CONSULTING ENGINEERS

WATER CONSERVATION PLAN

FOR THE

PUEBLO WEST METROPOLITAN DISTRICT

Pueblo West
COLORADO

AUGUST 1, 2012

WATER CONSERVATION PLAN

FOR THE

PUEBLO WEST METROPOLITAN DISTRICT

JVA, Inc.
1319 Spruce Street
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JVA Project No. 1770.2c

AUGUST 1, 2012

Pueblo West Metropolitan District
Department of Utilities
20 W. Palmer Lake Dr.
Pueblo West, CO 81007

Pueblo West
COLORADO

July 25, 2012

Ms. Veva Deheza
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Reference: Pueblo West Metropolitan District Water Conservation Plan Final Submittal

Dear Ms. Deheza:

The Pueblo West Metropolitan District has completed the Water Conservation Plan in accordance with the Colorado Water Conservation Board's (CWCB) Guidelines. This letter incorporates the Cover Letter Submittal Requirements for the CWCB review and approval of the Water Conservation Plan. The District obtained conditional approval from the CWCB on March 8, 2012 for the Water Conservation Plan.

Pueblo West Metropolitan District name and contact information:
Mr. Jack Johnston
District Manager
109 East Industrial Drive
Pueblo West, Colorado 81007

Organization and individuals who assisted in the plan development:
JVA, Incorporated:
Josh McGibbon, P.E.
Leanne Miller

Retail water demand and population from 2005 – 2010:

Year	Residential (MG)	Commercial (MG)	Multi-Family (MG)	Duplex (MG)	Non-Residential (MG)	Non-Potable (MG)	Total Water Use (MG)
2005	1,102	165	15.8	26.5	6.01	102.9	1,417
2006	1,111	166	15.9	26.7	6.06	103.8	1,430
2007	1,090	163	15.6	26.2	5.95	101.8	1,402
2008	1,264	189	18.2	30.4	6.90	118.1	1,626
2009	1,237	184	17.8	29.7	6.80	115.6	1,592
2010	1,333	200	19.2	32.0	7.27	124.6	1,715

*All supply water for the Pueblo West Metropolitan District is from a surface water source.

Population served by retail water delivery from 2005 – 2010:

Year	Estimated Population Served	Percent Increase
2005	23,473	6.3%
2006	25,210	6.9%
2007	26,701	5.6%
2008	27,475	2.8%
2009	27,877	1.4%
2010	28,084	0.7%

Information from the public review and comment period:
Pueblo West Metropolitan District held a public review and comment period for review of the Water Conservation Plan from May 23, 2012 to July 23, 2012. The public was notified of the review period through an announcement in the Pueblo Chieftain newspaper, the District Website, and at the District Board Meeting on May 22. During the public review period, no comments regarding the Water Conservation Plan were received.

On July 24, 2012, the District Board approved the Water Conservation Plan and is prepared to commit the resources necessary for the implementation of this Plan.

Please contact me with any comments or questions, or if there are additional requirements prior to the approval of this Plan at jjohnson@pwmd-co.us.

Sincerely,
Pueblo West Metropolitan District

By: _____ 7/25/12
Jack Johnston
District Manager

Cc: Scott Eilert, PWMD Director of Utilities

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EXECUTIVE SUMMARY

The Pueblo West Metropolitan District (PWMD or District) was established on September 16, 1969 and is located in Pueblo County, Colorado approximately seven miles west of the City of Pueblo. The community offers convenient access to outdoor recreation and tourism destinations, as well as local businesses and shopping districts. Although the community has the essence of a small town, it remains one of the fastest growing communities in Southern Colorado.

Water providers seeking financial assistance from the State who deliver more than 2,000 acre-feet (AF) of water annually are required by Colorado Revised Statutes 37-60-126 to create and file a Water Conservation Plan at the Colorado Water Conservation Board (CWCB) Office of Water Conservation and Drought Planning. The PWMD Water Conservation Plan (Plan) is an effort to satisfy the above requirements and manage the District's available water supply through conservation planning. The District's water supply system and future customer demand has been evaluated in order to determine appropriate strategies to better manage demands on the water supply of the growing community. The plan has been developed with a 20-year planning horizon, but has established water reduction goals in five-year increments to allow for continued evaluation of conservation efforts.

In 2010, District customers used 5,263 AF or 1,715 million gallons (MG) of water. Based on current and historical water use patterns, the District will be required to provide 8,010 AF of water in 2033 (20-year planning horizon) to support customer demand. The annual water supply portfolio (excluding groundwater sources) consists of 7,405 AF. Acquiring additional water sources has proven to be difficult and if feasible, is often not economically practical. This Plan discusses options for reducing the annual water demand by 9.0 percent by 2033 in order to provide sufficient water to the District’s customers at buildout. This reduction equates to a water savings of 700 AF. The Plan provides information on the District's water system, historical and future water demand, capital improvement projects, and the methodology used in the water conservation planning process.

WATER CONSERVATION GOALS

In 2001, the District began incorporating water conservation measures and programs in order to initiate water conservation efforts. Conservation measures and programs currently in use within the District include the following:

- Water Conservation and Drought Contingency Plan
- Public education and outreach
- Utilization of water treatment backwash waste water for non-potable irrigation purposes
- Information regarding conservation efforts presented on District's website
- Demonstration xeriscape garden and xeriscape gardening classes

The amount of water use reduction that can be attributed to the implementation of these programs is difficult to calculate. One of the goals of this Plan is to develop a preliminary monitoring plan that the District will be able to use to track the success of various water conservation measures.

To develop water conservation goals, the CWCB method was used. This process is an iterative process and includes:

- Determining an initial water saving goal estimate
- Selecting water conservation measures and programs to meet the initial goal
- Evaluating the water savings from the water conservation measures and programs
- Comparing the expected water savings to the initial goals

This Plan has established a 9.0 percent reduction goal in overall water use over a 20-year planning period. The analysis of historical and current water use patterns for the District's customer categories demonstrated that the majority of the District's water demand is associated with outdoor (irrigation) water use. In order to most effectively achieve the water conservation goals, customer categories with the highest outdoor water use are the focus of the water conservation measures and programs. As discussed above, water conservation goals were established in five-year increments to provide opportunity for evaluation and assessment of the effectiveness of the measures and programs throughout the planning period. A summary of the District's water conservation goals are shown in Table ES 1.

Table ES 1. Water Conservation Goals

Water Use Categories	Total Projected Water Use	Water Savings from Selected Programs	Conservation from Programs Selected	Conservation Goals	
	AF	AF	%	AF	%
2018					
Residential	22,242	2,145	9.6%	2,145	9.6%
Commercial	3,321	373	11.2%	361	11.2%
Non - Residential	121	16	12.9%	16	12.9%
TOTAL	**30,511**	**2,534**	**8.3%**	**2,534**	**8.3%**
2023					
Residential	47,177	4,797	10.2%	4,797	10.2%
Commercial	7,043	712	10.1%	712	10.1%
Non - Residential	257	35	13.7%	35	13.7%
TOTAL	**64,487**	**5,544**	**8.6%**	**5,544**	**8.6%**
2028					
Residential	74,577	7,761	10.4%	7,761	10.4%
Commercial	11,134	1,334	12.0%	1,334	12.0%
Non - Residential	407	57	13.9%	57	13.9%
TOTAL	**101,636**	**9,152**	**9.0%**	**9,152**	**9.0%**
2033					
Residential	109,439	10,839	9.9%	10,839	9.9%
Commercial	16,338	1,849	11.3%	1,849	11.3%

Non - Residential	597	79	13.3%	79	13.3%
TOTAL	**140,755**	**12,767**	**9.1%**	**12,767**	**9.1%**

EVALUATION OF CONSERVATION MEASURES AND PROGRAMS

To determine the most effective options for meeting the District's water conservation goals, a list of programs and measures was developed. The preliminary list of alternatives is separated into measures and programs that address water supply and those that address water demand.

Preliminary screening criteria were developed to select which water conservation measures would be considered for further evaluation. The alternatives selected for further evaluation must meet the following criteria:

- Address high outdoor consumption categories
- Financially feasible
- Results for program evaluation are quantifiable
- Satisfy the CWCB specified statute for required measures and programs

The alternatives selected for further evaluation were analyzed using a cost-benefit analysis and were ranked based on the cost of each program per 1,000 gallons of water saved at each of the interim years. Ranking of the measures at each of the interim periods was completed in order to develop an implementation plan. A list of the rankings for the planning period (2033) is provided in Table ES 2.

Table ES 2. 2033 Water Conservation Measure Ranking

Rank	Conservation Measure or Program	Cost per 1000 Gallons Saved
1	Pressure Management	$0.69
2	Water Meter Testing and Replacement Program	$1.87
3	Leak Detection & Repair Program	$1.88
4	Water Restrictions - Hour/Days	$3.13
5	New Landscape Lawn Permits	$3.18
6	Irrigation, Turf and Landscape Standards for New Construction	$4.57
7	Designated Water Conservation Officer	$4.99
8	10% of Lot Irrigation Restriction	$7.80
9	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	$10.30
10	Commercial and Residential Rain Sensor Requirement	$10.41
11	Water-Efficient Toilets for Existing Residential Customers	$13.20
12	Practical Turf for Sports Fields	$17.90

IMPLEMENTATION PLAN

In order to provide the most cost effective and efficient method to implement the Plan, the District has developed a staged approach, which will occur over the next ten years. The selected conservation measures are ranked number 1 thru number 10. The implementation schedule, comments on requirements for implementation, and the associated costs are provided in Table ES 3.

It is recommended that the Plan's implementation begin directly after the Plan's approval to meet the conservation goal milestones. To track the success of the Plan, a preliminary monitoring plan was created and will be conducted annually. A formal update on the progress of the Plan is required by the CWCB within seven years from initial approval.

Table ES 3. Water Conservation Plan Implementation Schedule

Conservation Measures and Programs	Implementation Cost	Annual Costs (after 1st year)	% of Total Water Savings	Comments for Implementation Consideration
2013				
Pressure Management	$6,000		14.2%	Public communication, funding, staff availability
Water Meter Testing and Replacement Program	$6,000		14.2%	Staff availability, third party coordination, funding
Leak Detection & Repair Program	$61,350		14.2%	Staff availability, third party coordination, funding
Designated Water Conservation Officer	$60,000		15.2%	Funding
Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	$2,000		0.9%	Communication, funding, staff availability, third party coordination
Water Restrictions - Hour/Days	$6,000		33.8%	Public communication, funding, staff availability
Evaluation of Synthetic Turf for all newly constructed sports fields	$5,000		TBD	Staff availability, third party coordination, funding
Total Cost 2013 =	***$146,350***			
2014				
Commercial and Residential Rain and Wind Sensor Requirement	$6,000		0.5%	Public communication, funding, staff availability (or Water Officer)
Pressure Management	--	$22,250	14.2%	
Water Meter Testing and Replacement Program	--	$60,450	14.2%	
Leak Detection & Repair Program	--	$61,350	14.2%	
Designated Water Conservation Officer	--	$60,000	15.2%	
Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	--	$12,400	0.9%	
Water Restrictions - Hour/Days		$3,000	33.8%	
Total Cost 2014 =	***$225,450***			
2018				
New Landscape Lawn Permits	$6,000		7.14%	Public communication, funding, staff availability (or Water Officer)
Commercial and Residential Rain and Wind Sensor Requirement	--	$7,000	0.5%	
Pressure Management	--	$22,250	14.2%	
Water Meter Testing and Replacement Program	--	$60,450	14.2%	
Leak Detection & Repair Program	--	$61,350	14.2%	
Designated Water Conservation Officer	--	$60,000	15.2%	
Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	--	$12,400	0.9%	
Water Restrictions - Hour/Days	--	$3,000	33.8%	
Total Cost 2018 =	***$232,450***			

2023				
Irrigation, Turf and Landscape Standards for New Construction	$6,000		0.37%	Public communication, funding, staff availability (or Water Officer)
10% of Lot Irrigation Restriction	$6,000		0.37%	Public communication, funding, staff availability (or Water Officer)
New Landscape Lawn Permits	--	$1,650	7.14%	
Commercial and Residential Rain and Wind Sensor Requirement	--	$7,000	0.5%	
Pressure Management	--	$22,250	14.2%	
Water Meter Testing and Replacement Program	--	$60,450	14.2%	
Leak Detection & Repair Program	--	$61,350	14.2%	
Designated Water Conservation Officer	--	$60,000	15.2%	
Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	--	$12,400	0.9%	
Water Restrictions - Hour/Days	--	$3,000	33.8%	
Total Cost 2023 =	***$240,100***			
Total Implementation Costs =	***$170,350***			
Total Annual Costs (Full Implementation) =	***$237,100***			

SECTION 1 – INTRODUCTION

PURPOSE

The Pueblo West Metropolitan District (PWMD or District) was established on September 16, 1969 and is located in Pueblo County, Colorado approximately seven miles west of the City of Pueblo. The community offers convenient access to outdoor recreation and tourism destinations, as well as local businesses and shopping districts. Although the community has the essence of a small town, it remains one of the fastest growing communities in Southern Colorado.

Since the District's inception, it has been providing high quality water service to its customers and is committed to continuing this practice as the community continues to grow. Water supplies are becoming less available due to the regional increases in population, dictating a need for the implementation of water management programs, including conservation.

Water providers seeking financial assistance who deliver more than 2,000 acre-feet (AF) of water annually are required by Colorado Revised Statutes 37-60-126 to create and file a Water Conservation Plan for the Colorado Water Conservation Board (CWCB) Office of Water Conservation and Drought Planning. This Water Conservation Plan (Plan) is an effort to satisfy the above requirements and maximize the District's available water supply by appropriate planning. The District's water supply system and future customer demand has been evaluated to determine appropriate strategies to better manage demands on the water supply of the growing community. The plan has been developed with a 20-year planning horizon, but has established water reduction goals in five-year increments to allow for consistent evaluations of conservation efforts.

SECTION 2 –EXISTING WATER SYSTEM PROFILE

CHARACTERISTICS OF PUEBLO WEST METROPOLITAN DISTRICT WATER SUPPLY SYSTEM

POPULATION AND SERVICE AREA

The PWMD is located in Pueblo County, Colorado, seven miles west of the City of Pueblo, and is one of two metropolitan districts within the County. The PWMD was established in 1969 and encompasses 31,000 acres or 49 square miles. The service area boundary is shown in Figure 1.

The topography of the District has rolling hills and generally slopes from the north to south towards the Arkansas River (south boundary of the service area). Elevation ranges from 4,900 feet at the lower elevation to 5,420 feet in the northwest corner of the District.

The District currently serves 10,979 water tap connections. From 2000 to 2010, the District has seen a 60 percent increase in population, from 16,852 to 28,100 residents. The historical population and annual growth rate recorded by the District from 2001 to 2010 is provided in Table 1. Historical population estimates for the PWMD are calculated using the number of water tap connections in the District during December of the year recorded. (Current District population is calculated based on the number of water tap connections in the District, the U.S. Census Density figure of 2.7 persons per household, and a 0.91 correction factor to account for commercial water tap connections.)

Table 1. Historical Population 2001 – 2010

Year	Estimated Population Served	Percent Increase
2001	17,574	n/a
2002	18,885	6.9%
2003	20,356	7.2%
2004	21,995	7.5%
2005	23,473	6.3%
2006	25,210	6.9%
2007	26,701	5.6%
2008	27,475	2.8%
2009	27,877	1.4%
2010	28,084	0.7%

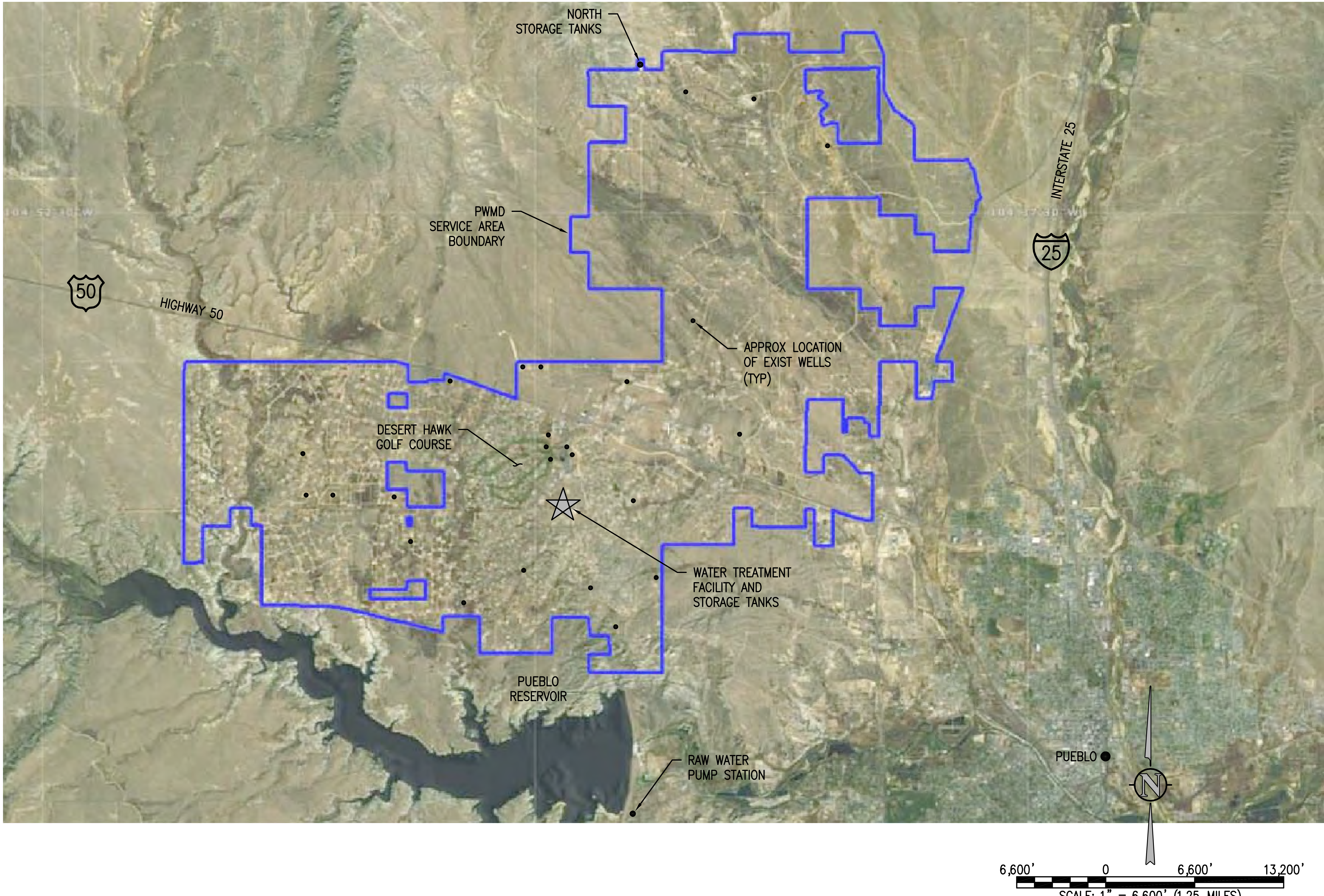

FIGURE 1 - SERVICE AREA BOUNDARY AND EXISTING FACILITIES

PWMD WATER CONSERVATION PLAN

AUGUST 2012

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JVA CONSULTING ENGINEERS

The data presented in Table 1 demonstrates that the high population growth the District was experiencing from 2001 to 2006 has leveled off in the past three years (2008 to 2010), to an average growth rate of 1.6 percent. A graph of the District's population from 1986 to 2010 is provided in Figure 2.

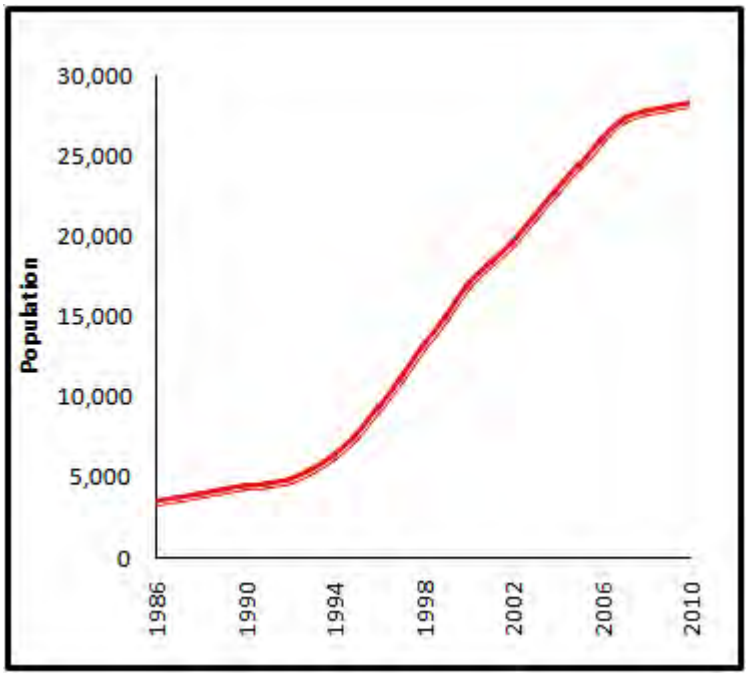

Figure 2. Historic Population (1986 – 2010)

SERVICE CONNECTIONS AND WATER DEMAND

In 2010, the District provided an annual average of 4.61 million gallons per day (MGD) of treated water with a maximum month average of 8.09 MGD during September. A 10 MGD peak day condition occurred in July 2009. Additional analysis of the District's current and historic water demand are provided in Section 3.

The number of water tap connections for the PWMD from 2001 to 2010 and the associated growth rate are provided in Table 2.

Table 2. Historical Water Tap Connections 2001 – 2010

Year	Total Water Taps	Percent Increase
2001	7,103	n/a
2002	7,600	7.0%
2003	8,236	8.4%
2004	8,846	7.4%
2005	9,453	6.9%
2006	10,130	7.2%
2007	10,595	4.6%
2008	10,793	1.9%
2009	10,900	1.0%
2010	10,979	0.7%

Water demand within the District was classified based on customer category. There are six user categories in the District: residential, commercial, duplex, multi-family, non-residential, and non-potable. The water demand for each user category is presented in Table 3 as a percentage of the total number of water connection taps and a percentage of the total water demand.

Table 3. 2010 Water Demand Per User Category

Category	Number of Taps	2010 Percentage of Total Taps	2010 Percentage of Total Water Use
Residential	10430	95.01%	77.7%
Commercial	257	2.33%	11.6%
Duplex	222	2.03%	1.87%
Multi – Family	64	0.58%	1.12%
Non – Residential	4	0.04%	0.42%
Non – Potable	1	0.01%	7.3%

The District's largest water use category is residential, with 95 percent of the total taps and 78 percent of the total water demand. Water use in the commercial category is approximately 12 percent.

EXISTING FACILITIES

The existing water system consists of raw water storage and delivery, filtration, disinfection, chemical feed, treated water storage and distribution, and pump stations.

WATER TREATMENT SYSTEM

PWMD owns and operates a public water system (PWSID #CO-0151650) that serves the District. The PWMD Water Treatment Plant (WTP) is located at 20 Palmer Lake Drive in Pueblo West, Colorado. The existing WTP consists of filtration, disinfection, and chemical feed systems. The current capacity of the WTP is 16 MGD; however, an expansion project to

increase the WTP's capacity to 21 MGD is in the preliminary design phase. The location of the existing WTP is shown on Figure 1.

WATER DISTRIBUTION SYSTEM

The District's distribution system consists of approximately 400 miles of pipe, five pump stations, and six water storage facilities. The majority of the distribution system was installed between 1976 and 1978. It is anticipated that the older water distribution system valves and fittings will need to be replaced due to deterioration caused by locally corrosive soils. This deterioration ultimately results in water leaks.

The system is served by four pressure zones ranging in elevation from 4,850 to 5,465 feet, with a pressure range of 40 pounds per square inch (psi) to 155 psi. The average pressure in the distribution system is 98 psi. Table 4 shows the lengths and diameters of the water distribution system pipes. The PWMD's distribution system is shown in Figure 3.

Table 4. Miles of Pueblo West Distribution System Pipeline

Diameter	Total Length (Miles)
6 inch	238
8 inch	125
10 inch	7.1
12 inch	6.3
14 inch	14.4 (feet)
18 inch	6.3
24 inch	8.9

WATER STORAGE FACILITIES

The potable water storage facilities consist of six tanks with a combined storage capacity of 10.4 MG. Three tanks, each with a storage capacity of 1 MG are located adjacent to the existing WTP. The other three storage tanks (North Tanks) are located on the northern boundary of the District. Storage capacities of the North Tanks range from 2.0 MG to 2.65 MG and have a combined total storage capacity of 7.36 MG. These faculties are shown on Figure 1.

SOURCES OF WATER SUPPLY

The existing water supply sources for the District include trans-mountain surface water, non-tributary groundwater, tributary surface water, and reusable sewered return-flows. The District's surface water rights include shares of the Twin Lakes Reservoir and Canal Company, restricted access to the Wheel Ranch Ditch Company, shares of the Colorado Canal/Lake Meredith Company, and access to Hill Ranch water sources. The non-tributary groundwater is provided via 18 groundwater wells. The groundwater wells were used as the District's original water supply source, and are currently used as backup sources to the surface water supply.

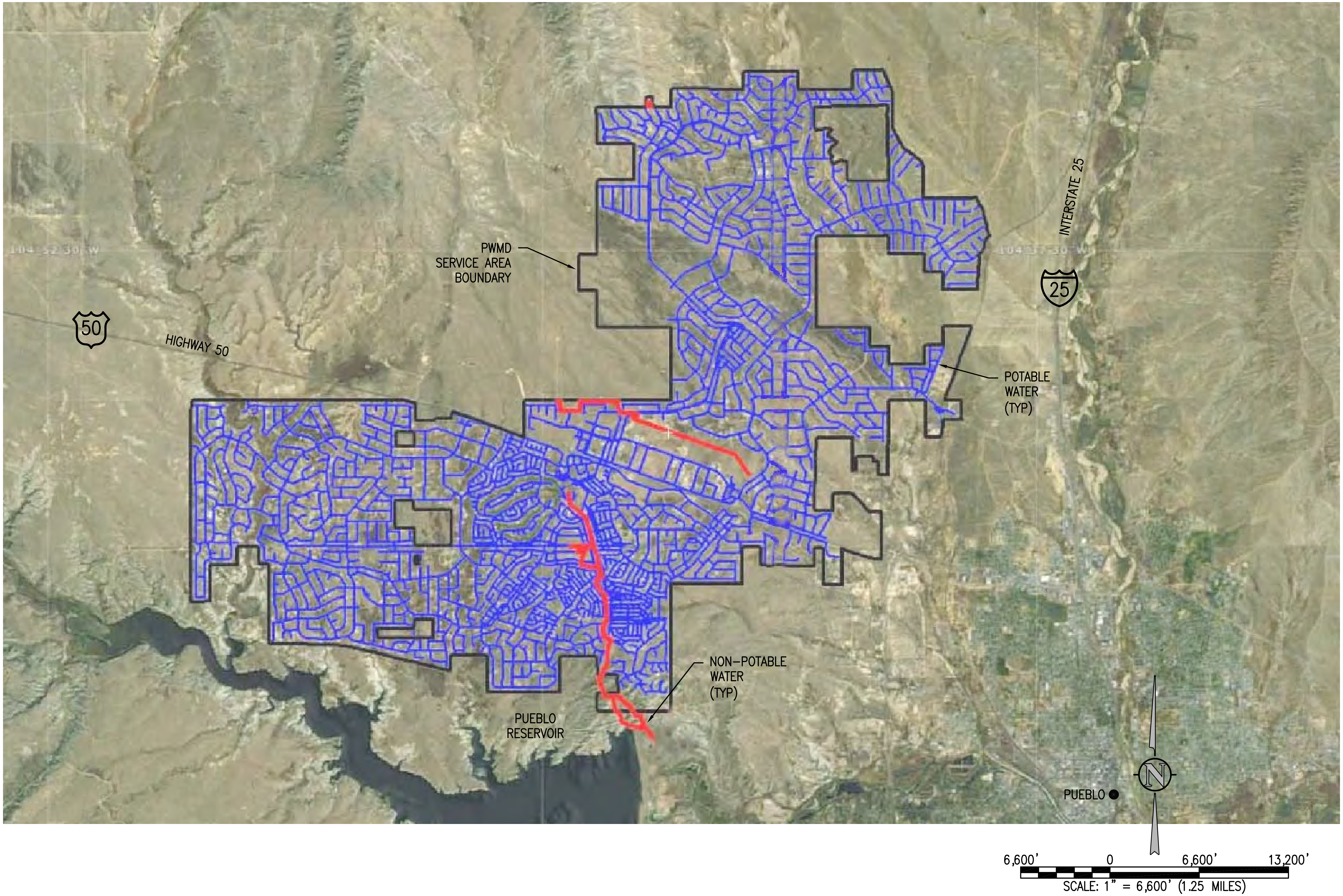

FIGURE 3 - EXISTING WATER DISTRIBUTION SYSTEM
PWMD WATER CONSERVATION PLAN
AUGUST 2012

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A summary of the water rights owned by the District are provided in Table 5. The average annual yield represents the potential yield of the water rights over a long period, typically 40 to 50 years. The firm yield is the amount of water that can be continuously supplied based on historical hydrologic conditions. The quantities in Table 5 are the results from two studies conducted by WRC Engineering, Inc, Raw Water Storage Needs and Alternative Analysis (March, 2010) and Water Supply Analysis (November, 1998). The water supply portfolio developed in these studies take into account the District's water reuse credits and the reuse credits that are attained through the construction of the Wildhorse Pipeline Project. These reports are provided in Appendix A.

Table 5. Water Supply Portfolio (Water Rights)

Water Right Name or Source	Number of Shares or Units Owned	Average Annual Yield (AF)	Firm Yield (AF)
Twin Lakes Water	5,901 shares	5,606	2,104
Non-Tributary Groundwater	5,392 AF/yr	894	0
Hill Ranch	1,914 AF/yr	1,660	716
Colorado Canal Company/ Lake Meredith Company	295	139	0
Wheel Ranch Ditch	30 AF/yr	30	0
Total	**13,068**	**8,329**	**2,820**
Potable	**13,038**	**8,299**	**2,820**
Irrigation Only	**30**	**30**	**0**

TWIN LAKES RESERVOIR AND CANAL COMPANY

As noted in Table 5, the District owns 5,901 shares of the Twin Lakes Reservoir and Canal Company. Water from this source originates in the Twin Lakes Reservoir and is released to the Pueblo Reservoir on a demand basis at which point it is pumped to the WTP. The Twin Lakes Dam is located on Lake Creek, which is a tributary of the Arkansas River, 13 miles south of Leadville, Colorado. The reservoir was constructed between 1963 and 1967 by the cities of Aurora and Colorado Springs as part of the U.S. Bureau of Reclamation's Frying Pan-Arkansas Project.

In 1975, as growth and water demand in the District continued to increase, the District purchased shares of the Twin Lakes Reservoir and Canal Company. The District currently utilizes this source as its primary water supply. The average annual yield from this source is 5,606 AF based on 0.95 AF per share. During "dry-year" conditions, the firm yield from this source is 2,104 AF, or 0.37 AF per share.

NON – TRIBUTARY GROUNDWATER SUPPLY

The non-tributary groundwater supply source was the original source for the District. Before the acquisition of shares of the Twin Lakes Reservoir and Canal Company, the groundwater provided all water for the system. This source is provided by 18 adjudicated wells that withdraw water from beneath the Purgatoire and Dakota formations. The groundwater wells are not currently used by the District as a primary water supply source due to water quality concerns and

the poor yield. The wells are very deep which makes pumping incredibly costly. The well water is known to contain high dissolved solids and radionuclides making treatment and residual disposal not financially feasible.

The District's water rights allow for a maximum of 5,392.4 AF per year to be withdrawn from the wells. Based on the *Water Supply Analysis*, the actual average yield from this source is 894 AF annually. This annual yield will be utilized for consistency within the District's planning documents.

Hill Ranch

The Hill Ranch water rights were acquired in 2001. Additional studies and planning requirements have been in progress since that time to allow this source to be included as part of the District's water supply. This source is estimated to be available for inclusion in the District's supply by the end of 2012.

For this Plan, the Hill Ranch yield information was obtained from the Raw Water Storage Needs and Alternatives Analysis dated March, 2010 by WRC Engineering (Appendix A). The average annual yield from this supply is approximately 1,660 AF with a firm yield of 716 AF.

Colorado Canal Company/Lake Meredith

The Colorado Canal Company and Lake Meredith Company were originally a part of the Twin Lakes Reservoir and Canal Company. In the 1970s, the Colorado Springs Utilities Company purchased a controlling interest in the Twin Lakes Reservoir and Canal Company, which lead to the separation of the water rights into four distinct companies.

The average annual yield from this source is 0.47 AF per share, or 139 AF per year. During "dry conditions", there is no water available from this source.

Wheel Ranch Ditch

The PWMD is allocated 292 AF over a period of twenty years from the Wheel Ranch Ditch. The maximum diversion rate of this tributary is 1.5 cubic feet per second (cfs). In the 1998 Water Supply Analysis, it was noted that water from this water right is restricted to irrigation use at the Pueblo West Golf Course.

For the purpose of this Plan, the water from this source is considered usable for non-potable and irrigation only. Annual average yield from this source is 30 AF and there is no water available during "dry conditions".

System Limitations

Understanding the current system's limitations is a key component to developing conservation goals. In order to set effective water conservation goals, an awareness of the conditions and challenges of operating and maintaining the existing system is necessary. Current system limitations are predominately associated with available water supply for future demand and

facilities to provide adequate treatment and storage to meet this demand. These limitations are discussed further below.

Statewide Water Supply Initiative

The Statewide Water Supply Initiative (SWSI) was developed by the CWCB to evaluate water resources and water resource management options for Colorado's water supply. An update to the 2003 SWSI was completed in 2010 and projects a statewide annual water demand increase from 2008 to 2050 of approximately 787,300 AF This is an increase from 974,500 AF in 2008 to 1,761,800 AF in 2050. The increase in annual water demand for the Arkansas Basin, where the District is located, is projected to be 140,000 AF between 2008 and 2050. The Executive Summary of this document is provided in Appendix B.

Growth

The population of the District has experienced a steady increase over the past two decades, as demonstrated in Figure 2. The projected water demand for the District is 8,073 AF annually, which corresponds to an ultimate population of 43,408 and buildout water tap connection capabilities of 18,373 taps.

Based on the current available water supply, the water demand at buildout could lead to a shortfall of water, particularly during drought conditions. The District is aware of the increasing stress on the water supply in the Arkansas Basin and the increasing water demand and is evaluating options to address these limitations through water storage, water acquisition and water conservation measures.

System Additions

In order to provide the District with adequate water treatment capacity for buildout, the WTP was expanded in 2001 and has planned two additional phases of expansion, bringing the final plant capacity to 26 MGD.

The first phase of the WTP expansion is in preliminary design phase and will add an additional 5.0 MGD capacity to the existing facility, a total capacity of 21 MGD. The construction of this phase is scheduled to be completed in 2013 to provide additional potable water to customers. The second phase of the WTP expansion has not been scheduled at this time.

Water Costs and Pricing

Water Sales and Revenue

The Comprehensive Annual Financial Report for the PWMD Water Fund for 2006 thru 2010 was utilized to develop a summary of revenues from water sales and is provided in Table 6. Additional information from the Financial Reports are provided in Appendix C.

Table 6. Summary of Water Fund Revenues 2006-2010

Revenue	2010	2009	2008	2007	2006
Water usage	$4,994,573	$4,327,898	$4,100,00	$4,890,166	$3,280,800
Transfer fees	$3,500	$5,500	$5,500	$6,500	$5,000
Penalty billing fee	$100,100	$100,100	$100,000	$80,000	$72,000
Turn on fees	$37,000	$37,000	$24,000	$24,000	$22,000
Hydrant water	$42,052	$26,500	$32,000	$45,000	$37,000
Tap connection/ Plant investment fees	$1,629,300	$2,105,400	$3,221,164	$4,687,323	$4,405,120
Interest	$260,000	$420,000	$420,000	$250,000	$150,000
Other	$40,000	$32,000	$27,000	$5,000	$4,000
Total	**$7,106,525**	**$7,054,398**	**$7,929,664**	**$9,987,989**	**$7,975,920**

CONNECTION AND MONTHLY USAGE

The PWMD water tap connection fee is the sum of the fees for the Water Plant Investment Fund (WPIF) and tap fees for parts and labor. The 2011 water connection fees are based on water tap size and a summary is provided in Table 7.

PWMD water rates consist of a readiness to serve (RTS) rate and a usage rate based on consumption. The RTS rate is a monthly fixed charge based on the customer's water tap size that recovers a portion of the cost of infrastructure and facilitates the delivery and treatment of water. The RTS rate is assessed to each customer connected to the water system, regardless of water consumption. A summary of the RTS rates are provided in Table 7.

Table 7. 2011 Connection Fees and Readiness to Serve Rates

Rate Class	Water Connection Fee	Readiness to Serve
Domestic Water		
3/4 inch	$11,875	$17.46
1 inch	$18,911	$17.61
1-1/2 inch	$37,109	$17.82
2 inch	$58,845	$18.41
3 inch	$110,328 - $126,895	$22.60
4 inch	Calculated upon request	$24.17
6 inch	Calculated upon request	$27.81
8 inch	Calculated upon request	$31.97
10 inch	Calculated upon request	$37.74
12 inch	Calculated upon request	$45.75
Non-Potable (Raw Water)		
4 inch	Calculated upon request	$4.48
6 inch	Calculated upon request	$5.16
8 inch/ Desert Hawk G.C.	Calculated upon request	$5.27
10 inch	Calculated upon request	$5.43
12 inch	Calculated upon request	$5.66

Usage charges are based on customer classification and the amount of water consumed each month. The District uses an increasing block rate structure for water usage charges. The 2011 use charges are shown in Table 8. The rates for the 5,000 to 10,000 gallon block and greater than 10,000 gallon block were increased by 35 percent over the 2010 rate. The complete 2011 water rates are provided in Appendix D.

Table 8. 2011 Water Use Rates

Rate Class	Water Use 1 – 5,000 gal/1000	Water Use 5,000 – 10,000 gal/1000	Water Use > 10,000 gal/1000
Residential/Irrigation	$1.75	$3.04	$4.49
Multiplex (4 or more units per meter)	$2.26	$3.04	$3.04
Commercial/Industrial	$2.46	$3.32	$3.32
Non-Potable/Desert Hawk Golf Course	$1.39	$1.39	$1.39
Hydrant Water	$3.56	$4.81	$4.81
Duplex/Triplex (2 or 3 units per meter)	$1.94	$3.35	$4.49

CURRENT POLICIES AND PLANNING INITIATIVES

The District requires that all water connection services be metered. Meter size for each new connection is approved by the District and is based on occupancy and irrigation requirements. There are currently no other limitations in the District's Rules and Regulations pertaining to new connections that limit or restrict irrigation.

PLANNING EFFORTS

WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN

PWMD incorporated a Water Conservation and Drought Contingency Plan (WCDP) to the Rules and Regulations (Article 12) on June 11, 2002. The WCDP is designed to escalate conservation measures as shortage of the water supply increases. The plan consists of five stages that are implemented as dictated by available water supply. Table 9 outlines the drought mitigation stages of the WCDP. The complete WCDP is provided in Appendix E.

Table 9. WCDP Stages

Stage	Criteria For Stage Implementation
One: Conservation State	• Available two year water supply is 90% or less of the current two year nominal use • Water demand reaches 90% of treatment capacity for four consecutive days • Distribution system limits supply capabilities
Two: Water Warning	• Available two year water supply is 80% or less of the current two year nominal use • Water demand reaches 96% of treatment capacity for four consecutive days • Distribution system limits supply capabilities
Three: Water Emergency	• Available two year water supply is 70% or less of the current two year nominal use • Water demand reaches 100% of treatment capacity for four consecutive days • Short term deficiencies in the water distribution system limits supply capabilities, such as system outage due to failure or damage of water system components
Four: Water Crisis	• Available two year water supply is 60% or less of the current two year nominal use • Water demand reaches 110% of treatment capacity for four consecutive days • Short term deficiencies in the water distribution system limits supply capabilities, such as system outage or failure • Inability to maintain or replenish adequate volumes of water storage to provide for public health and safety
Five: Emergency Water Shortage	• Major water line breaks or pump or system failures occur that cause a loss of capability to provide water service. • Natural or manmade contamination of the water supply sources

The following action items are implemented using the WCDP and dependent on stage:

- Reduction of water consumption by specified percentage
- Reduction of irrigation
- Restriction of hydrant use
- Restrictions to vehicle washing
- Increase of water use charge
- Elimination of outdoor water use
- Implementation of fines for water use violations

RATE STUDY AND CAPITAL IMPROVEMENTS PLANNING

The District has contracted Red Oak Consultants to perform a rate study and evaluate the capital improvement alternatives. These projects include water supply acquisition; improvements associated with water return credits, dam improvements, water distribution pipelines, additional

storage tanks, and meter and valve maintenance and replacement programs. These options will be discussed further in Section 4.

Current Water Conservation Activities

In efforts to conserve water, the District currently employs techniques such as public education, reuse of WTP backwash (BW) waste, and the WCDP discussed in the previous section.

Public Education

Public education can be highly effective in water conservation efforts. Information on water conservation is provided on the District's website consisting of xeriscaping guidelines and a list of water conservation tips as outlined by the National Wildlife Federation (NWF). A copy of the information provided on the District's website is available in Appendix E.

Results of conservation efforts from public education are difficult to quantify and it is unknown at this time how conservation literature has affected the District's water demand.

Water Treatment Plant BW Waste Used for Irrigation

In a majority of water treatment facilities the BW waste is not reused, but is transferred to the sanitary sewer system for treatment at a wastewater facility. At the PWMD WTP, the BW waste is sold to the Desert Hawk Golf Course as non-potable water for irrigation. The average annual water used by the golf course is shown in Table 10. The reuse of WTP BW waste is the largest quantifiable conservation measure utilized by the District. The average water used by the Golf Course is 101 MG per year, which is a direct water savings for the District.

Table 10. Water Consumption of Desert Hawk Golf Course

Year	Total Annual Water Demand (MG)
2003	130
2004	106
2005	112
2006	107
2007	90
2008	121
2009	117
2010	123

Water Conservation and Drought Contingency Plan

Since its implementation in 2002, the WCDP has demonstrated an annual decrease in water consumption of approximately 12 percent. This estimate is based on the average gallons of use per tap per day prior to 2002, 442 gallons per tap per day, to the average gallons of use per tap per day between 2002 and 2010, 387 gallons per tap per day. The decrease in water consumption that results from the WCDP implementation is shown in Figure 4.

