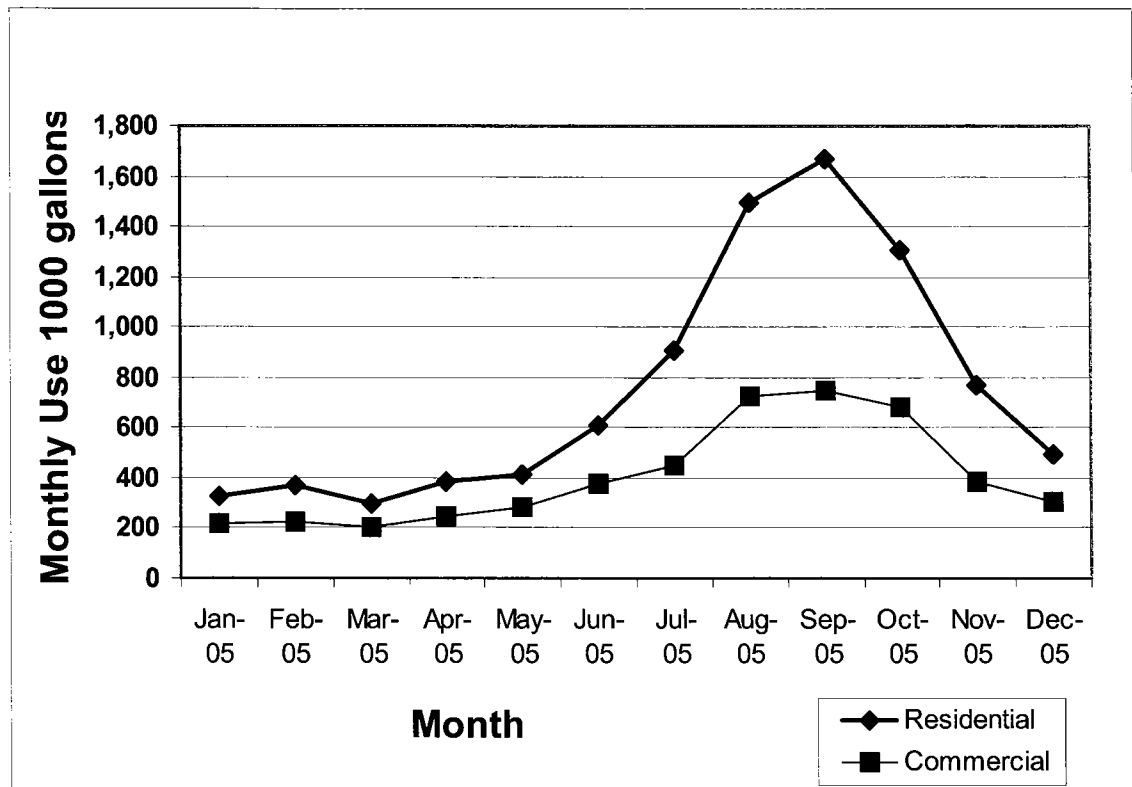
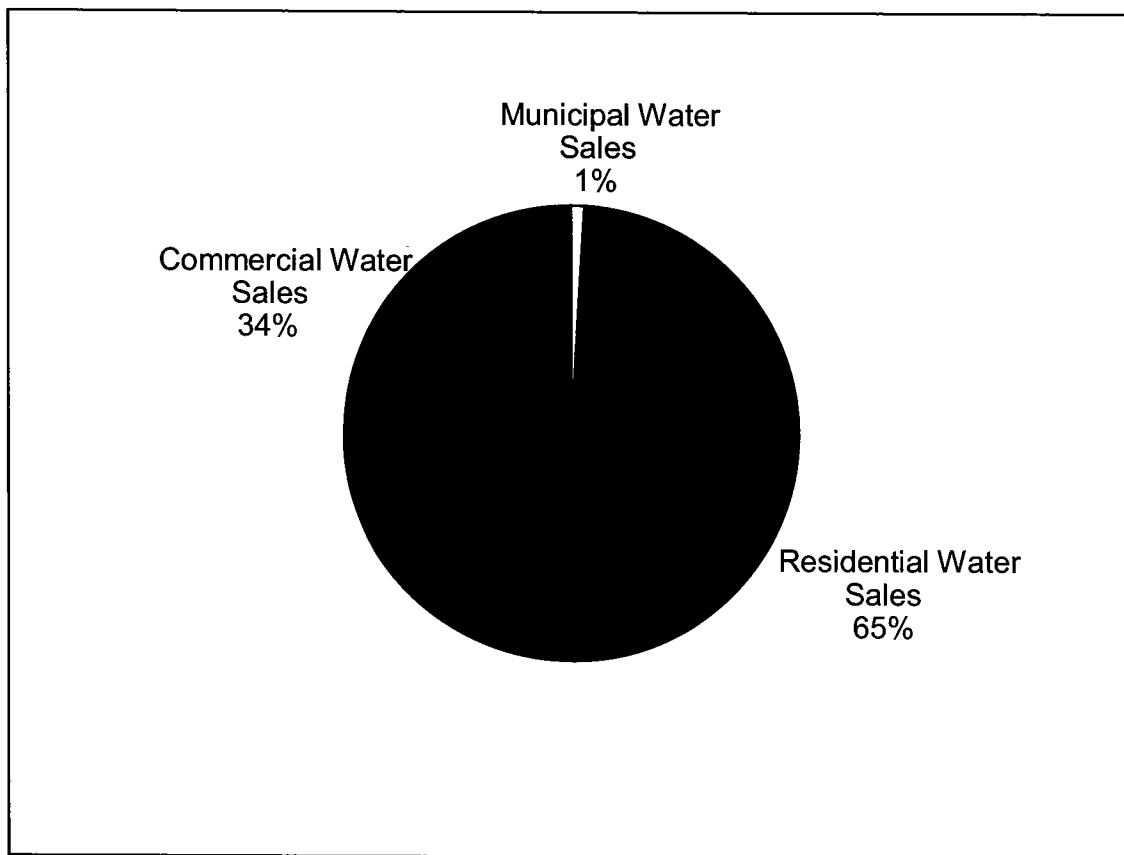