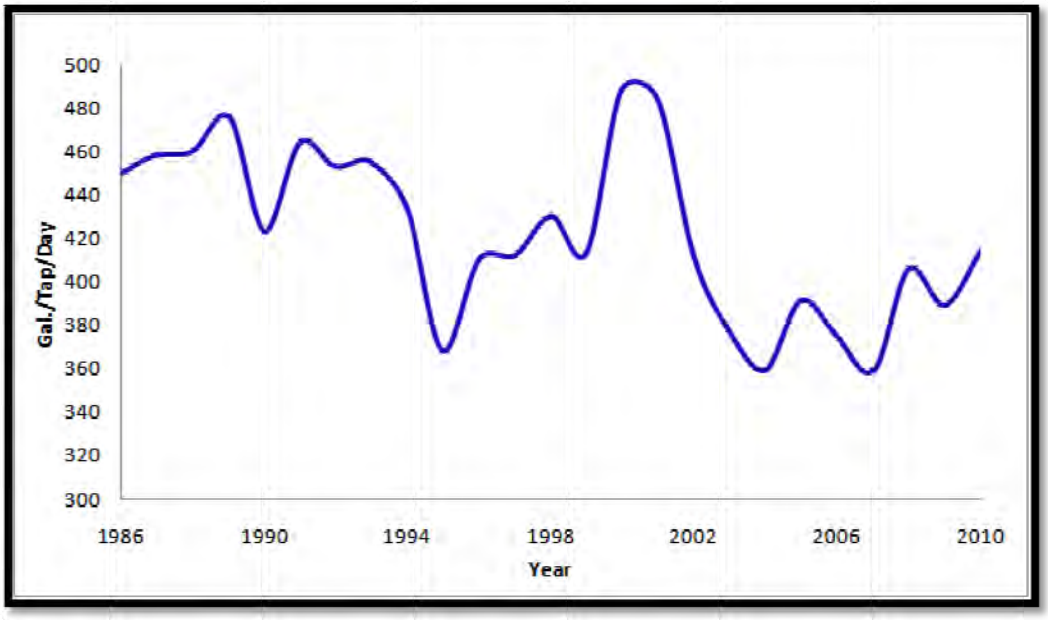

Figure 4. Historic Average Daily Water Consumption per Water Connection Tap

SECTION 3 – WATER USE AND DEMAND FORECAST

CURRENT WATER USE

In 2010, the District provided an annual average of 4.61 MGD of treated water to approximately 28,100 customers with an average maximum month delivery of 8.09 MGD. Peak daily demand conditions typically occur in June or July. Details regarding historic water consumption are provided in Appendix F.

A summary of historic annual water use is provided in Table 11. An extended monthly compilation of this table is available in Appendix F. Historic water consumption from 1986 through 2010 is shown in Figure 5.

Table 11. Summary of Historic Annual Water Demand

Year	Total Number of Water Taps	Total Raw Water Pumped (MG)[a]	Total Treated Water Production (MG)[b]
2004	8,846	1,266	1,221
2005	9,453	1462	1,436
2006	10,130	1,495	1,448
2007	10,595	1,478	1,422
2008	10,793	1,720	1,647
2009	10,900	1,667	1,612
2010	10,979	1,784	1,738

[a] Total raw water pumped to WTP
[b] Sum of all metered entry points into the distribution system

SYSTEM WATER LOSSES

In order to evaluate the water demand the system water losses were analyzed using the American Water Works Association (AWWA) Free Water Audit Software and existing data from the WTP. Using this software, the apparent losses (non-physical losses due to meter inaccuracies, data handling errors, etc) and real losses (physical losses from the distribution system) were estimated. On average, over the past five years, the total losses have been approximately 12 percent of the total raw water pumped to the WTP. The apparent losses are approximately 1.1 percent of the total raw water pumped and the real losses are approximately 10.7 percent of the total raw water pumped. The AWWA worksheet summaries and are provided in Appendix F.

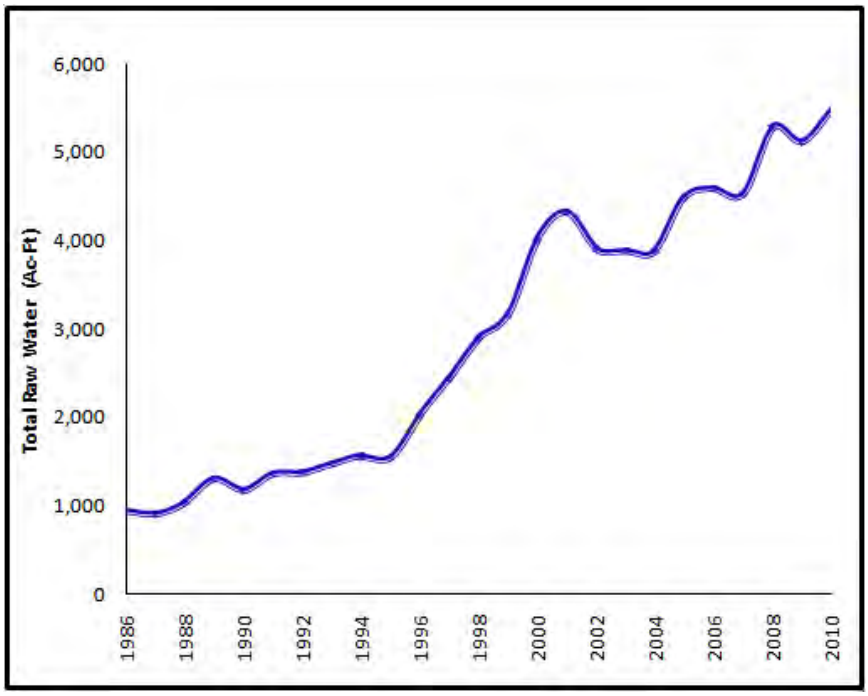

Figure 5. Historic Annual Water Demand (1986 – 2010)

USE BY CUSTOMER CATEGORY

The total number of water tap connections as of December 2010 was 10,979. These connections are divided into six customer categories as discussed in Section 2. The monthly demand for each user category from 2010 is presented in Table 12. This table includes the total water sold and the amount of water sold per user category.

Table 12. 2010 Total Monthly Water Usage

Month	Residential (MG)	Commercial (MG)	Duplex (MG)	Multi-Family (MG)	Non-Potable (MG)	Non-Residential (MG)	Total Water Sold (MG)
January	49.48	5.30	2.14	1.54	0.19	0.04	58.6
February	46.7	5.13	2.03	1.39	0.28	0.04	55.5
March	42.9	5.07	1.90	1.21	0.10	0.01	51.3
April	67.7	8.29	2.23	1.48	7.30	0.02	87.0
May	97.5	14.9	2.16	1.30	8.64	0.46	125.0
June	179.4	25.5	3.23	1.84	21.8	1.28	232.9
July	191.7	29.8	3.69	2.11	20.9	1.32	249.6
August	166.2	27.6	3.27	1.72	17.6	1.03	217.4
September	180.9	28.2	3.33	1.82	27.1	1.25	242.7
October	158.7	25.5	3.18	1.75	6.29	1.21	196.7
November	84.5	14.8	2.35	1.47	8.24	0.47	111.8
December	46.1	5.79	1.97	1.22	4.12	0.03	59.2
Total	**1,31.2**	**195.8**	**31.7**	**18.8**	**122.6**	**0.60**	**141.0**

The water demand per user category from 2010 is shown graphically in Figure 6. Throughout the year, the largest demand is from the residential category, which is predominantly single family residential. Single family residential is differentiated from duplex and multi-family because of their higher irrigation use.

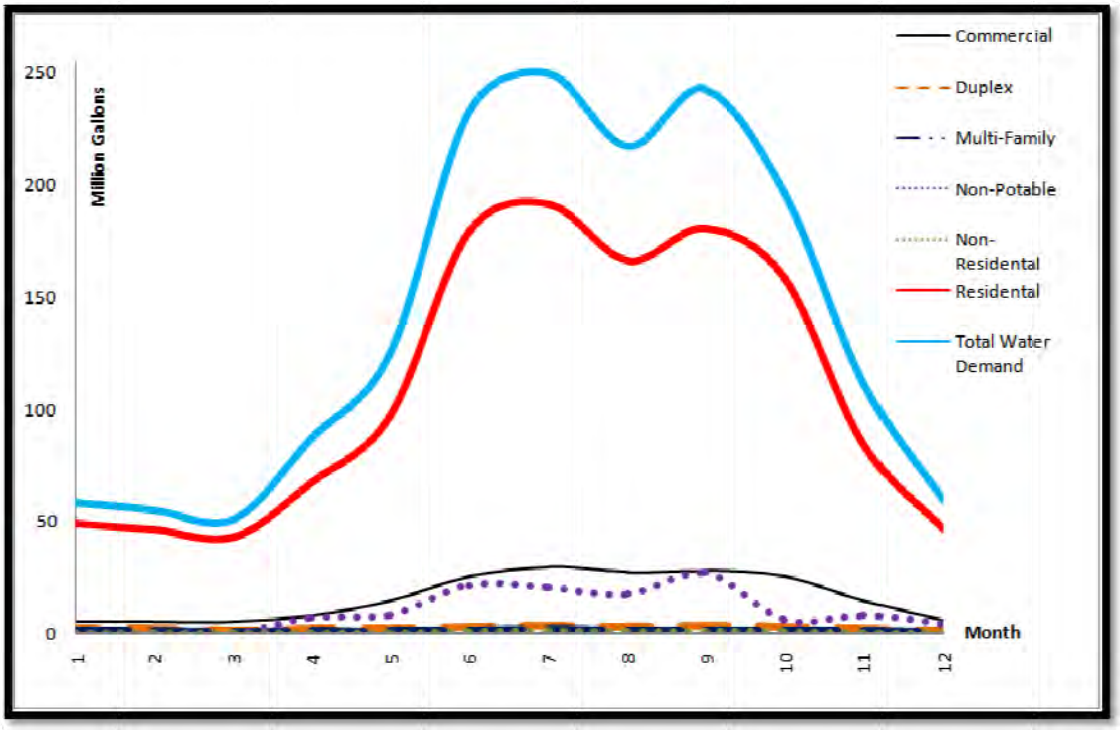

Figure 6. 2010 Water Demand by Customer Category

RESIDENTIAL WATER USE

Residential water use includes indoor and outdoor use and has the highest water demand 84 percent of potable water demand. Residential water demand compared to total water demand is shown in Figure 7.

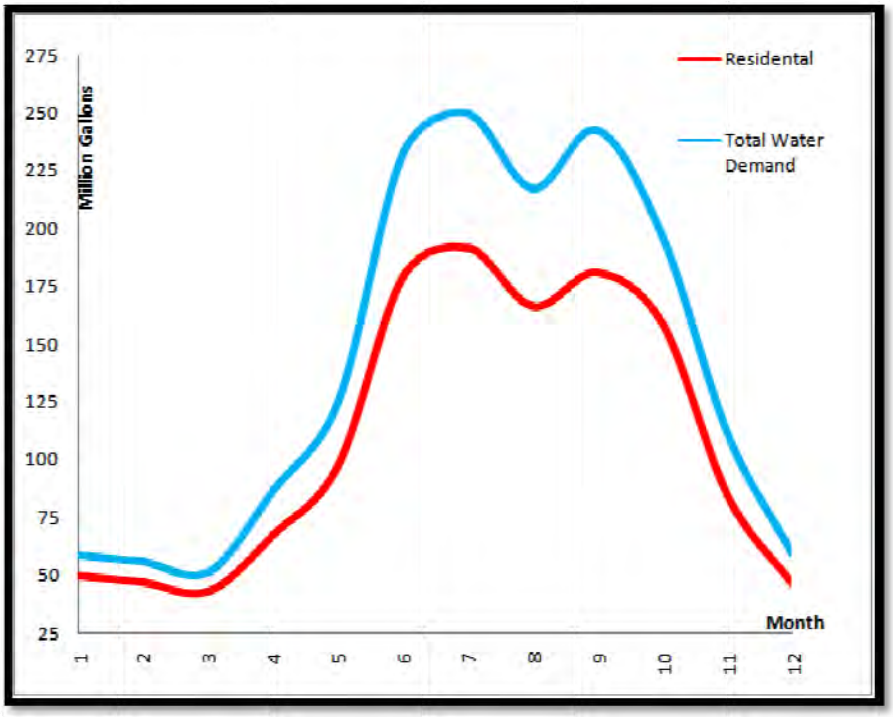

Figure 7. 2010 Monthly Residential Water Demand

COMMERCIAL WATER USE

Commercial water users include car washes, retail stores, office buildings, restaurants, hotels, schools, and other similar businesses. This category includes indoor and outdoor demand. Water demand for this group is 12.5 percent of potable water demand.

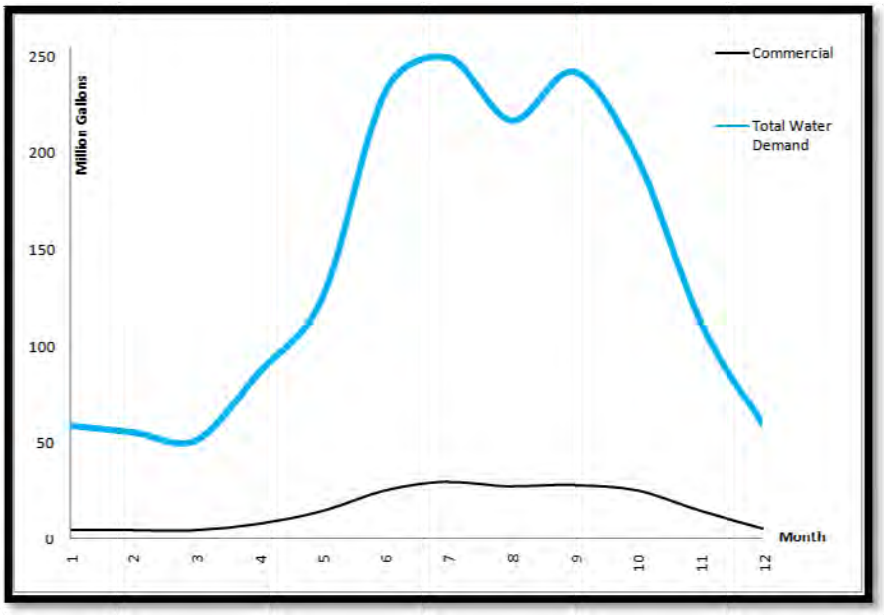

Figure 8. 2010 Monthly Commercial Water Demand

NON-POTABLE (DESERT HAWK GOLF COURSE)

The Desert Hawk Golf Course uses WTP BW waste (non-potable water) for golf course irrigation. This is the only non-potable water application in the District. Non-potable water demand is 7.44 percent of the District's water demand. Figure 9 shows the non-potable demand as a portion of the total water demand.

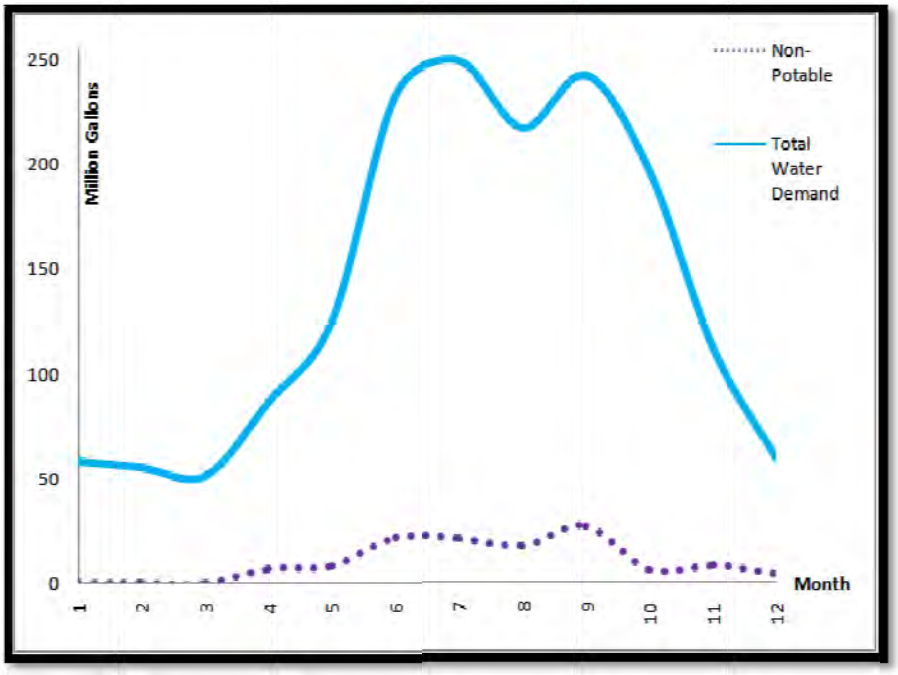

Figure 9. 2010 Monthly Non-Potable Water Demand

MULTI-FAMILY

The multi-family category consists of multiplex units with four or more persons in one home, residences with three persons or less, and some duplex users. This group includes indoor and minor outdoor water use. Water demand from this user category is 1.20 percent of potable water demand.

DUPLEX

The duplex category consists of residences of three persons or less and duplex or triplex units. This group includes indoor and minor outdoor use. Water use from this user category is 2.01 percent of potable water demand.

Water demands for the duplex and multi-family user categories as a portion of total water demand are shown in Figure 10.

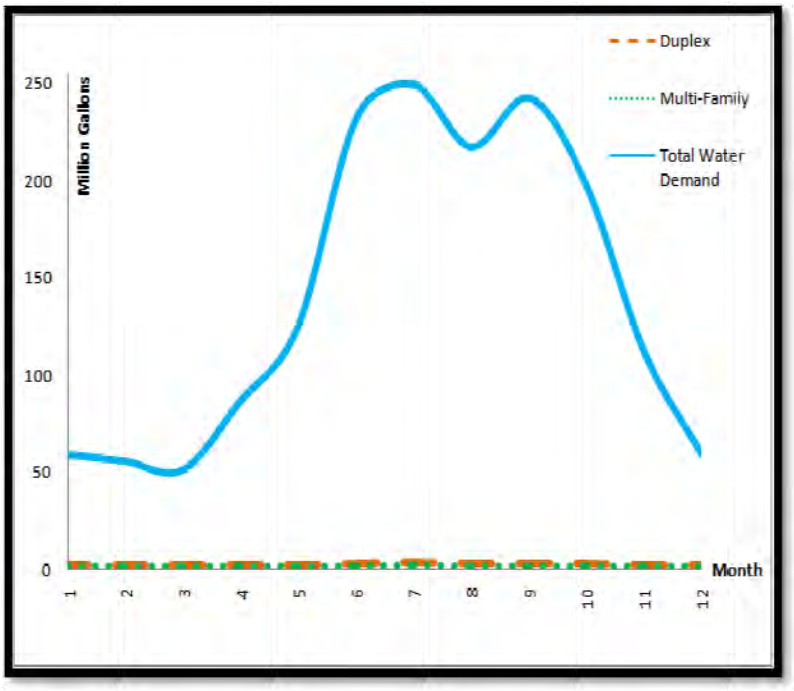

Figure 10. 2010 Monthly Multi-Family and Duplex Water Demand

NON-RESIDENTIAL

Non-residential water users in the District are customers who use water for irrigation purposes only, including parks, sports complexes, and other irrigated areas. Water use from this user group is 0.46 percent of potable water use. This category is a small percentage of the total water demand and is therefore not displayed graphically.

TAP AND WATER USE SUMMARY

The total number of water tap connections for each user category is presented in Table 13. Historical data for the number of taps per user category is not readily available. Historical data, shown in Table 14 for 2005 thru 2009 are based on percentage of taps per category in 2010.

Table 13. Estimated Taps by User Category

Year	Residential	Commercial	Multi-Family	Duplex	Non-Residential	Non-Potable	Total Number of Taps
2005	8,981	221	54	192	3	1	9,453
2006	9,624	236	58	206	4	1	10,130
2007	10,066	247	61	215	4	1	10,595
2008	10,275	252	62	220	4	1	10,815
2009	10,347	254	62	221	4	1	10,891
2010[a]	10,426	256	63	223	4	1	10,974

[a] Actual number of taps

Annual water use for each user category is shown in Table 14 from 2005 through 2010. Historical data shown is based on percentage of water used by each group in 2010.

Table 14. Annual Estimated Water Use by Category

Year	Residential (MG)	Commercial (MG)	Multi-Family (MG)	Duplex (MG)	Non-Residential (MG)	Non-Potable (MG)	Total Water Use (MG)
2005	1,102	165	15.8	26.5	6.01	102.9	1,417
2006	1,111	166	15.9	26.7	6.06	103.8	1,430
2007	1,090	163	15.6	26.2	5.95	101.8	1,402
2008	1,264	189	18.2	30.4	6.90	118.1	1,626
2009	1,237	184	17.8	29.7	6.80	115.6	1,592
2010*	1,333	200	19.2	32.0	7.27	124.6	1,715

*Actual water use

POTABLE AND NON-POTABLE WATER USE

Currently, the District distributes non-potable WTP BW waste to Desert Hawk Golf Course for irrigation purposes. All other water (metered and non-metered) from the WTP is potable water. Non-potable monthly consumption (Desert Hawk Golf Course) for 2010 was shown in Figure 9.

The percentage of the District's 2010 annual water demand that was non-potable versus potable is shown in Figure 11. The District's annual non-potable water demand is 7.44 percent of the total water demand.

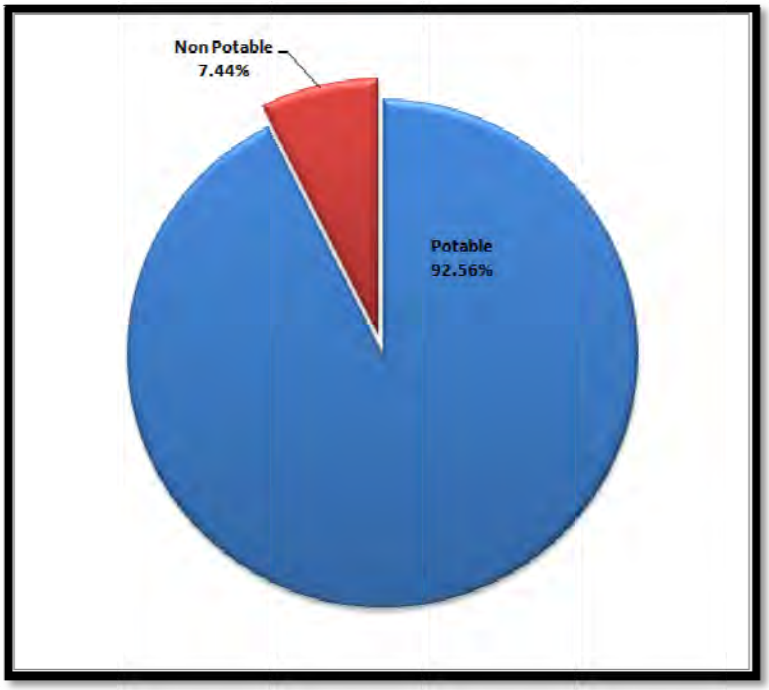

Figure 11. Percentage of Annual Potable and Non-Potable Water Demand

INDOOR AND OUTDOOR WATER USE

The indoor and outdoor use patterns were analyzed by comparing water consumption during the three winter months (December, January, February), when typically no outdoor water use is occurring, with the three major irrigation months (June, July, August). The total annual water consumption for the three winter and three summer months is shown in Figure 12 for 2005 thru 2010.

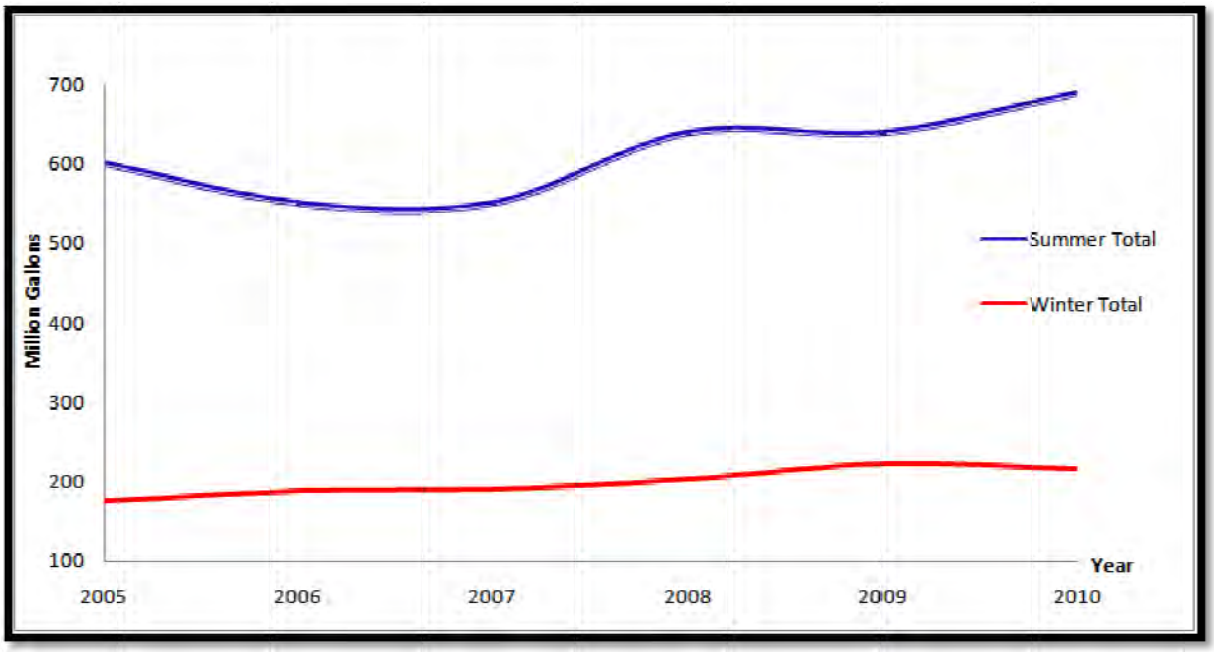

Figure 12. Total Water Consumption Winter Months and Summer Months

The average daily water use during the summer and winter months was calculated. To determine the indoor water demand, the winter average consumption was subtracted from the summer average. The difference is assumed as the outdoor water consumption. The District's outdoor water demand is approximately 67 percent of total water demand during the summer months.

Figure 13 shows the indoor versus outdoor average water demand from June thru August.

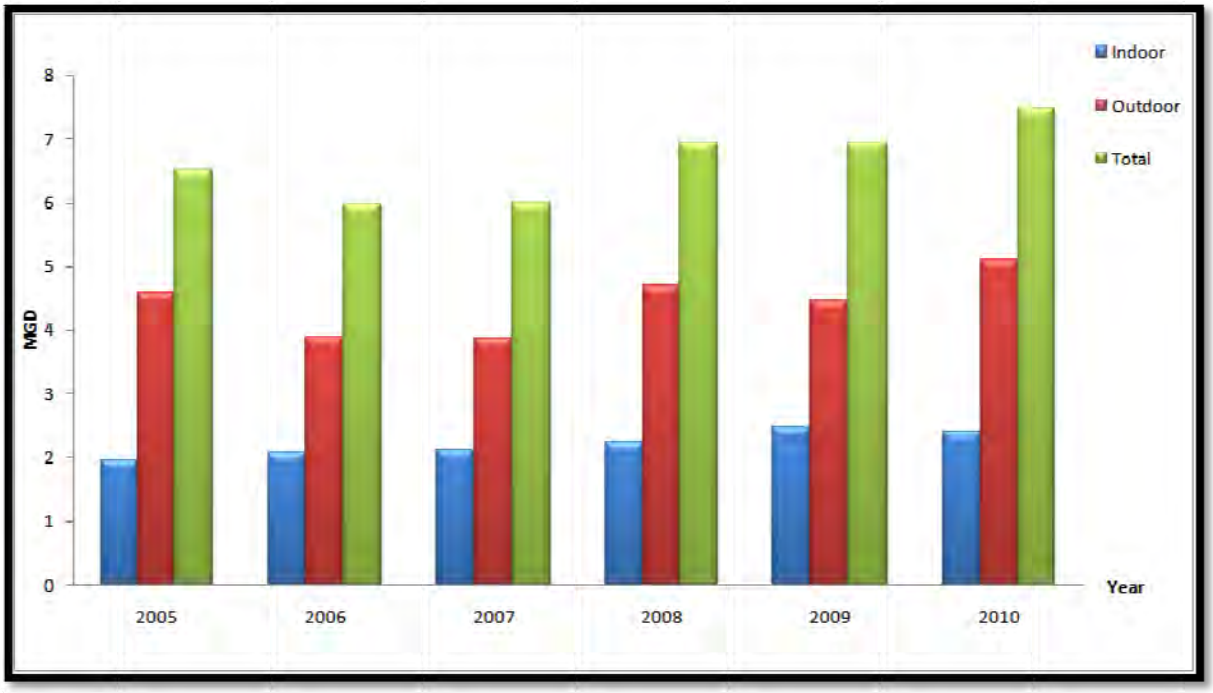

Figure 13. Indoor and Outdoor Average Daily Water Demand (Summer Months)

Table 15 is comparison of the summer versus winter water usage per user category. For example, the residential use is 2.8 times higher in the summer months versus the month months.

Table 15. Comparison of Summer Water Consumption to Winter Water Consumption

Category	Ratio of Summer vs. Winter
Residential	2.8
Commercial	4.1
Multi-Family	0.4
Duplex	0.7
Non-Residential	35
Non-Potable	12

PER CAPITA WATER USE

Average per person water demand was evaluated and a summary is presented in Table 16. The outdoor per capita water demand is on average, three times higher than the indoor per capita water demand.

Table 16. Historical per Capita Water Use

Year	Population	Average Total Water Demand (MGD)	Total Per Capita Water Use (gpcd)	Average Residential Water Demand (MGD)	Residential Annual Per Capita Water Use (gpcd)	Residential Summer Per Capita Water Use (gpcd)	Residential Winter Per Capita Water Use (gpcd)
2005	23,473	3.88	166	3.02	129	216	64
2006	26,056	3.91	155	3.04	121	184	64
2007	27,277	3.84	144	2.99	112	174	62
2008	27,842	4.45	162	3.46	126	196	64
2009	27,877	4.36	156	3.39	122	194	69
2010	28,084	4.70	167	3.65	130	207	66

The total annual average per capita water use is 159 gpcd between 2000 and 2010.

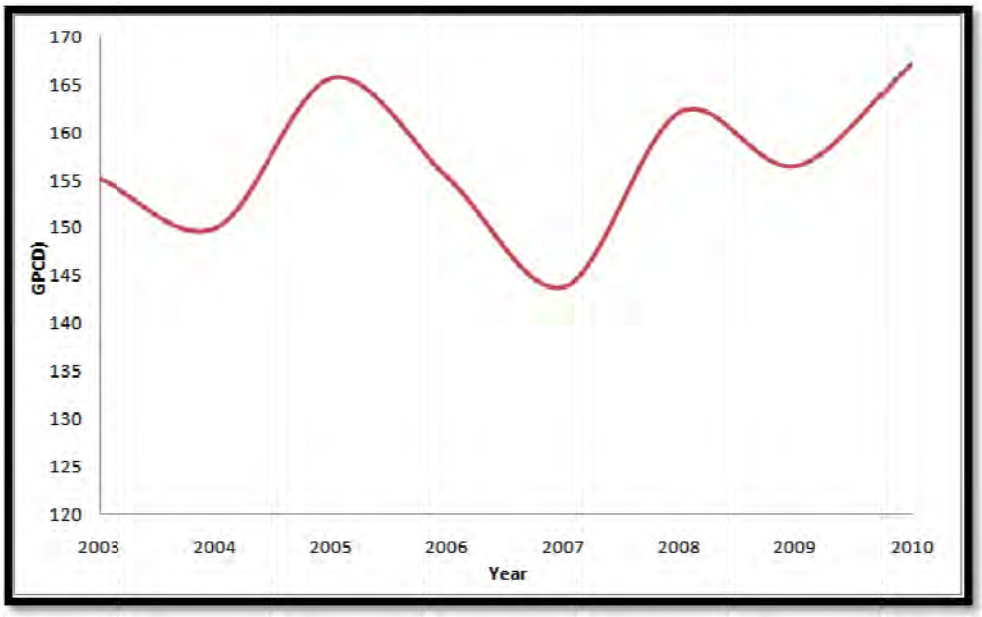

Figure 14. Historic Per Capita Water Consumption (2003 – 2010)

TOP 50 WATER USERS

To identify areas with the largest potential for water savings, the 50 customers with the highest use from 2008 to 2010 were evaluated. The customers were grouped according to their user category to determine the prevalence of each customer classification among the high consumption accounts.

Figure 15 shows that 63 percent of the "top users" are from the commercial category. The largest water consumer is the Desert Hawk Golf Course (non-potable category). Two of the four non-residential customers are in the Top 50 user category. These two accounts are District owned irrigation accounts. There are 34 commercial connections in the top 50, 14 of these are schools/institutions, parks, sports fields and irrigation/sprinkler accounts.

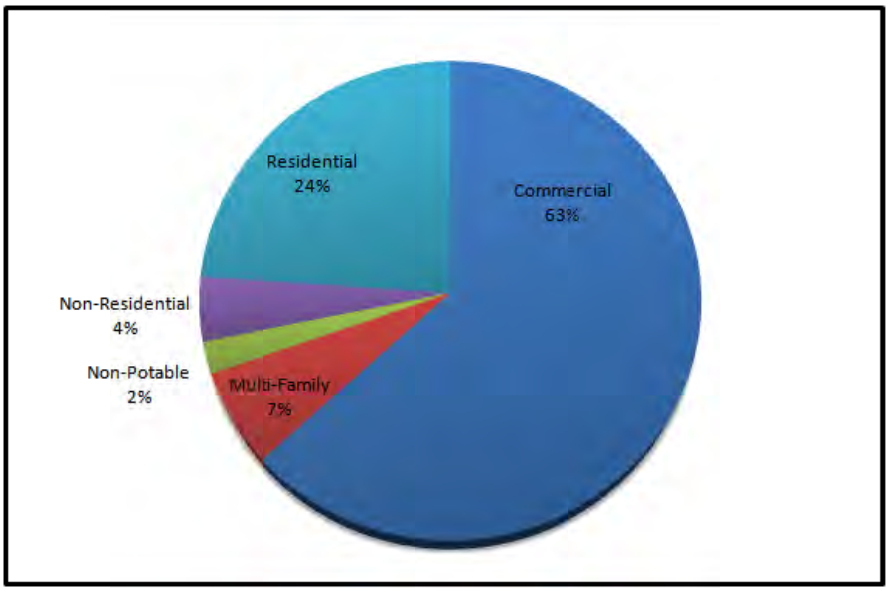

Figure 15. User Category Percentage of Top 50 Water Customers

The District irrigation accounts and school/institution accounts contribute significantly to the overall commercial category. Therefore, the monthly water consumption for these accounts during 2010 was compared to all commercial users and is provided in Table 17.

Table 17. Commercial Water Demand

Month	Commercial Water Demand (MG)	District Irrigation Accounts Monthly Water Demand (MG)	School Monthly Water Demand (MG)
January	5.30	0.23	0.43
February	5.13	0.11	0.64
March	5.07	0.59	0.78
April	8.29	0.98	1.44
May	14.9	1.95	3.87
June	25.5	2.67	6.96
July	29.8	3.33	8.29
August	27.6	3.05	8.22
September	28.2	3.04	8.18
October	25.5	2.28	6.17
November	14.8	1.03	3.28
December	5.79	0.33	0.72
Total	**195.8**	**19.60**	**48.99**

The percentage of the summer water consumption in the commercial category represented by the District accounts and the schools/institutions is shown in Figure 16. The percentage of the winter water consumption in the commercial category represented by the District accounts and the schools/institutions is shown in Figure 17. During the summer, the District accounts and the schools/institutions account for 39 percent of the commercial category water consumption.

District accounts and the schools/institutions account for 12 percent of the commercial category water consumption during the winter months.

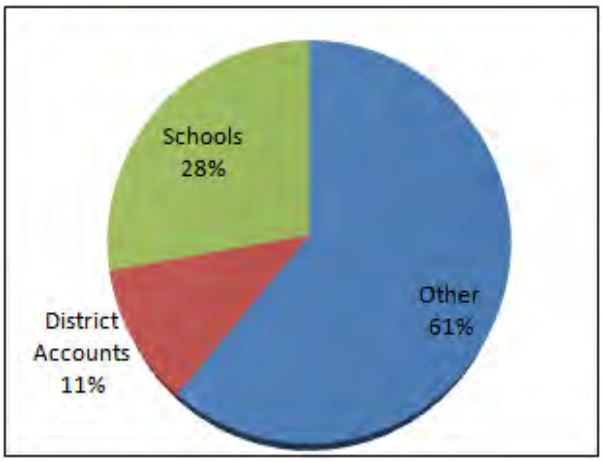

Figure 16. Summer Use Percentage

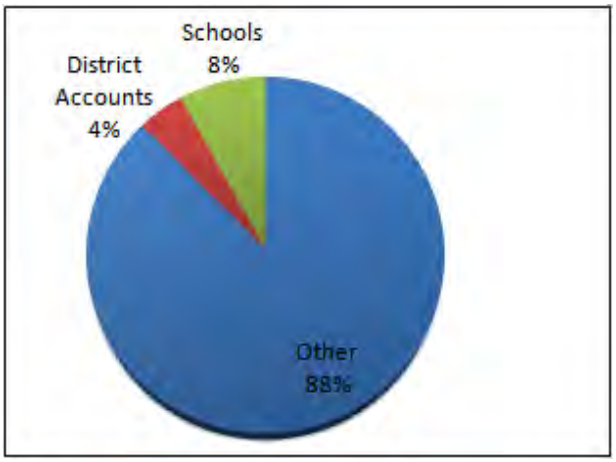

Figure 17. Winter Use Percentage

SCHOOLS/INSTITUTIONS

The average monthly school and institution demand (combination of the nine schools in the District) was calculated and is provided in Table 18. The percentage of indoor consumption versus outdoor consumption for the schools/institutions is provided in Figure 18.

Table 18. Average Monthly Water Demand for Schools and Institutions

Month	Average Daily Water Demand (gpd)	Average Monthly Water Demand (MG)
January	13,935	0.43
February	22,875	0.64
March	25,306	0.78
April	48,117	1.44
May	124,677	3.87
June	232,017	6.96
July	267,565	8.29
August	265,226	8.22
September	272,633	8.18
October	199,097	6.17
November	105,710	3.28
December	23,258	0.72

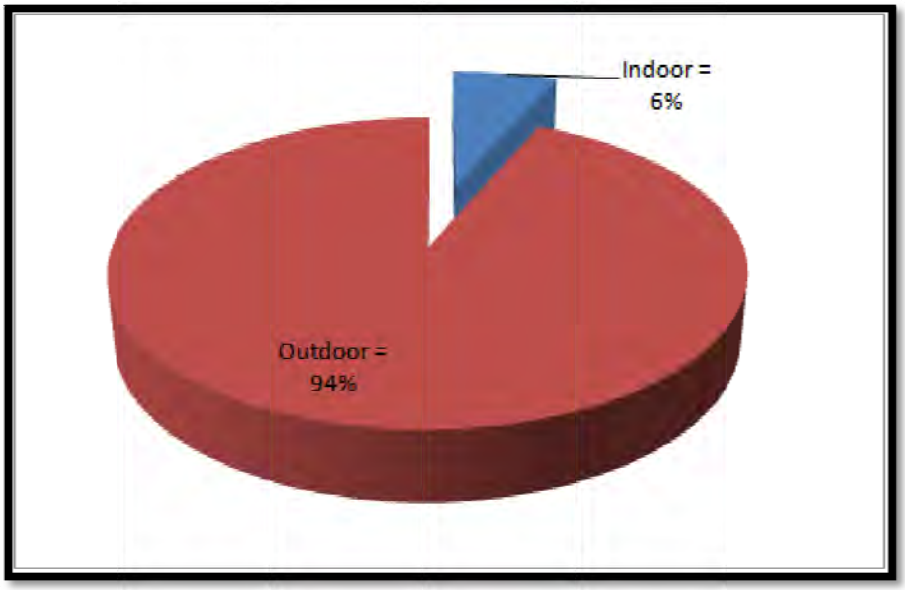

Figure 18. Schools/Institutions Outdoor Water Demand Percentage

PARKS AND DISTRICT IRRIGATION

District accounts that provide irrigation to sports fields, parks, and other maintained areas contribute five accounts to the top 50 water users. A summary of the water demand for these accounts is shown in Table 19. The percentage of indoor versus outdoor water consumption for these accounts is shown in Figure 19.

Table 19. Average Monthly Water Demand for District Owned Irrigation

Month	Average Daily Water Demand (gpd)	Average Monthly Water Demand (MG)
January	7,312	0.227
February	3,940	0.110
March	18,882	0.585
April	32,722	0.982
May	63,043	1.954
June	89,056	2.672
July	107,323	3.327
August	98,355	3.049
September	101,411	3.042
October	73,624	2.282
November	33,333	1.033
December	10,753	0.333

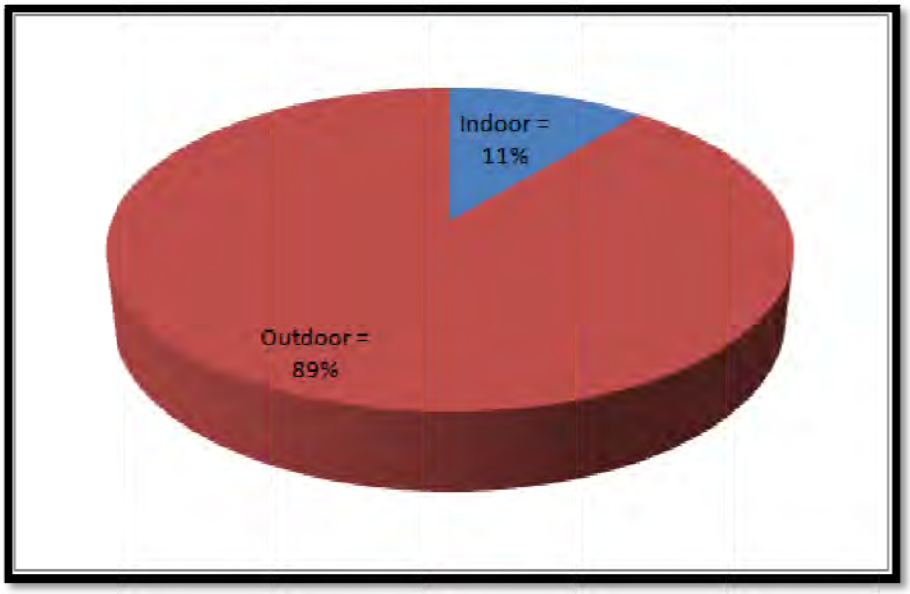

Figure 19. Parks and District Irrigation Outdoor Water Demand Percentage

DEMAND FORECAST

FORECASTING METHOD

Future water demand was projected by utilizing the Pueblo Area Council of Governments (PACOG) Metropolitan Planning Organization (MPO) data for projected population growth and household growth from 2005 through 2035. To determine the District's projected population growth, the PACOG population growth rate was applied. To determine the District's water tap connection growth rate, the PACOG household growth rate was applied.

Table 20. PACOG Projected Growth Rate for Pueblo West

Year	Population Annual Growth Rate	Household Annual Growth Rate
2005 – 2015	3.52%	2.10%
2015 – 2025	1.95%	2.80%
2025 – 2035	0.83%	1.70%

The buildout condition was determined by calculating the number of water tap connections that are possible given the current boundaries of the service area. Each of the lots within the District has a physical address regardless of current occupancy or development condition. The District's mapping software for the water distribution system correlates each physical address to the water tap connection account number. Addresses without an existing water tap connection are entered into the system as a "buildout connection". There are 19,373 taps in the District at buildout.

The future water demand was projected using the average water consumption between 2000 and 2010 of 159 gallons per person per day. This average was applied to the population projections to determine future water demand. No water conservation measures have been taken into account in this projection; therefore, the water demand per person is assumed constant through buildout conditions. To calculate the projected annual water demand per user category the proportions calculated in Section 2 were assumed constant and were applied to the total projected water demand.

Future Demand

Detailed calculations for future water demand and projections are provided in Appendix G. A summary of projected water tap connections, population, and potable water use through buildout are provided in Table 21.

Table 21. Projections: Number of Water Taps, Population, Average Daily Demand (MGD)

Year	Number of Water Taps	Population	Residential Water Use 77.7%	Commercial Water Use 11.6%	Multi Family Water Use 1.12%	Duplex Water Use 1.87%	Non-Residential Water Use 0.42%	Total Potable Water Use
2012	11,445	30,193	3.71	0.55	0.053	0.089	0.020	4.78
2018	12,873	34,814	4.28	0.64	0.062	0.103	0.023	5.51
2023	14,779	38,343	4.72	0.70	0.068	0.113	0.026	6.07
2028	16,606	41,307	5.08	0.76	0.073	0.122	0.028	6.54
2033	18,066	43,050	5.30	0.79	0.076	0.127	0.029	6.81
Buildout	18,373	43,408	5.34	0.80	0.077	0.128	0.029	6.87

Projected water demand was converted to AF in order to compare with available water supply. The annual total AF by user category is summarized in Table 22. For buildout conditions, the projected annual demand is 8,073 AF.

Table 22. Annual Demand Projections (AF)

Year	Residential Water Use 77.7%	Commercial Water Use 11.6%	Multi Family Water Use 1.12%	Duplex Water Use 1.87%	Non-Residential Water Use 0.42%	Non-Potable Water Use 7.26%	Total Water Use
2012	4,160	621.0	64.2	100.1	22.7	376	5,730
2018	4,796	716.0	74.1	115.4	26.2	376	6,550
2023	5,283	788.6	81.6	127.1	28.8	376	7,176
2028	5,691	849.6	87.9	137.0	31.1	376	7,701
2033	5,931	885.4	91.6	142.7	32.4	376	8,010
Buildout	5,980	892.8	92.4	143.9	32.6	376	8,073

Summer and winter daily demand projections for the highest outdoor use categories (residential, commercial, and non-residential) were calculated in five-year increments for the twenty-year planning period ending in 2033. The previously established summer versus winter use ratios were used to determine the future demand for each use category. These projections are shown in Table 23.

Table 23. Summer and Winter Average Daily Demand Projections (MGD)

Year	Residential		Commercial		Non – Residential	
	Summer	Winter	Summer	Winter	Summer	Winter
2012	4.48	1.61	0.75	0.18	0.04	0.001
2018	5.16	1.86	0.87	0.21	0.05	0.001
2023	5.68	2.04	0.96	0.23	0.05	0.001
2028	6.12	2.20	1.03	0.25	0.05	0.002
2033	6.38	2.30	1.08	0.26	0.06	0.002

SECTION 4 – PROFILE PROPOSED FACILITIES

The District is currently in the process of conducting a rate study and developing a ten-year capital improvements plan (CIP). The goal of the CIP is to identify areas of the water treatment and distribution system that will require maintenance, expansion, and replacement and to appropriately allocate funds to those projects. Projects currently under review for inclusion in the planning budget include:

- Water supply acquisition
- Improvements associated with water return credits
- Dam improvements
- Water distribution pipelines
- Additional storage tanks
- Meter and valve maintenance and replacement

A number of the projects proposed for inclusion are independent of water demand. A summary of the CIP projects that pertain to increasing water supply sources, increasing efficiency of water supply return credits, and providing adequate storage for peak conditions are presented in Table 24.

Table 24. CIP Water Projects: Water Supply and Storage

Project	Projected Year of Financing	Estimated Cost
Additional Shares of Water	Annually	$1,300,000
Hill Ranch – Re-vegetation	2010	$120,000
Flumes for Reuse134 Part B	2012	$39,000
South Delivery System Pueblo West Connection	2012	$890,000
Wildhorse Return Pipeline	2012	$2,950,000
North Side Wells Engineering and Development [a]	2020	$5,900,000
Hill Ranch – Diversion and Flow Monitoring	2023	$85,000

[a] Per the RTW North Side Well Field Study (2004)

Several CIP projects can potentially be delayed or eliminated if water demand decreases through successful conservation efforts. A list of these projects is included in Table 25.

Table 25. CIP Water Projects Water Demand Dependent

Project	Projected Year of Financing	Estimated Cost
Additional 2 MG North Storage Tanks and Piping (2)	2014 and 2021	$3,400,000 (each)
West Side Distribution Phase 2	2018	$2,000,000
12,000 feet of 24 inch distribution main (Purcell Blvd)	2018	$5,000,000
West Side Distribution Phase 3	2020	$2,160,000
Replacement of Plant Filters 1-3	2021	$250,000
West Side Distribution Tank	2021	$2,160,000

The District is currently reviewing these projects for final budgetary prioritization and a decision is expected early in 2013.

SECTION 5 – WATER CONSERVATION GOALS

WATER CONSERVATION GOALS

The development of water conservation goals is a long-term process that begins by quantifying the future water demand and determining where water consumption can be reduced. The District's primary goal for water conservation is to balance the water demand with the amount of water available. Available water supplies are limited in the State of Colorado and in the Arkansas Basin. Opportunities to increase available supply water are also limited, which dictates the need for water conservation strategies.

The evaluation of the future water demand and existing water supply were used to develop goals and identify future water savings as a percentage of future estimated water demand. The projected buildout average annual water demand (potable and non-potable) is 8,073 AF. The existing annual water available during an average year and including the use of groundwater is 8,299 AF. The District has expressed a desire to exclude groundwater from the supply portfolio for this Plan due to the high costs associated with pumping and treating this water. The water from the groundwater wells has shown elevated levels of total dissolved solids and radionuclides, which lead to expensive treatment and waste disposal alternatives. The depth of the wells and the poor water quality make this source cost prohibitive. The available water supply without the use of the groundwater is 7,405 AF.

To balance the water available with the future water demand, the amount that needs to be conserved is approximately 700 AF annually, or nine percent of the projected buildout demand. For this Conservation Plan, the District's goal is to reduce water consumption by nine percent over the 20-year planning horizon (2033). The projected annual average in 2033 prior to conservation efforts is 8,010 AF.

Through collaboration efforts with the District's representatives, conservation alternatives were identified and prioritized. The following conservation alternatives have been identified:

- Reduce outdoor water demand
- Manage distribution system pressure
- WTP meter accuracy
- Meter replacement and leak detection

In order to most effectively reach the water demand reduction goal, the primary targets of the conservation efforts are the high outdoor water consumption categories. Since the Desert Hawk Golf Course already uses non-potable water, conservation measures will target potable water demand categories only. For a reduction goal of nine percent of the total water demand over the 20-year period, the reduction goals per user category were established and are provided in Table 26.

Table 26. 20 Year Water Conservation Goals (2033)

Category	Annual Water Use (2033)	Total Water Use (2013 – 2033)	Reduction Goals for Planning Horizon (2013 – 2033)	
	AF	AF	%	AF
Residential	5,931	109,439	9.5%	10,397
Commercial	885	16,338	13.5%	2,206
Non-Residential (Irrigation)	32	597	13.0%	78
Total Demand	**8,010**	**140,775**	**9%**	**12,668**

To meet the nine percent water demand reduction goal, interim reduction periods have been established. This concept provides tools for analysis of the water conservation goals set forth in this Plan. An increase in water reduction every five years will be used to track the District's progress through the planning horizon. The water reduction targets for the interim years are provided in Table 27.

Table 27. Water Demand Reduction Targets

Year	Use for Planning Period	Total Reduction Goals	
	AF	%	AF
2013 – 2018	30,511	2%	610
2013 – 2023	64,487	4%	2,579
2013 – 2028	101,636	7%	8,586
2013 – 2033	**140,775**	**9%**	**12,668**

The reduction target, for the three interim periods by use category, are provided in Table 28 thru Table 30. The water conservation measures and programs evaluated to meet these goals will be discussed in Sections 6 thru 9.

Table 28. Incremental Water Conservation Goals: 5 year (2013 – 2018)

Category	Water Use for Target Period	Total Reduction Goals	
	AF	%	AF
Residential	22,242	2.0%	445
Commercial	3,321	5.0%	166
Non-Residential (Irrigation)	121	6.0%	7
Total Demand	**30,511**	**2.0%**	**610**

Table 29. Incremental Water Conservation Goals: 10 year (2013 – 2023)

Category	Water Use for Target Period	Total Reduction Goals	
	AF	%	AF
Residential	47,177	4.0%	1,887
Commercial	7,043	9.5%	669
Non-Residential (Irrigation)	257	13.0%	33
Total Demand	**64,487**	**4.0%**	**2,579**

Table 30. Incremental Water Conservation Goals: 15 year (2013 – 2028)

Category	Water Use for Target Period	Total Reduction Goals	
	AF	%	AF
Residential	74,577	8.0%	7,292
Commercial	11,134	10.0%	1,237
Non-Residential (Irrigation)	407	13.0%	57
Total Demand	**101,636**	**7.0%**	**8,586**

The 20-year water conservation goals (2033) are shown in Table 27.

SECTION 6 – CONSERVATION MEASURES AND PROGRAMS

WATER CONSERVATION MEASURES AND PROGRAMS

In order to determine the most effective methods to meet the District's water conservation goals, a list of potential programs and measures was developed and evaluated. The list is separated into categories that address water supply and those that address water demand. Conservation efforts pertaining to water supply primarily address maintenance of the distribution system. Demand side measures include education programs, audits, rebates and regulations. This list is provided as Table 31. Measures that are currently being utilized in the District are highlighted yellow.

SCREENING CRITERIA

Screening criteria were developed to select which water conservation measures would be further evaluated to meet the goals established in Section 5. Each of the measures in Table 31 were screened to determine if further evaluation is appropriate. Several measures will require additional planning efforts to make the final determination if future evaluation is warranted. Further evaluation is warranted at this time if the following criteria are met:

- Address high outdoor consumption categories
- Potential to be financially feasible
- Quantifiable results
- Satisfies the CWCB specified statute for required measures and programs

The measures selected for further evaluated are provided in Table 32.

Table 31. Initial Conservation Measures and Programs Screening

	Conservation Measure or Program	Existing	Further Evaluation	Comment
Supply side measures and programs	**Maintenance Programs**			
	Water Reuse System - Water rights credits	Yes	No	Currently in use
	Water Reuse System - Treated Wastewater	No	No	Financial limitations
	Leak Detection & Repair Program	No	Yes	Option will be evaluated
	Pressure Management	No	Yes	Option will be evaluated
Demand side measures and programs	**Education Programs**			
	Water-Saving Demonstration	No	No	Re-evaluate with future planning efforts
	School Programs and Presentations	No	No	Re-evaluate with future planning efforts
	Informative and Understandable Water Bill	Yes	No	Currently in use
	Water Bill Inserts with Conservation Information	No	No	Re-evaluate with future planning efforts
	Xeriscape Gardening Class	Yes	No	Currently in use
	Xeriscape Demonstration Garden	Yes	No	Currently in use
	Designated Water Conservation Officer	No	Yes	Option will be evaluated
	Audits, Rebates and Incentives			
	WaterSaver Landscape Rebates	No	No	Evaluate with future planning efforts
	Commercial Large-Scale Retrofit Rebate	No	No	Evaluate with future planning efforts
	Commercial Irrigation Design Rebate	No	No	Evaluate with future planning efforts
	Residential Indoor Water Audit	No	No	Evaluate with future planning efforts
	Residential Outdoor Water Audit	No	No	Evaluate with future planning efforts
	District Owned Facilities Indoor Water Audit	No	No	Evaluate with future planning efforts
	District Owned Facility Outdoor Water Audit (Large Users and Non)	No	No	Evaluate with future planning efforts
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	No	Yes	Option will be evaluated
	Regulations and Standards			
	Water restrictions - Hour/Days	Yes	Yes	Implemented in the WCDP. Evaluate implications of more frequent use
	Water-Efficient Toilets for Existing Residential Customers	No	Yes	Option will be evaluated
	Residential Plumbing Retrofit	No	No	Does not target outdoor water use category, potential to re-evaluate with future planning efforts
	Low Water Use and Appliance Codes	No	No	Does not target outdoor water use category, potential to re-evaluate with future planning efforts
	Power Washer Registration	No	No	Evaluate with future planning efforts
	Water Rate Structure Changes	No	No	A rate study is being conducted and is not incorporated as part of this Conservation Plan
	Removal of Phreatophytes (e.g. Cottonwoods)	No	No	There are no phyeatophytes impacting PWMD's water source
	Commercial and Residential Rain Sensor Requirement	No	Yes	Option will be evaluated
	Irrigation, Turf and Landscape Standards for New Construction	No	Yes	Option will be evaluated
	Practical Turf for Sports Fields	No	Yes	Option will be evaluated
	New Landscape Lawn Permits	No	Yes	Option will be evaluated
	ET Irrigation Scheduling	No	No	Evaluate with future planning efforts
	10% of Lot Irrigation Restriction	No	Yes	Option will be evaluated
	Crop Irrigation Requirements	No	No	Evaluate with future planning efforts
	Agricultural Soil Moisture Monitoring	No	No	Evaluate with future planning efforts

Table 32. Conservation Measures for Further Evaluation

Conservation Measure or Program
Maintenance Programs
Water Meter Testing and Replacement Program
Leak Detection & Repair Program
Pressure Management
Education Programs
Designated Water Conservation Officer
Audits, Rebates and Incentives
Annual Irrigation Audit and $500 Irrigation Rebate for Large Users
Regulations and Standards
Water Restrictions – Hours/Days
Water-Efficient Toilets for Existing Residential Customers
Commercial and Residential Rain and Wind Sensor Requirement
Irrigation, Turf, and Landscape Standards for New Construction
Practical Turf for Sports Fields
New Landscape Lawn Permits
10% Lot Irrigation Restriction

SECTION 7 – EVALUATION AND SELECTION

The initial screening discussed in Section 6 resulted in 12 options for further evaluation in this Plan. The water conservation planning process requires long-term, continued evaluation of program success and shortfalls. During a subsequent planning effort, 16 additional options from the initial screening were noted as measures of interest to be evaluated in the future.

COST AND WATER SAVINGS OF CONSERVATION OPTIONS

To develop cost and water savings, the method outlined in the AWWA Water Conservation Programs – A Planning Manual was used in conjunction with the Guidebook of Best Practices for Municipal Water Conservation in Colorado, as well as, papers and planning documents from Arizona, Texas, California, Colorado, the Environmental Protection Agency, and Amy Vickers, Handbook of Water Use and Conservation. The details of the cost-benefit evaluation are provided in Appendix H.

All programs were evaluated beginning in year one (2013) in order to assess the options across a consistent time frame; however, measures will be implemented as described in Sections 7 and 8, over five year increment periods. Annual water savings have been calculated, as well as water savings at each of the five-year milestones to evaluate the most effective implementation methods to meet the District's goals.

In the cost-benefit analysis, the costs to the District include: projected lost revenue from water savings, one-time implementation costs, annual material costs, annual labor costs, and staff requirements. Cost values for this evaluation are approximate and are for planning purposes only. To develop an understanding of the ultimate cost to the District over the planning period, all programs were evaluated at full implementation. Rankings of the programs were determined by comparing the cost of each program per 1,000 gallons of water saved at each of the interim years. Ranking the measures at each of the interim periods was completed to develop an implementation plan.

Table 33 thru Table 36 provide a summary of the cost-benefit analysis for each of the four interim phases. Total costs to the District and estimated water savings for each of the planning phases are shown along with rankings for the conservation measures. Information on each of the measures and how they were evaluated is provided in Appendix H.

Table 33. Cost-Benefit Analysis Summary for Phase 1 (2013 - 2018)

	Conservation Measure or Program	# of Participants Annually	Annual Water Savings (gallons)	5 Year Water Savings (gallons)	Annual Revenue Loss Due to Decreased Use	Total Cost			Annual Cost	5 Year Total Cost	Cost per 1000 Gallons Saved	Rank
						One Time Labor and Material Cost	Annual Labor	Annual Materials				
Supply measures and programs	**Maintenance Programs**											
	Water Meter Testing and Replacement Program	-	27,988,386	139,941,928	$0	$6,000	$450	$60,000	$60,450	$308,250	$2.20	3
	Leak Detection & Repair Program	10	27,988,386	139,941,928	$0	$0	$11,350	$50,000	$61,350	$306,750	$2.19	2
	Pressure Management	-	27,988,386	139,941,928	$0	$6,000	$2,250	$20,000	$22,250	$117,250	$0.84	1
Demand measures and programs	**Education Programs**											
	Designated Water Conservation Officer	-	27,055,522	135,277,608	$83,391	$0	$60,000	$0	$60,000	$716,954	$5.30	7
	Audits, Rebates, and Incentives											
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	15	1,997,105	9,885,526	$6,564	$2,000	$400	$12,000	$12,400	$96,820	$9.79	9
	Regulations and Standards											
	Water Restrictions - Hour/Days	-	59,973,073	299,865,365	$184,850	$6,000	$3,000	$0	$3,000	$945,248	$3.15	4
	Water-Efficient Toilets for Existing Residential Customers	500	132,061	660,305	$401	$2,000	$1,000	$0	$1,000	$9,007	$13.64	11
	Commercial and Residential Rain and Wind Sensor Requirement	-	956,273	4,781,366	$2,954	$6,000	$7,000	$0	$7,000	$55,772	$11.66	10
	Irrigation, Turf and Landscape Standards for New Construction	-	1,473,849	7,369,246	$4,540	$6,000	$2,000	$0	$2,000	$38,700	$5.25	6
	Practical Turf for Sports Fields	-	5,899,967	29,499,833	$19,588	$1,601,000	$6,000	$0	$6,000	$1,728,939	$58.61	12
	New Landscape Lawn Permits	10	16,909,701	84,548,505	$52,119	$6,000	$650	$1,000	$1,650	$274,846	$3.25	5
	10% of Lot Irrigation Restriction	-	1,473,849	7,369,246	$4,540	$6,000	$7,000	$0	$7,000	$63,700	$8.64	8

Table 34. Cost-Benefit Analysis Summary for Phase 2 (2013 - 2023)

	Conservation Measure or Program	# of Participants Annually	Annual Water Savings (gallons)	10 Year Water Savings (gallons)	Annual Revenue Loss Due to Decreased Use	Total Cost			Annual Cost	10 Year Total Cost	Cost per 1000 Gallons Saved	Rank
						One Time Labor and Material Cost	Annual Labor	Annual Materials				
Supply measures and programs	**Maintenance Programs**											
	Water Meter Testing and Replacement Program	-	29,682,176	296,821,764	$0	$6,000	$450	$60,000	$60,450	$610,500	$2.06	2
	Leak Detection & Repair Program	10	29,682,176	296,821,764	$0	$0	$11,350	$50,000	$61,350	$613,500	$2.07	3
	Pressure management	-	29,682,176	296,821,764	$0	$6,000	$2,250	$20,000	$22,250	$228,500	$0.77	1
Demand measures and programs	**Education Programs**											
	Designated Water Conservation Officer	-	28,693,156	286,931,560	$88,438	$0	$60,000	$0	$60,000	$1,484,383	$5.17	7
	Audits, Rebates and Incentives											
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	15	1,947,641	19,476,409	$6,466	$2,000	$400	$12,000	$12,400	$190,662	$9.79	10
	Regulations and Standards											
	Water Restrictions - Hour/Days	-	63,603,163	636,031,626	$196,038	$6,000	$3,000	$0	$3,000	$1,996,383	$3.14	4
	Water-Efficient Toilets for Existing Residential Customers	500	121,992	1,219,921	$371	$2,000	$1,000	$0	$1,000	$15,709	$12.88	11
	Commercial and Residential Rain and Wind Sensor Requirement	-	1,311,086	13,110,864	$4,047	$6,000	$7,000	$0	$7,000	$116,473	$8.88	9
	Irrigation, Turf and Landscape Standards for New Construction	-	2,066,098	20,660,984	$6,364	$6,000	$2,000	$0	$2,000	$89,644	$4.34	6
	Practical Turf for Sports Fields	-	5,899,967	58,999,667	$19,588	$1,601,000	$6,000	$0	$6,000	$1,856,879	$31.47	12
	New Landscape Lawn Permits	10	17,933,223	179,332,225	$55,274	$6,000	$650	$1,000	$1,650	$575,239	$3.21	5
	10% of Lot Irrigation Restriction	-	2,066,098	20,660,984	$6,364	$6,000	$7,000	$0	$7,000	$139,644	$6.76	8

Table 35. Cost-Benefit Analysis Summary for Phase 3 (2013 - 2028)

	Conservation Measure or Program	# of Participants Annually	Annual Water Savings (gallons)	15 Year Water Savings (gallons)	Annual Revenue Loss Due to Decreased Use	Total Cost			Annual Cost	15 Year Total Cost	Cost per 1000 Gallons Saved	Rank
						One Time Labor and Material Cost	Annual Labor	Annual Materials				
Supply measures and programs	**Maintenance Programs**											
	Water Meter Testing and Replacement Program	-	31,280,580	469,208,707	$0	$6,000	$450	$60,000	$60,450	$912,750	$1.95	2
	Leak Detection & Repair Program	10	31,280,580	469,208,707	$0	$0	$11,350	$50,000	$61,350	$920,250	$1.96	3
	Pressure Management	-	31,280,580	469,208,707	$0	$6,000	$2,250	$20,000	$22,250	$339,750	$0.72	1
Demand measures and programs	**Education Programs**											
	Designated Water Conservation Officer	-	30,238,566	453,578,495	$93,202	$0	$60,000	$0	$60,000	$2,298,024	$5.07	7
	Audits, Rebates and Incentives											
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	15	1,933,272	28,999,083	$6,418	$2,000	$400	$12,000	$12,400	$284,277	$9.80	10
	Regulations and Standards											
	Water Restrictions - Hour/Days	-	67,028,822	1,005,432,331	$206,597	$6,000	$3,000	$0	$3,000	$3,149,953	$3.13	4
	Water-Efficient Toilets for Existing Residential Customers	500	113,193	1,697,901	$344	$2,000	$1,000	$0	$1,000	$22,162	$13.05	11
	Commercial and Residential Rain and Wind Sensor Requirement	-	1,354,562	20,318,433	$4,181	$6,000	$7,000	$0	$7,000	$173,717	$8.55	9
	Irrigation, Turf and Landscape Standards for New Construction	-	2,140,460	32,106,895	$6,593	$6,000	$2,000	$0	$2,000	$134,902	$4.20	6
	Practical Turf for Sports Fields	-	5,899,967	88,499,500	$19,588	$1,601,000	$6,000	$0	$6,000	$1,984,818	$22.43	12
	New Landscape Lawn Permits	10	18,899,104	283,486,559	$58,251	$6,000	$650	$1,000	$1,650	$904,515	$3.19	5
	10% of Lot Irrigation Restriction	-	2,140,460	32,106,895	$6,593	$6,000	$7,000	$0	$7,000	$209,902	$6.54	8

Table 36. Cost-Benefit Analysis Summary for Phase 4 (2013 - 2033)

	Conservation Measure or Program	# of Participants Annually	Annual Water Savings (gallons)	20 Year Water Savings (gallons)	Annual Revenue Loss Due to Decreased Use	Total Cost			Annual Cost	20 Year Total Cost	Cost per 1000 Gallons Saved	Rank
						One Time Labor and Material Cost	Annual Labor	Annual Materials				
Supply measures and programs	**Maintenance Programs**											
	Water Meter Testing and Replacement Program	-	32,561,193	651,223,855	$0	$6,000	$450	$60,000	$60,450	$1,215,000	$1.87	2
	Leak Detection & Repair Program	10	32,561,193	651,223,855	$0	$0	$11,350	$50,000	$61,350	$1,227,000	$1.88	3
	Pressure Management	-	32,561,193	651,223,855	$0	$6,000	$2,250	$20,000	$22,250	$451,000	$0.69	1
Demand measures and programs	**Education Programs**											
	Designated Water Conservation Officer	-	31,476,721	629,534,418	$97,018	$0	$60,000	$0	$60,000	$3,140,357	$4.99	7
	Audits, Rebates and Incentives											
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	15	1,790,404	35,808,074	$5,944	$2,000	$400	$12,000	$12,400	$368,883	$10.30	9
	Regulations and Standards											
	Water Restrictions - Hour/Days	-	69,773,398	1,395,467,959	$215,056	$6,000	$3,000	$0	$3,000	$4,367,124	$3.13	4
	Water-Efficient Toilets for Existing Residential Customers	500	108,304	2,166,081	$329	$2,000	$1,000	$0	$1,000	$28,585	$13.20	11
	Commercial and Residential Rain and Wind Sensor Requirement	-	996,535	19,930,709	$3,078	$6,000	$7,000	$0	$7,000	$207,562	$10.41	10
	Irrigation, Turf and Landscape Standards for New Construction	-	1,545,881	30,917,622	$4,762	$6,000	$2,000	$0	$2,000	$141,238	$4.57	6
	Practical Turf for Sports Fields	-	5,899,967	117,999,333	$19,588	$1,601,000	$6,000	$0	$6,000	$2,112,758	$17.90	12
	New Landscape Lawn Permits	10	19,672,951	393,459,011	$60,636	$6,000	$650	$1,000	$1,650	$1,251,723	$3.18	5
	10% of Lot Irrigation Restriction	-	1,545,881	30,917,622	$4,762	$6,000	$7,000	$0	$7,000	$241,238	$7.80	8

Based on the results in the tables above, the cost incurred by the District per 1,000 gallons ranges from $0.69 to $59. Excluding the minimum and maximum, the average cost per 1,000 gallons is approximately $8.40. The highest-ranking conservation measures were predominantly related to maintenance of the supply side, to minimize system losses. Other low cost options included implementation of a more restrictive water irrigation schedule during the summer and the regulations pertaining to new landscape permits.

Comparison of Benefits and Costs

The rankings for each of the four phases are shown in Table 37 thru Table 40. The rankings are reflective of the cost to the District per 1,000 gallons of water saved.

Table 37. Rankings for Phase 1 Water Conservation Measures 2013 – 2018

Rank	Conservation Measure or Program	Cost per 1000 Gallons Saved
1	Pressure Management	$0.84
2	Leak Detection & Repair Program	$2.19
3	Water Meter Testing and Replacement Program	$2.20
3	Water Restrictions - Hour/Days	$3.15
5	New Landscape Lawn Permits	$3.25
6	Irrigation, Turf and Landscape Standards for New Construction	$5.25
7	Designated Water Conservation Officer	$5.30
8	10% of Lot Irrigation Restriction	$8.64
9	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	$9.79
10	Commercial and Residential Rain Sensor Requirement	$11.66
11	Water-Efficient Toilets for Existing Residential Customers	$13.64
12	Practical Turf for Sports Fields	$58.61

Table 38. Rankings for Phase 2 Water Conservation Measures 2013 – 2023

Rank	Conservation Measure or Program	Cost per 1000 Gallons Saved
1	Pressure Management	$0.77
2	Water Meter Testing and Replacement Program	$2.06
3	Leak Detection & Repair Program	$2.07
4	Water Restrictions - Hour/Days	$3.14
5	New Landscape Lawn Permits	$3.21
6	Irrigation, Turf and Landscape Standards for New Construction	$4.34
7	Designated Water Conservation Officer	$5.17
8	10% of Lot Irrigation Restriction	$6.76
9	Commercial and Residential Rain Sensor Requirement	$8.88
10	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	$9.79
11	Water-Efficient Toilets for Existing Residential Customers	$12.88
12	Practical Turf for Sports Fields	$31.47

Table 39. Rankings for Phase 3 Water Conservation Measures 2013 – 2028

Rank	Conservation Measure or Program	Cost per 1000 Gallons Saved
1	Pressure Management	$0.72
2	Water Meter Testing and Replacement Program	$1.95
3	Leak Detection & Repair Program	$1.96
4	Water Restrictions - Hour/Days	$3.13
5	New Landscape Lawn Permits	$3.19
6	Irrigation, Turf and Landscape Standards for New Construction	$4.20
7	Designated Water Conservation Officer	$5.07
8	10% of Lot Irrigation Restriction	$6.54
9	Commercial and Residential Rain Sensor Requirement	$8.55
10	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	$9.80
11	Water-Efficient Toilets for Existing Residential Customers	$13.05
12	Practical Turf for Sports Fields	$22.43

Table 40. Rankings for Phase 4 Water Conservation Measures 2013 – 2033

Rank	Conservation Measure or Program	Cost per 1000 Gallons Saved
1	Pressure Management	$0.69
2	Water Meter Testing and Replacement Program	$1.87
3	Leak Detection & Repair Program	$1.88
4	Water Restrictions - Hour/Days	$3.13
5	New Landscape Lawn Permits	$3.18
6	Irrigation, Turf and Landscape Standards for New Construction	$4.57
7	Designated Water Conservation Officer	$4.99
8	10% of Lot Irrigation Restriction	$7.80
9	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	$10.30
10	Commercial and Residential Rain Sensor Requirement	$10.41
11	Water-Efficient Toilets for Existing Residential Customers	$13.20
12	Practical Turf for Sports Fields	$17.90

EVALUATION CRITERIA

In order to determine which of the measures to select for implementation, the following additional criteria were used:

- Corresponds to existing Capital Improvements Plan
- Financial limitations
- Staff limitations
- Board and staff approval
- Public acceptance

SELECTED CONSERVATION MEASURES AND PROGRAMS

Based on the evaluation criteria specified above, the District has decided to proceed with ten of the evaluated measures. The practical turf for sports fields and water efficient toilets for existing residential customers will not be included in the implementation plan.

The practical turf for sports fields was evaluated for replacement of existing fields; the cost per 1000 gallons for installing synthetic turf for new field areas was not evaluated. It is recommended that the District reevaluate the cost per 1000 gallons for all new sports fields or other areas requiring irrigation within the initial five-year period. This recommendation will be added to the Plan's implementation schedule.

The water efficient toilets for existing residential customers were eliminated due to the minimal amount of customers affected and therefore, the small water savings associated. In addition, the majority of toilets that were installed prior to 1993 are reaching the end of their useful life and will likely be replaced regardless of the implementation of a District regulation.

The ten options selected for implementation have been compared to the conservation goals for the four phases established in Section 5 and are summarized in Table 41.

Table 41. Conservation Measure Water Savings and Water Conservation Plan Goals

Conservation Measures and Programs	PHASE 1 (2013 - 2018)		PHASE 2 (2013 - 2023)		PHASE 3 (2013 - 2028)		PHASE 4 (2013 - 2033)	
	gal	AF	gal	AF	gal	AF	gal	AF
Residential Conservation								
SAVINGS GOALS	**144,953,611**	**445**	**614,909,834**	**1,887**	**1,944,086,433**	**5,966**	**3,387,773,849**	**10,397**
Pressure Management	108,776,525	333.8	230,718,845	708.0	364,714,803	1,119.3	506,194,740	1,553.5
Water Restrictions - Hour/Days	254,661,403	781.5	540,151,431	1,657.7	853,865,894	2,620.4	1,185,104,616	3,636.9
Commercial and Residential Rain and Wind Sensor Requirement	3,148,336	9.7	10,909,478	33.5	16,929,713	52.0	16,456,444	50.5
Leak Detection & Repair Program	108,776,525	333.8	230,718,845	708.0	364,714,803	1,119.3	506,194,740	1,553.5
New Landscape Lawn Permits	--	--	76,149,168	467.4	160,501,108	738.8	250,609,529	769.1
Water Meter Testing and Replacement Program	108,776,525	333.8	230,718,845	708.0	364,714,803	1,119.3	506,194,740	1,553.5
Designated Water Conservation Officer	114,884,844	352.6	243,677,337	747.8	385,202,659	1,182.1	534,633,662	1,640.7
Irrigation, Turf and Landscape Standards for New Construction	--	--	--	--	9,158,478	28.1	13,228,858	40.6
10% of Lot Irrigation Restriction	--	--	--	--	9,158,478	28.1	13,228,858	40.6
Commercial Conservation								
SAVINGS GOALS	**54,101,090**	**166.0**	**218,027,875**	**669**	**362,796,053**	**1,113**	**718,723,003**	**2,206**
Pressure Management	16,234,864	49.8	34,434,719	105.7	54,433,576	167.1	75,549,415	231.9
Water Restrictions - Hour/Days	42,927,587	131.7	91,051,872	279.4	143,933,874	441.7	199,769,894	613.1
Commercial and Residential Rain and Wind Sensor Requirement	676,757	2.1	2,201,386	6.8	3,388,720	10.4	3,474,265	10.7
Leak Detection & Repair Program	16,234,864	49.8	34,434,719	105.7	54,433,576	167.1	75,549,415	231.9
New Landscape Lawn Permits	--	--	12,836,260	78.8	27,055,240	124.5	42,244,573	129.6
Water Meter Testing and Replacement Program	16,234,864	49.8	34,434,719	105.7	54,433,576	167.1	75,549,415	231.9
Designated Water Conservation Officer	19,365,829	59.4	2,980,373	9.1	64,932,575	199.3	90,121,757	276.6
Irrigation, Turf and Landscape Standards for New Construction	--	--	--	--	1,543,820	4.7	2,229,953	6.8
10% of Lot Irrigation Restriction	--	--	--	--	1,543,820	4.7	2,229,953	6.8
Annual Irrigation Audits and $500 Irrigation Rebate for Large Users	9,885,526	30.3	19,476,409	59.8	28,999,083	89.0	35,808,074	109.9
Non - Residential Conservation								
SAVINGS GOALS	**2,372,880**	**7.3**	**10,904,866**	**33**	**17,238,301**	**53**	**25,296,457**	**78**
Pressure Management	593,327	1.8	10,904,866	33	17,238,301	53	25,296,457	78
Water Restrictions - Hour/Days	2,276,375	7.0	1,258,468	3.9	1,989,357	6.1	2,761,066	8.5
Leak Detection & Repair Program	593,327	1.8	1,258,468	3.9	1,989,357	6.1	2,761,066	8.5
New Landscape Lawn Permits	--	--	680,684	2.1	1,434,692	4.4	2,240,156	6.9
Water Meter Testing and Replacement Program	593,327	1.8	1,258,468	3.9	1,989,357	6.1	2,761,066	8.5
Designated Water Conservation Officer	1,026,936	3.2	2,178,190	6.7	3,443,261	10.6	4,779,000	14.7

Now that the water savings for each of the conservation measures has been evaluated, the conservation goals established in Section 5 are reassessed. In summary, to meet the 2033 reduction goals, a majority of the programs must be implemented during the first phase. This increases the water demand reductions for the first three interim periods to percentages that are greater than established in Section 5. This summary is available in Table 42 thru Table 45. The implementation schedule for the conservation measures is discussed in Section 8.

Table 42. Water Conservation Goal Comparison 2013 – 2018

Water Use Categories	Total Water Use	Preliminary Conservation Goals		Water Savings from Selected Programs	Amount of Conservation from Programs Selected	Adjusted Conservation Goals for 2018	
	AF	AF	%	AF	%	AF	%
Residential	22,242	445	2.0%	2,145	9.6%	2,145	9.6%
Commercial	3,321	166	5.0%	373	11.2%	361	11.2%
Non - Residential	121	7	6.0%	16	12.9%	16	12.9%
TOTAL	**30,511**	**610**	**2.0%**	**2,534**	**8.3%**	**2,534**	**8.3%**

Table 43. Water Conservation Goals Comparison 2013 – 2023

Water Use Categories	Total Water Use	Preliminary Conservation Goals		Water Savings from Selected Programs	Amount of Conservation from Programs Selected	Adjusted Conservation Goals for 2023	
	AF	AF	%	AF	%	AF	%
Residential	47,177	1,887	4.0%	4,797	10.2%	4,797	10.2%
Commercial	7,043	669	9.5%	712	10.1%	712	10.1%
Non - Residential	257	3	13.0%	35	13.7%	35	13.7%
TOTAL	**64,487**	**2,579**	**4.0%**	**5,543**	**8.6%**	**5,543**	**8.6%**

Table 44. Conservation Goals Comparison 2013 – 2028

Water Use Categories	Total Water Use	Preliminary Conservation Goals		Water Savings from Selected Programs	Amount of Conservation from Programs Selected	Adjusted Conservation Goals for 2028	
	AF	AF	%	AF	%	AF	%
Residential	74,577	5,966	8.0%	7,761	10.4%	7,761	10.4%
Commercial	11,134	1,113	10.0%	1,334	12.0%	1,334	12.0%
Non - Residential	407	53	13.0%	57	13.9%	57	13.9%
TOTAL	**101,636**	**7,115**	**7.0%**	**9,152**	**9.0%**	**9,152**	**9.0%**

Table 45. Conservation Goals Comparison 2013 – 2033

Water Use Categories	Total Water Use	Preliminary Conservation Goals		Water Savings from Selected Programs	Amount of Conservation from Programs Selected	Adjusted Conservation Goals for 2033	
	AF	AF	%	AF	%	AF	%
Residential	109,439	10,397	9.5%	10,839	9.9%	10,839	9.9%

Commercial	16,338	2,206	13.5%	1,849	11.3%	1,849	11.3%
Non - Residential	597	78	13.0%	79	13.3%	79	13.3%
TOTAL	**140,755**	**12,668**	**9.0%**	**12,767**	**9.1%**	**12,767**	**9.1%**

The projected water savings from the implemented conservation measures were similar to the initial conservation goals for the 20-year planning horizon. The residential category and the non-residential category water demand reduction percentage was increased from 9.5 percent to 9.9 percent and from 13 percent to 13.3 percent, respectively. The commercial category was not capable of meeting the 13.5 percent reduction goal using the selected measures and was reduced to 11.3 percent. Overall, percent reduction in water demand for the planning horizon is 9.1 percent, which is consistent with the district's nine percent water conservation goal.

SECTION 8 – INTEGRATE RESOURCES AND MODIFY DEMAND FORECAST

IMPLEMENTATION SCHEDULE

In order to evaluate the modified water demand projection resulting from the conservation measures, an implementation schedule was established. Table 46 is a proposed implementation plan for the District through the planning horizon. To meet the nine percent reduction goal, all of the selected measures are scheduled to be implemented prior to 2023. This table does not include the effects of existing conservation measures and how these measures may impact water demand in the future because the success of these efforts have not been quantified.

The annual costs at full implementation of this Plan are estimated as $237,100. The water savings from these programs decrease the necessity for acquiring additional water supply during the planning horizon. As a result, it is possible that a portion of the $1.3 million that is budgeted annually for water acquisition could be used to fund these programs. It is important to note that the cost estimates for these measures are approximate and are not reflective of an extensive economic investigation of these measures.

The actual implementation of this program will depend on District staff availability, funding, and time required for public and District Board approval.

Table 46. Water Conservation Implementation Plan

Conservation Measures and Programs	Implementation Cost	Annual Costs (after 1st year)	% of Total Water Savings	Comments for Implementation Consideration
2013				
Pressure Management	$6,000		14.2%	Public communication, funding, staff availability
Water Meter Testing and Replacement Program	$6,000		14.2%	Staff availability, third party coordination, funding
Leak Detection & Repair Program	$61,350		14.2%	Staff availability, third party coordination, funding
Designated Water Conservation Officer	$60,000		15.2%	Funding
Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	$2,000		0.9%	Communication, funding, staff availability, third party coordination
Water Restrictions - Hour/Days	$6,000		33.8%	Public communication, funding, staff availability
Evaluation of Synthetic Turf for all newly constructed sports fields	$5,000		TBD	Staff availability, third party coordination, funding
Total Cost 2013 =	***$146,350***			
2014				
Commercial and Residential Rain and Wind Sensor Requirement	$6,000		0.5%	Public communication, funding, staff availability (or Water Officer)
Pressure Management	--	$22,250	14.2%	
Water Meter Testing and Replacement Program	--	$60,450	14.2%	
Leak Detection & Repair Program	--	$61,350	14.2%	
Designated Water Conservation Officer	--	$60,000	15.2%	
Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	--	$12,400	0.9%	
Water Restrictions - Hour/Days		$3,000	33.8%	
Total Cost 2014 =	***$232,450***			
2018				
New Landscape Lawn Permits	$6,000		7.14%	Public communication, funding, staff availability (or Water Officer)
Commercial and Residential Rain and Wind Sensor Requirement	--	$7,000	0.5%	
Pressure Management	--	$22,250	14.2%	
Water Meter Testing and Replacement Program	--	$60,450	14.2%	
Leak Detection & Repair Program	--	$61,350	14.2%	
Designated Water Conservation Officer	--	$60,000	15.2%	
Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	--	$12,400	0.9%	
Water Restrictions - Hour/Days	--	$3,000	33.8%	
Total Cost 2018 =	***$232,450***			

2023				
Irrigation, Turf and Landscape Standards for New Construction	$6,000		0.37%	Public communication, funding, staff availability (or Water Officer)
10% of Lot Irrigation Restriction	$6,000		0.37%	Public communication, funding, staff availability (or Water Officer)
New Landscape Lawn Permits	--	$1,650	7.14%	
Commercial and Residential Rain and Wind Sensor Requirement	--	$7,000	0.5%	
Pressure Management	--	$22,250	14.2%	
Water Meter Testing and Replacement Program	--	$60,450	14.2%	
Leak Detection & Repair Program	--	$61,350	14.2%	
Designated Water Conservation Officer	--	$60,000	15.2%	
Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	--	$12,400	0.9%	
Water Restrictions - Hour/Days	--	$3,000	33.8%	
Total Cost 2023 =	***$240,100***			
Total Implementation Costs =	***$170,350***			
Total Annual Costs (Full Implementation) =	***$237,100***			

DEMAND FORECAST MODIFIED FOR WATER CONSERVATION MEASURES

Taking into account the annual water savings of the Plan, the future water demand projection has been modified to account for the annual water savings from the implemented conservation measures. The water supply, future demand (prior to conservation measures) and modified future demand data is provided in Table 47. The modified future demand projection is shown in Figure 20 compared to the water demand projections established in Section 3.

Table 47. Future Water Supply and Demand Comparison

Year	Annual Water Supply	Annual Water Demand (No Conservation)	Annual Water Savings from Conservation Measures	Modified Annual Water Demand After Conservation Measures
	(AF)	(AF)	(A.F)	(AF)
2013	7,405	5,730	616	5,114
2014	7,405	5,918	619	5,299
2015	7,405	6,113	619	5,494
2016	7,405	6,315	619	5,698
2017	7,405	6,431	619	5,812
2018	7,405	6,549	679	5,869
2019	7,405	6,669	679	5,990
2020	7,405	6,792	679	6,113
2021	7,405	6,917	679	6,238
2022	7,405	7,045	679	6,365
2023	7,405	7,175	689	6,486
2024	7,405	7,307	689	6,618
2025	7,405	7,442	689	6,754
2026	7,405	7,580	689	6,891
2027	7,405	7,640	689	6,951
2028	7,405	7,700	689	7,011
2029	7,405	7,761	689	7,072
2030	7,405	7,822	689	7,133
2031	7,405	7,884	689	7,195
2032	7,405	7,947	689	7,258
2033	7,405	8,009	689	7,320

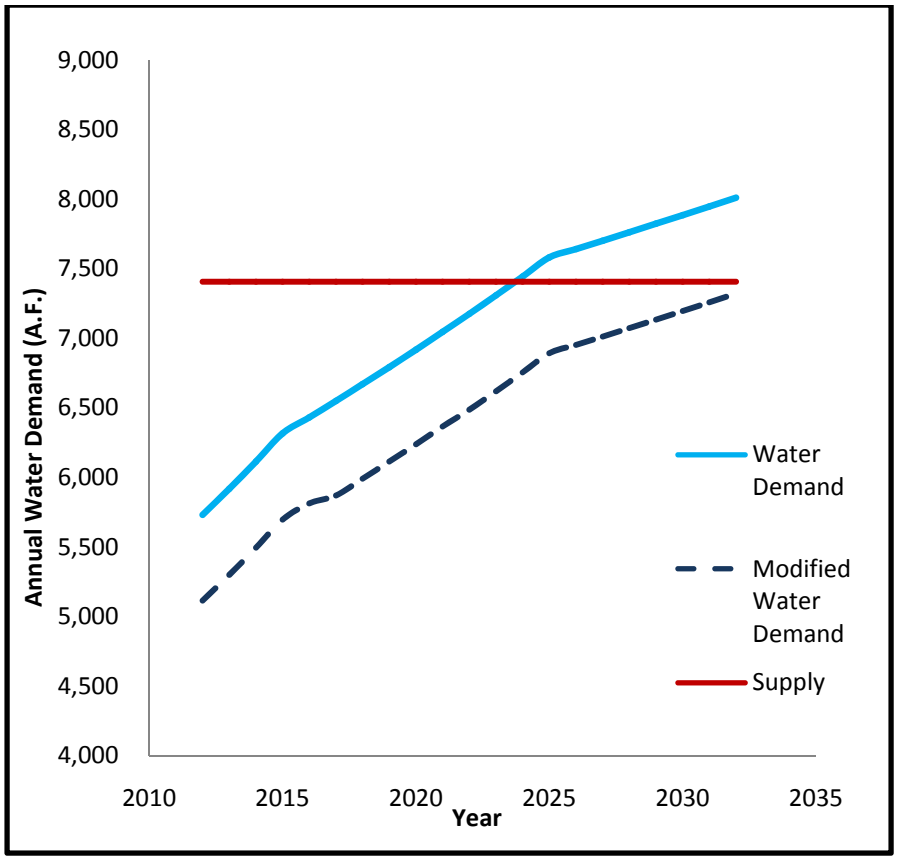

Figure 20. Modified Water Demand and Future Water Supply

PROJECT SPECIFIC SAVINGS

As discussed in Section 4, there are six capital improvement projects currently being evaluated pertaining to water supply acquisition, water treatment capacity, and increasing water storage. The modified water demand forecast could delay or eliminate the need for these projects, listed in Table 25. The cost savings and timeline will depend on the results of the rate study and capital improvement planning that is underway. The implications of the conservation efforts on these projects will be reevaluated as more information on the projects' costs and schedule is available.