Figure 3-4 shows the proportion of water sold to residential, commercial and municipal customers in 2005. Approximately 65 percent of United Water Idaho’s water sold in 2005 was sold to residential customers; 34 percent to commercial customers; and 1 percent to municipal customers. The proportion of total water sales sold to UWID commercial customers had increased steadily from about 30.6 percent of the total in 1987 to about 37.9 percent in 1998, however, the acquisition in 1999 of the South County Water Company service area with it’s higher than average concentration of residential customers brought the commercial sector’s share of total water sales down to 35.0 percent in 1999. Since 1999 the commercial customer class has maintained that relatively constant share. Water sales to the UWID Municipal class of customers, water used for city parks and governmental facilities, has remained relatively constant at approximately 1 percent of total water sales.

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Figure 3-4 Relative Water Sales in 2005



**Unmetered Water** Unmetered water is water that is not registered at metered connections and consists of two components: water that is not sold, but records are maintained as to the volume of this water, and water that is not sold for which no records are maintained as to its volume. The portion of unsold water for which volumetric records are maintained includes water used for the flushing or flow testing of fire hydrants, water used by the Company for plant maintenance and the flushing of filters at the treatment plants. The unaccounted-for water for which volumetric records are not maintained can include water used for pipeline flushing where the volumes used are unrecorded, water system leaks in mains and water services, unauthorized water use from hydrants, and water meter inaccuracies.

The volume of unmetered water is estimated in UWID system by a comparison of the Company's water production records with its water sales records throughout the system. Table 3-1 shows that UWID's total volume of unmetered water averaged only 5.61 percent of total water production for the years 1997 through 2005. This is an improvement over previous historical values when unmetered water averaged only 8.34 percent of total water production for the years 1987 through 1996. This percentage is low when compared to other water systems. Nationally, unaccounted-for water (only one component of unmetered water) represents about 15 percent of total water production. UWID's capability to achieve and maintain a low level of unaccounted for water is due to the success of its existing and ongoing programs to replace old water pipelines and change out residential meters. These