FORECAST MODIFICATIONS AND BENEFITS OF CONSERVATION

The modified water demand allows the District to meet the average annual water supply with available water sources as shown in Figure 20. The decrease in demand has allowed the District to meet its water conservation goal of balancing the water demand with the available water supply through the 20-year planning horizon.

Once implemented, the water conservation efforts developed in this Plan have the potential to reduce District spending on water supply acquisition, decrease the need for additional water storage, and mitigate stress on the available water supply. Information on proposed capital

improvement projects and their timeline will assist the District in quantifying the financial benefits and implications of this Plan.

SECTION 9 – IMPLEMENTATION AND MONITORING THE CONSERVATION PLAN

The Plan's implementation schedule was outlined in Section 8 and Table 46. The continued monitoring and assessment of the Plan is paramount to its success. This is the primary reason why a Water Conservation Officer is considered a primary component of the Plan. Establishing a staff member to evaluate the success and shortcomings of the conservation measures on an annual basis allows the District to adjust these measures based on consumption patterns.

The following sub sections further discuss the next steps for Plan implementation and the proposed continued monitoring.

PUBLIC PARTICIPATION

A public notice was published in the Pueblo Chieftain to notify the District's customers that the Plan was available for public comment for 60 days on the District's website, at the Pueblo West Library, and at the District office. An announcement regarding the plans availability was also made at the May 21, 2012 district board meeting and was posted to the District website. A copy of the announcement published in the Pueblo Chieftain is provided in Appendix I. No comments were received during the public comment period.

EVALUATION OF THE WATER CONSERVATION PLAN

The Water Conservation Officer will be responsible for reviewing the water consumption data from the District's billing department on an annual basis to assess the Plan's ability to meet the water conservation goals. Specifically, the outdoor consumption for the targeted user categories will be assessed to verify the water conservation results.

Supply side conservation measures will be evaluated annually by establishing a balance on the water produced versus the water distributed in order to more accurately assess system losses. The monitoring efforts that will be implemented to assess the success of the measures and programs are shown in Table 48.

Table 48. Monitoring Water Conservation Measures

Conservation Measures and Programs	Individual Customer Water Use	Customer Class Water Use	Unaccounted for Water	Peak & Annual Treated & Total Water Demand
	(A)	(B)	(C)	(D)
Pressure Management	X		X	X
Water Meter Testing & Replacement Program			X	X
Leak Detection & Repair Program			X	X
Designated Water Conservation Officer	X	X		X
Annual Irrigation Audit and $500 Irrigation Rebate for Large Users		X		X
Water Restrictions – Hours/Days	X	X		X
Commercial & Residential Rain Sensor Requirement	X	X		X
New Lawn Landscape Permits	X			X
Irrigation, Turf & Landscape Standards for New Construction	X	X		X
10% Lot Irrigation Restriction	X	X		X

(A) Individual customer water use prior and post implementation will be monitored to verify savings
(B) These options target specific customer categories that will be monitored to verify savings
(C) These options target supply side measures and will be monitored by calculating any unaccounted for water losses
(D) The overall water conservation will be determined by quantifying the peak and annual water use

PLAN REVISIONS

The Plan will be reevaluated at five-year increments using the annual data from the District analysis as discussed above. The purpose of the five year evaluations are to determine if the conservation measures and costs are consistent with the information and goals provided in this Plan. During these evaluations, the modified water conservation targets for each of the phases will be compared to the water consumption reduction observed in the user categories. Adjustments to the Plan can be made during these periods to more effectively meet the conservation goals of the 20-year planning period.

APPROVAL AND ADOPTION

The District completed a 60-day public review comment period from May 23, 2012 to July 23, 2012. No comments were received during the public comment period. On July 24, 2012, the District board approved the adoption of the Plan.

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APPENDIX A – PWMD WATER SUPPLY AND STORAGE ANALYSIS

WRC ENGINEERING, INC.

March 22, 2010

Mr. Larry Howe-Kerr
District Manager
Pueblo West Metropolitan District
P.O. Box 7005
Pueblo West, Colorado 81007

WRC File: 1611/93

RE: Pueblo West Metropolitan District Raw Water
Storage Needs and Alternatives Analysis

Dear Mr. Howe-Kerr:

The purpose of this analysis is to assist Pueblo West Metropolitan District (Pueblo West) in the evaluation and acquisition of long term raw water storage. This analysis is divided into three parts. The first part presents the analysis and results of a determination of the volume of storage needed for Pueblo West at full buildout. The second part presents potential storage options and associated information and financial aspects of the potential storage options. The final part provides analysis and recommendations for long term storage and water rights acquisitions.

I. RAW WATER STORAGE REQUIREMENTS

The purposes of long term raw water storage include: a) Maximize the use of Pueblo West's water rights, b) Provide drought protection, c) Provide opportunities to enhance Pueblo West's water portfolio, and d) Provide operational flexibility for water deliveries.

Pueblo West's current water portfolio includes the following water assets:

- About 5,766 Shares of Twin Lakes Reservoir and Canal Company; Average annual yield estimated at 5,420 A.F./Yr.
- Hill Ranch: Average annual yield estimated at 1,600 A.F./Yr.
- About 360 Shares Colorado Canal Company and Lake Meredith Company: Average annual yield estimated at 120 A.F./Yr.
- Wheel Ranch Ditch: Average annual yield estimated at 30 A.F./Yr.

The above estimated yields are based upon the following considerations and assumptions:

- Reuse Water: Average annual yield estimated at 2,880 A.F./Yr.
- Estimated 85% of full Hill Ranch dry-up
- Includes 10% transit loss for Twin Lakes delivery to Pueblo Reservoir
- Piping of reusable water from source to the Arkansas River
- Estimated 50% return of non-sewered return flows

- Sufficient ultimate storage to obtain full water right yields
- Estimated 87% of total supply is reusable
- Loss of 300 A.F./Yr. average to PFMP
- Yields excludes reservoir evaporation

The total estimated average annual yield of Pueblo West's water rights, if fully utilized, would be an average of about 10,050 A.F./Yr. Full utilization requires sufficient storage and exchange capacity to fully utilize these water rights. The stated yields represents the average yield of these water rights over a long time period, such as 40 to 50 years. If storage were not available, Pueblo West would need to rely on the "firm yield" of these water rights, such "firm yield" defined as the minimum yield expected to be available in every year over the planning period. Entities that base their water supply on a firm yield water rights typically need little storage but the expense of obtaining such water rights is very high. A more economical approach, which is the approach we have been pursuing for Pueblo West, includes a water portfolio with both high firm yield water rights (water available every year) and good average yield water rights (some water available in dry years and a lot of water available in average and wet years). This combination approach uses storage to "firm up" the average yield water to provide Pueblo West with a water rights portfolio which results in a secure year by year water supply.

The amount of needed raw water storage is related to the monthly and yearly yield of Pueblo West's water portfolio as related to the monthly water demands of Pueblo West. For purposes of this analysis, the full buildout demand of Pueblo West is estimated to be about 10,000 A.F./Year. The monthly distribution of Pueblo West's water demand was estimated based upon the historic average monthly water usage distributions.

To determine the minimum amount of storage needed for Pueblo West, a monthly spreadsheet analysis was prepared which analyzed Pueblo West's water demands against a historic estimate of Pueblo West's monthly water portfolio yield. When yield exceeded demand, water was placed in storage. When demand exceeded yield, water was withdrawn from storage. The spreadsheet models a 49-year historic yield period which includes both severe drought periods and extreme wet periods.

The results of the spreadsheet model shows a need for a minimum 26,000 A.F. of raw water storage (see Exhibit A). The 26,000 A.F. of storage results in only 10,000 A.F. remaining in storage during two drought years in the study period.

A typical response to drought would be mandatory water restrictions which we have estimated could, in such a severe drought, save about 10% in water demand or 1,000 A.F. in such a year. Even with this reduction, this amount of storage would leave Pueblo West

vulnerable to water shortages if back to back severe droughts occur in the future. Since the future cannot be predicted, we recommend that Pueblo West maintain, at full build out, at least one and one-half to two years of demand in carry over storage. Thus, based upon Pueblo West's current water portfolio, Pueblo West should plan on securing a minimum of 31,000 to 36,000 A.F. of raw water storage volume at or upstream of Pueblo Reservoir.

II. RAW WATER STORAGE OPTIONS

Raw water storage options in the Arkansas River Basin in the amount needed by Pueblo West are fairly limited. The options can be separated into three categories:

A) Pueblo Reservoir Contracts
B) Allocated Space in Existing Reservoirs
C) Proposed Reservoirs or Enlargements of Existing Reservoirs

These options are described in the following sections and are shown on Exhibit B.

A) Pueblo Reservoir Contracts

Pueblo West currently holds a contract with the United States Bureau of Reclamation (USBR) for "Excess Capacity" in Pueblo Reservoir in the amount of 9,000 A.F. The terms of the contract allow the USBR to spill Pueblo West's water "if and when" there is insufficient space for storage of other waters stored in Pueblo Reservoir which are senior in priority to Pueblo West's contract for storage space. Spills from Pueblo Reservoir typically occurs only in wet years. but cannot be predicted more than six to nine months in advance.

Pueblo West could potentially contract for more storage space in Pueblo Reservoir but will be subject to future contract negotiations and renewals (if available) and may be limited by the total contract space available as compared to the total demand for storage space by other entities requesting storage contracts in Pueblo Reservoir. Currently, there are two separate efforts to secure long term "if and when" storage space in Pueblo Reservoir. The Southern Delivery System (SDS) project (which includes a proposed 10,000 A.F. allocation for Pueblo West), and Southeastern Colorado Water Conservation District's (SECWCD) recent proposal for a long term contract for former Preferred Storage Options Plan (PSOP) participants (which includes a previously estimated storage allocation for Pueblo West of 5,500 A.F.). The SDS contract will likely be issued since the environmental permitting needed to allow a contract to be entered into by the USBR has been completed. It is unknown whether the SECWCD contract will come to fruitation. Irregardless, it is not likely

that Pueblo West could secure 31,000 to 36,000 A.F. of "if and when" storage in Pueblo Reservoir.

As mentioned, Pueblo West has a one-year contract with the USBR for 9,000 A.F. of storage space in Pueblo Reservoir. The charge to Pueblo West for this storage space is currently $24.17/A.F. plus a yearly charge for a total yearly cost of about $283,000. If Pueblo West were to contract for the 31,000 to 36,000 A.F. of needed capacity, using current costs, the charge would be $975,000 to $1,132,000 per year. If such a contract were to extend for 40 years, the maximum allowed contract duration, the total cost (excluding inflation) would be from about $39 M to about $45 M, or about $1,260 per A.F. of storage capacity.

B) Existing Reservoirs

There are several existing reservoirs in the Arkansas River Basin upstream of Pueblo Reservoir. However, the storage capacity in these reservoirs are already owned by other entities. Only Twin Lakes Reservoir has capacity for sale as part of purchase of water shares in the Twin Lakes Reservoir and Canal Company. Pueblo West currently has use of about 6,330 A.F. of storage capacity in Twin Lakes by virtue of its water shares ownership. Additional shares have historically become available which Pueblo West has continued to purchase. However, the storage capacity in Twin Lakes is primarily used for regulation of Twin Lakes water and not as carryover storage. As such, additional Twin Lakes shares provides more water supply but not carryover storage.

C) Proposed Reservoirs or Expansions of Existing Reservoirs

In early 2000, the SECWCD issued a final study of storage options in the Arkansas Basin called the PSOP. This study evaluated 31 potential storage options and narrowed the list down to eight preferred options. For purposes of Pueblo West, the options from this study which are still feasible and would meet the storage need of Pueblo West include Pueblo Reservoir contract storage (known in the study as Fry-Ark Project Re-operations, previously discussed) and Turquoise Reservoir enlargement. Enlargement of Pueblo Reservoir does not appear to be feasible at this time. In addition, other entities have proposed new reservoirs or enlargement of existing reservoirs in which there may be a potential for Pueblo West to participate. These new reservoirs, or enlargements, including Pueblo West's more recent proposed reservoir, are described as follows:

1. Aurora's Box Creek Reservoir

The City of Aurora (COA) has proposed construction of Box Creek Reservoir in the upper Arkansas River basin near Leadville. A final reservoir size has not been determined but current estimates place the likely capacity at about 20,000 A.F. We have been unable, in the short amount of time in which to prepare this report, to secure an estimated cost for this reservoir. The COA is currently conducting tests on the ability for fens currently located in the reservoir site to be relocated and survive at another site. Our understanding is that if this turns out not to work, then this reservoir site is infeasible for reservoir construction.

2. Turquoise Reservoir Expansion

The enlargement of Turquoise Reservoir considered two options; an 11,950 A.F. enlargement and a 19,600 A.F. enlargement. Neither of these options would meet Pueblo West's total storage need by itself. It is also unlikely that the USBR, the owner of Turquoise Reservoir, would allow all of the enlarged storage space to be allocated just to Pueblo West. In fact, in the PSOP study, both proposed expansions were allocated primarily to existing Turquoise Reservoir storage owners (Turquoise Reservoir is an enlargement of a previously existing Sugarloaf Reservoir as part of the Fry-Ark Project. Several entities own storage space in Turquoise Reservoir from the original reservoir and from the expansion, even though the reservoir itself is owned by the USBR). The estimated cost of enlargement of Turquoise Reservoir in 2000 was $8.3 M for the 11,950 A.F. of enlargement ($690/A.F.) and $14.5 M for the 19,600 A.F. of enlargement ($740/A.F.).

3. Clear Creek Reservoir Expansion

The Pueblo Board of Water Works (PBWW) is the owner of Clear Creek Reservoir which has a current capacity of 11,400 A.F. The proposed reservoir enlargement would increase the reservoir capacity by 18,600 A.F. to a total storage capacity of 30,000 A.F. The estimated construction cost of the enlargement was $46 M in 2005, or about $2,500/A.F. Pueblo West would need to obtain approval from PBWW if Pueblo West were to secure a portion of the proposed reservoir enlargement. In addition, the amount of the enlargement allocated to Pueblo West, even if it were the total enlargement capacity, is less than Pueblo West's storage needs.

4. Pueblo West Alternative Reservoir

A potential alternative reservoir site for Pueblo West has been identified near Parkdale on a small south tributary to the Arkansas River. Conceptual layouts of the reservoir site and dam locations indicates the possible storage capacity of the site from 18,700 A.F. to 23,800 A.F. The site benefits from having a minimum tributary drainage area. This allows construction of a dam with no emergency spillway since the reservoir can store more than an entire probable maximum precipitation event. Water would need to be pumped into the site for storage with reservoir releases made by gravity back to the Arkansas River. The estimated cost of this reservoir and associated pumping equipment/pipeline is about 27 M for 18,700 A.F. ($1450/ A.F.) and about $34 M for 23,800 A.F. ($1,430 / A.F.).

III. ANALYSIS AND RECOMMENDATIONS

There are several considerations which factor into the selection of a raw water storage alternative. For Pueblo West, these primarily consist of: diversity of storage locations, availability of storage volume and necessary stream flow volumes, probability of securing storage at a given site, ability to have majority ownership and control of the reservoir, relative risk in securing needed storage, and cost.

We highly recommend that Pueblo West secure storage in more than one location. This reduces the risks associated with having a single storage location which, if damaged or rendered reduced in capacity, could leave Pueblo West at risk. This also provides Pueblo West more flexibility in future water exchanges and opportunities to share risks and costs with other water providers. Critical to Pueblo West is the location of storage and the assurance that physical water is available to place into storage, preferably by exchange, or by pumping. Unfortunately, there are not very many sites to choose from, most of which are owned by some other entity from whom Pueblo West would need to obtain approval for use of their storage space, either existing or in an enlargement or new reservoir.

Where possible, we also recommend that Pueblo West either solely own or have majority ownership in a reservoir. This allows Pueblo West to have control over all aspects of the storage reservoir for maximum flexibility in operations and decisions which Pueblo West will need to make from time to time. This is especially important in new reservoir or enlargements of reservoirs where Pueblo West will want to minimize the risk that such project ultimately cannot be constructed or secured. For example, if the fens at Aurora's Box Creek Reservoir site can not be successfully relocated, that site become useless and several years of time will have been wasted. Last, but not least, the cost to secure the storage capacity must be minimized and be within the financial capacity of Pueblo West.

Considering all of the above, we recommend the following:

1. Secure a long term contract for 10,000 A.F. of "if and when" storage in Pueblo Reservoir.

2. Discuss with PBWW the potential for participating in a Clear Creek Reservoir enlargement and obtain pertinent information on such enlargement if a favorable response is received from PBWW.

3. Discuss with the USBR and appropriate parties the status of discussions on Turquoise Reservoir enlargement. Secure current pertinent information on reservoir enlargement feasibility.

4. Pursue investigations needed to determine feasibility of the Parkdale Reservoir site for raw water storage. Once initial investigations are completed, pursue potential for leasing a small amount (up to 4,000 or 5,000 A.F.) of capacity to other water providers.

5. Continue to pursue additional water right acquisitions including Twin Lakes shares or other opportunities for dry-year firm yield water. Additional firm yield water will reduce the required storage volumes.

If Pueblo West secures 10,000 A.F. of "if and when" storage in Pueblo Reservoir, then Pueblo West's goal should be to acquire 21,000 A.F. to 26,000 A.F. in the presented alternative reservoir sites.

If you have any questions regarding this analysis, please do not hesitate to call.

Respectfully submitted,

WRC ENGINEERING, INC.

Alan J. Leak, P.E.
Project Manager

ajl/mag

cc: Mr. Steve Harrison
Mr. Tom Mullans, Esq.
Mr. Robert F.T. Krassa, Esq.

Exhibit A

PUEBLO WEST METROPOLITAN DISTRICT

NET STORAGE REQUIREMENTS ANALYSIS

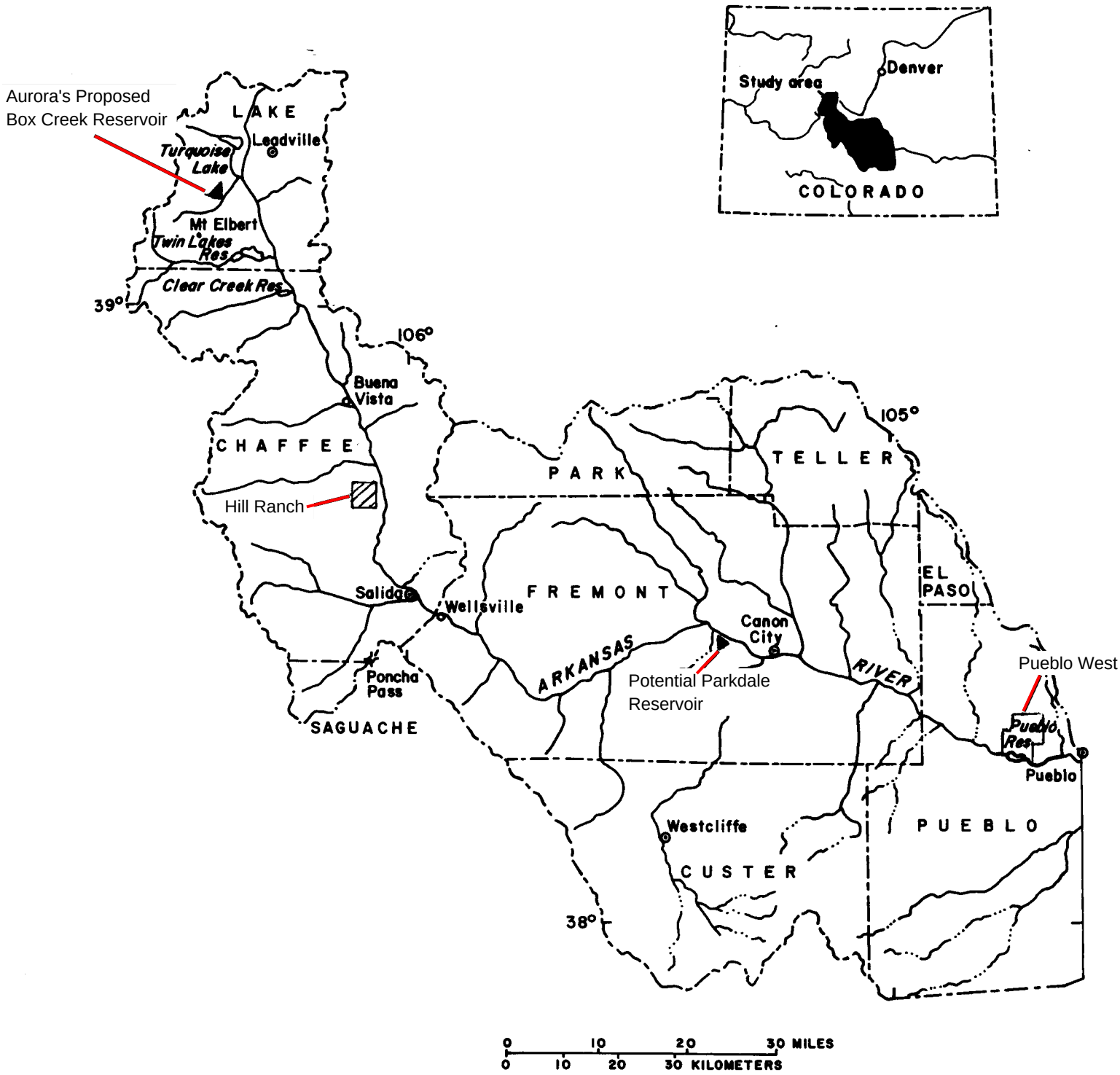
SIMULATED PWMD END-OF-MONTH STORAGE CONTENTS (ACRE-FEET)

26000 =MINIMUM REQUIRED RESERVOIR STORAGE (ACRE-FEET) FOR 10,000 ACRE-FEET CARRY-OVER STORAGE

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL CHANGE
												23143	
1950	22853	22557	22064	21289	21176	23073	22999	22414	21834	21599	21304	21019	-2124.33
1951	20748	20471	19999	19149	19381	21863	22788	22529	22036	21917	21669	21420	401.53
1952	21210	20971	20546	19806	20446	23966	24669	24712	24459	24464	24254	24067	2646.84
1953	23812	23546	23086	22345	22035	24322	24956	25119	24885	24617	24360	24107	40.40
1954	23805	23502	22999	22390	22896	23230	22919	22351	21592	21253	20987	20682	-3425.92
1955	20375	20067	19559	18955	19432	20450	20359	20155	19800	19300	18999	18694	-1987.99
1956	18406	18113	17621	16866	17679	19490	19293	18623	17891	17525	17248	16964	-1729.91
1957	16822	16643	16297	15594	15709	18976	19823	19860	19564	19357	19277	19215	2251.50
1958	18976	18723	18275	17417	18017	19479	19076	18485	17888	17500	17256	17035	-2180.34
1959	16753	16466	15985	15147	15095	17528	17449	16778	16102	15626	15372	15100	-1935.17
1960	14828	14549	14078	13361	13464	16212	16612	16145	15533	15238	14983	14727	-372.44
1961	14464	14190	13726	12945	13428	15532	15222	15013	15105	15220	15076	14873	145.40
1962	14661	14428	14016	13422	14212	17072	18361	17991	17530	17212	17013	16832	1959.32
1963	16543	16247	15757	15036	15572	16065	15555	15132	14660	14422	14139	13869	-2963.34
1964	13581	13298	12811	11931	12102	13457	13727	13360	12764	12373	12093	11812	-2056.34
1965	11659	11472	11102	10300	10674	14155	15121	15074	14795	14668	14555	14455	2642.47
1966	14183	13901	13428	12836	13802	14874	14859	14421	13925	13693	13434	13179	-1275.21
1967	12904	12623	12148	11355	11750	13699	14193	13723	13054	12860	12612	12339	-840.15
1968	12112	11870	11432	10668	10854	13872	14153	14051	13672	13616	13419	13211	871.73
1969	12986	12749	12310	11707	12988	15307	16057	15711	15434	15219	15040	14837	1625.84
1970	14667	14473	14093	13276	14470	18304	19113	18699	18460	18176	17981	17817	2979.76
1971	17548	17270	16800	16050	16071	18766	19461	18886	18305	17949	17684	17432	-384.90
1972	17142	16847	16369	15514	15938	18701	18581	17974	17385	17099	16900	16669	-762.61
1973	16448	16214	15795	14946	15095	18048	19484	19183	18843	18725	18520	18327	1657.47
1974	18066	17790	17318	16451	17636	19159	18903	18392	17796	17444	17185	16919	-1407.85
1975	16683	16432	15997	15140	14846	17492	19391	19126	18462	18027	17810	17605	686.60
1976	17328	17047	16569	15786	16227	18186	18221	17773	17305	16964	16686	16419	-1186.39
1977	16118	15813	15312	14651	14791	15606	15022	14560	14049	13721	13434	13127	-3292.30
1978	12852	12568	12100	11316	11036	14082	14811	14327	13587	13132	12872	12612	-514.60
1979	12389	12148	11721	10888	11426	14767	14993	14826	14450	14198	13965	13753	1140.44
1980	13541	13310	12900	12218	12527	14832	14865	14261	13739	13577	13369	13191	-561.43
1981	12879	12567	12055	11333	11449	12960	13125	12613	12231	12029	11753	11457	-1733.71
1982	11218	10963	10524	10000	10432	13751	15123	15005	14548	14438	14273	14086	2628.17
1983	13898	13683	13288	12521	12410	16288	18447	19128	18863	18758	18602	18470	4384.01
1984	18332	18154	17807	17166	17115	18759	19018	19110	18749	18694	18568	18490	20.79
1985	18297	18078	17682	16983	17893	19300	19569	19561	19100	19070	18943	18816	325.77
1986	18608	18377	17964	17438	18119	22121	23199	23010	22661	22545	22394	22238	3421.75
1987	22023	21787	21366	20719	21938	22903	22921	22611	22182	22173	21974	21781	-456.49
1988	21482	21181	20682	19905	20196	22398	22734	21888	21247	21293	20988	20685	-1096.48
1989	20425	20155	19694	19058	20214	21927	22121	21502	20804	20508	20262	20048	-637.08
1990	19814	19561	19078	18408	18417	20512	20982	20901	20546	20592	20364	20154	106.19
1991	19897	19634	19176	18361	18451	20647	20844	20402	19948	19569	19313	19048	-1106.48
1992	18748	18451	18035	17206	17517	18226	18327	17863	17352	17166	16952	16690	-2357.28
1993	16407	16114	15678	14781	15642	19279	20827	20689	20557	20647	20457	20264	3573.47
1994	20053	19812	19328	18521	20351	23755	23438	22866	22433	22218	21977	21758	1494.79
1995	21508	21249	20769	20057	19815	24377	24310	24620	24894	25304	25133	24967	3208.97
1996	24754	24514	24036	23294	24251	25546	25342	24797	24388	24137	23901	23701	-1266.77
1997	23473	23217	22786	21947	22729	25330	25911	25730	25148	25018	24888	24705	1004.22
1998	24489	24249	23856	23044	23091	24697	25634	25482	25076	25162	25000	24773	68.31
Ave:	17567	17307	16857	16112	16547	18844	19243	18927	18482	18286	18066	17846	
Min	11218	10963	10524	10000	10432	12960	13125	12613	12231	12029	11753	11457	
Max.	24754	24514	24036	23294	24251	25546	25911	25730	25148	25304	25133	24967	

NOTE: Green colored cells represent minimum and maximum storage contents in the simulation period.

Exhibit B


Aurora's Proposed
Box Creek Reservoir
Study area
Denver
COLORADO
LAKE
Leadville
Turquoise Lake
Mt Elbert
Twin Lakes Res.
Clear Creek Res.
39°
106°
Buena Vista
CHAFFEE
Hill Ranch
PARK
105°
TELLER
EL PASO
Salida
Wellsville
FREMONT
Canon City
ARKANSAS
RIVER
Potential Parkdale
Reservoir
Pueblo West
Pueblo Res.
Pueblo
Poncha Pass
SAGUACHE
Westcliffe
PUEBLO
CUSTER
38°
0 10 20 30 MILES
0 10 20 30 KILOMETERS

WRC ENGINEERING, INC.

November 19, 1998

Mr. Kirk Relford, Manager
Pueblo West Metropolitan District
109 East Industrial Boulevard
Pueblo West, Colorado 81007

WRC File: 1611/43

RE: Pueblo West Metropolitan District Water Supply Analysis
of
Twin Lakes and Colorado Canal/Lake Meredith Water Rights

Dear Mr. Relford:

Per the request of the Pueblo West Metropolitan District's (PWMD) Water Attorney Robert F.T. Krassa, WRC Engineering, Inc. (WRC) has conducted an analysis of the potential use of additional Twin Lakes and/or Colorado Canal/Lake Meredith paired water shares for supplying the ultimate water demands of PWMD. The purpose of this analysis is to assist PWMD in determining which water shares should be acquired to meet these ultimate water demands as well as other associated activities (i.e. reservoir construction) necessary to physically provide this water to the PWMD water system. For this analysis, we have relied on information readily available to us in order to meet the time constraints to complete this analysis. Further refinements to this analysis will be performed as additional or more comprehensive information becomes available and as changes occur in PWMD's current Water Court Case (85CW134B) for reuse of non-sewered return flows.

We have attempted to be as brief as possible in the written portion of this report due to the volumous nature of the background information and calculations for this analysis. Additional supporting materials can be provided upon request.

I. PWMD WATER DEMANDS

WRC , as part of the engineering analysis needed to support Part B of Case Nº. 85CW134, has prepared estimates of PWMD's ultimate water demands based upon historic water usage within PWMD. This analysis results in an average annual water requirement for PWMD at full buildout of about 9,460 A.F. We estimate that this value could vary from about 8,080 A.F. in wet years to 10,840 A.F. in dry years (ignoring watering restrictions or conservation measures). The increase in use in dry years is due to additional lawn watering required to make up for a lack of precipitation. Unfortunately, these dry periods are also when raw water sources are less dependable. Thus, a lawn watering restriction policy is suggested to reduce the demand in these dry periods. For the purposes of this analysis, the 9,460 A.F./year average water demand will be used.

II. EXISTING WATER RIGHTS

The existing water supply sources for PWMD consist of transmountain surface water, non-tributary ground water, and tributary surface water. The transmountain surface water comes from the District's ownership of 5766.41 shares (approximately 11.63 percent) out of an approximate total of 49,588 shares outstanding capital stock for the Twin Lakes Reservoir and Canal Company. The non-tributary ground water is provided through 18 adjudicated wells (Case Nº 80CW160 and 80CW171) which withdraw water from the Dakota and Purgatoire formations. The said decrees provide the District the right to withdraw up to 5392.4 acre-feet per year from said wells. Historically, Pueblo West used these wells as its original water supply source and pumped up to 894 A.F./Yr. from said wells. The wells now are currently used only as backup sources to the surface water diversions.

The Arkansas River basin surface water sources include three sources. The first, Twin Lakes Reservoir and Canal Company includes water from Lake Creek, a tributary of the Arkansas River, in addition to delivering trans-mountain water. Two separate tributary storage rights totaling approximately 54,452 acre-feet were granted to Twin Lakes Reservoir and Canal Company with an adjudication date of July 14, 1913 and appropriation dates of 1886 and 1887. The second source of tributary water is PWMD ownership of the Wheel Ranch Ditch water right decreed on December 22, 1896, with a maximum diversion rate of 1.5 cfs. Water from this right is currently restricted to irrigation use at the Pueblo West Golf Course and limited to diversions of 292 A.F. in any 20-year period. The third source of tributary water is PWMD's ownership of 263 shares of Colorado Canal/Lake Meredith paired water rights.

PWMD's water supply is also derived from reusable (100% consumptive) sewered return-flows decreed in Case Nº. 86CW134A which are currently instantaneously exchanged from the confluence of Dry Creek and the Arkansas River upstream to Pueblo Reservoir. Finally, in Part B of Case Nº. 86CW134, PWMD has applied for reuse of reusable (100% consumptive) non-sewered return flows occurring from deep percolation of lawn irrigation, distribution system leakage, and septic system return flows. The Part B case is still pending in Division 2 Water Court. The reusable water is water that originates from non-tributary wells and from transmountain component of Twin Lakes shares.

III. TWIN LAKES RESERVOIR AND CANAL COMPANY YIELD ANALYSIS

WRC's base yield analysis of the Twin Lakes Reservoir and Canal Company Water rights was performed using water supply records from November 1989 through August of 1998 since records of the allocation of transmountain (Colorado River) versus native (Arkansas River) water were not kept prior to November of 1989. This allocation is important since the transmountain water is totally consumable whereas the native water is not. Therefore, through PWMD's reuse and exchange plan, the value of the totally consumable portion of Twin Lakes' water can be realized.

A summary of the diversion records of the Twin Lakes water rights are presented in Table -1. Table -2 presents the yield of the Twin Lakes water rights on a per share basis. In summary, the average annual yield of said Twin Lakes water for 1989 - 1998 has been 0.25 A.F./share of native water (22.9%) and 0.84 A.F./share of transmountain water (77.1%) for a total of 1.09 A.F./share total yield. The lowest total annual yield in this period occurred in 1996 where the native yield was 0.11 A.F./share (13.6%) and the transmountain yield was 0.70 A.F./share (86.4%) for a total of 0.81 A.F./share. Records prior to 1989 indicate that the lowest total annual yield has been about 0.53 A.F./share in 1977 with an estimated native portion of 0.07 A.F./Share (13.2%).

For purposes of this analysis, we have assumed an average year yield of 1.09 A.F./share (with 22.9% as native water) and a dry year yield of 0.53 A.F./share (with 13.2% as native water). This yield is available at Twin Lakes Reservoir and must be reduced to account for reservoir evaporation (about 3%) and transit losses to Pueblo Reservoir for PWMD's use (about 10%). It should be noted that a contract exchange of PWMD's water in Twin Lakes for another entities water in Pueblo Reservoir, when possible, will not be charged the 10% transit loss.

IV. COLORADO CANAL/LAKE MEREDITH YIELD ANALYSIS

A detailed yield analysis of the Colorado Canal/Lake Meredith water system was prepared as part of the Water Court Case Nºs. 84CW62, 84CW63, and 84CW64. For purposes of this study, WRC has applied the conditions of the final decree in said cases to the historic records to develop an expected yield based upon decreed conditions. The results of this analysis is presented in Table -3. In summary, the average annual yield of the Colorado Canal and Lake Meredith shares are 0.32 A.F./share of Colorado Canal Water and 0.15 A.F./share of Lake Meredith water for a total yield of 0.47 A.F./paired shares. In a dry year, the yield is reduced to 0.00 A.F./shares for Colorado Canal water (1977) and -0.082 A.F./share of Lake Meredith water (1954). The paired shares provide for a total dry year yield of -0.05 A.F./paired shares (1954). This yield would be the total yield available at the confluence of the Lake Meredith outlet at the Arkansas River and assumes one month of evaporation charged to the Lake Meredith shares. The negative yield results from return flow obligations from previous years diversions per the decree.

The yield numbers presented above are the yields available at the time of diversion into the Colorado Canal. The yield to PWMD at Pueblo Reservoir will be less than these values due to a number of variable factors. Specifically, PWMD's can only use the Colorado Canal/Lake Meredith yield by exchanging said yield to Pueblo Reservoir. There will be times when there is no immediate exchange capacity and PWMD's water would need to remain in Lake Meredith for an extended time. The longer this water is held in Lake Meredith, the more evaporation of PWMD's water will occur, thus reducing it's effective yield to the District. In addition, when exchange capacity is available, PWMD may not be able to exchange all available exchange water to Pueblo Reservoir since such exchange would likely exceed PWMD's immediate demand (This would not be a problem if raw water storage were available either in or adjacent to Pueblo Reservoir). The effect of these limitations will be to reduce the average yield of the paired shares by an estimated 0.0 to 0.07 A.F./paired shares. Some opportunity may exist for contract (paper) exchanges with other entities with water in Pueblo Reservoir and Lake Meredith through which the loss of water due to the above described limitations can be minimized..

V. ESTIMATED YIELD OF THE REUSE AND EXCHANGE CASE Nº. 86CW134

The current yield analysis for the reusable waters resulting from the Reuse and Exchange Case is included in WRC's July 1998 report for said case. Since the final allocation of reusable and non-reusable water is not currently known, the reusable return flow yield used for the purposes of this report is based upon the total estimated return flows as compared to the total diversions to PWMD. This yield is then reduced by the proportion of reusable water to total water in the system. Using this methodology, we have considered two estimates. The first, labeled "optimistic" would be the yield expected assuming the objectors in the Part "B" case accept the July 1998 analysis results. The second, labeled "conservative", is based upon an assumed resolution of the Part "B" case with some concessions made to objectors.

Thus, the estimated total returns for the various return flow sources and locations are as follows:

Return Flow Source	Optimistic Returns (Percent of Total Diversions)	Conservative Returns (Percent of Total Diversions)
Sewered Returns (Dry Creek at Arkansas River)	14	14
Non-Sewered Returns (Arkansas River Upstream of Pueblo Reservoir)	11	8
Non-Sewered Returns (Arkansas River Downstream of Pueblo Reservoir)	18	14
Non-Sewered Returns (Fountain Creek at Arkansas River)	3	2
Total	45	37

The return flow values all represent the yield at the Arkansas River. The yield of the non-sewered return flows downstream of Pueblo Reservoir will be reduced further since they can only be used by exchange or by storage in Lake Meredith. Therefore, for the purposes of this analysis, the yield of these return flows are further reduced by 25 percent.

VI. ESTIMATED YIELD OF THE NON-TRIBUTARY DAKOTA/PURGATOIRE FORMATION WELLS

The decrees for the District's non-tributary Dakota/Purgatoire Formation wells allow for diversions of up to 5392.4 A.F per year. However, information is currently unavailable as to the long term impact of using said wells at this rate on the water levels of the non-tributary acquifer. Therefore, for this analysis, we have used a conservative well yield based upon the average pumping rate of the wells previously used to supply water to the District assuming they would be pumped 70% of the time. Based upon this assumption, the maximum yield of these wells for the purposes of this analysis is estimated to be 1709 A.F./Year.

VII. VALUE OF TWIN LAKES AND COLORADO CANAL/LAKE MEREDITH PAIRED SHARES

The fair market value of a water right is generally accepted in Colorado to be the value resulting from negotiations between a knowledgeable buyer and a knowledgeable seller dealing at arms length. As such, there is no "fixed price" for water rights. Therefore, for purposes of this report, we have estimated the value of the subject water rights based upon information provided by Mr. Alan Ringle of the Twin Lakes and Colorado Canal/Lake Meredith companies and other information available in our office.

Twin Lakes shares have in recent years been sold in the range of $10,000 to $15,000 per share with the smaller quantities demanding the higher price. We expect this analysis will be dealing with much larger quantity of shares than is represented by the above figures. Therefore, for this analysis, we have used an estimate value of $8,500 per share. However, the amount of shares remaining in the hands of individual farmers (rather than municipalities) is not large and prices will increase.

Colorado Canal/Lake Meredith paired shares have in recent years been sold in the range of $2,000 to $2,500 per share. Our understanding is that the current value of said shares is around $2,500 per share which was used for the purposes of this analysis.

VIII. WATER SUPPLY ANALYSIS

The water supply analysis consisted of evaluating three sources of providing additional water supplies to PWMD:

- Use the non-tributary Dakota/Purgatoire Formation wells
- Acquiring additional shares of Twin Lakes water
- Acquiring additional shares of Colorado Canal/Lake Meredith water

For each of these sources, analysis included evaluation of both average and dry year conditions as well as optimistic and conservative Part B yield estimates. A discussion of each of the proposed additional water supply sources and results is presented in the following sections.

In addition to the above analysis, the use of additional raw water storage was examined in order to increase the overall dry year yield of the additional water sources. This evaluation considered possible reservoir storage at or near Pueblo Reservoir and at Lake Meredith. Additional reservoir storage further upstream of Pueblo Reservoir would be beneficial to PWMD only if a) said storage could directly store releases from Twin Lakes reservoir and additional well pumping was used, or b) if PWMD were to file for the right to exchange water from Pueblo Reservoir to an upstream reservoir. The availability of additional exchange capacity considering all of the senior exchanges upstream of Pueblo Reservoir is currently unknown. In addition, a suitable and feasible storage site for re-regulating Twin Lakes releases is not currently known. Therefore, for the purposes of this study, additional raw water storage further upstream of Pueblo Reservoir was not evaluated and a study of senior exchanges upstream of Pueblo Reservoir is not recommended at this time.

A. USE OF NON-TRIBUTARY DAKOTA/PURGATOIRE FORMATION WELLS (SCENARIO 1)

We understand that water produced from some of these wells is high in total dissolved solids (TDS). Therefore, we have assumed that water from these wells could not be discharged directly into the water distribution system. Therefore, for this water source, we have assumed that a well water collection system would be constructed to pipe all well water to the District's current water treatment plant for mixing with low TDS water. The cost to construct such a system is estimated to be around $5.2 million.

Presented in Tables - 4 through - 7 are the results of the yield analysis using only the Dakota/Purgatoire Formation wells as an additional water source.

B. ACQUISITION OF ADDITIONAL SHARES OF TWIN LAKES WATER (SCENARIO 2)

Presented in Tables - 8 through - 11are the results of the yield analysis using additional shares of Twin Lakes water. The analysis shows that acquisition of additional Twin Lakes shares alone will not meet the dry year demands of the PWMD within reasonable cost constraints. Therefore, pumping of the Dakota/Purgatoire Formation wells is included in the dry year analysis.

C. ACQUISITION OF ADDITIONAL COLORADO CANAL/LAKE MEREDITH PAIRED SHARES (SCENARIO 3)

Presented in Tables - 12 through - 15 are the results of the yield analysis using additional Colorado Canal/Lake Meredith paired shares. The analysis shows that

acquisition of additional Colorado Canal/Lake Meredith shares alone nor with additional well pumping will not meet the PWMD's dry year demands.

D. WELL PUMPING AND ADDITIONAL STORAGE (SCENARIO 4A)

Presented in Table - 16 is the results of the yield analysis assuming reservoir storage is used to augment dry-year requirements assuming well use only. Reservoir storage is assumed to cost $2,800/A.F.

E. ADDITIONAL TWIN LAKES SHARES AND ADDITIONAL STORAGE (SCENARIO 4B)

Presented in Table - 17 is the results of the yield analysis assuming reservoir storage is used to augment dry-year requirements assuming only acquisition of additional Twin Lake shares.

F. ADDITIONAL COLORADO CANAL/LAKE MEREDITH SHARES, ADDITIONAL STORAGE, AND WELL PUMPING (SCENARIO 4C)

Presented in Table - 18 is the results of the yield analysis assuming reservoir storage is used to augment dry-year requirements assuming acquisition of additional Colorado Canal/Lake Meredith Shares as well as pumping of PWMD's Dakota and Purgatoire Formation wells.

G. ANALYSIS DISCUSSION

A review of this analysis points out several factors critical to a decision regarding purchase of Twin Lakes and/or Colorado Canal Company Shares. These factors are as follows:

1. The yield of Twin Lakes shares is significantly more consistent than that of Colorado Canal/Lake Meredith shares. Therefore, more storage space is needed for use of Colorado Canal/Lake Meredith shares to provide an equivalent "firm" yield.

2. The Dakota and Purgatoire Formation wells should not be used for a continuous water supply until data is obtained to determine the potential for significant changes in aquifer levels due to increased pumping of these wells. The wells, however, can provide a significant benefit to reduce risks of lessened water supplies in a single or multiple year dry cycles.

3. A mixture of water supply sources lessens the risk of using only a single water source.

4. The current estimated cost per acre-foot of average annual yield of totally consumable water from Twin Lakes ($10,120) is significantly higher than that of Colorado Canal/Lake Meredith water ($5,320). However, Twin Lakes shares do provide single use (native) water in addition to the totally consumable (transmountain) water.

5. The physical, legal, and administrative system needed to fully use Colorado Canal/Lake Meredith water is significantly more complicated and contains more unknowns than that using Twin Lakes water.

6. Siting of a reservoir near Pueblo West or acquisition for use of additional Pueblo Reservoir storage space has not been completed nor is its feasibility currently known. Therefore, there is currently more risk involved in the

planning stages in relying on the need for these storage spaces than for systems that do not need additional storage space.

Considering these factors, the following water supply options could be used to meet both average and dry year demands at PWMD:

Option 1: Use Dakota/Purgatoire Wells and Acquire Additional Twin Lakes Shares (Scenario 2D, Table - 11)

Requirements:	Well Collection System	$ 5.2 M
	3778 Shares Twin Lakes	$32.4 M
	Total Estimated Capital Cost	$37.6 M

Operation in Average Year - No well pumping
Operation in Dry Year - Pump 1709 A.F. from wells

Option 2: Use Dakota/Purgatoire Wells and Acquire Raw Water Storage (Scenario 4A, Table - 16)

Requirements:	Well Collection System	$ 5.2 M
	3334 A.F. Storage Reservoir/Space	$ 9.4 M
	Total Estimated Capital Cost	$14.6 M

Operation in Average Year: Pump wells at 788 A.F./Year and fill storage reservoir/space
Operation in Dry Year: Pump wells at 1709 A.F./Year and release stored water

Option 3: Acquire Additional Twin Lakes Shares and Raw Water Storage (Scenario 4B, Table - 17)

Requirements:	2342 Shares Twin Lakes	$ 19.9 M
	4690 A.F. Storage Reservoir/Space	$ 13.2 M
	Total Estimated Capital Cost	$ 33.1 M

Operation in Average Year: Fill storage reservoir/space
Operation in Dry Year: Release stored water

Option 4: Use Dakota/Purgatoire Wells and Acquire Additional Colorado Canal/Lake Meredith Shares and Raw Water Storage (Scenario 4C, Table -18)

Requirements:	1791 Shares Colorado Canal/Lake Meredith	$ 4.5 M
	Well Collection System	$ 5.2 M
	3306 A.F. Storage Reservoir/Space	$ 9.9 M
	Total Estimated Capital Cost	$19.6 M

Operation in Average Year: Fill storage reservoir/space
Operation in Dry Year: Pump wells at 1709 A.F./Year and release stored water

Based upon the current information, Option 4 appears to be the best alternative given that its estimated cost is $13.5 million less than alternatives using additional Twin Lakes shares. Option 2 is not recommended at this time since it requires continuous pumping of the Dakota/Purgatoire Formation wells.

Further investigation is necessary of Option 4 before the final cost, the final number of shares, and the final storage space required for this option can be determined at a higher level of certainty. However, the level of certainty examined in this study does allow a recommendation for future acquisition of Colorado Canal/Lake Meredith shares in lieu of Twin Lakes Shares.

IX. RECOMMENDATION FOR WATER RIGHTS SUPPLIED BY INCLUSIONS

The PWMD currently does not have adequate water supply's to meet projected water demands at full buildout. Therefore, a condition of inclusion of developable property into PWMD should require the includer to purchase water rights to be conveyed to PWMD which, through PWMD's water supply system, are adequate to fully meet the water demands of the including property. The previous analysis has recommended that Colorado Canal/Lake Meredith shares be acquired to meet the PWMD's future demands. However, for inclusions, the PWMD should require the includer to provide water rights which give the same level of service as is currently enjoyed by the PWMD's residents. Since the current system is almost exclusively served by Twin Lakes water, Twin Lakes shares based on a dry year yield would be a reasonable requirement. If the PWMD desires to provide the includer an option of providing Colorado Canal/Lake Meredith shares, then issues in addition to the quantity of shares to purchase should be considered as follows:

1. In order to fully use Colorado Canal/Lake Meredith water and firm up its yield, raw water storage at or near Pueblo Reservoir is required. A proportionate cost of such a reservoir should be factored into and charged to the includer. 56.7 * 250 per share

2. Currently, greater risks exist for use of Colorado Canal/Lake Meredith water versus Twin Lakes water due to the need to exchange said water in order to use it at PWMD and the current lack of a firm raw water storage location near PWMD. An additional "cost of risk" should be factored into and charged to the includer.

The rational for these two recommendations is that without upstream storage, the PWMD could loss 50% or more of the Colorado Canal/Lake Meredith yield to evaporation in Lake Meredith. Also, until PWMD obtains a significantly greater share of the total Colorado Canal/Lake Meredith water rights, PWMD will have less control over when Colorado Canal/Lake Meredith water can be diverted and exchanged.

In the long term, PWMD's ownership of a larger share of the Colorado Canal/Lake Meredith water rights and a firm raw water storage location will allow PWMD the flexibility to more fully use said water with reduced risks and loss of raw water. It is the future reduced risks and the current high cost of Twin Lakes water which with give PWMD added value in pursuing future purchases` of Colorado Canal/Lake Meredith shares.

As always, if you have any questions or comments, please do not hesitate to call.

Respectfully Submitted,

WRC ENGINEERING, INC.

Alan J. Leak, P.E.
Project Manager

ajl/jlb

Enclosures: As stated

cc: Rich Hayes
Robert Krassa
Tom Mullans
Ralph Adkins

TABLE-1

TWIN LAKES ACCOUNTING (TOTAL DIVERSIONS IN ACRE-FEET)

NATIVE (ARKANSAS) WATER

YEAR	JAN.	FEB.	MAR.	APR.	MAY	MONTH JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	WATER YEAR TOTAL
1989											571	881		
1990	698	540	250	0	535	0	0	74	0	0	270	780	3147	3549
1991	328	382	441	0	0	0	0	0	0	0	251	123	1525	2201
1992	48	43	822	0	0	0	0	0	0	0	695	297	1905	1287
1993	192	113	674	0	2576	6282	0	0	0	0	612	703	11152	10829
1994	673	500	221	0	9764	9909	0	0	0	0	479	824	22370	22382
1995	583	499	296	1805	2020	27788	2122	89	0	0	645	1229	37076	36505
1996	810	630	271	0	1505	635	0	0	0	0	721	1065	5637	5725
1997	815	560	783	0	0	11563	38	1370	0	262	1147	921	17459	17177
1998	842	675	1144	781	1449	2502	0	431					7824	
TOTAL	4989	3942	4902	2586	17849	58679	2160	1964	0	262	4820	5942	108095	99655
AVERAGE	554	438	545	287	1983	6520	240	218	0	33	603	743	12164	12457

TRANSMOUNTAIN (COLORADO) WATER

YEAR	JAN.	FEB.	MAR.	APR.	MAY	MONTH JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	WATER YEAR TOTAL
1989											86	91		
1990	80	63	59	56	6403	26857	7202	274	67	206	534	206	42007	41444
1991	201	102	79	260	7876	23994	7494	1192	703	131	291	326	42649	42772
1992	80	108	110	705	13270	17302	8755	402	31	42	262	207	41274	41422
1993	104	95	75	68	10009	28927	16937	3583	1863	567	573	450	63251	62697
1994	320	192	71	922	11685	19021	3566	11	11	312	216	98	36425	37134
1995	21	22	30	165	1416	15494	0	8460	2678	1239	726	531	30782	29839
1996	158	93	92	326	14812	13419	1008	365	13	1582	38	31	31937	33125
1997	10	4	10	157	10658	9145	7199	398	938	1131	596	326	30572	29719
1998	117	40	32	20	8373	18150	14430	2859					44021	
TOTAL	1091	719	558	2679	84592	172309	66591	17544	6304	5210	3236	2175	362918	318152
AVERAGE	121	80	62	298	9389	19145	7399	1949	788	651	405	272	40559	39769

TRANSMOUNTAIN (COLORADO) WATER (USBR EXCHANGE)*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	MONTH JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	WATER YEAR TOTAL
1989											165	175		
1990	175	154	168	147	166	109	117	201	202	255	165	175	2034	2034
1991	175	154	168	147	166	109	117	201	202	255	165	175	2034	2034
1992	175	154	168	147	166	109	117	201	202	255	177	183	2054	2034
1993	183	165	179	177	101	182	159	376	373	295	106	136	2432	2550
1994	132	95	100	0	189	187	107	0	0	378	177	183	1548	1430
1995	183	161	178	172	154	74	0	271	390	324	177	183	2267	2267
1996	183	171	183	177	183	0	114	83	0	94	177	183	1548	1548
1997	183	165	183	177	183	28	118	71	248	183	177	183	1899	1899
1998	183	165	183	177	183	183	205	403					1682	
TOTAL	1572	1384	1510	1321	1491	981	1054	1807	1617	2039	1321	1401	17498	15796
AVERAGE	175	154	168	147	166	109	117	201	202	255	165	175	2033	1975

TOTAL ALL SOURCES

YEAR	JAN.	FEB.	MAR.	APR.	MAY	MONTH JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	WATER YEAR TOTAL
1989	#VALUE!	0	0	0	0	0	0	0	0	0	822	1147	0	0
1990	953	757	477	203	7104	26966	7319	549	269	461	969	1161	47188	47027
1991	704	638	688	407	8042	24103	7611	1393	905	386	707	624	46208	47007
1992	303	305	1100	852	13436	17411	8872	603	233	297	1134	687	45233	44743
1993	479	373	928	245	12686	35391	17096	3959	2236	862	1291	1289	76835	76076
1994	1125	787	392	922	21638	29117	3673	11	11	690	872	1105	60343	60946
1995	787	682	504	2142	3590	43356	2122	8820	3068	1563	1548	1943	70125	68611
1996	1151	894	546	503	16500	14054	1122	448	13	1676	936	1279	39122	40398
1997	1008	729	976	334	10841	20736	7355	1839	1186	1576	1920	1430	49930	48795
1998	1142	880	1359	978	10005	20835	14635	3693	0	0	0	0	53527	
TOTAL	7652	6045	6970	6586	103842	231969	69805	21315	7921	7511	9377	9518	488511	433603
AVERAGE	850	672	774	732	11538	25774	7756	2368	990	939	1172	1190	54756	54200

*NOTE: RECORDS OF USBR EXCHANGES NOT AVAILABLE FOR NOV. 1989 TO OCT. 1992. THEREFORE, AVERAGE VALUES FOR REMAINING YEARS WERE USED IN THESE YEARS.

TABLE-2

TWIN LAKES ACCOUNTING (TOTAL DIVERSIONS PER SHARE IN ACRE-FEET)

NATIVE (ARKANSAS) WATER

YEAR	JAN.	FEB.	MAR.	APR.	MAY	MONTH JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	WATER YEAR TOTAL
1989											0.012	0.018		
1990	0.014	0.011	0.005	0.000	0.011	0.000	0.000	0.001	0.000	0.000	0.005	0.016	0.063	0.072
1991	0.007	0.008	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.002	0.031	0.044
1992	0.001	0.001	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.006	0.038	0.026
1993	0.004	0.002	0.014	0.000	0.052	0.127	0.000	0.000	0.000	0.000	0.012	0.014	0.225	0.218
1994	0.014	0.010	0.004	0.000	0.197	0.200	0.000	0.000	0.000	0.000	0.010	0.017	0.451	0.451
1995	0.012	0.010	0.006	0.036	0.041	0.560	0.043	0.002	0.000	0.000	0.013	0.025	0.748	0.736
1996	0.016	0.013	0.005	0.000	0.030	0.013	0.000	0.000	0.000	0.000	0.015	0.021	0.114	0.115
1997	0.016	0.011	0.016	0.000	0.000	0.233	0.001	0.028	0.000	0.005	0.023	0.019	0.352	0.346
1998	0.017	0.014	0.023	0.016	0.029	0.050	0.000	0.009					0.158	
TOTAL	0.101	0.079	0.099	0.052	0.360	1.183	0.044	0.040	0.000	0.005	0.097	0.120	2.180	2.010
AVERAGE	0.011	0.009	0.011	0.006	0.040	0.131	0.005	0.004	0.000	0.001	0.012	0.015	0.245	0.251

TRANSMOUNTAIN (COLORADO) WATER

YEAR	JAN.	FEB.	MAR.	APR.	MAY	MONTH JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	WATER YEAR TOTAL
1989											0.002	0.002		
1990	0.002	0.001	0.001	0.001	0.129	0.542	0.145	0.006	0.001	0.004	0.011	0.004	0.847	0.836
1991	0.004	0.002	0.002	0.005	0.159	0.484	0.151	0.024	0.014	0.003	0.006	0.007	0.860	0.863
1992	0.002	0.002	0.002	0.014	0.268	0.349	0.177	0.008	0.001	0.001	0.005	0.004	0.832	0.835
1993	0.002	0.002	0.002	0.001	0.202	0.583	0.342	0.072	0.038	0.011	0.012	0.009	1.276	1.264
1994	0.008	0.004	0.001	0.019	0.236	0.384	0.072	0.000	0.000	0.006	0.004	0.002	0.735	0.749
1995	0.000	0.000	0.001	0.003	0.029	0.312	0.000	0.171	0.054	0.025	0.015	0.011	0.621	0.602
1996	0.003	0.002	0.002	0.007	0.299	0.271	0.020	0.007	0.000	0.032	0.001	0.001	0.644	0.668
1997	0.000	0.000	0.000	0.003	0.215	0.184	0.145	0.008	0.019	0.023	0.012	0.007	0.617	0.599
1998	0.002	0.001	0.001	0.000	0.169	0.366	0.291	0.058					0.888	
TOTAL	0.022	0.014	0.011	0.054	1.704	3.475	1.343	0.354	0.127	0.105	0.065	0.044	7.319	6.416
AVERAGE	0.002	0.002	0.001	0.006	0.189	0.386	0.149	0.039	0.016	0.013	0.008	0.005	0.818	0.802

TRANSMOUNTAIN (COLORADO) WATER (USBR EXCHANGE)*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	MONTH JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	WATER YEAR TOTAL
1989											0.003	0.004		
1990	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.004	0.004	0.005	0.003	0.004	0.041	0.041
1991	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.004	0.004	0.005	0.003	0.004	0.041	0.041
1992	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.004	0.004	0.005	0.004	0.004	0.041	0.041
1993	0.004	0.003	0.004	0.004	0.002	0.004	0.003	0.008	0.008	0.006	0.002	0.003	0.049	0.051
1994	0.003	0.002	0.002	0.000	0.004	0.004	0.002	0.000	0.000	0.008	0.004	0.004	0.031	0.029
1995	0.004	0.003	0.004	0.003	0.003	0.001	0.000	0.005	0.008	0.007	0.004	0.004	0.046	0.046
1996	0.004	0.003	0.004	0.004	0.004	0.000	0.002	0.002	0.000	0.002	0.004	0.004	0.031	0.031
1997	0.004	0.003	0.004	0.004	0.004	0.001	0.002	0.001	0.005	0.004	0.004	0.004	0.038	0.038
1998	0.004	0.003	0.004	0.004	0.004	0.004	0.004	0.008					0.034	
TOTAL	0.032	0.028	0.030	0.027	0.030	0.020	0.021	0.036	0.033	0.041	0.027	0.028	0.353	0.319
AVERAGE	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.004	0.004	0.005	0.003	0.004	0.041	0.040

TOTAL ALL SOURCES

YEAR	JAN.	FEB.	MAR.	APR.	MAY	MONTH JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	WATER YEAR TOTAL
1989											0.017	0.023		
1990	0.019	0.015	0.010	0.004	0.143	0.544	0.148	0.011	0.005	0.009	0.020	0.023	0.952	0.948
1991	0.014	0.013	0.014	0.008	0.162	0.486	0.153	0.028	0.018	0.008	0.014	0.013	0.932	0.948
1992	0.006	0.006	0.022	0.017	0.271	0.351	0.179	0.012	0.005	0.006	0.023	0.014	0.912	0.902
1993	0.010	0.008	0.019	0.005	0.256	0.714	0.345	0.080	0.045	0.017	0.026	0.026	1.549	1.534
1994	0.023	0.016	0.008	0.019	0.436	0.587	0.074	0.000	0.000	0.014	0.018	0.022	1.217	1.229
1995	0.016	0.014	0.010	0.043	0.072	0.874	0.043	0.178	0.062	0.032	0.031	0.039	1.414	1.384
1996	0.023	0.018	0.011	0.010	0.333	0.283	0.023	0.009	0.000	0.034	0.019	0.026	0.789	0.815
1997	0.020	0.015	0.020	0.007	0.219	0.418	0.148	0.037	0.024	0.032	0.039	0.029	1.007	0.984
1998	0.023	0.018	0.027	0.020	0.202	0.420	0.295	0.074					1.079	
TOTAL	0.154	0.122	0.141	0.133	2.094	4.678	1.408	0.430	0.160	0.151	0.189	0.192	9.851	8.744
AVERAGE	0.017	0.014	0.016	0.015	0.233	0.520	0.156	0.048	0.020	0.019	0.024	0.024	1.104	1.093

*NOTE: RECORDS OF USBR EXCHANGES NOT AVAILABLE FOR NOV. 1989 TO OCT. 1992. THEREFORE, AVERAGE VALUES FOR REMAINING YEARS WERE USED IN THESE YEARS.

TABLE-3
COLORADO CANAL / LAKE MEREDITH ACCOUNTING

COLORADO CANAL RETURN FLOW CALCULATIONS

YEAR	C.C. DIVS. (AF)	C.C. DIVS./SHARE (AF)	L. M. DIVS. (AF)	L. M. DIVS./SHAR (AF)	C.C. CONSUMABLE WATER PER SHARE (AF)	L.M. CONSUMABLE WATER PER SHARE (AF)	TOTAL C.C / L.M CONSUMABLE WATER PER SHARE (AF)
1954	4995	0.101	0	0.000	0.031	-0.046	-0.015
1955	19354	0.390	0	0.000	0.263	-0.029	0.233
1956	5307	0.107	0	0.000	0.054	-0.017	0.036
1957	78588	1.583	9015	0.222	1.186	0.115	1.300
1958	35426	0.714	24813	0.611	0.491	0.309	0.800
1959	8689	0.175	13641	0.336	0.084	0.153	0.237
1960	19908	0.401	35259	0.868	0.265	0.425	0.690
1961	22693	0.457	9131	0.225	0.322	0.079	0.401
1962	36546	0.736	32411	0.798	0.535	0.386	0.921
1963	6556	0.132	4200	0.103	0.067	0.017	0.084
1964	2126	0.043	0	0.000	0.010	-0.020	-0.010
1965	63445	1.278	28791	0.709	0.953	0.353	1.306
1966	11570	0.233	0	0.000	0.140	-0.020	0.120
1967	14575	0.294	0	0.000	0.192	-0.013	0.179
1968	22561	0.455	5758	0.142	0.315	0.064	0.379
1969	37325	0.752	23646	0.582	0.548	0.297	0.845
1970	32698	0.659	8174	0.201	0.466	0.086	0.552
1971	8743	0.176	20063	0.494	0.096	0.237	0.333
1972	3764	0.076	11829	0.291	0.031	0.126	0.157
1973	34088	0.687	36753	0.905	0.505	0.448	0.953
1974	3656	0.074	16516	0.407	0.034	0.174	0.208
1975	12278	0.247	1714	0.042	0.172	-0.009	0.163
1976	3453	0.070	7736	0.190	0.036	0.078	0.113
1977	659	0.013	4950	0.122	0.003	0.052	0.055
1978	10995	0.221	0	0.000	0.163	-0.007	0.155
1979	34231	0.690	4630	0.114	0.514	0.054	0.568
1980	45982	0.926	25927	0.638	0.678	0.325	1.003
1981	9988	0.201	12980	0.320	0.112	0.146	0.258
1982	32929	0.663	17887	0.440	0.470	0.206	0.676
1983	56935	1.147	52807	1.300	0.834	0.645	1.479
TOTAL	680063	13.700	408631	10.059	9.568	4.611	14.179
AVERAGE	22669	0.457	13621	0.335	0.319	0.154	0.473

TABLE-4

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 1A: AVERAGE YEAR - OPTIMISTIC

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	4232
		NATIVE	1257
		TOTAL	5489
	WHEEL RANCH DITCH:		
		NATIVE	29
	REUSE WATER:	WWTF RETURNS	1146
		U/S PUEBLO RES.	900
		D/S PUEBLO RES.	1471
		FOUNTAIN CREEK	245
		TOTAL	3763
	DAKOTA WELLS:		84
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	124
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	0
	2. COST TO PURCHASE (AT $8500/SHARE):	$0
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	0
	4. COST TO PURCHASE (AT $2500/SHARE):	$0
	5. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$5,200,000

TABLE-5

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 1B: AVERAGE YEAR - CONSERVATIVE

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	4232
		NATIVE	1257
		TOTAL	5489
	WHEEL RANCH DITCH:		
		NATIVE	29
	REUSE WATER:	WWTF RETURNS	1146
		U/S PUEBLO RES.	655
		D/S PUEBLO RES.	1103
		FOUNTAIN CREEK	163
		TOTAL	3067
	DAKOTA WELLS:		780
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	124
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	0
	2. COST TO PURCHASE (AT $8500/SHARE):	$0
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	0
	4. COST TO PURCHASE (AT $2500/SHARE):	$0
	5. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$5,200,000

TABLE-6

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 1C: DRY YEAR - OPTIMISTIC

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	2317
		NATIVE	352
		TOTAL	2670
	WHEEL RANCH DITCH:		
		NATIVE	0
	REUSE WATER:	WWTF RETURNS	1277
		U/S PUEBLO RES.	1003
		D/S PUEBLO RES.	1640
		FOUNTAIN CREEK	273
		TOTAL	4194
	DAKOTA WELLS:		2610
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	-13
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	0
	2. COST TO PURCHASE (AT $8500/SHARE):	$0
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	0
	4. COST TO PURCHASE (AT $2500/SHARE):	$0
	5. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$5,200,000

TABLE-7

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 1D: DRY YEAR - CONSERVATIVE

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	2317
		NATIVE	352
		TOTAL	2670
	WHEEL RANCH DITCH:		
		NATIVE	0
	REUSE WATER:	WWTF RETURNS	1277
		U/S PUEBLO RES.	730
		D/S PUEBLO RES.	1230
		FOUNTAIN CREEK	182
		TOTAL	3419
	DAKOTA WELLS:		3385
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	-13
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	0
	2. COST TO PURCHASE (AT $8500/SHARE):	$0
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	0
	4. COST TO PURCHASE (AT $2500/SHARE):	$0
	5. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$5,200,000

TABLE-8

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 2A: AVERAGE YEAR - OPTIMISTIC

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	4304
		NATIVE	1278
		TOTAL	5583
	WHEEL RANCH DITCH:		
		NATIVE	29
	REUSE WATER:	WWTF RETURNS	1143
		U/S PUEBLO RES.	898
		D/S PUEBLO RES.	1468
		FOUNTAIN CREEK	245
		TOTAL	3754
	DAKOTA WELLS:		0
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	124
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	98
	2. COST TO PURCHASE (AT $8500/SHARE):	$833,000
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	0
	4. COST TO PURCHASE (AT $2500/SHARE):	$0
	5. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$6,033,000

TABLE-9

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 2B: AVERAGE YEAR - CONSERVATIVE

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	4891
		NATIVE	1453
		TOTAL	6344
	WHEEL RANCH DITCH:		
		NATIVE	29
	REUSE WATER:	WWTF RETURNS	1118
		U/S PUEBLO RES.	639
		D/S PUEBLO RES.	1077
		FOUNTAIN CREEK	159
		TOTAL	2993
	DAKOTA WELLS:		0
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	124
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	898
	2. COST TO PURCHASE (AT $8500/SHARE):	$7,633,000
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	0
	4. COST TO PURCHASE (AT $2500/SHARE):	$0
	5. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$12,833,000

TABLE-10

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 2C: DRY YEAR - OPTIMISTIC

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	3152
		NATIVE	479
		TOTAL	3631
	WHEEL RANCH DITCH:		
		NATIVE	0
	REUSE WATER:	WWTF RETURNS	1258
		U/S PUEBLO RES.	989
		D/S PUEBLO RES.	1616
		FOUNTAIN CREEK	270
		TOTAL	4133
	DAKOTA WELLS:		1709
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	-13
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	2076
	2. COST TO PURCHASE (AT $8500/SHARE):	$17,646,000
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	0
	4. COST TO PURCHASE (AT $2500/SHARE):	$0
	5. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$22,846,000

TABLE-11

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 2D: DRY YEAR - CONSERVATIVE

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	3849
		NATIVE	585
		TOTAL	4435
	WHEEL RANCH DITCH:		
		NATIVE	0
	REUSE WATER:	WWTF RETURNS	1244
		U/S PUEBLO RES.	711
		D/S PUEBLO RES.	1198
		FOUNTAIN CREEK	177
		TOTAL	3330
	DAKOTA WELLS:		1709
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	-13
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	3812
	2. COST TO PURCHASE (AT $8500/SHARE):	$32,402,000
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	0
	4. COST TO PURCHASE (AT $2500/SHARE):	$0
	5. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$37,602,000

TABLE-12

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 3A: AVERAGE YEAR - OPTIMISTIC

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	4232
		NATIVE	1257
		TOTAL	5489
	WHEEL RANCH DITCH:		
		NATIVE	29
	REUSE WATER:	WWTF RETURNS	1146
		U/S PUEBLO RES.	900
		D/S PUEBLO RES.	1471
		FOUNTAIN CREEK	245
		TOTAL	3763
	DAKOTA WELLS:		0
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	208
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	0
	2. COST TO PURCHASE (AT $8500/SHARE):	$0
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	179
	4. COST TO PURCHASE (AT $2500/SHARE):	$447,500
	5. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$5,647,500

TABLE-13

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 3B: AVERAGE YEAR - CONSERVATIVE

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	4232
		NATIVE	1257
		TOTAL	5489
	WHEEL RANCH DITCH:		
		NATIVE	29
	REUSE WATER:	WWTF RETURNS	1146
		U/S PUEBLO RES.	655
		D/S PUEBLO RES.	1103
		FOUNTAIN CREEK	163
		TOTAL	3067
	DAKOTA WELLS:		0
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	903
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	0
	2. COST TO PURCHASE (AT $8500/SHARE):	$0
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	1659
	4. COST TO PURCHASE (AT $2500/SHARE):	$4,147,500
	5. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$9,347,500

TABLE-14

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 3C: DRY YEAR - OPTIMISTIC

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	2317
		NATIVE	352
		TOTAL	2670
	WHEEL RANCH DITCH:		
		NATIVE	0
	REUSE WATER:	WWTF RETURNS	1272
		U/S PUEBLO RES.	999
		D/S PUEBLO RES.	1633
		FOUNTAIN CREEK	272
		TOTAL	4176
	DAKOTA WELLS:		1709
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	-13
	TOTAL SUPPLY:		8542

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	0
	2. COST TO PURCHASE (AT $8500/SHARE):	$0
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	0
	4. COST TO PURCHASE (AT $2500/SHARE):	$0
	5. NOT FEASIBLE	$0
	TOTAL COST	$0

TABLE-15

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 3D: DRY YEAR - CONSERVATIVE

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	2317
		NATIVE	352
		TOTAL	2670
	WHEEL RANCH DITCH:		
		NATIVE	0
	REUSE WATER:	WWTF RETURNS	1274
		U/S PUEBLO RES.	728
		D/S PUEBLO RES.	1227
		FOUNTAIN CREEK	182
		TOTAL	3412
	DAKOTA WELLS:		1709
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	-13
	TOTAL SUPPLY:		7777

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	0
	2. COST TO PURCHASE (AT $8500/SHARE):	$0
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	0
	4. COST TO PURCHASE (AT $2500/SHARE):	$0
	5. NOT FEASIBLE	$0
	TOTAL COST	$0

TABLE-16

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 4A1: 2-YR CONSERVATIVE

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	2317
		NATIVE	352
		TOTAL	2670
	WHEEL RANCH DITCH:		
		NATIVE	14
	REUSE WATER:	WWTF RETURNS	1274
		U/S PUEBLO RES.	728
		D/S PUEBLO RES.	1227
		FOUNTAIN CREEK	182
		TOTAL	3412
	DAKOTA WELLS:		1709
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	-13
	STORAGE RELEASE:		1683
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	0
	2. COST TO PURCHASE (AT $8500/SHARE):	$0
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	0
	4. COST TO PURCHASE (AT $2500/SHARE):	$0
	5. STORAGE REQUIRED (ACRE FOOT):	3366
	6. STORAGE COST (AT $2800/ACRE FOOT)	$9,424,800
	7. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$14,624,800

TABLE-17

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 4B1: 2 -YR CONSERVATIVE

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	3258
		NATIVE	496
		TOTAL	3754
	WHEEL RANCH DITCH:		
		NATIVE	14
	REUSE WATER:	WWTF RETURNS	1254
		U/S PUEBLO RES.	717
		D/S PUEBLO RES.	1208
		FOUNTAIN CREEK	179
		TOTAL	3358
	DAKOTA WELLS:		0
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	-13
	STORAGE RELEASE:		2361
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	2342
	2. COST TO PURCHASE (AT $8500/SHARE):	$19,907,000
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	0
	4. COST TO PURCHASE (AT $2500/SHARE):	$0
	5. STORAGE REQUIRED (ACRE FOOT):	4722
	6. STORAGE COST (AT $2800/ACRE FOOT)	$13,221,600
	7. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$38,328,600

TABLE-18

PUEBLO WEST METROPOLITAN DISTRICT
FUTURE WATER RIGHTS ANALYSIS
SCENARIO 4C1: 2- YR CONSERVATIVE

			(A. F.)
TOTAL ANNUAL WATER DEMAND			9460
SOURCES:	TWIN LAKES:	TRANSMOUTAIN	2317
		NATIVE	352
		TOTAL	2670
	WHEEL RANCH DITCH:		
		NATIVE	29
	REUSE WATER:	WWTF RETURNS	1273
		U/S PUEBLO RES.	728
		D/S PUEBLO RES.	1226
		FOUNTAIN CREEK	181
		TOTAL	3408
	DAKOTA WELLS:		1709
	COLORADO CANAL / LAKE MEREDITH:		
		REUSABLE	-103
	STORAGE RELEASES:		1776
	TOTAL SUPPLY:		9460

NOTES:	1. NUMBER OF TWIN LAKES SHARES TO PURCHACE:	0
	2. COST TO PURCHASE (AT $8500/SHARE):	$0
	3. COLO. CANAL / LAKE MER. SHARES TO PURCHASE:	1791
	4. COST TO PURCHASE (AT $2500/SHARE):	$4,477,500
	5. STORAGE REQUIRED (ACRE FOOT):	3552
	6. STORAGE COST (AT $2800/ACRE FOOT)	$9,945,600
	7. WELL COLLECTION SYSTEM	$5,200,000
	TOTAL COST	$19,623,100

APPENDIX B – CWCB SWSI 2010 EXECUTIVE SUMMARY

Executive Summary

Colorado faces significant and immediate water supply challenges and should pursue a mix of solutions to meet the state's consumptive and nonconsumptive water supply needs.

Preface

Colorado faces significant and immediate water supply challenges. Despite the recent economic recession, the state has experienced rapid population growth, and Colorado's population is expected to nearly double within the next 40 years. If Colorado's water supply continues to develop according to current trends, i.e., the status quo, this will inevitably lead to a large transfer of water out of agriculture resulting in significant loss of agricultural lands and potential harm to the environment.

Providing an adequate water supply for Colorado's citizens, agriculture, and the environment will involve implementing a mix of local water projects and processes, conservation, reuse, agricultural transfers, and the development of new water supplies, all of which should be pursued concurrently. With this Statewide Water Supply Initiative (SWSI) 2010 update, the Colorado Water Conservation Board (CWCB or Board) has confirmed and updated its analysis of the state's water supply needs and recommends Colorado's water community enter an implementation phase to determine and pursue solutions to meeting the state's consumptive and nonconsumptive water supply needs.

In 2003 the Colorado legislature recognized the critical need to understand and better prepare for Colorado's future water supply needs, and authorized the CWCB to implement SWSI 1. Approved by the Board in 2004, SWSI 1 comprehensively identified Colorado's current and future water needs and examined a variety of approaches Colorado could take to meet those needs. SWSI 1 implemented a collaborative approach to water resource issues by establishing "basin roundtables"—diverse groups of individuals representing water interests who provide input on water issues. The basin roundtables established a grass roots effort for education, planning, and collaborating on water planning issues.

This was followed by SWSI 2, which established four technical roundtables—Conservation, Alternative Agricultural Water Transfers, Environmental and Recreational Needs, and Addressing the Water Supply Gap.

Enacted in 2005, the Colorado Water for the 21st Century Act (Act) institutionalized the nine basin roundtables and created the 27-member Interbasin Compact Committee (IBCC) to facilitate conversations within and between basins. Together, these new bodies create a voluntary, collaborative process to help the state of Colorado address its water challenges.

The Act charges the basin roundtables to develop their consumptive and nonconsumptive needs assessments (NCNAs) and to propose projects and methods to meet those needs. These needs assessments are the basis for the CWCB's SWSI 2010 update, making SWSI 2010 the first comprehensive update to incorporate the needs assessment work of the basin roundtables.

SWSI 2010 is intended to enhance the available information and can be used for regional water planning.

SWSI 2010 is intended to enhance the available information and can be used for regional water planning.

Key elements of this update include:

- Analysis of the water supply demands to 2050, including consideration of the effect of passive conservation on those demands
- Analysis of nonconsumptive needs in each basin, as recommended by the basin roundtables
- Analysis of water availability in the Colorado River basins
- Implementation elements associated with identified projects, water conservation, agricultural transfers (both permanent and nonpermanent), and development of new water supplies
- Development of representative costs for water supply strategies

SWSI 2010 is a comprehensive picture of Colorado's water needs, now and in the future. The Board intends SWSI to be updated and refined every few years. Also, to assure the local perspective in this report, each basin roundtable will supplement this report with individual basin reports later in 2011. Used as a statewide planning tool, SWSI 2010 provides comprehensive information to water providers, state policy makers, and the General Assembly as they make decisions for accomplishing our next step: to work together on implementing the necessary strategies to meet our near and long-term water supply challenges.

CWCB History and Mission

As the lead agency for SWSI, the CWCB plays a critical role in establishing water policy in Colorado. Created in 1937, the CWCB's Mission is to:

> ***Conserve, Develop, Protect and Manage Colorado's Water for Present and Future Generations***

The CWCB furthers this mission by developing and implementing programs to:

- Conserve the waters of the state for wise and efficient beneficial uses
- Develop waters of the state to:
  - Preserve the natural environment to a reasonable degree
  - Fully utilize state compact entitlements
  - Help ensure that Colorado has an adequate water supply for our citizens and the environment by implementation of CWCB adopted mission statements and the findings and recommendations identified in SWSI 1
- Protect the waters of the state for maximum beneficial use without waste
- Manage the waters of the state in situations of extreme weather conditions—both for floods and droughts

Structure, Authority, and Role of the Board

The CWCB consists of 15 members. The Governor appoints one representative Board member from each of the state's eight major river basins and one representative member from the City and County of Denver. All appointees are subject to Senate confirmation and serve 3-year terms. The

With more than 40 staff members, the CWCB functions under eight major program areas:

1. Administration and Management
2. Finance
3. Interstate and Federal
4. Office of Water Conservation and Drought Planning
5. Stream and Lake Protection
6. Water Information
7. Water Supply Planning
8. Watershed and Flood Protection

Executive Director of the Department of Natural Resources (DNR) is an ex-officio, voting member of the Board. The Director of the CWCB, the State Engineer, the Attorney General, the Director of the Colorado Division of Wildlife (CDOW), and the Commissioner of the Colorado Department of Agriculture are ex-officio, nonvoting members.

CWCB is part of Colorado's DNR, which administers programs related to the state's water, forests, parks, land, wildlife, and minerals. CWCB's overarching goal for SWSI is to help water providers, stakeholders, and state policymakers maintain an adequate water supply for Colorado's citizens, agriculture, and the environment.

To the greatest extent possible, Board appointees are persons experienced in water resource management; water project financing; engineering, planning, and development of water projects; water law; irrigated farming; and/or ranching. No more than five appointees can be members of the same political party. By statute, six voting members constitute a quorum for the conduct of business, with six affirmative votes needed for the Board to take a position on any matter.

Introduction to the Interbasin Compact Process

In the last few years, state leaders and resource management agencies have increasingly focused on helping ensure that Colorado has an adequate water supply for its citizens and the environment. In 2003, the Colorado General Assembly authorized CWCB to implement SWSI 1. SWSI 1 was a comprehensive identification of Colorado's current and future water needs and it examined a variety of approaches Colorado could take to meet those needs. SWSI 1 implemented a collaborative approach to water resource issues by establishing "basin roundtables"—diverse groups of individuals representing water interests who provide input on water issues. Nine basin roundtables were institutionalized in the 2005 Colorado Water for the 21st Century Act, which creates a voluntary, collaborative process to help the state address its water challenges. This process is based on the premise that Coloradoans can work together to address the water needs within the state.

The role of the Board is defined in statute (C.R.S. 37-60) and includes:

- Establishing policy to address state water issues
- Exercising the exclusive authority of the Board to hold instream and natural lake level water rights to protect and improve the environment
- Mediating and facilitating resolutions of disputes between basins and water interests
- Maintaining and upholding fiduciary responsibilities related to the management of state resources including, but not limited to, the Construction Fund and the Severance Tax Trust Fund
- Representing citizens within individual basins
- Identifying, prioritizing, and implementing water development projects to be funded using its funds and when necessary, recommending such projects for approval by the General Assembly
- Making Findings and Recommendations concerning applications for water rights for Recreational In-channel Diversions and defending its decisions in water courts
- Making decisions regarding Watershed Protection Fund grants, upholding fiduciary responsibilities related to the fund and implementing its own river restoration projects designed to help the CWCB accomplish its mission
- Provide technical support for the Water for the 21st Century Act
- Administering the Water Supply Reserve Account Grant Program

Figure ES-1 illustrates the nine basin roundtables, which were organized to represent Colorado's eight major river basins and a separate roundtable for the Denver Metro area. The Yampa-White, Colorado, Gunnison, and Southwest Basin Roundtables are all based on tributaries to the Colorado River.

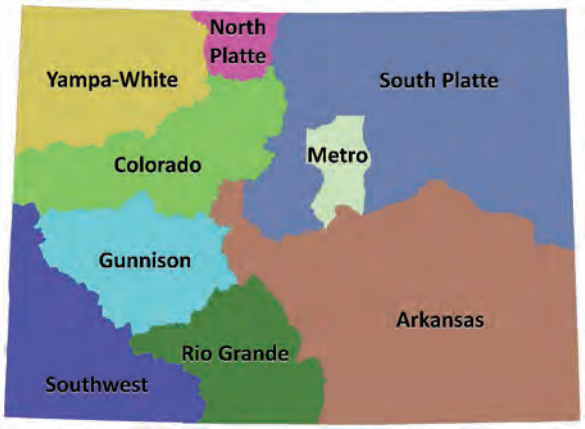


Figure ES-1 Colorado's nine basin roundtables provide a voluntary and collaborative process to help the state address its water challenges

The North Platte, Metro, and South Platte Basin Roundtables represent watersheds tributary to the Platte River. The Arkansas and Rio Grande Basin Roundtables are the headwaters of these river systems.

In addition to the nine basin roundtables, the Act established the 27-member IBCC to facilitate conversations between basins and to address statewide issues. IBCC established its charter in 2006, which was soon ratified by Colorado's General Assembly. The charter outlines the roles of IBCC—to provide a "framework that creates incentives for successful deliberations, agreements, and their implementation." To help advance this role, IBCC embarked on a visioning process, through which IBCC, CWCB, and basin roundtables agreed to evaluate water demand and supply strategies that could help address Colorado's water supply future.

Overview of the Water for the 21st Century Act

As described previously, in 2005 the Colorado General Assembly passed the Colorado Water for the 21st Century Act (House Bill [HB] 05-1177). The Act set up a framework that provides a permanent forum for broad-based water discussions, and it created two new structures—1) the IBCC, a statewide committee that addresses issues between basins; and 2) the basin roundtables, which were established in each of the state's eight major river basins plus the Denver Metro area. The purpose of the basin roundtables is to facilitate discussions on water issues and encourage locally driven collaborative solutions. The broad-based, collaborative nature of this process is reflected in the basin roundtable membership.

To help the basin roundtables accomplish their major responsibility of developing basinwide needs assessments, they have relied on groundwork completed during SWSI 1. To further develop their needs assessments, support water activities in each of the basins, and implement identified water projects and methods, it was clear that the basin roundtables needed staff support as well as technical and financial assistance Using resources provided through HB 06-1400, the CWCB provides staff support and technical assistance to the basin roundtables and the IBCC for the ongoing implementation of the Colorado Water for the 21st Century Act. The basin roundtables were also provided financial resources through Senate Bill (SB) 06-179, which established the Water Supply Reserve Account (WSRA). The WSRA appropriates money to the CWCB to help implement the consumptive and nonconsumptive water supply projects and methods identified by the basin roundtables. These bills and other relevant legislation are summarized in Figure ES-2.

SB03-110 authorized SWSI 1, which implemented a collaborative approach to water resources issues by establishing SWSI roundtables. SWSI 1 focused on using a common technical basis for identifying and quantifying water needs and issues.

HB05-1177 or The Colorado Water for the 21st Century Act provides a permanent forum for broad-based water discussions. It creates two new structures: 1) the IBCC, and 2) the basin roundtables. There are nine basin roundtables based on Colorado's eight major river basins and the Denver Metro area.

SB06-179 created the WSRA. Throughout SWSI and Colorado Water for the 21st Century Act processes, there has been a clear recognition that financial assistance is needed to address the water challenges in our state. This legislation funds the WSRA, which directs the State Treasurer to annually transfer $10 million from the Operational Account of the Severance Tax Trust Fund to the WSRA. These monies are available to the basin roundtables to fund water activities.

HB06-1385 created the CWCB's Intrastate Water Management and Development Section, which implements SWSI, the WSRA, develops reconnaissance level water supply alternatives, and tracks and supports water supply projects and planning processes. This section is now called the Water Supply Planning Section.

HB06-1400 appropriated money to the CWCB to fund staffing of the Water for the 21st Century Act process and monies for a contractor to technical assistance the basin roundtables.

SB09-106 authorized the funding of the WSRA in perpetuity.

Figure ES-2 Legislation Related to the Water for the 21st Century Act

Basin Roundtable Process

Basin roundtables are legislatively required to be made up of a diverse set of stakeholders, including representatives from counties, municipalities, water conservancy districts, the environmental and recreational communities, agriculture, and industry.

The responsibilities of the basin roundtables can be grouped into three categories—procedural, substantive, and public involvement. Each basin roundtable adopted bylaws that include the basin roundtable's goals, objectives, and operating procedures. These bylaws reflect the specific needs of the basin roundtable and reflect the uniqueness of each basin. Each basin roundtable developed procedures and selected two members of the IBCC to represent the basin roundtables' interests.

The most extensive substantive responsibility assigned to each basin roundtable is to develop a basinwide water needs assessment and projects and methods to meet those needs. These efforts are performed in cooperation with local governments, area water providers, and other stakeholders. The Act states "Using data from the Statewide Water Supply Initiative and other appropriate sources and in cooperation with the ongoing Statewide Water Supply Initiative, develop:"

- An assessment of consumptive water needs (municipal, industrial, and agricultural)
- An assessment of nonconsumptive water needs (environmental and recreational)
- An assessment of available water supplies (surface and groundwater) and an analysis of any unappropriated waters
- Proposed projects or methods to meet any identified water needs and achieve water supply sustainability over time

Equally important to selecting members of the IBCC and developing a basinwide water needs assessment, the basin roundtables serve as a forum for public involvement. The basin roundtable activities are required by law to be open, public meetings. The basin roundtable process creates an expanded foundation for public involvement.

This SWSI 2010 report is largely based on basin roundtables' water needs assessments. This report is summary in nature and is intended to summarize water needs at a statewide level. The basin roundtable needs assessment reports will be

more detailed and provide information at a finer level of detail than the contents of this report.

During the first part of 2011, CWCB will work with the basin roundtables to use information from this report and other basin roundtable needs assessments studies to develop individual basin roundtable needs assessments reports.

Interbasin Compact Committee

The other structure created by the Colorado Water for the 21st Century Act is the IBCC. This is a 27-member committee established to facilitate conversations between basins and to address statewide issues. The IBCC brings the issues of each basin roundtable to a statewide forum.

The Act gives the IBCC a series of responsibilities. These include establishing bylaws, developing a charter, helping oversee the WSRA program, and creating a Public Education and Outreach Working Group.

During 2005 and 2006, the IBCC established bylaws to govern its operations and actions. In addition, during this timeframe the IBCC developed a Charter to "govern and guide compact negotiations between basin roundtables." The Charter includes:

- A framework and principles to guide negotiations between basin roundtables, including policies to ensure that individual compacts do not conflict with one another.
- Procedures for ratification of compacts, including a mandatory provision that every affected basin roundtable must approve the draft compact.
- Authorities and procedures to ensure that approved compacts are legally binding and enforceable.
- Procedures for integrating the Interbasin Compact processes with other water planning and development processes, except that no provision may supersede, impair, or modify any local government's "authority, jurisdiction, or permitting powers."

The IBCC also established a Public Education and Outreach Working Group to ensure public education and participation concerning both the activities of the IBCC and compact negotiations between basin roundtables.

Overview of Colorado's Water Supply and Demand

Colorado's river systems generate, on average, 16 million AFY of renewable water. On average about two-thirds of this water leaves the state under Colorado's compacts and decrees. Figure ES-3 shows Colorado's population, irrigated acres, and flows. Of the 16 million acre-feet/year (AFY) of renewable water, about 80 percent is on the West Slope and 20 percent is on the East Slope. However, about 80 percent of Colorado's population is on the East Slope and 20 percent is on the West Slope and most of Colorado's irrigated agricultural lands are on the East Slope.

Colorado also has significant groundwater resources including alluvial aquifers, Denver Basin aquifers, High Plains aquifers, and San Luis Basin aquifers (see Figure ES-4). Colorado's renewable groundwater in the alluvial aquifers is considered part of the surface water system. Colorado's non-renewable groundwater is primarily in the San Luis Basin, High Plains (which is part of the Ogallala system) and the Denver Basin aquifers. The use of non-renewable groundwater, particularly for municipal use, creates reliability and sustainability concerns.

Water is vital to all aspects of Colorado's economy, including municipalities, businesses, industries, rural communities that are dependent on agriculture, West Slope communities that depend on industry and tourism, and statewide environmental amenities.

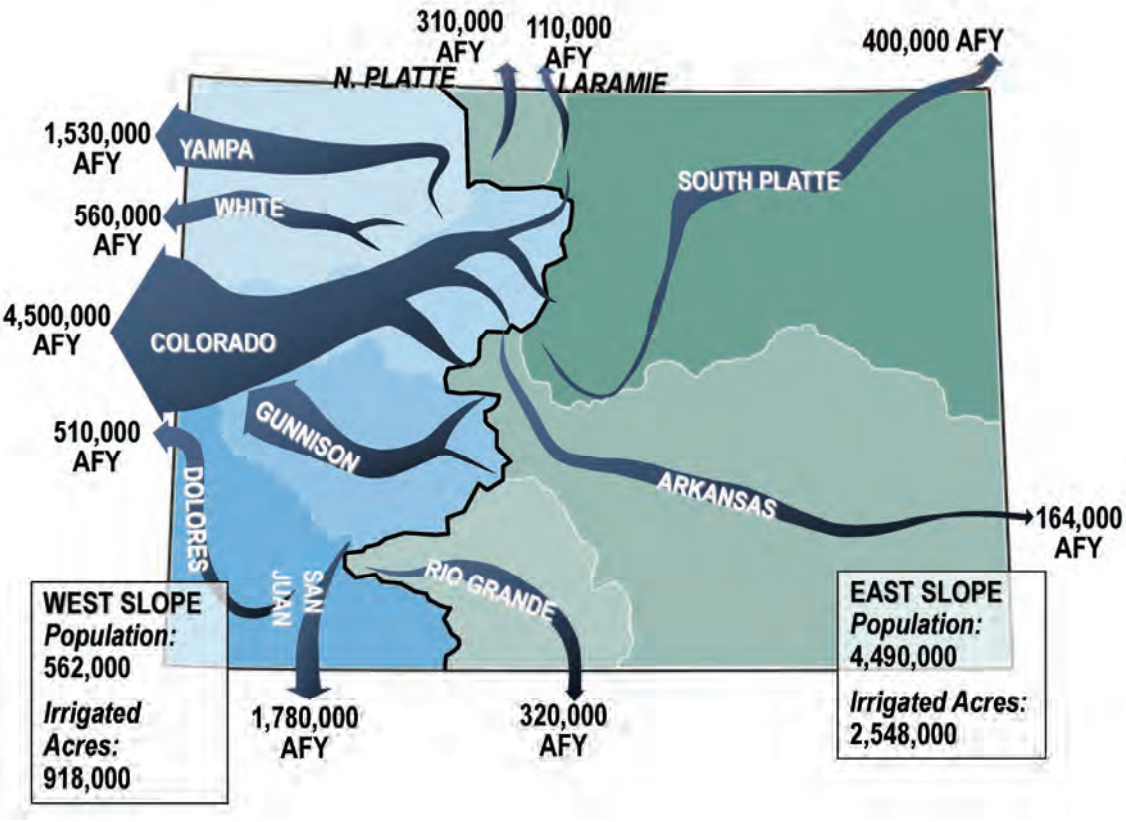


Figure ES-3 Colorado Population, Irrigated Acres and Flows

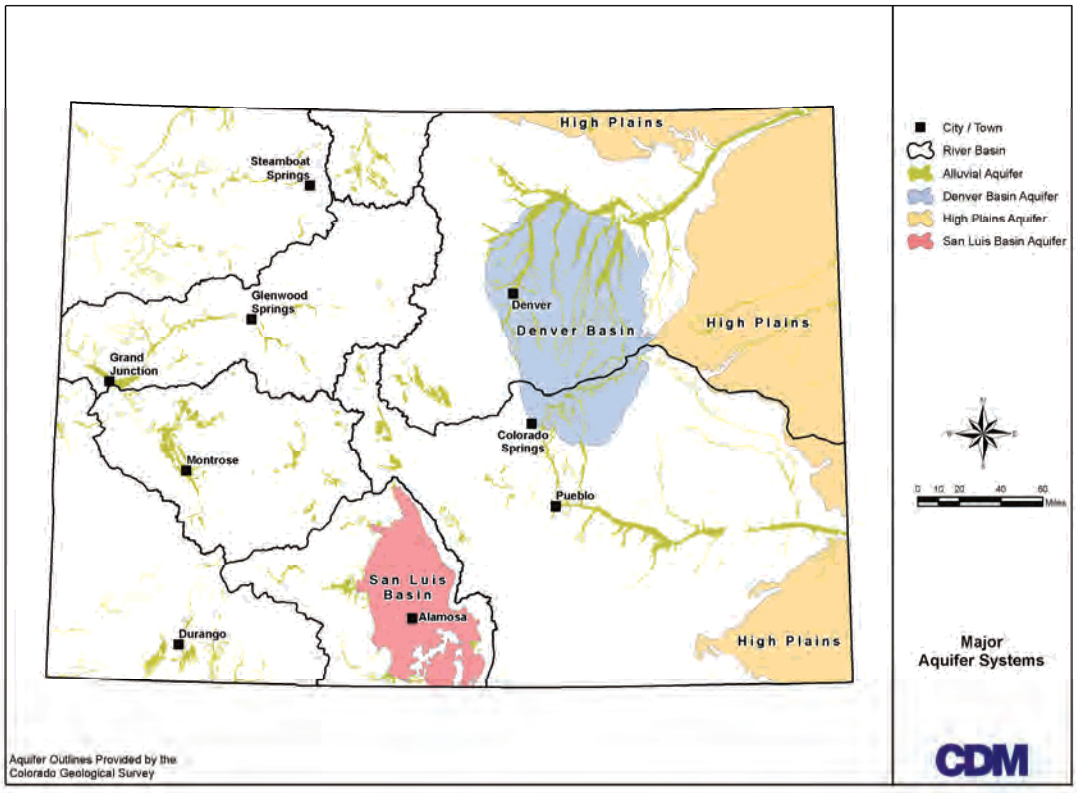


Figure ES-4 Colorado's Major Aquifer Systems

Colorado's agricultural and food industry supports about 4 percent of Colorado's jobs, and many of Colorado's counties are "ag dependent." In more than half of Colorado's counties, one in every ten jobs is tied to the agriculture and food industry, and in 13 of Colorado's 64 counties, one in every three jobs is tied to the agriculture and food industry.

Each basin faces continued shortages associated with existing agricultural demands. There are upward economic pressures to keep agriculture viable, however Colorado could also face a significant decline in irrigated acres by 2050 due to urbanization and water transfers.

Recreation and tourism injected about $8.6 billion into the state's economy during 2009 and employed about 9 percent of the total workforce. In certain regions, most notably headwaters communities, environmental and recreational amenities drive the local economy. Water-related activities comprise a significant component of Colorado's tourist activities including flatwater and river-based activities, fishing, boating, rafting, and snowmaking. The basin roundtables have spent significant time and effort identifying nonconsumptive focus areas in their basins and CWCB programs, most notably its instream flow program and watershed protection program, are critical to meeting these nonconsumptive needs.

Water for Colorado's growing cities and industries is a major issue. Colorado surpassed 5 million people in the summer of 2008. Colorado's population is expected to nearly double by 2050. About half of this growth is expected from net migration into the state and about half will be due to birth rates higher than death rates. This population increase is driven by available jobs.

On a percentage basis, the fastest growth will take place on the West Slope—between 2008 and 2050 the Colorado Basin will grow by about 140 percent, the Southwest Basin by about 115 percent, and the Gunnison Basin by about 115 percent. The Arkansas and South Platte Basins will have a slower growth rate (about 80 percent and 70 percent, respectively), but combine to add almost 3.3 million people by 2050. By 2050, over 6 million people will live in the South Platte Basin. This population growth will drive a significant need for additional water to meet future municipal and industrial (M&I) demands. Colorado also has a significant need for self-supplied industrial (SSI) water uses, including snowmaking, breweries, and other large industry, and our energy sector. By 2050, Colorado will need between 600,000 and 1 million AFY of additional M&I and SSI water. These needs are depicted in Figure ES-5.

Nonconsumptive Needs Assessments

The basin roundtables are required to complete NCNAs. This effort has included an extensive inventory, analysis, and synthesized mapping effort that built upon SWSI 2 environmental and recreational attribute mapping as a common technical platform for the basin roundtables. Figure ES-6 shows the process that was utilized by the CWCB and basin roundtables in completing their NCNAs. The basin roundtables have utilized environmental and recreational attribute mapping to identify nonconsumptive focus areas in their basins. In addition, the Arkansas, Colorado, and Yampa-White Basin Roundtables utilized WSRA funding to conduct further studies in their basins focused on quantifying environmental and recreational flow needs. The basin roundtables' nonconsumptive focus areas and further study efforts are intended to facilitate the identification of projects and methods to address environmental and recreational needs.

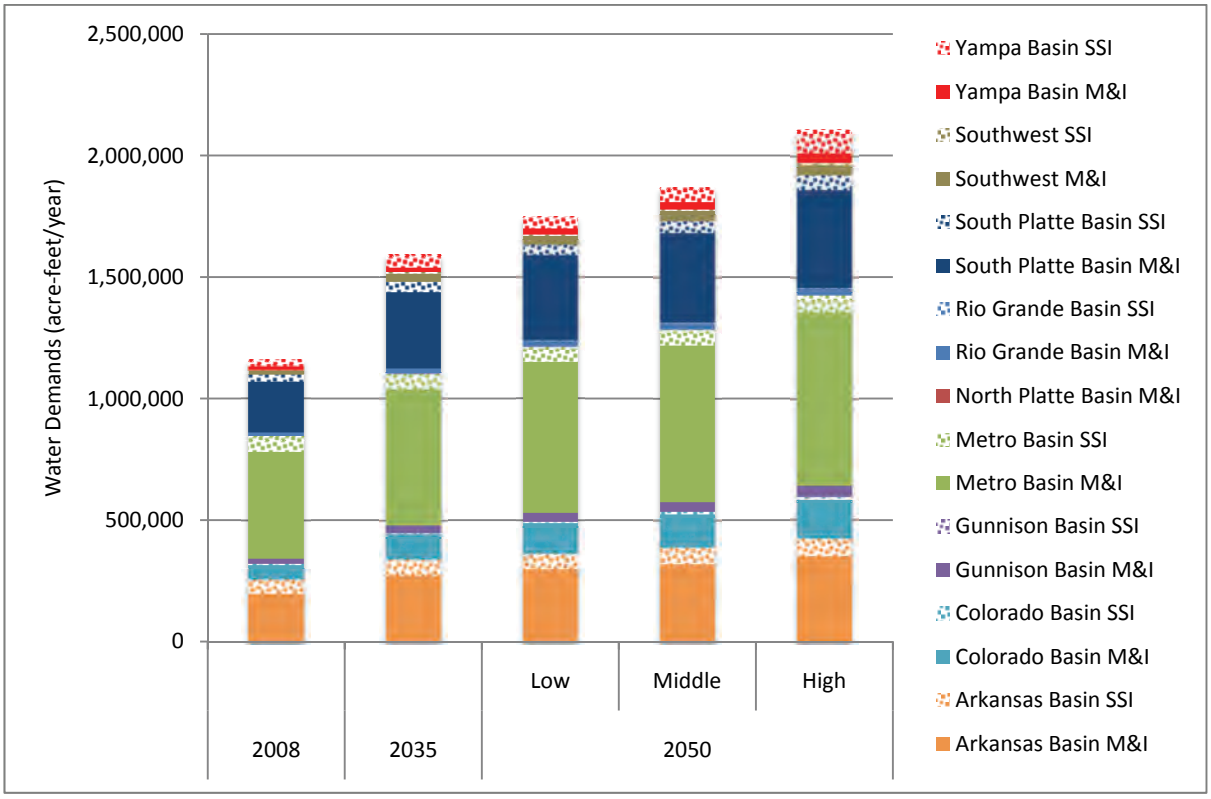


Figure ES-5 2050 M&I and SSI Demands by Basin

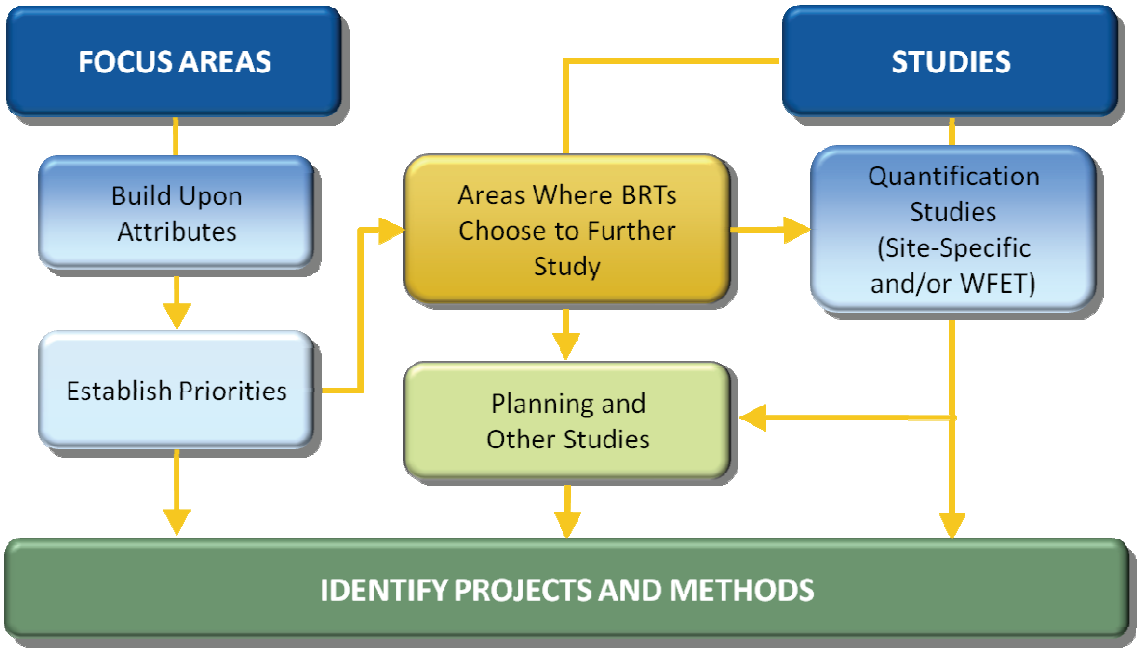


Figure ES-6 Nonconsumptive Needs Assessment Methodology

The focus area maps developed by each basin roundtable are based on a common set of environmental and recreational attributes and represent where Colorado's important water-based environmental and recreational attributes are located. The maps reflect stream reaches and subwatersheds with higher concentrations of environmental and recreational qualities. These maps were generated to provide information to the basin roundtables on important environmental and recreational areas in their basins but were not intended to dictate future actions. It should be noted that this effort has not identified all streams as important. The NCNAs are not intended to create a water right for the environment and will not diminish, impair, or cause injury to existing absolute or conditional water rights.

The environmental and recreational focus area maps can be used for the following purposes:

- The maps are intended to serve as a useful guide for water supply planning so that future conflicts over environmental and recreational needs can be avoided.
- The maps can assist in identifying environmental and recreational water needs status, such as where needs are being met, where additional future study may need to take place, or where implementation projects in the basin are needed.
- The maps can help basins plan for the water needs of species of special concern so that they do not become federally listed in the future.
- The maps can provide opportunity for collaborative efforts for future multi-objective projects.

Each basin developed a unique map showing focus areas with nonconsumptive environmental and recreational water needs.

Each basin developed a unique map showing focus areas with nonconsumptive environmental and recreational water needs. The resulting statewide compilation map is represented in Figure ES-7.

Consumptive Needs Assessments

The objectives of the consumptive needs part of this SWSI 2010 update effort are to:

- Update population projections and extend them to 2050
- Update M&I per capita estimates including passive conservation
- Extend the SWSI 1 consumptive water use projections to 2050 for the M&I sector
- Update the SSI sector forecast to 2050
- Update the current tally of irrigated acres throughout Colorado and forecast irrigated acres in 2050
- Update current agricultural demands and shortages and forecast 2050 agricultural demands

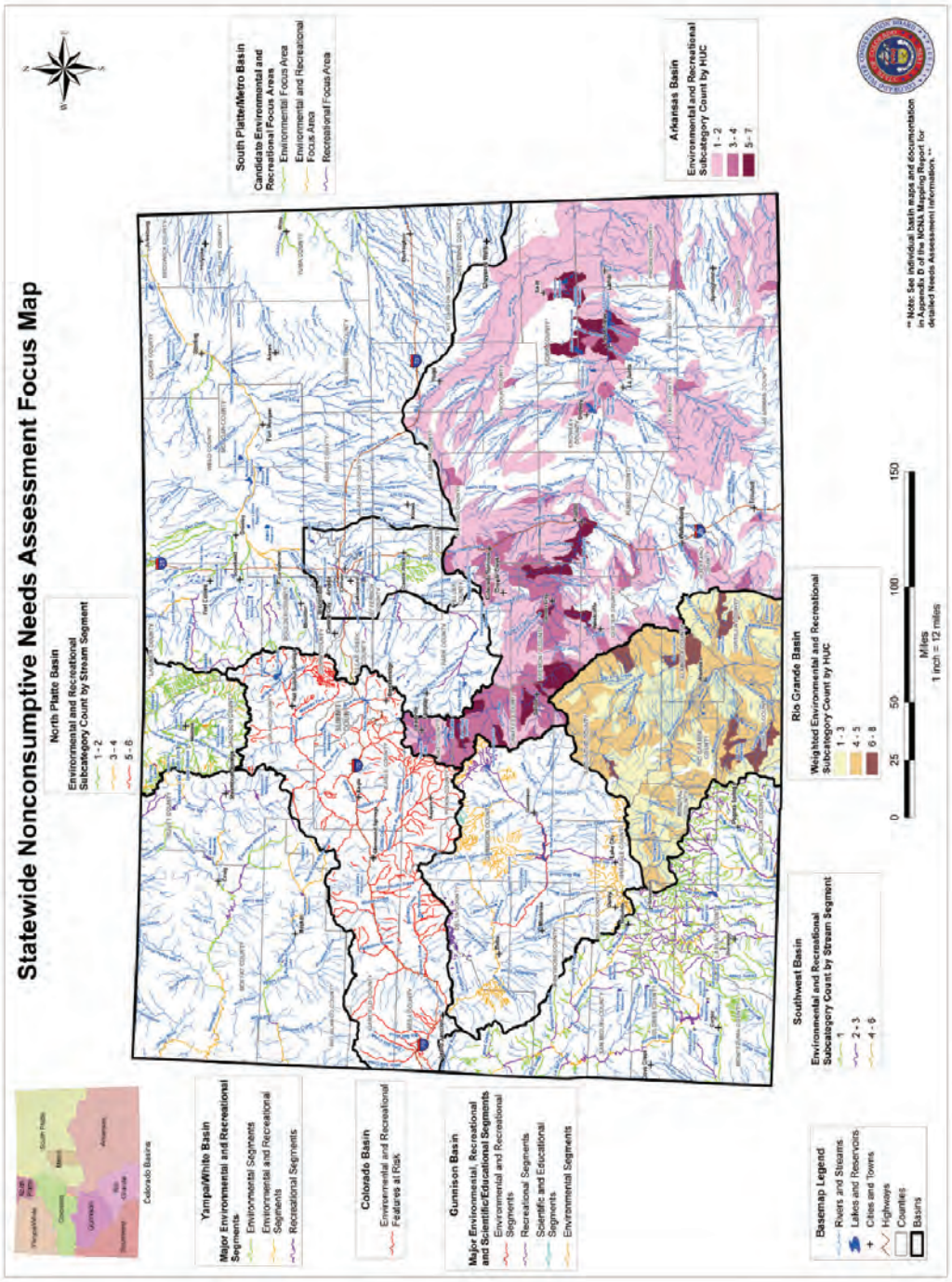


Figure ES-7 Nonconsumptive Needs Assessment Focus Map

M&I and SSI Consumptive Needs

Projected Water Use

The relative proportions of surface diversions for agricultural, M&I, and SSI gross water use in 2050 are depicted in Figure ES-8. By 2050 agriculture will continue to use the majority of Colorado's water supply. It is projected to decline from 89 percent today to 82 percent in 2050. M&I is projected to account for 15 percent of surface water diversions in 2050 and SSI about 3 percent.

2050 Population Projection Results

Between the year 2008 and 2050, the state of Colorado is projected to grow from approximately 5.1 million people to between 8.6 million and 10 million people. Under low economic development assumptions, the state's population is projected to grow to about 8.6 million people, or by about 70 percent. Under high economic development assumptions, including a 550,000 barrel per day oil shale industry, the state's population is projected to grow to just over 10 million people, or by 98 percent, as compared to the year 2008. On average, statewide population projections from 2008 forward indicate an increase of about 1.4 million people every 15 years.

On average, statewide population projections from 2008 forward indicate an increase of about 1.4 million people every 15 years.

Table ES-1 and Figure ES-9 show how population growth will vary across the state during the next 40 years. Based on these projections, the Arkansas, Metro, and South Platte Basins will continue to have the largest population in the state. However, the West Slope will continue to grow at a faster rate than the Front Range of Colorado.

Future M&I Water Demands

2050 M&I Water Demands Results

Colorado's population is projected to nearly double by the year 2050. Because the major driver for water use is population growth, M&I water usage is also expected to nearly double, even with savings from passive conservation.

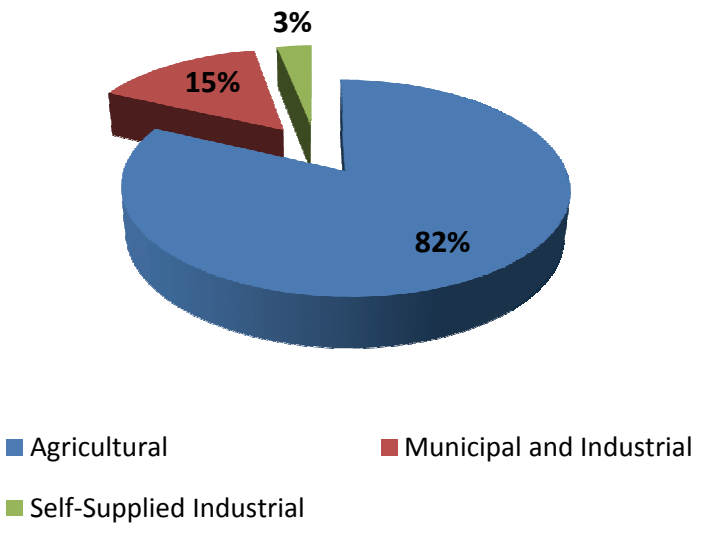


Figure ES-8 In 2050, Agriculture is still projected to utilize the majority of Colorado's water

Table ES-1 Population Projections by River Basin

Basin	2008	2035	Percent Change 2008 to 2035	Percent Average Annual Growth Rate	2050			Percent Change 2008 to 2050	Percent Average Annual Growth Rate
					Low	Medium	High		
Arkansas	948,000	1,451,000	53	1.6	1,581,000	1,688,000	1,841,000	67-94	1.2-1.6
Colorado	307,000	558,000	82	2.2	661,000	725,000	832,000	115-171	1.8-2.4
Gunnison	105,000	184,000	75	2.1	206,000	220,000	240,000	96-129	1.6-2.0
Metro	2,513,000	3,622,000	44	1.4	4,018,000	4,144,000	4,534,000	60-80	1.1-1.4
North Platte	1,500	1,800	20	0.7	2,000	2,200	2,500	33-67	0.7-1.2
Rio Grande	50,000	68,000	36	1.2	74,000	80,000	87,000	48-74	0.9-1.3
South Platte	977,000	1,622,000	66	1.9	1,808,000	1,902,000	2,065,000	85-111	1.5-1.8
Southwest	105,000	185,000	76	2.1	204,000	224,000	249,000	94-137	1.6-2.1
Yampa-White	45,000	81,000	80	2.2	94,000	117,000	153,000	109-240	1.8-3.0
TOTAL	**5,051,500**	**7,772,800**	**54**	**1.6**	**8,648,000**	**9,102,200**	**10,000,000**	**71-98**	**1.3-1.6**

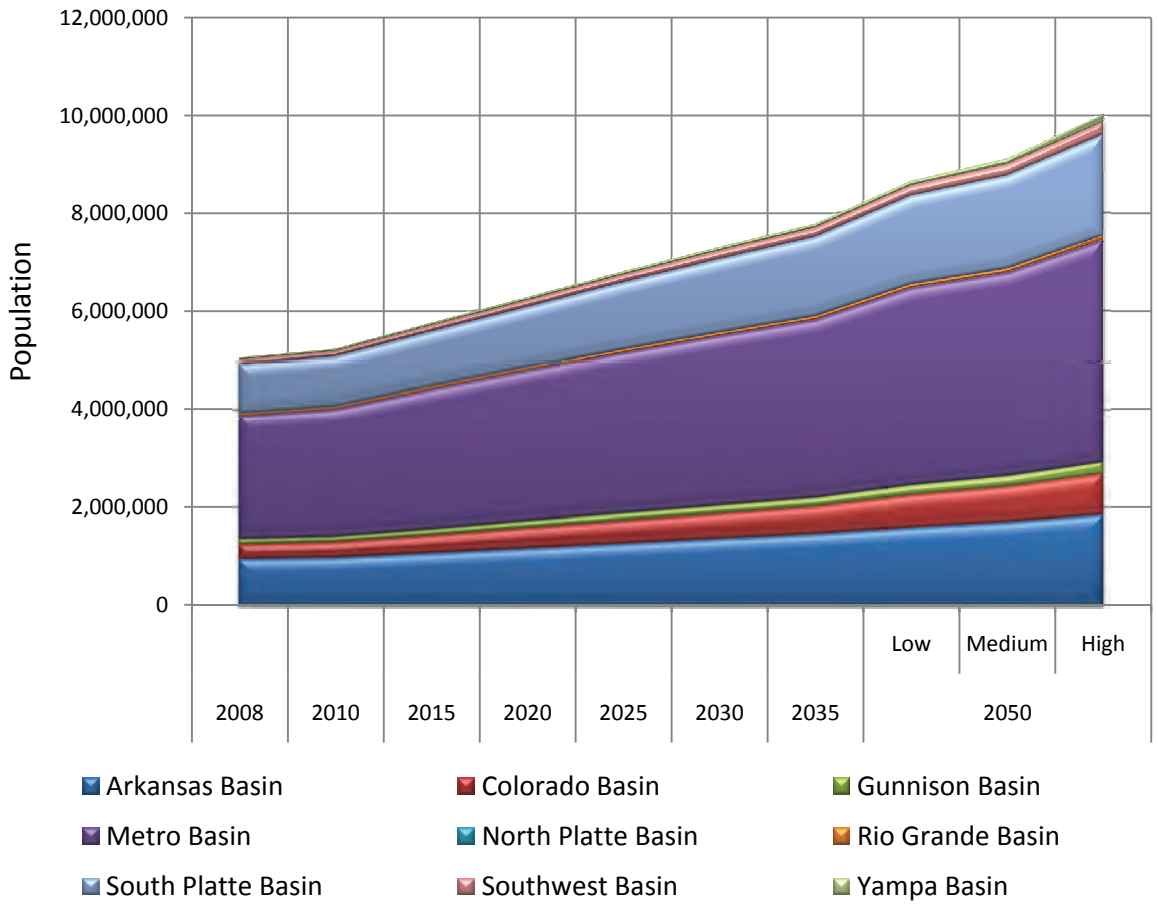


Figure ES-9 State of Colorado Population Projections through 2050

By 2050, Colorado will need between 538,000 and 812,000 AFY of additional water to meet municipal demands. Passive conservation savings are accounted for in these estimates and will result in approximately 150,000 AFY reduction or just over 8 percent decrease in M&I water demands by 2050 for the medium demand scenario relative to baseline conditions without passive conservation. The statewide current (2008) and future (2035 and 2050 low, medium, and high) water demands for baseline conditions and with passive conservation are summarized in Figure ES-10.

Colorado will need between 600,000 and 1 million acre-feet per year of additional M&I and SSI water by 2010.

Statewide SSI Demand Summary

Table ES-2 presents results of the SSI demand projections by basin. As shown, Moffat County could experience a significant increase in water demands, attributable to the electricity needed for energy development. Rio Blanco County could also experience a significant increase in water demands if the oil shale industry experiences significant growth. Both of these counties are located in the Yampa-White Basin. For the remaining counties and basins, increased demands are attributable to increases in thermoelectric power generation.

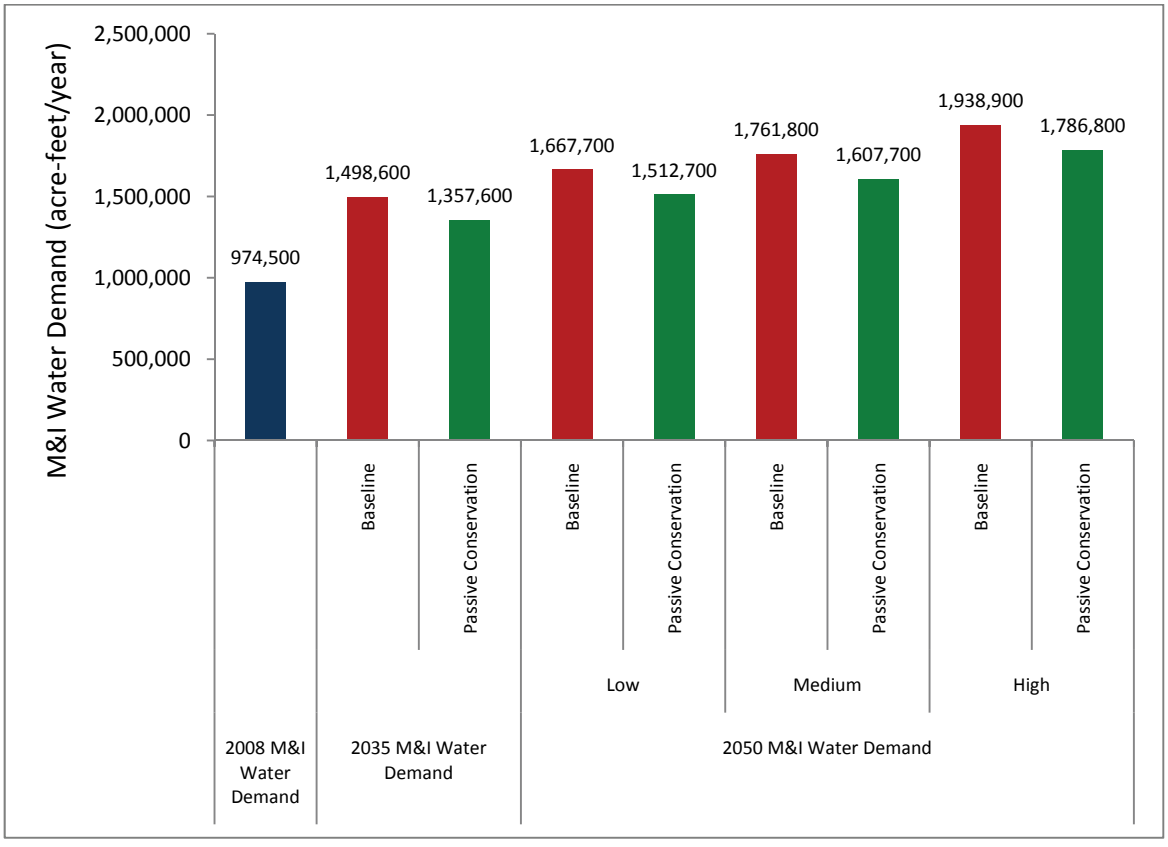


Figure ES-10 Comparison of M&I Demands for Baseline and with Passive Conservation

Table ES-2 Summary of Self-Supplied Industry Demands by Basin (AFY)

Basin	Sub-Sector	2008	2035	2050 Low	2050 Med	2050 High
Arkansas	Energy Development	—	—	—	—	—
	Large Industry	49,400	49,400	49,400	49,400	49,400
	Snowmaking	—	—	—	—	—
	Thermoelectric	9,000	14,700	15,400	18,400	22,100
	Total	58,400	64,100	64,800	67,800	71,500
Colorado	Energy Development	2,300	500	200	4,700	10,700
	Large Industry	—	—	—	—	—
	Snowmaking	3,180	4,740	4,740	4,740	4,740
	Thermoelectric	—	—	—	—	—
	Total	5,480	5,240	4,940	9,440	15,440
Gunnison	Energy Development	—	—	—	—	—
	Large Industry	—	—	—	—	—
	Snowmaking	260	650	650	650	650
	Thermoelectric	—	—	—	—	—
	Total	260	650	650	650	650
Metro	Energy Development	—	—	—	—	—
	Large Industry	52,400	52,400	52,400	52,400	52,400
	Snowmaking	—	—	—	—	—
	Thermoelectric	12,000	12,000	12,600	15,000	17,900
	Total	64,400	64,400	65,000	67,400	70,300
Rio Grande	Energy Development	—	600	1,200	1,500	2,000
	Large Industry	—	—	—	—	—
	Snowmaking	—	—	—	—	—
	Thermoelectric	—	—	—	—	—
	Total	—	600	1,200	1,500	2,000
South Platte	Energy Development	—	—	—	—	—
	Large Industry	6,600	6,600	6,600	6,600	6,600
	Snowmaking	320	320	320	320	320
	Thermoelectric	21,400	35,400	37,200	44,400	53,100
	Total	28,320	42,320	44,120	51,320	60,020
Southwest	Energy Development	—	—	—	—	—
	Large Industry	—	—	—	—	—
	Snowmaking	410	410	410	410	410
	Thermoelectric	1,900	3,900	4,100	4,900	5,900
	Total	2,310	4,310	4,510	5,310	6,310
Yampa-White	Energy Development	2,000	6,000	3,900	7,500	41,800
	Large Industry	6,100	9,500	9,500	9,500	9,500
	Snowmaking	290	570	570	570	570
	Thermoelectric	20,200	38,300	36,700	40,500	44,000
	Total	28,590	54,370	50,670	58,070	95,870
Total All Basins		**187,760**	**235,990**	**235,890**	**261,490**	**322,090**

Figure ES-11 summarizes projected SSI water usage statewide by subsector, indicating that among SSI needs, the large industry, thermoelectric, and energy development subsectors are projected to use the most water in the future. Future SSI demands are projected to range from 236,000 AFY to 322,000 AFY by 2050, an increase of 48,000 AFY to 134,000 AFY over current (2008) demands.

Statewide 2050 M&I and SSI Consumptive Needs Summary

Of the many factors affecting M&I water use, the projected increases in population clearly drive the increases in M&I use from 2008 to 2050. Figure ES-12 summarizes statewide M&I and SSI water use projections, including reductions as a result of passive conservation measures, for 2008, 2035, and the low, medium, and high scenario 2050 projections. Total statewide 2035 water demands are projected to be nearly 1.6 million AFY. 2050 water demands are projected to range from approximately 1.75 million AFY to nearly 2.1 million AFY. Figure ES-12 also shows that M&I water demands are estimated to exceed SSI demands for all of the future projections.

Figure ES-13 summarizes statewide existing water use and future water demands. Gross statewide M&I demands including oil shale and other SSI water demands for the low, medium, and high scenario projections are 1.75 million AFY, 1.9 million AFY, and 2.1 million AFY, respectively. These projections include passive conservation savings, but do not include the impacts of active water conservation efforts that are being implemented and planned by many M&I water providers. Current water use is just over 1.1 million AFY.

The following are the major conclusions from Colorado's 2050 M&I water use projections:

- Colorado's population is expected to nearly double to between 8.6 and 10 million people by 2050.
- The Front Range will continue to be the most populous place in Colorado with over 80 percent of the state's population residing in the Arkansas, Metro, and South Platte Basins. The Front Range is expected to grow by approximately 70 percent.
- The West Slope will grow at the fastest rate of any area in Colorado between now and 2050. Population on the West Slope is expected to more than double in the next 40 years with some growth rates as high as 240 percent.
- Statewide M&I water usage rates have decreased by 18 percent. This decrease is due to a combination of drought response, conservation savings, and additional data collection efforts. Additional data collected during this effort has improved the original SWSI water usage information.
- Because population growth is the driving factor in water use across the state, water use is also expected to nearly double by 2050.
- Passive conservation will save approximately 150,000 AFY by 2050 or an 8 percent savings relative to baseline 2050 M&I water demands.
- The basins with the largest SSI water usage in 2050 are projected to be the Yampa-White, Arkansas, Metro, and South Platte Basins.
- Colorado will need approximately 600,000 AFY to 1 million AFY of additional M&I and SSI water by 2050. These estimates incorporate new water demands from population growth, energy, and other SSI needs (including oil shale), and replacement of nontributary groundwater.
- An oil shale industry producing 1,550,000 barrels of oil/day could use between 0 to 120,000 AFY depending upon what technologies and other factors are implemented. Due to ramp up rates, by 2050 projected water use ranges from 0 to 44,000 AFY for an industry providing 550,000 barrels of oil/day.

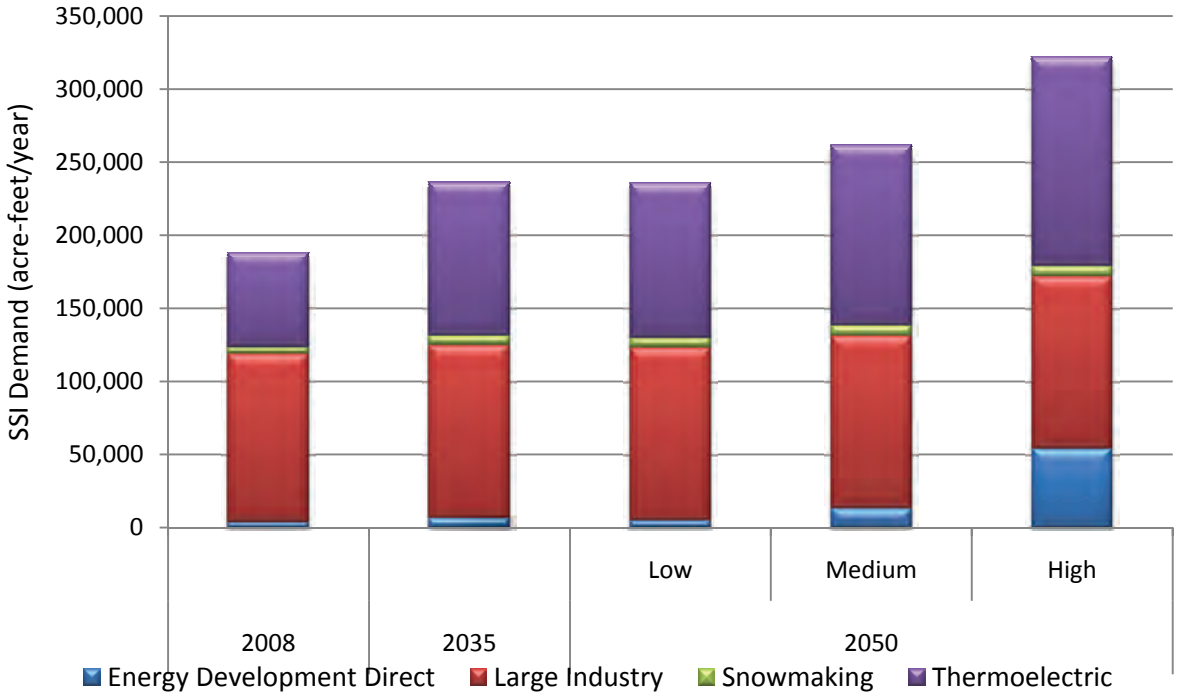


Figure ES-11 Statewide Self-Supplied Industrial Demands by Sector

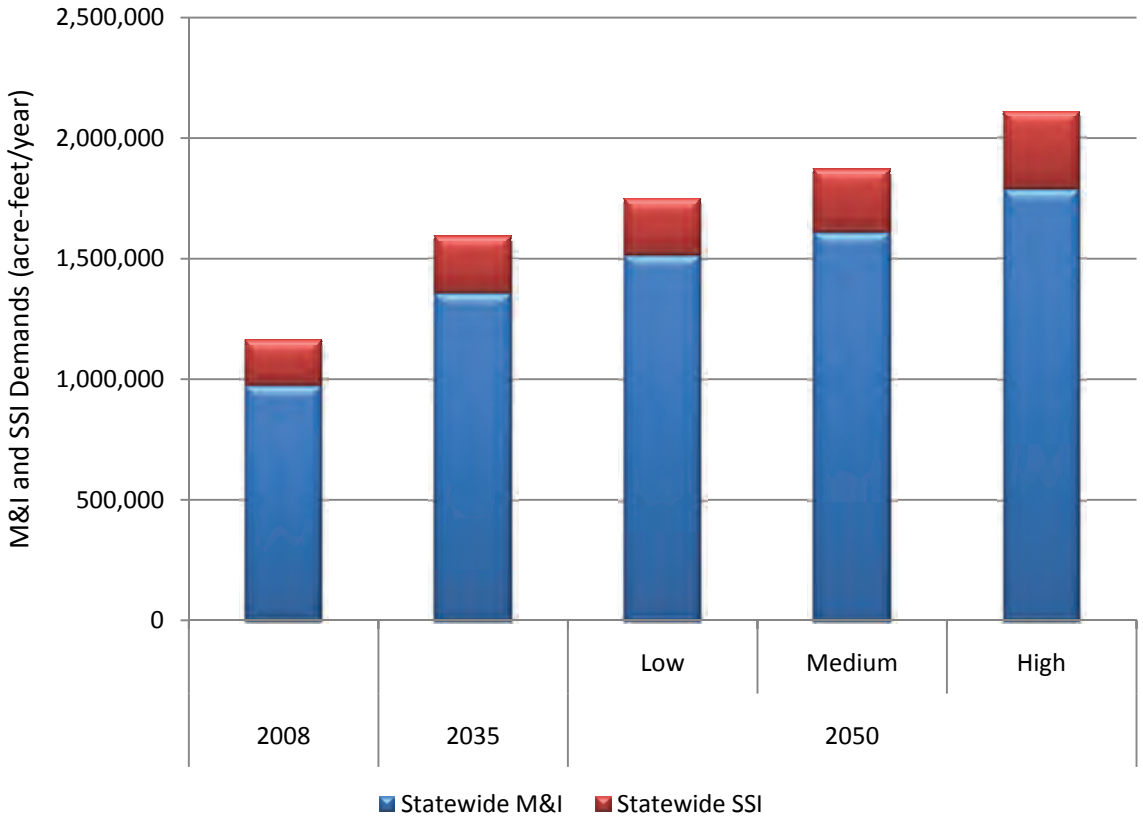


Figure ES-12 Statewide M&I and SSI Demands

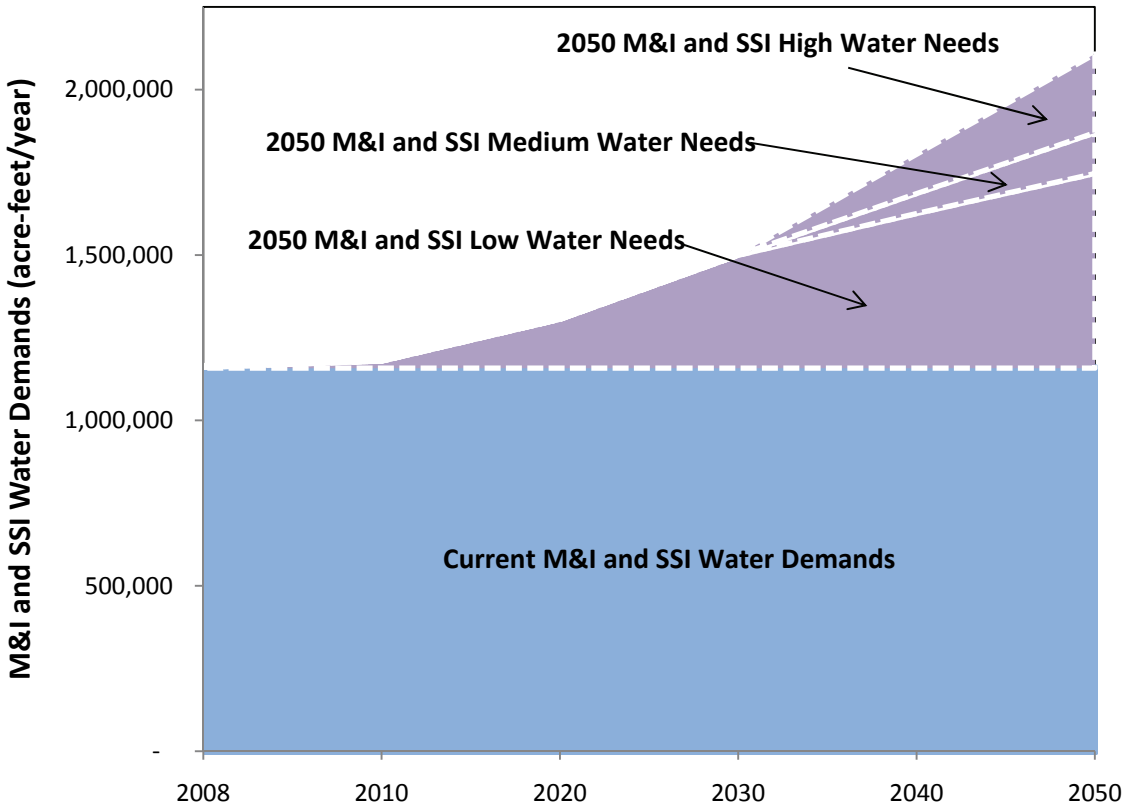


Figure ES-13 Existing and Future M&I and SSI Demands

Agricultural Consumptive Needs

Current Agricultural Demand Results

Each basin in Colorado faces continued water shortages associated with existing agricultural demands. Table ES-3 summarizes results of the average annual current agricultural demands and shortages by basin. It shows irrigated acres, Irrigation Water Requirement (IWR), Water Supply Limited Consumptive Use (WSL CU), and shortage (difference between IWR and WSL CU), and non-irrigation demand.

Figures ES-14 and ES-15 show the current WSL CU and shortage amounts by basin. Basins with the highest current agricultural water demand include the South Platte, Rio Grande, and Republican.

Future Agricultural Demand Results

There are upward economic pressures to keep agriculture viable, and some basins, such as the Yampa, are seeking to expand agriculture. However, the state could also face a significant decline in irrigated acres by 2050 due to urbanization and water transfers. As represented in Figure ES-16, between 500,000 and 700,000 irrigated acres could be dried up by 2050, and large-scale dry-up of irrigated agriculture has adverse economic and environmental impacts.

Table ES-3 Estimated Current Agricultural Demand by Basin

Basin	Irrigated Acres	Irrigation Water Requirement (AFY)	Water Supply-Limited Consumptive Use (AFY)	Shortage (AFY)	Non-Irrigation Demand (AFY)
Arkansas	428,000	995,000	542,000	453,000	56,000
Colorado	268,000	584,000	485,000	100,000	51,000
Gunnison	272,000	633,000	505,000	128,000	54,000
Metro and South Platte	831,000	1,496,000	1,117,000	379,000	115,000
North Platte	117,000	202,000	113,000	89,000	12,000
Republican	550,000	802,000	602,000	200,000	67,000
Rio Grande	622,000	1,283,000	855,000	428,000	45,000
Southwest	259,000	580,000	382,000	198,000	46,000
Yampa-White	119,000	235,000	181,000	54,000	24,000
Statewide Total	**3,466,000**	**6,819,000**	**4,791,000**	**2,028,000**	**470,000**

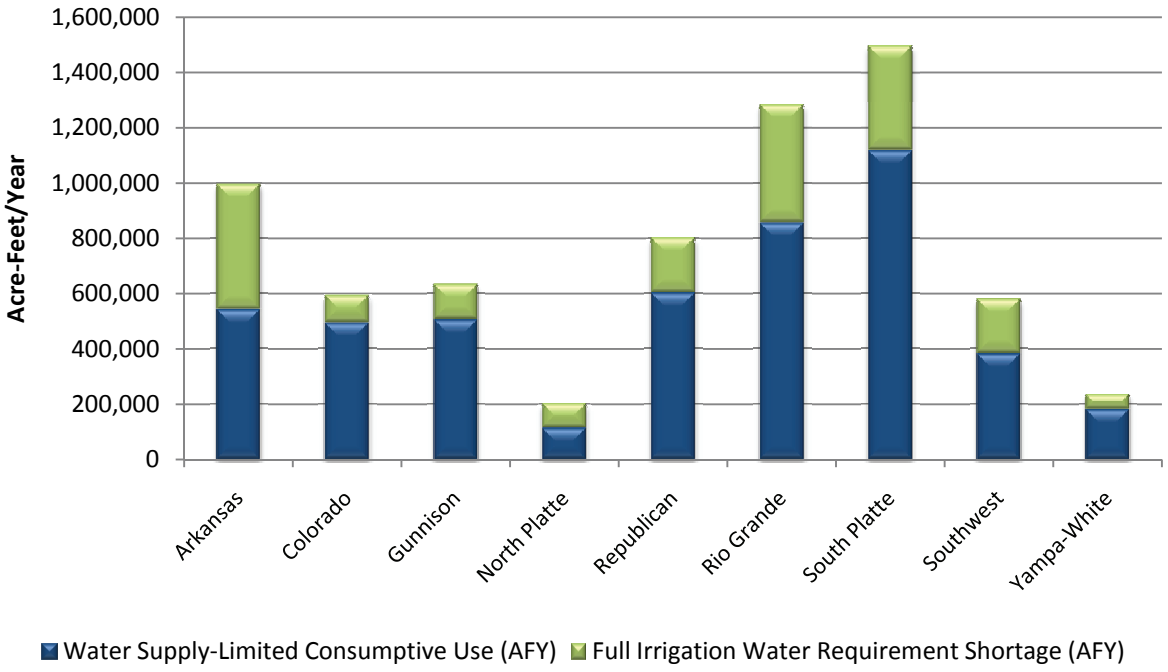


Figure ES-14 Current Agricultural Demands and Shortages

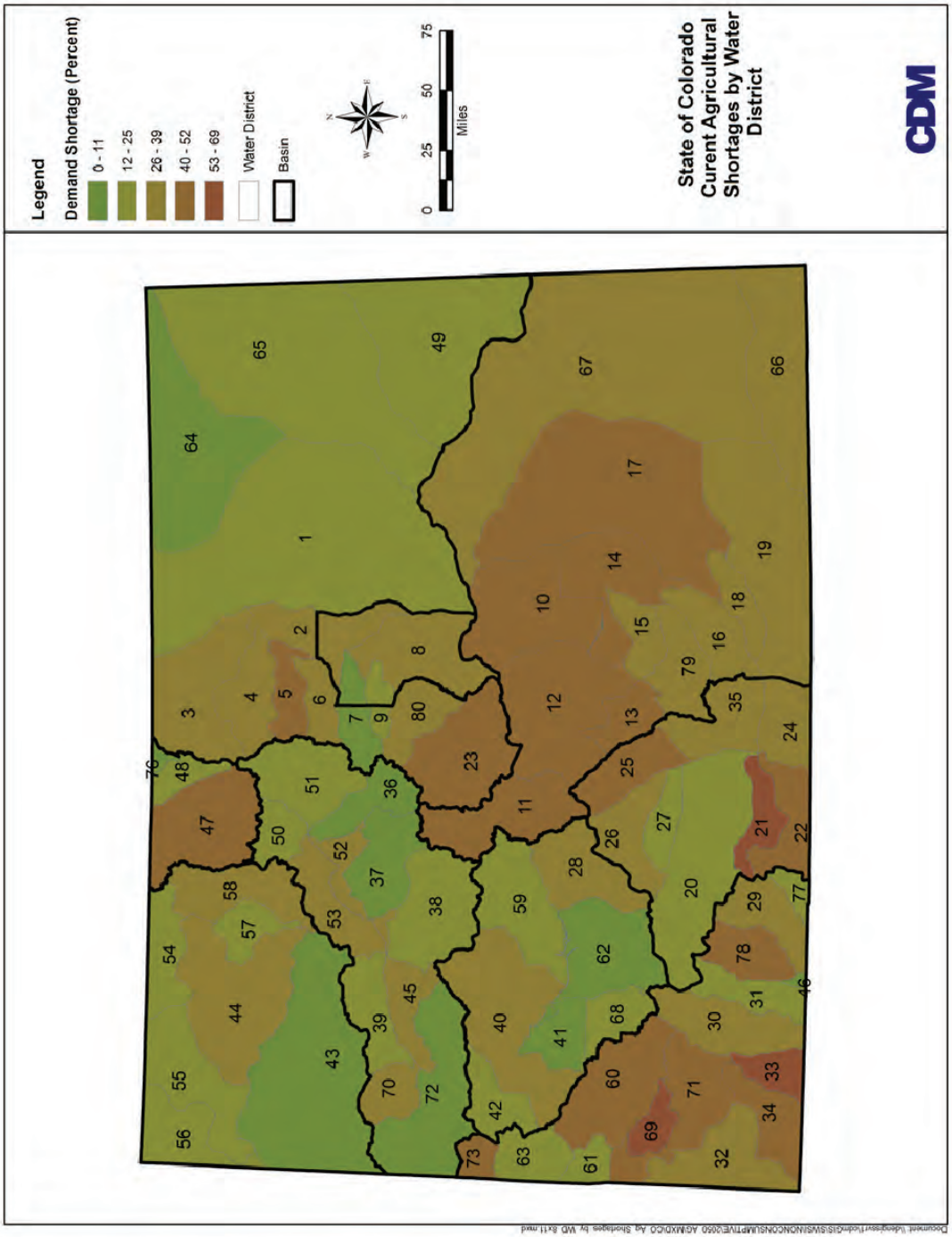


Figure ES-15 State of Colorado Current Agricultural Shortages by Water District

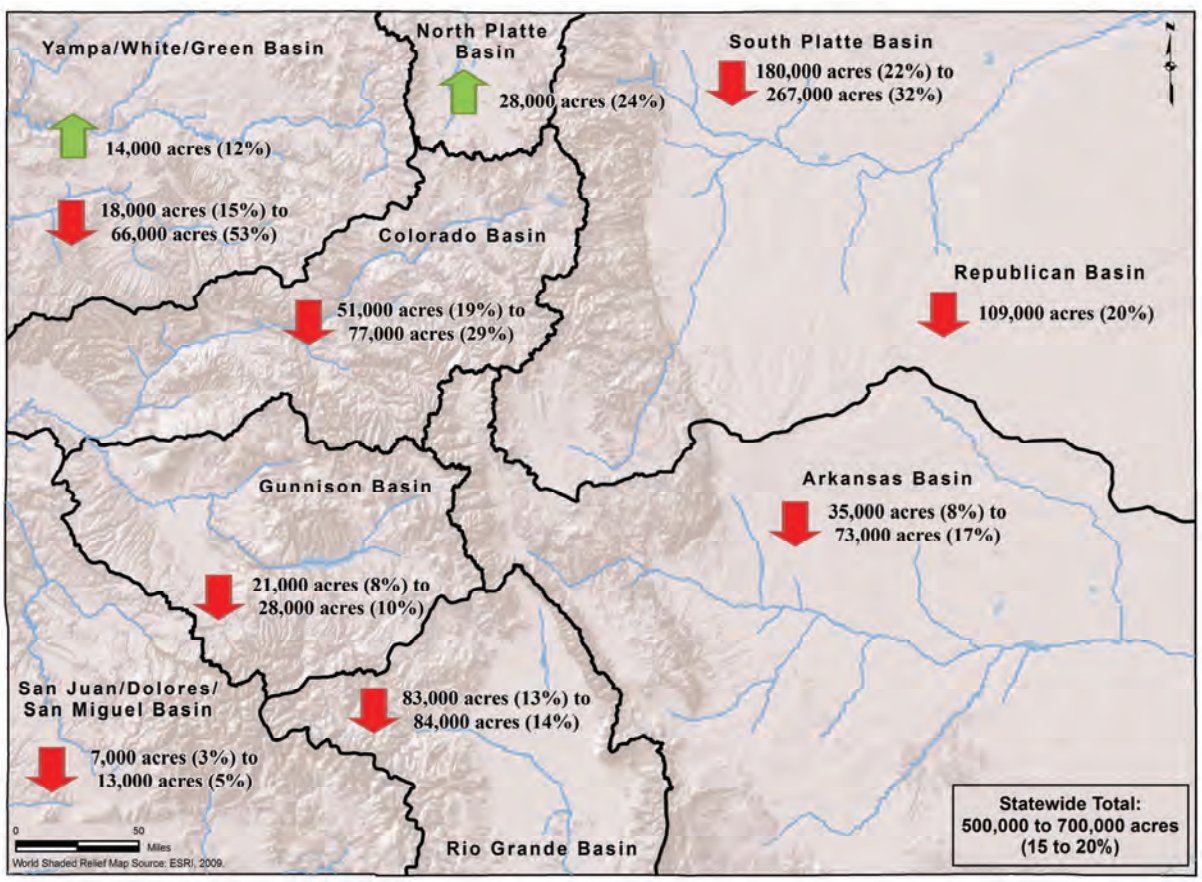


Figure ES-16 Potential Changes in Irrigated Acres by 2050

Table ES-4 summarizes the estimated average annual agricultural demand by basin for the year 2050, assuming that historical climate and hydrology continue into the future. It shows irrigated acres, IWR, WSL CU, shortage, and non-irrigation demand. Figure ES-17 shows the WSL CU and shortages by basin for the 2050 irrigated acres. Consistent with the projected decline in irrigated acres, declines in both irrigation and non-irrigation agricultural water demands are anticipated to occur in all basins except for the North Platte.

In 2050, Colorado's agricultural demands are projected to be approximately 4 million AFY as represented in Figure ES-17.

Projects and Methods to Meet Basin Needs

Projects and Methods to Meet M&I Consumptive Needs

The estimation of future M&I water supply gaps is dependent upon several factors, including current water use, forecasted future water use, and water provider predictions of new water supply that will be developed through identified projects and processes (IPPs). Statewide, these analyses were performed on a countywide basis and aggregated by basin roundtable area.

Table ES-4 Estimated 2050 Agricultural Demand by Basin

Basin	Irrigated Acres	Irrigation Water Requirement (AFY)	Water Supply-Limited Consumptive Use (AFY)	Shortage (AFY)	Non-Irrigation Demand (AFY)
Arkansas	373,000	862,000	476,000	386,000	49,000
Colorado	204,000	443,000	366,000	77,000	38,000
Gunnison	219,000	573,000	457,000	116,000	48,000
North Platte	145,000	250,000	140,000	110,000	14,000
Republican	441,000	640,000	480,000	160,000	5,000
Rio Grande	537,000	1,108,000	739,000	369,000	38,000
South Platte	607,000	1,094,000	820,000	274,000	84,000
Southwest	249,000	558,000	367,000	191,000	44,000
Yampa-White	85,000	209,000	170,000	39,000	17,000
Statewide Total	**2,860,000**	**5,737,000**	**4,015,000**	**1,722,000**	**337,000**

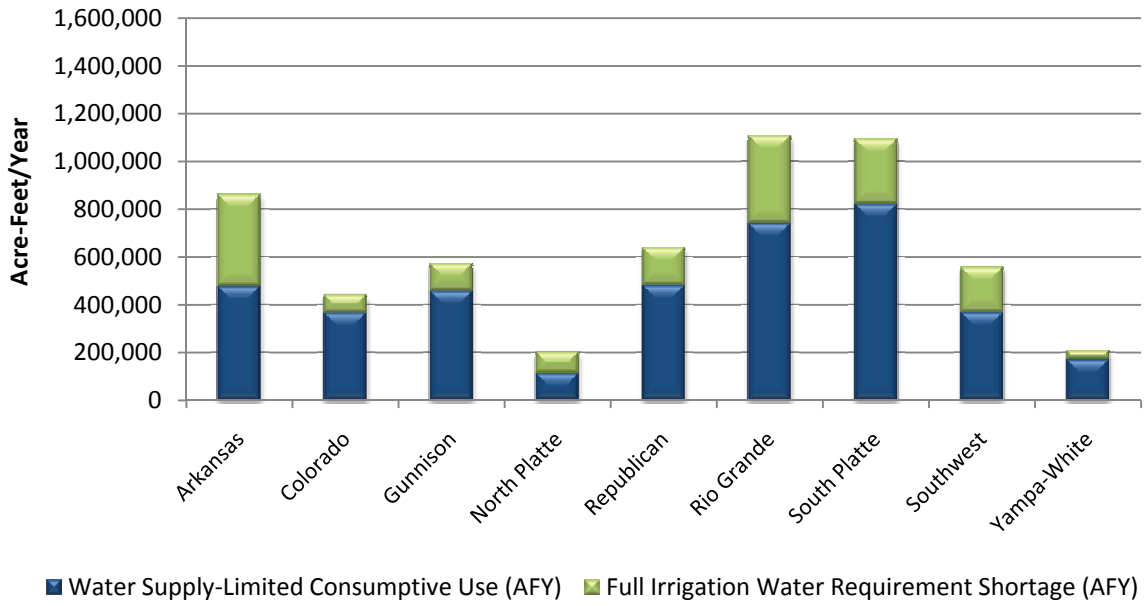


Figure ES-17 2050 Agricultural Demands and Shortages

Water providers throughout Colorado are pursuing water supply projects and processes to help meet future water demands. These IPPs, if successfully implemented, have the ability to meet some, but not all of Colorado's 2050 M&I water needs. IPPs are defined as projects and methods local water providers are counting on to meet future water supply needs. IPPs include:

- Agricultural water transfers
- Reuse of existing fully consumable supplies
- Growth into existing supplies
- Regional in-basin projects
- New transbasin projects
- Firming in-basin water rights
- Firming transbasin water rights

Table ES-5 identifies the anticipated range of IPP yield from each category for each basin at the 100 percent success rate.

As shown in Table ES-5, if 100 percent of the IPPs are successfully implemented they would provide 430,000 to 580,000 AFY. The largest categories of IPP yields by volume are projected to be regional in-basin projects (150,000 AFY to 170,000 AFY) and growth into existing supplies (100,000 AFY to 160,000 AFY). Figure ES-18 depicts the data graphically.

Implementation of these local projects and processes are critical to meeting Colorado's future water supply needs.

M&I Consumptive Gap Analysis

Colorado faces a significant M&I water supply gap in 2050. The M&I gap varies between 190,000 and 630,000 AFY depending on the success rate of the IPPs. By 2050, Colorado's M&I gap could be between 32 percent and 66 percent of new M&I demands.

Table ES-5 Major Categories of Identified Projects and Processes by Basin (Yields at 100% Success Rate) [1]

Basin	Agricultural Transfer (AFY)	Reuse (AFY)	Growth into Existing Supplies (AFY)	Regional In-Basin Project (AFY)	New Transbasin Project (AFY)	Firming In-Basin Water Rights (AFY)	Firming Transbasin Rights (AFY)	Total IPPs at 100% Success Rate (AFY)
Arkansas	9,200 – 11,000	23,000 – 32,000	2,300 – 2,600	37,000	0	6,100 – 7,300	10,000 – 11,000	88,000 – 100,000
Colorado	2,900 – 8,000	500	14,000 – 28,000	13,000 – 15,000	0	11,000 – 19,000	0	42,000 – 70,000
Gunnison	400 – 500	0	1,100 – 1,700	11,000 – 15,000	0	900	0	14,000 – 18,000
Metro	20,000 – 33,000	14,000 – 21,000	55,000 – 86,000	34,000 – 39,000	13,000 – 23,000	900 – 1,400	3,500 – 4,800	140,000 – 210,000
North Platte	0	0	100 – 300	0	0	0	0	100 – 300
Rio Grande	0	0	2,900 – 4,300	0	0	3,000 – 4,300	0	5,900 – 8,600
South Platte	19,000 – 20,000	5,000 – 7,000	20,000 – 30,000	37,000 – 39,000	0	22,000 – 26,000	18,000 – 21,000	120,000 – 140,000
Southwest	0	0	5,200 – 7,300	9,000 – 13,000	0	0	0	14,000 – 21,000
Yampa-White	0	0	3,500 – 4,900	6,600 – 9,000	0	0	0	10,000 – 14,000
Total	**51,000 – 73,000**	**43,000 – 61,000**	**100,000 – 160,000**	**150,000 – 170,000**	**13,000 – 23,000**	**44,000 – 58,000**	**32,000 – 37,000**	**430,000 – 580,000**

[1] Aggregated basin total values rounded to two significant digits to reflect increased uncertainty at larger geographic scales.

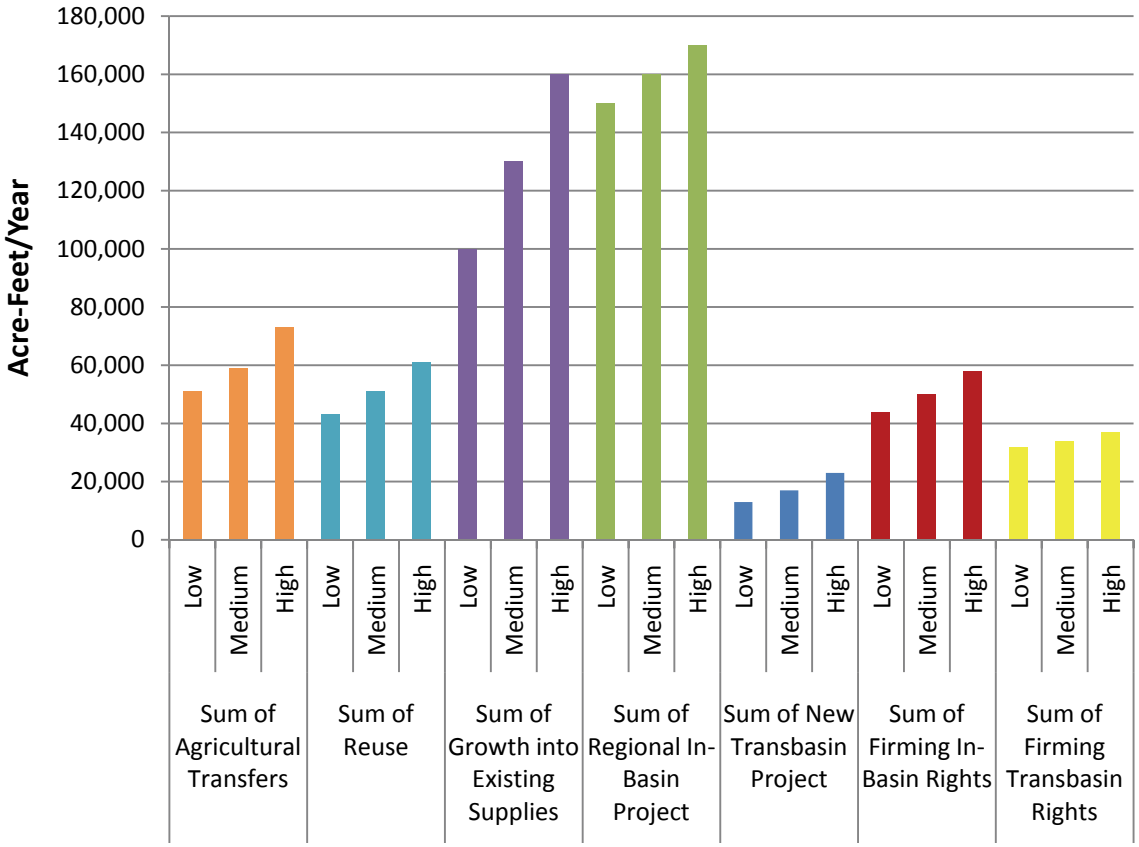


Figure ES-18 Statewide Summary of Yield for IPP Categories at 100 Percent Success Rate

Table ES-6 provides a summary of each basin's increased M&I and SSI demands relative to current conditions (defined for this study as 2008), the amount of that increase met by the IPPs, and the resulting M&I gap. The calculated gap values do not imply a future water supply shortfall; rather, the gap is representative of a future demand for which a project or method has not yet been identified.

SWSI 2010 estimated a low, medium, and high gap scenario. Under the low gap scenario (low demands and 100 percent IPP success rate), the statewide gap is 190,000 AFY. Under the medium gap scenario (medium demands and an alternative IPP success rate), the statewide gap is 390,000 AFY. Under the high gap scenario (high demands and status quo IPP success rate), the statewide gap is 630,000 AFY.

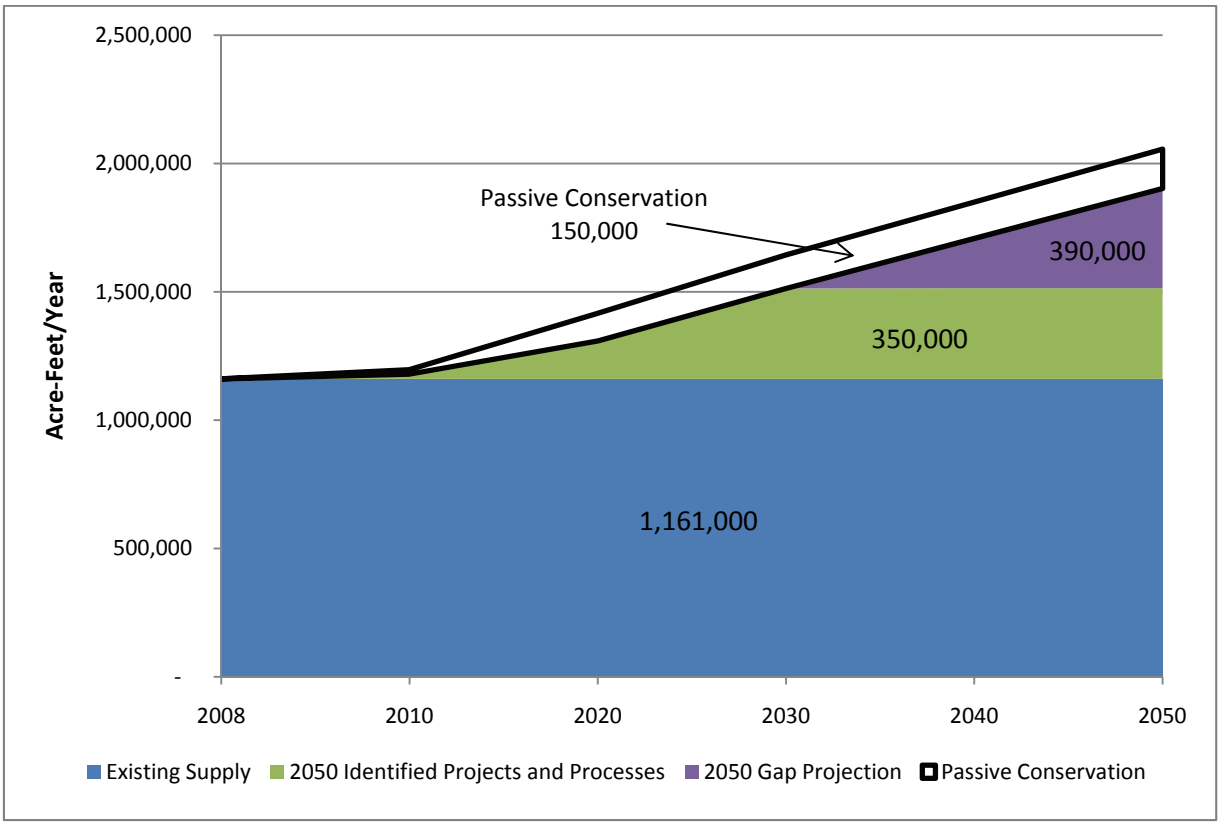
Figure ES-19 illustrates the timing of the M&I gap under the medium gap scenario. Colorado faces immediate M&I water supply needs. Under the medium gap scenario, these immediate needs are met with the successful implementation of the IPPs. The associated yield of the IPPs increases between 2010 and 2030. Under the medium gap scenario, the IPPs are implemented by 2030 and yield about 350,000 AFY. Without the successful implementation of additional IPPs, increases in demand after 2030 are assumed to be gap, leading to a 2050 M&I gap of 390,000 AFY.

This figure does not represent a definitive timeline. Instead, it represents the evolving temporal relationship between existing supplies, IPPs, and the gap, the sum of which is equal to total M&I and SSI demands at any point in time.

Table ES-6 Statewide M&I and SSI Gaps in 2050[1]

Basin	Increase in M&I and SSI Demand (AFY)			Estimated Yield of Identified Projects and Processes (AFY)			Estimated Remaining M&I/SSI Gap after Identified Projects and Processes (AFY)		
				100% IPP Success Rate	Alternative IPP Success Rates	Status Quo IPP Success Rates	Gap at 100% IPP Success Rate	Gap at Alternative IPP Success Rates	Gap at Status Quo IPP Success Rates
	Low	Med	High	Low	Med	High	Low	Med	High
Arkansas[2]	110,000	140,000	170,000	88,000	85,000	76,000	36,000	64,000	110,000
Colorado	65,000	82,000	110,000	42,000	49,000	63,000	22,000	33,000	48,000
Gunnison	16,000	19,000	23,000	14,000	14,000	16,000	2,800	5,100	6,500
Metro[3]	180,000	210,000	280,000	140,000	97,000	100,000	63,000	130,000	190,000
North Platte	100	200	300	100	200	300	0	20	30
Rio Grande	7,700	9,900	13,000	5,900	6,400	7,700	1,800	3,600	5,100
South Platte	160,000	180,000	230,000	120,000	78,000	58,000	36,000	110,000	170,000
Southwest	20,000	25,000	31,000	14,000	13,000	15,000	5,100	12,000	16,000
Yampa-White	34,000	48,000	95,000	10,000	11,000	13,000	23,000	37,000	83,000
Total	**590,000**	**710,000**	**950,000**	**430,000**	**350,000**	**350,000**	**190,000**	**390,000**	**630,000**

[1] Aggregated basin total values rounded to two significant digits to reflect increased uncertainty at larger geographic scales
[2] Arkansas gaps include additional 13,500 AFY for Urban Counties replacement of nonrenewable groundwater supplies.
[3] Metro gaps include additional 20,850 AFY for South Metro replacement of nonrenewable groundwater supplies.



ES-19 Statewide M&I and SSI Gap Summary Medium Scenario (IPPs at 70% Yield)

Figure ES-20 illustrates the relative percentages of 2050 net new water needs occupied by IPPs and the gap for each basin for the medium gap scenario. The pie chart shown on the map for each basin is scaled to represent the magnitude of the 2050 medium demand, the blue represents the yield from the IPPs under the medium IPP success rate for each basin, and red represents the remaining gap.

Projects and Methods to Meet Nonconsumptive Needs

Similar to the M&I IPPs, CWCB conducted an analogous outreach effort with the environmental and recreational community and the basin roundtables to identify nonconsumptive projects and methods. CWCB digitized the project information into a geographic information system and compared this information with the nonconsumptive focus areas summarized previously. With this information, CWCB preliminarily identified nonconsumptive focus areas with and without projects and methods. Note that if a focus area does not have an associated project and method it does not mean that the area is in need of a protective project or method. Conversely, if an area does have one or more projects and methods, it does not mean it is sufficiently protected. The basin roundtables will use this information as they finalize their needs assessments during 2011. This information is intended to assist the basin roundtables in addressing the following questions:

1. Are there existing protections/efforts for environmental and recreational focus areas?
2. Are there areas without protections that need further study?

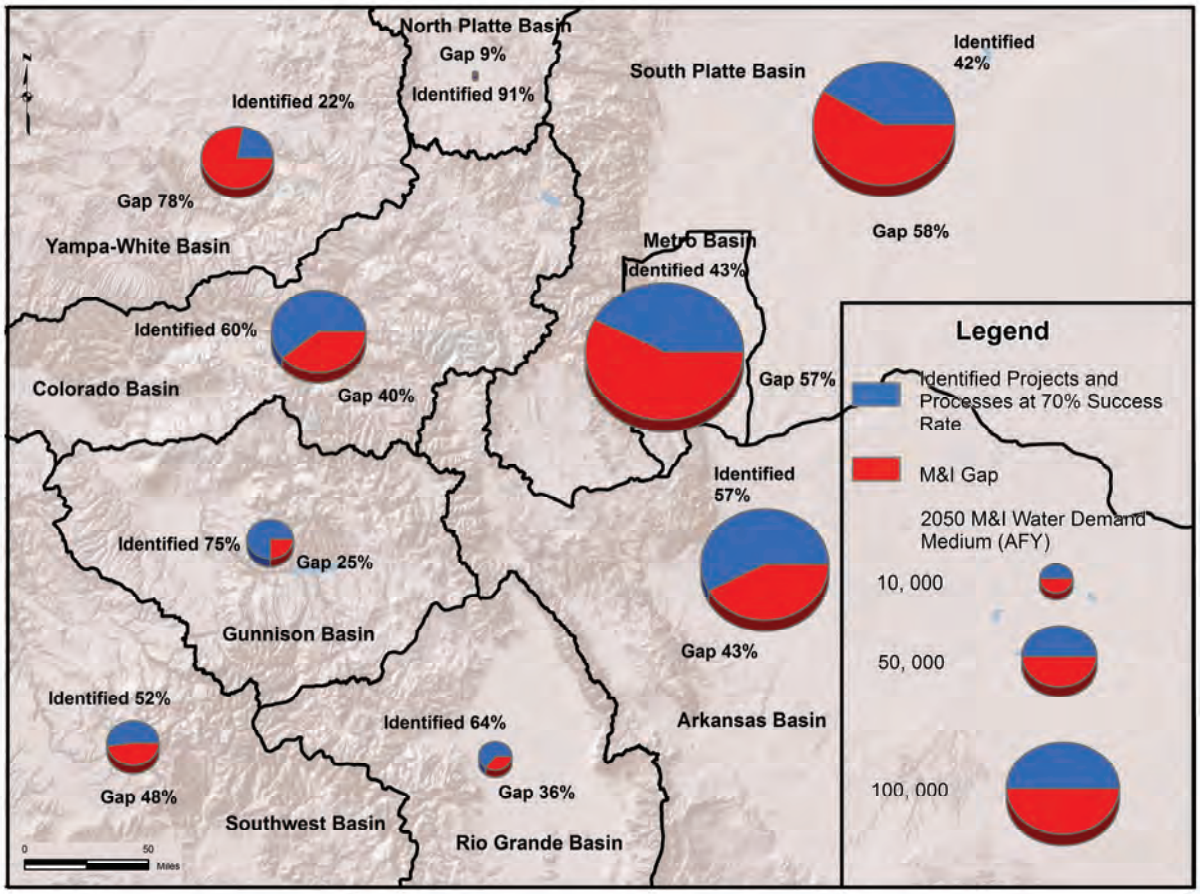


Figure ES-20 2050 M&I and SSI Gap Analysis – Medium Gap Scenario

3. What strategies are needed to support nonconsumptive priority areas?
4. Are there areas where new flow or water level quantification is appropriate?
5. Are there areas where a project, whether structural (e.g., river restoration) or nonstructural, can be identified and implemented?
6. Are there areas where no action is needed at this time?

In summary, environmental and recreational values will continue to be important to the state's economy and quality of life. Although Colorado has many existing projects and methods aimed at meeting these nonconsumptive values, additional projects and methods will be needed to meet Colorado's nonconsumptive water supply needs, especially in warmer waters with endangered, threatened, and imperiled species.

Key findings are:

- Nonconsumptive focus areas were identified on 33,000 miles of streams and lakes in the state with water related environmental and recreational values. Nearly one-third of these focus areas have an identified project or method to support one or more of the nonconsumptive values in the area.
- The focus areas include 12,000 stream miles that have cold water fisheries (e.g., cutthroat trout species and important fishing areas). Of these, nearly 50 percent have an identified project or method to support those values.
- The focus areas include 11,000 stream miles that have warm water fisheries (e.g., Colorado River endangered fish, and species of special concern, such as roundtail chub and Arkansas darter). Of these, approximately 30 percent have an identified project or method to support those values.

Water Availability

Surface Water Supply Availability

Supplies are not necessarily where demands are and localized shortages exist, especially in headwaters areas. Colorado River compact entitlements are not fully utilized. In the South Platte, Arkansas, and Rio Grande Basins, unappropriated water is extremely limited.

The Colorado River Water Availability Study confirmed planning ranges that may be available from the Colorado River system to meet future needs and identified local water availability throughout the Colorado River Basins. Projects and methods to manage risk will be needed in order to develop new water supplies in the Colorado River system.

Groundwater Supply Availability

Between now and 2050, there will need to be a decreased reliance on nonrenewable, nontributary groundwater as a permanent water supply. Without this, there are reliability and sustainability concerns in some areas, particularly along the Front Range.

In addition to meeting future M&I water needs, the South Metro area and northern El Paso County will need to replace nearly 35,000 AFY of nontributary groundwater with a renewable water supply.

Portfolios and Strategies to Address the M&I Gap

CWCB recognizes that Colorado faces significant and immediate water supply challenges and should pursue a mix of solutions to meet the

state's consumptive and nonconsumptive water supply needs.

Because of the growing M&I demands and the need to sustainably meet Colorado's nonconsumptive and agricultural water supply needs, the CWCB, IBCC, and Colorado's water community began a visioning process in 2008. Colorado's water community asked itself, if we let Colorado's water supply continue to develop according to current trends and existing policy, what will our state look like in 50 years? Is this our vision of the future of Colorado and if not, what can and should we do to effect changes? The visioning process included three parts—1) a Vision Statement; 2) Vision Goals; and 3) Water Supply Strategies.

The draft Vision Goals, which constitute Colorado's water management objectives, are as follows:

- Meet M&I demands
- Meet agricultural demands
- Meet Colorado's environment and recreation demands
- Encourage cooperation between water supply planners and land use planners
- Encourage more cooperation among all Colorado water users
- Optimize existing and future water supplies by:
  - Considering conservation as a baseline water supply strategy
  - Minimizing non-beneficial consumptive use (evaporation, nonnative phreatophytes, etc.)
  - Maximizing successive uses of legally reusable water
  - Maximizing use of existing and new in-basin supplies
- Promote cost-effectiveness by:
  - Allocating costs to all beneficiaries fairly
  - Achieving benefits at the lowest cost
  - Providing viable financing mechanisms, including local, state, and federal funding/ financing
  - Mitigating third-party economic impacts
- Minimize the net energy used to supply water, including both the energy used and/or generated with raw water delivery, and the energy used for treatment
- Protect cultural values by:
  - Maintaining and improving the quality of life unique to each basin
  - Maintaining open space
- Provide operational flexibility and coordinated infrastructure
- Promote increased fairness when water is moved between basins by:
  - Benefiting both the area of origin and the area of use
  - Minimizing the adverse economic and environmental impacts of future water projects and water transfers
- Comply with all applicable laws and regulations, meet all applicable compact obligations, and protect water rights including the right of water right owners to market their water, while recognizing some institutional changes may be needed to implement certain strategies
- Educate all Coloradoans on the importance and scarcity of water, and the need to conserve, manage, and plan for needs of this and future generations

The CWCB and IBCC have utilized the visioning process to address Colorado's future M&I Gap. As discussed previously, Colorado will need an additional 190,000 to 630,000 AFY beyond what is currently being planned for by local water providers in order to meet future M&I water demands and replace reliance on nonrenewable groundwater.

The visioning process led to the realization that the current approach for water management—the status quo—will not lead to a desirable future for Colorado. The status quo will likely lead to large transfers of water from agricultural to municipal uses. Maintaining the status quo could result in loss of agricultural lands, harm to ecosystems and

recreation based economies, water-inefficient land use decisions, and continued paralysis on water supply projects. In addition, costs associated with the status quo could cost Colorado's citizens billions of dollars more than a coordinated approach.

With the general agreement that the status quo approach to water management will not lead to a desirable future for Colorado, the IBCC and CWCB began scenario planning. Traditional planning efforts typically examine one predictive future. The scenario planning process is not intended to represent forecasts of the future, but to represent a wide range of potential future conditions that may impact M&I water supply and demand. A summary of the future scenarios is summarized in Figure ES–21.

As described above, the portfolio approach considers different future conditions and combinations of water supply strategies to address each scenario. Each ***scenario*** represents a different, but plausible, representation of circumstances that would result in differing statewide consumptive and nonconsumptive water demand and water supply. As shown in Figure ES-21, seven different future scenarios are being considered. ***Portfolios*** are combinations of strategies that collectively meet statewide water demands. Portfolios can be developed for each future scenario. ***Strategies*** are broad categories of solutions for meeting Colorado's consumptive and nonconsumptive water supply needs and include demand side strategies and supply side strategies. To date, the CWCB and IBCC have considered strategies for conservation, agricultural transfers, and new water supply development. Finally, the CWCB, IBCC, and basin roundtables have identified projects and methods to meet their future consumptive and nonconsumptive needs. ***Projects and methods*** are specific actions that help implement each strategy.

For example, a water project helps implement a new water supply development strategy, a rotational fallowing program helps implement an agricultural transfer strategy, and a block rate pricing program helps implement a conservation strategy.

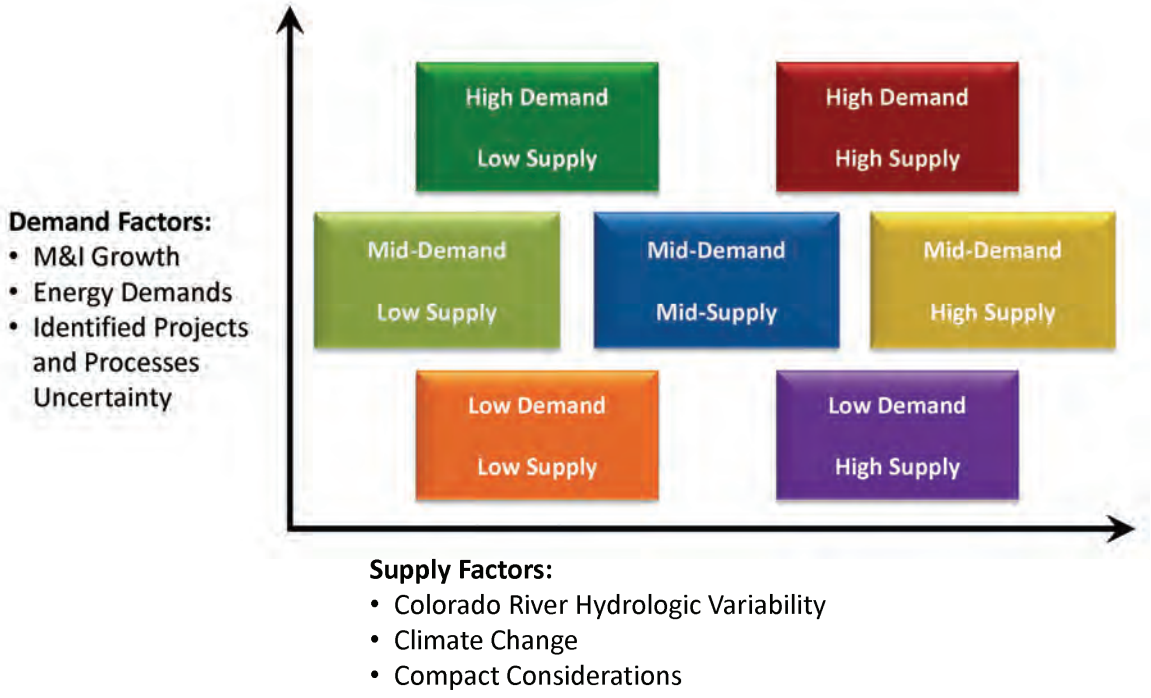
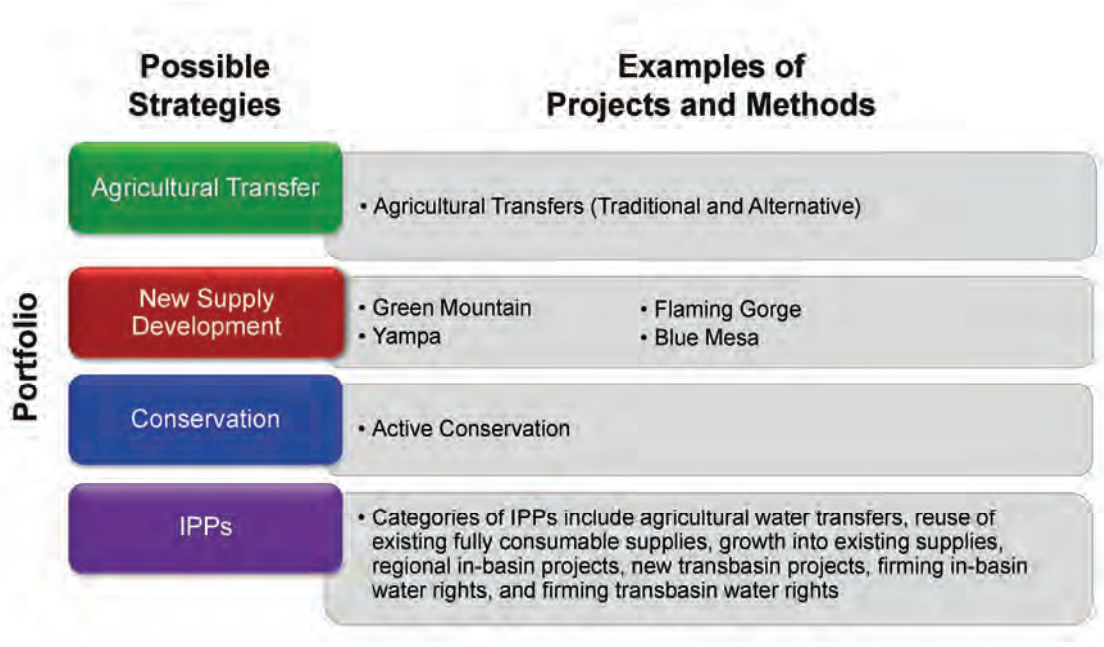


Figure ES-21 Colorado's Water Supply Future Water Demand and Supply Scenario

Figure ES-22 summarizes the portfolio elements that can be used to address future M&I demands. The left side of the figure shows the general category of the portfolio elements—agricultural transfer, new supply development, conservation, and IPPs. These portfolio elements represent strategies to address future M&I demands. The right side of the figure shows example projects and methods that could be used to implement the strategies.

After examining the trade-offs associated with the status quo portfolio, which relies mostly on traditional transfers of agricultural water to municipal uses using the portfolio and trade-off tool, the CWCB and IBCC found that it is clear that no one strategy can meet Colorado's growing water needs without harming values important to all Coloradoans. Therefore, a mix of solutions is needed and this mix of water supply solutions should include all four sources to meet the water supply gap in Colorado—conservation, IPPs, agricultural transfers, and new supply development—while also protecting Colorado's significant water-dependent ecological and recreational resources.

In summary, because the CWCB and IBCC have agreed that if Colorado's water supply continues to develop according to current trends, i.e., the status quo, this will inevitably lead to a large transfer of water out of agriculture resulting in significant loss of agricultural lands and potential harm to the environment. Providing an adequate water supply for Colorado's citizens, agriculture, and the environment will involve implementing a mix of local water projects and processes, conservation, reuse, agricultural transfers, and the development new water supplies, all of which should be pursued concurrently. To help weigh the trade-offs between possible mixes of strategies, the CWCB developed preliminary information for the following strategies— conservation, alternative and traditional agricultural transfers, and new supply development. It should be noted that at this time the CWCB and IBCC have agreed that a mix of strategies and solutions are necessary to meet Colorado's future M&I demands, however agreement has not been reached on what an alternative portfolio should include.



Fiaure ES-22 Portfolio Elements to Address Colorado's Future M&I Demands

Conservation Strategy

Water conservation will be an important tool for meeting future M&I demands, and is one piece of a larger water supply portfolio.

The CWCB defines water conservation as those measures and programs that provide for measurable and verifiable permanent water savings[1]. The purpose of the information provided in the conservation strategy is to update the range of potential future water conservation savings since SWSI 1 and 2, provide water conservation strategies that may contribute toward meeting the projected 2050 M&I water supply gap, and help address Colorado's future M&I water needs.[2]

The potential for future conservation by the year 2050 was estimated for three distinct conservation strategy scenarios titled simply—low, medium, and high. The conservation strategy looked at the potential savings from water conservation measures but did not determine the portion of those savings that could potentially be utilized toward meeting a future water supply gap. Water savings in 2050 were forecast for each river basin in Colorado using a conditional demand forecasting methodology that employed a set of efficiency targets, sectoral demand reductions, and assumed implementation rates. Each strategy includes an overview of the conservation measures and programs that could be implemented to achieve a range of efficiency targets (for indoor use) and estimated sectoral conservation savings that were based upon the best available literature and data on demand management. The conservation savings forecasts are conditional and rely on an assumption of implementation at the described levels in order to achieve the overall estimated savings level. The SWSI levels analysis of statewide passive water conservation potential showed that by 2050 demands will likely be reduced by about 150,000 AFY through the natural replacement of toilets, clothes washers, and other standard domestic fixtures. These passive savings are embedded in all three conservation strategies, but passive and active water savings estimates are presented separately (in Table ES-7) to help ensure double counting of water savings does not occur in the future as these estimates are used.

The conservation savings forecasts presented in the conservation strategy are intended for statewide planning purposes and are not intended to replace water conservation and water resources planning and projections prepared by local entities. There are also other important caveats and assumptions regarding the water conservation strategies that should be understood so that the results are not misinterpreted or misapplied.

Conditional Statewide Strategies to Assess Conservation Potential – These three strategies were used to prepare a conditional demand forecast. The savings estimates presented are expected to be achieved if the programs and measures described are implemented at the specified level across the entire state. The medium and high strategies in particular will require a significant and sustained effort in order to achieve the forecast water savings. The forecasting assumptions do not reflect differences that exist between individual water providers. Each water provider in Colorado is distinct and it is anticipated that over the next 40 years water conservation will be implemented differentially across the state. In order to prepare statewide forecasts of conservation potential it was assumed that the potential to conserve water may exist irrespective of an individual water provider's need or desire to conserve.

[1] Under this definition, water conservation may include measures and programs that are being implemented for political reasons and/or to improve customer satisfaction.

[2] Colorado's 2050 M&I water demands include water demands associated with SSI users – large industrial users that have their own water supplies or lease raw water from others. The potential water conservation savings provided in this SWSI 2010 update include only savings from the M&I demands associated with a typical municipal system. Potential SSI water savings are not estimated.

Table ES-7 Statewide Forecast Water Savings (separating passive and active) Potential from SWSI 1 and SWSI 2010[1]

Project	Level	2030 Forecast Savings[2] (AFY)	2050 Forecast Savings[2] (AFY)
SWSI Phase 1	Level 1 (Passive)	101,900	NA
	Level 2 (active only)	68,633	
	Level 3 (active only)	170,952	
	Level 4 (active only)	341,485	
	Level 5 (active only)	597,283	
SWSI 2010	Passive[3]	131,000	154,000
	Low (active only)	78,000	160,200
	Medium (active only)	133,000	331,200
	High (active only)	197,100	461,300

Notes:

1 Total water savings potential included, which does not decipher the portion of the savings that may be available to meet demands associated with new population versus other planning uses such as drought reserve.

2 Volumes savings estimates are total cumulative and include passive savings (e.g., SWSI 1, Level 3 savings build upon Levels 1 and 2; SWSI 2010, medium savings build upon low savings).

3 From SWSI levels analysis.

In reality, some providers will need little if any conservation savings to meet future demands while others will seek substantial demand reductions.

Permanency of Existing Conservation Efforts – The water savings projections in this report are conditioned on post-drought baseline demands, and assume water conservation savings since the 2002 drought period will be sustained into the future. The permanency of post-drought related reductions in water use is uncertain. Some of this uncertainty may be resolved as additional water utility-level data are obtained and further investigated. Additional and improved data is anticipated through future utility water conservation plans and under data reporting requirements established in Colorado HB 10-1051.

Climate Change Not Considered – The impacts of climate change on water demands were not included in this analysis. Time and budgetary limitation did not allow for this complexity to be included. Climate change is an important factor for consideration in conjunction with future water demands and should be included in subsequent forecasting efforts.

The Future is Uncertain and Water Use May Change – It is impossible to predict all of the technological and cultural changes that could occur over the next 40 years, which might impact water use. The trends over the past 15 years have been towards greater efficiency and lower use and at this moment in time, there is no indication that these trends will not continue. However, it is possible that new uses for water could emerge in the future, which might increase municipal demand (e.g., increased use of evaporative cooling, increased installation rates of swimming pools, spas, and/or multi-headed showering systems). Unanticipated demand increases could counteract some of the savings estimated in this report, even if conservation programs are implemented at the specified levels. Similarly, technology could also serve to reduce future water demands below those estimated here. Updating the baseline condition and demand forecasts regularly is the best way to incorporate unanticipated future changes.

Uses of Conserved Water Are Not Assumed – No assumptions have been made about the portion of the water savings forecast in this report that could potentially be utilized toward water supply, serving new customers, or meeting the M&I gap. Each water provider must decide how best to apply water garnered from demand reductions within their individual water supply portfolio. Utilities will need to make these decisions based on their integrated water resources planning efforts, consideration of their

system's reliability throughout drought periods, impacts of conservation on their return flows and availability of reusable supplies, effectiveness of water rates and impacts to their revenue streams, and other local considerations. Subsequent efforts will be needed to help determine what portion of active conservation savings can be applied to the M&I gap.

Impacts from New Construction – A substantial number of new homes and businesses will be constructed throughout the state between now and 2050. The projections provided for this basin-level planning effort do not distinguish between savings that will be achieved from existing versus new construction. Actual savings may be attributed more to higher efficiency new construction in portions of the state, particularly where more dense development occurs.

Land Use and Water Supply Planning

In 2009, the CWCB and the Western States Water Council conducted a Water and Land Use Planning symposium. This symposium brought together diverse participants from special districts, cities and counties, state and federal agencies, and nongovernmental organizations, including policy and decision-makers, planners, developers, and regulators to look at water and land use patterns, share experiences and concerns, identify problems and potential solutions, discuss obstacles and opportunities, and develop recommendations to better integrate and scale water and land use planning for a sustainable future. The group attending the symposium acknowledged that integrating water and land use planning at different scales is increasingly important as we strive to meet challenges related to growth, change, and sustainability in the arid West.

Overview of New Supply Development and Agricultural Transfer Strategies

In addition to conservation and the implementation of IPPs, the other portfolio elements include the transfer or agricultural water to M&I use and the development of new water supplies from the Colorado River system. The basic attributes of possible projects to implement the agricultural transfer and new supply development strategies are presented in Table ES-8 below and shown in Figure ES-23. Each of these concepts is based on projects that have been discussed in the past but may or may not be implemented.

For the Lower South Platte and Lower Arkansas concepts, the cost of water rights may decrease the further downstream the diversion is from urban areas; however, conveyance and treatment costs will increase accordingly. For the Flaming Gorge and Blue Mesa concepts, water supply would be acquired through the Bureau of Reclamation (BOR) marketable pool for each reservoir. For the other new supply development concepts the water supply would be a new acquisition. For both the Lower South Platte and Lower Arkansas concepts, reverse osmosis (RO) or advanced water treatment would be required due to source water quality. The new supply development concepts would not require advanced water treatment.

Table ES-8 New Supply Development and Agricultural Transfer Concept Attributes

Concept	Water Source/Water Rights	Conveyance and Storage	Water Quality and Treatment Costs
Lower South Platte	• South Platte agricultural rights	• 36 to 84 mile pipeline with static pumping requirement of 700 to 1,300 feet • Firming storage required	• RO or advanced water treatment will be required
Lower Arkansas	• Arkansas agricultural rights	• 96 to 133 mile pipeline with static pumping requirement of 3,100 to 3,600 feet • Firming storage required	• RO or advanced water treatment will be required
Green Mountain	• Blue River water in the Colorado River basin as well as new South Platte water rights	• 22 mile pipeline with static pumping requirement of 1,100 feet • Firming storage required	• Conventional treatment technology
Yampa	• New water rights appropriation	• 250 mile pipeline with static pumping requirement of 5,000 feet • Firming storage required	• Conventional treatment technology
Flaming Gorge	• Contract with BOR for water from the Flaming Gorge marketable pool	• 357 to 442 mile pipeline with static pumping requirements of 1,400 to 3,100 feet • Firming storage required	• Conventional treatment technology
Blue Mesa Reservoir	• Contract with BOR for water from the Aspinall marketable pool	• 81 mile pipeline with static pumping requirement of 3,400 feet • Firming storage required	• Conventional treatment technology

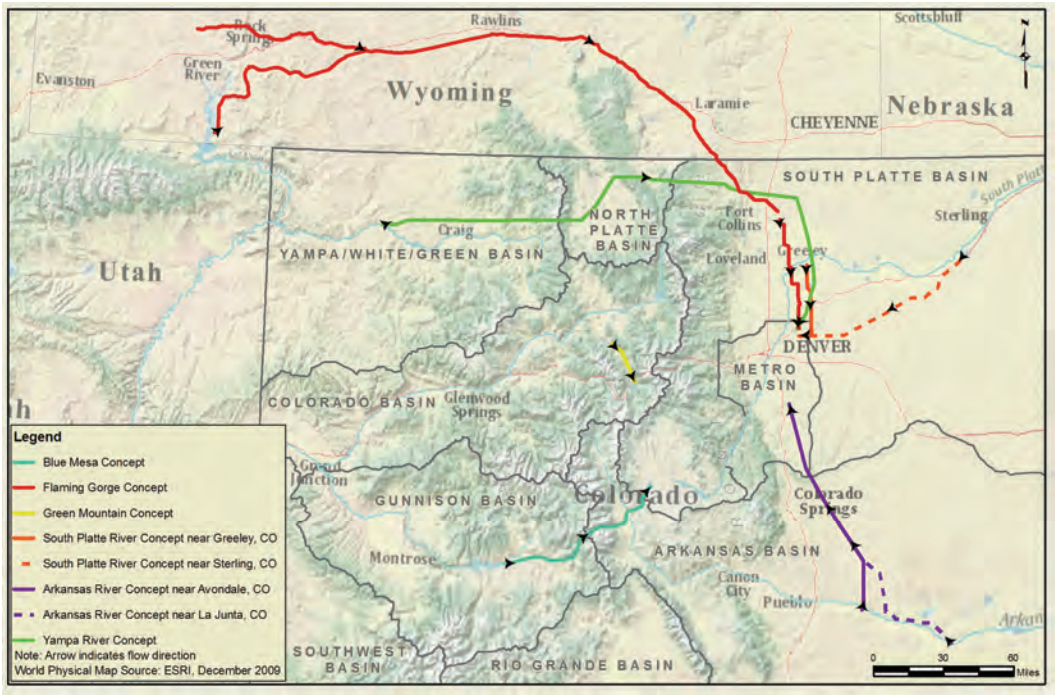


Figure ES-23 Overview of New Supply Development and Agricultural Transfer Concepts

Reconnaissance Level Capital and Operation and Maintenance Costs

With exception of the Green Mountain concept, which was assumed to deliver 68,000 AFY in a single phase, reconnaissance level cost estimates were developed for each of the concepts described above based on three options:

- Option 1: delivery of 100,000 AFY constructed in a single phase
- Option 2: delivery of 250,000 AFY constructed in a single phase
- Option 3: delivery of 250,000 AFY constructed with the first phase delivering 100,000 AFY and the second phase delivering the remaining 150,000 AFY

Key elements for each water supply concept were identified and evaluated using uniform assumptions to determine infrastructure requirements and sizing for the reconnaissance cost estimates. The following key elements were considered for each option—water rights, firming storage, transmission facilities (including pipelines, pump stations, and tunnels), diversion structures, water treatment, reuse, and engineering, legal and administrative costs including permitting.

Figure ES-24 shows the summary of the reconnaissance level capital costs for each of the concepts. The range of capital costs for all of the concepts is $840 million (Green Mountain) to $9.8 billion (Flaming Gorge Option 3). Although the new supply development concepts and agricultural transfer concepts are similar in total capital costs for each of the options, the relative percentages of subcomponent capital costs vary. For the agricultural transfer concepts, the majority of the capital cost is comprised of water rights acquisitions. For the new supply development concepts, the majority of the capital costs are associated with pipeline and pump stations.

Operation and maintenance costs for each concept are summarized in Figure ES-25.

Reconnaissance level annual operation maintenance range from $29 million per year (Green Mountain) to $273 million per year (Arkansas Option 3). The variability between concepts is due primarily to conveyance costs but differences between conventional treatment (Yampa, Blue Mesa, Green Mountain, and Flaming Gorge) and RO with zero liquid discharge (South Platte and Arkansas) also contribute to the variation.

Reconnaissance Life Cycle Costs

CWCB also developed reconnaissance level life cycle costs for all concepts. Life cycle costs allow comparison of not only the capital costs, but also the operational costs associated with the concepts, all brought back to present value in order to evaluate the long range economic feasibility of each concept. CWCB utilized the following key assumptions for the life cycle cost analysis:

- Planning period – 50 years after completion of construction
- Present worth – capital and operating costs brought based to 2009
- Capital costs expended in 2020, with operation and maintenance starting in 2021 for options 1 and 2
- Capital costs expended in 2020, with operation and maintenance starting in 2021 for Phase 1 of Option 3 and 2040, with operation and maintenance starting in 2041 for Phase 2 of Option 3
- Discount rate, or cost of money – 6 percent
- Escalation – Capital items (3 percent), annual operation and maintenance (3 percent), and energy (5 percent)
- 2009 energy costs ($/kilowatt hour) - $0.08

In addition to initial capital costs, CWCB considered replacement costs for the constructed facilities if the replacement was required during the 50-year planning period.

Figures ES-26 and ES-27 provide a summary of the total life cycle costs and the total life cycle costs per acre-foot of water developed by each concept.

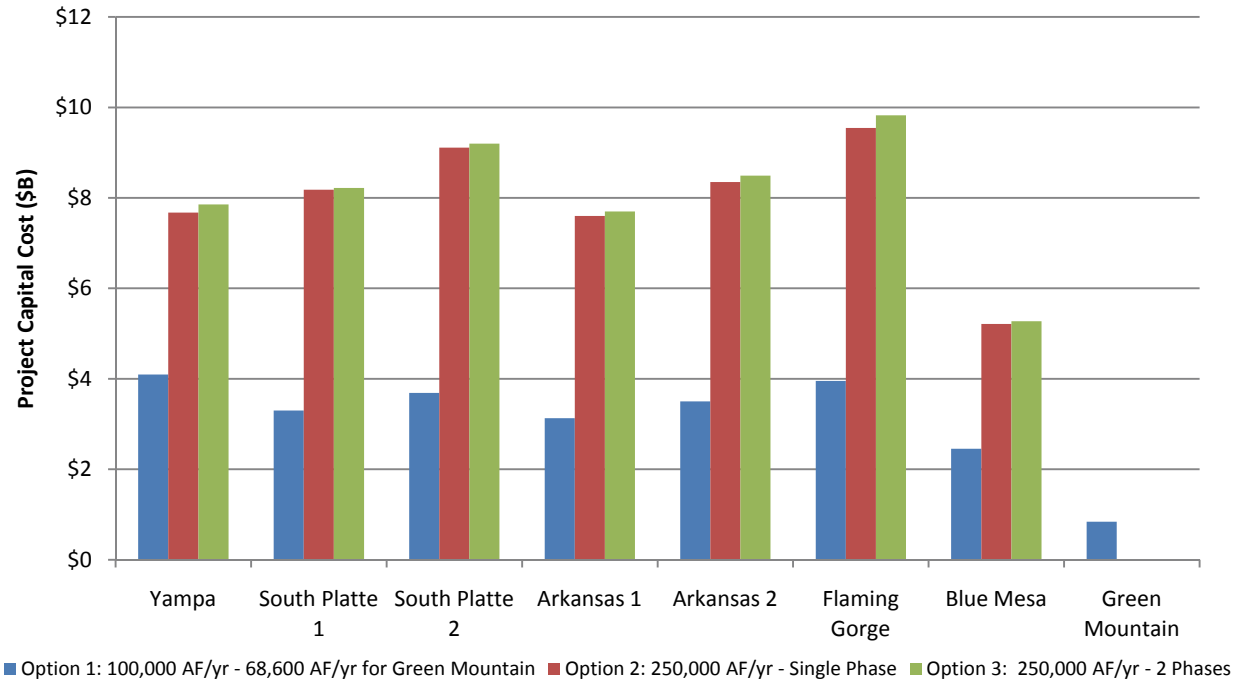


Figure ES-24 Summary of Reconnaissance Capital Costs

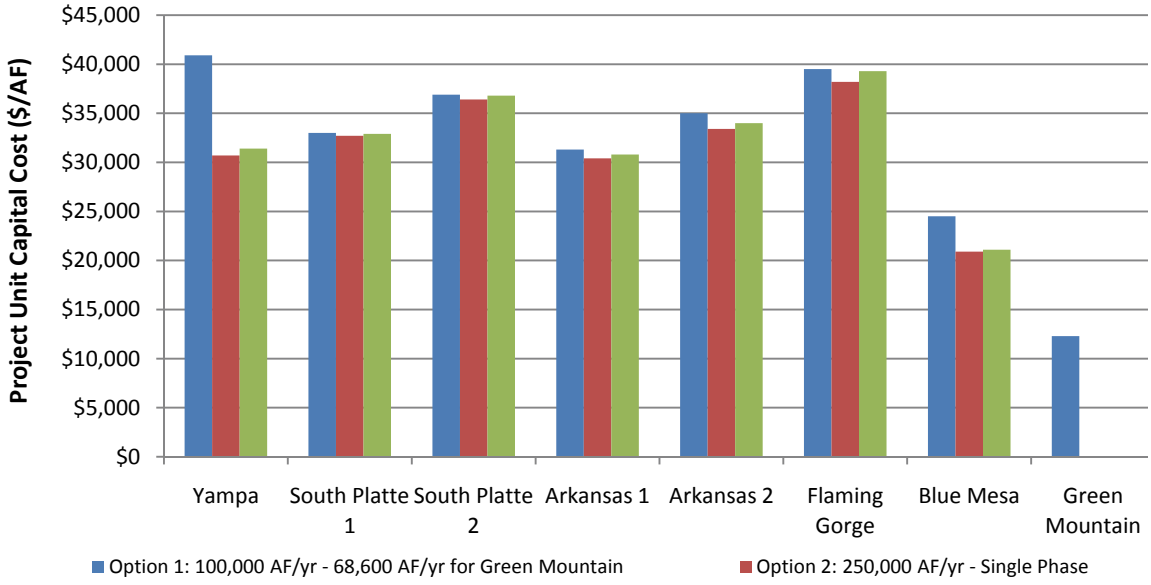


Figure ES-25 Summary of Reconnaissance O&M Costs

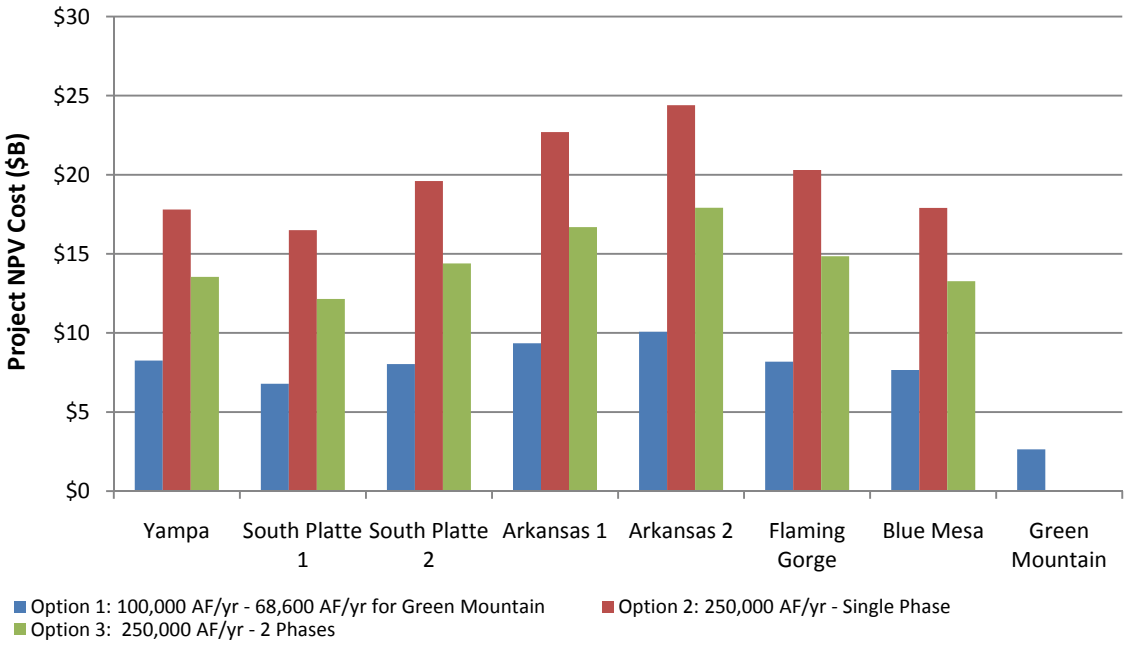


Figure ES-26 Summary of Reconnaissance Life Cycle Costs

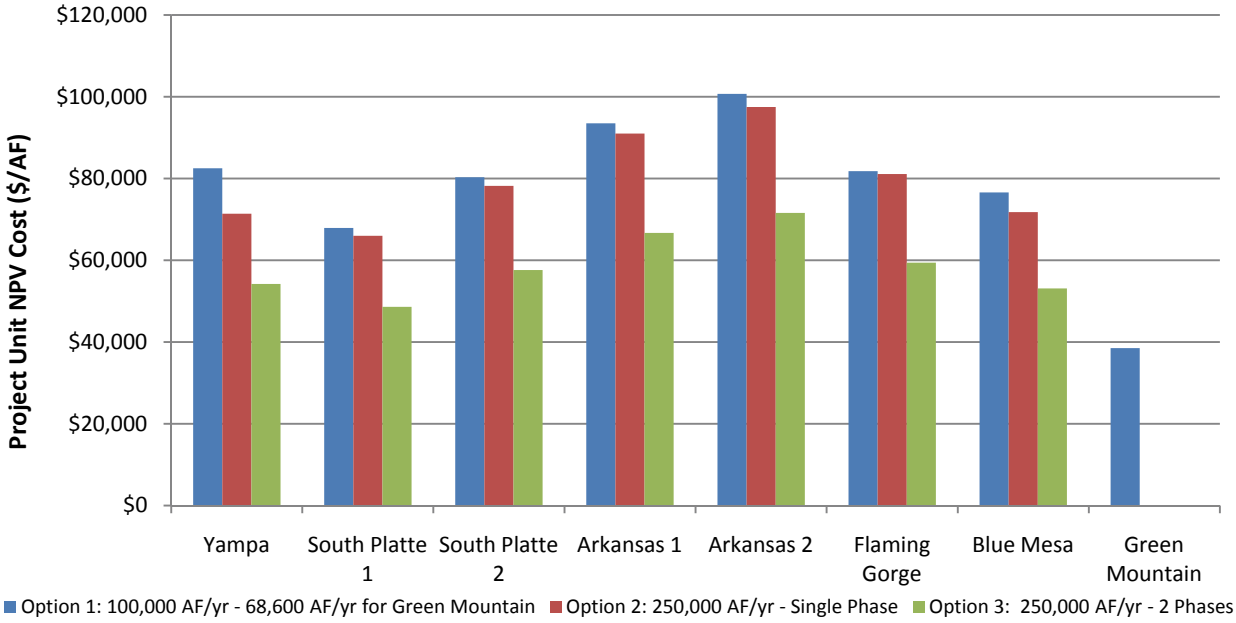


Figure ES-27 Summary of Reconnaissance Life Cycle Unit Costs

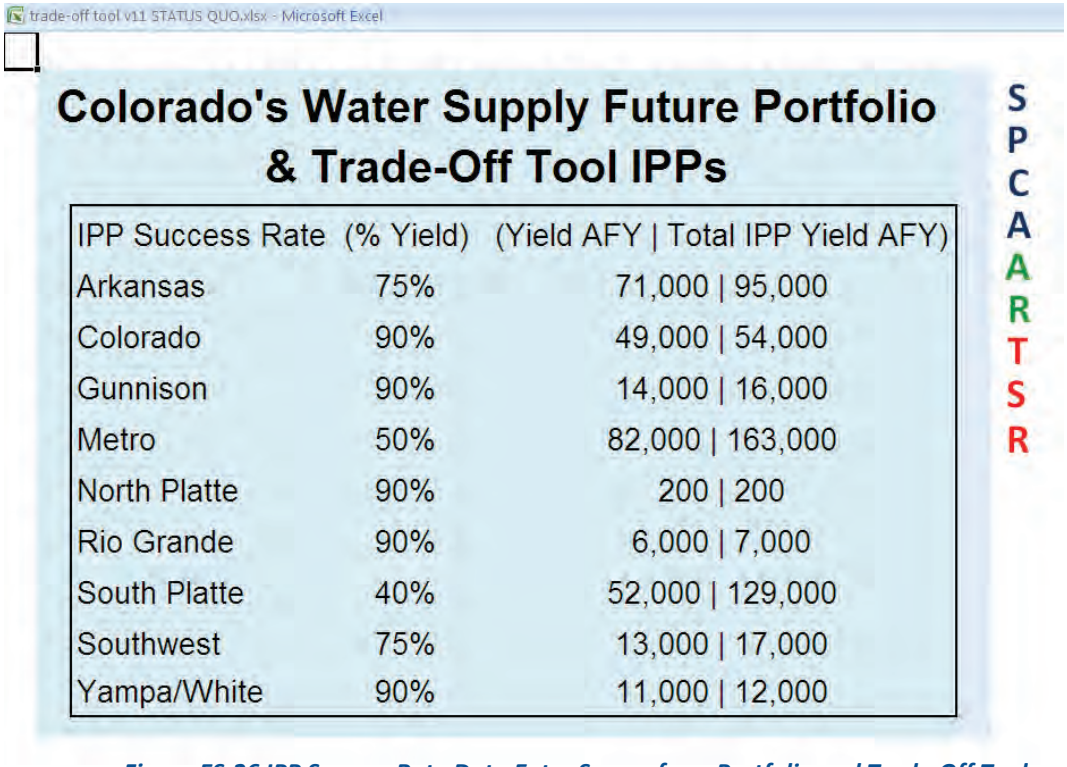
These figures show that the least expensive concept is Green Mountain and most expensive is either Arkansas concept. The Arkansas concepts are most expensive due to the annual treatment costs that would be associated with them. The remaining concepts generally have similar life cycle costs.

Status Quo Portfolio

If Colorado's water supply continues to develop according to current trends, i.e., the status quo, this will inevitably lead to a transfer of water out of agricultural lands and potentially harm the environment. The status quo is the default position—the results that will likely occur if current trends continue unchanged. Inaction is a decision itself, a decision with significant consequences. The general consensus is that the status quo scenario is not a desirable future for Colorado.

The summary below is an illustration of the status quo using the portfolio and trade-off tool. This tool was developed to evaluate water supply portfolios. The status quo scenario presented is based on the following assumptions:

- 2050 mid-demand scenario.
- The status quo IPP success by basin is defined in Figure ES-26. Applying these basin level success rates results in the implementation of about 60 percent of the IPP yield statewide by 2050.
- Passive conservation savings will be realized by 2050 and those savings will be used to meet new demands. Active conservation will not be utilized toward water supply, serving new customers, or meeting the M&I gap.
- New supply development from the Colorado River system will be available for West Slope uses only. No additional transbasin diversions beyond the IPPs are assumed in the status quo portfolio.
- The remaining M&I demands are met with agricultural transfers.



IPP Success Rate	(% Yield)	(Yield AFY | Total IPP Yield AFY)
Arkansas	75%	71,000 | 95,000
Colorado	90%	49,000 | 54,000
Gunnison	90%	14,000 | 16,000
Metro	50%	82,000 | 163,000
North Platte	90%	200 | 200
Rio Grande	90%	6,000 | 7,000
South Platte	40%	52,000 | 129,000
Southwest	75%	13,000 | 17,000
Yampa/White	90%	11,000 | 12,000

Figure ES-26 IPP Success Rate Data Entry Screen from Portfolio and Trade-Off Tool

Water from over 500,000 irrigated acres statewide could be transferred to M&I use statewide with the status quo portfolio.

Figure ES-27 shows the resulting loss of irrigated acres that may potentially occur as a result of the status quo portfolio. The yellow bars in the figure relate to the left axis and show the percentage of irrigated acres that may be lost in the future if the status quo is maintained. The red squares relate to the right axis and specify the number of acres that may be lost. Based on the status quo scenario, the South Platte Basin could lose 35 percent of current irrigated agriculture or nearly 300,000 acres. The Arkansas, West Slope, and North Platte/Rio Grande Basins could lose over 10 percent of their irrigated agriculture under the status quo portfolio. Water from over 500,000 irrigated acres statewide could be transferred to M&I use statewide with the status quo portfolio. Other trade-offs associated with the status quo portfolio are described in Section 7 of this report.

Cost of Meeting Future Water Needs

Meeting Colorado's M&I water supply needs will require significant investment. The costs for the status quo portfolio are presented in Table ES-9. Implementing a mix of solutions to address Colorado's 2050 medium M&I water supply needs will cost around $15 billion under status quo assumptions. These costs will increase if Colorado experiences high M&I demands and will decrease if Colorado experiences low M&I demands or implements an alternative mix of solutions to the status quo. The costs associated with meeting Colorado's future M&I needs could be reduced if an alternative approach, incorporating fewer but larger projects and increased levels of conservation, were used. However, while an alternative approach could save the citizens of Colorado billions of dollars, it would require a higher level of state involvement including significant state funding.

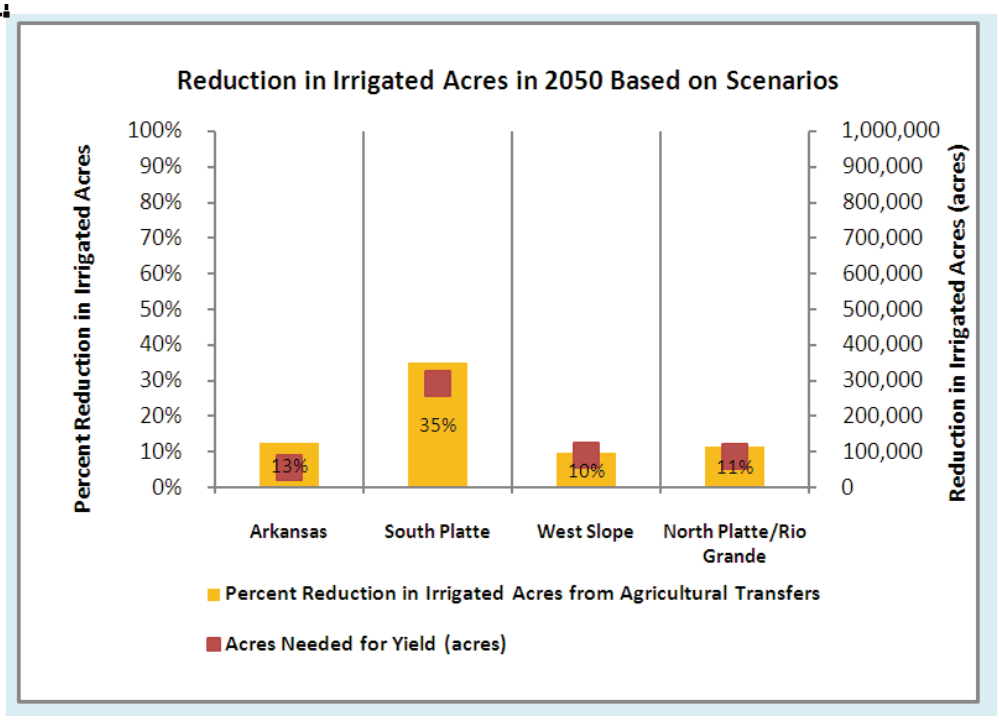


Figure ES-27 Reduction in Irrigated Acres in 2050 Based on Status Quo Scenario

Table ES-9 Status Quo Medium M&I Demand Portfolio (800,000 AFY of new water needed)

Strategy	West Slope[1] Unit Cost	West Slope[1] New Water Needed (AFY)	West Slope[1] Costs	East Slope Unit Cost	East Slope New Water Needed (AFY)	East Slope Costs	Total New Water Needed (AFY)	Total Costs
New Supply	$5,900	150,000	$860,000,000	$0	—	$0	150,000	$860,000,000
Ag Transfers	$40,000	3,500	$140,000,000	$40,000	270,000	$11,000,000,000	270,000	$11,000,000,000
IPPs	$5,900	93,000	$550,000,000	$14,000	200,000	$2,900,000,000	290,000	$3,400,000,000
Active Conservation	$7,200	—	$0	$7,200	—	$0	—	$0
Reuse[2]			$0		90,000	$0	90,000	
Total		**240,000**	**$1,600,000,000**		**560,000**	**$14,000,000,000**	**800,000**	**$15,000,000,000**

[1] Costs for the Rio Grande and North Platte Basins are the same as the West Slope and are integrated with the West Slope for the purpose of this cost analysis.

[2] The costs of reuse are incorporated into the costs associated with agricultural transfers or new supply development.

While there is general agreement that the status quo is not desirable and that a mix of solutions will be needed, there is not agreement on the specific quantities of water that will be needed for each strategy. However, there is agreement that in order to balance meeting municipal, agricultural, and nonconsumptive needs, Colorado will need a mix of new water supply development for West Slope and East Slope uses, conservation, completion of IPPs, and agricultural transfers. The CWCB and IBCC have agreed that all parts of this four-pronged framework are equally important and should be pursued concurrently.

In addition to meeting M&I needs, state funding will continue to be needed to meet agricultural and environmental water supply needs. Without a mechanism to fund environmental and recreational enhancement beyond the project mitigation measures required by law, conflicts among M&I, agricultural, recreational, and environmental users could intensify.

The ability of smaller, rural water providers and agricultural water users to adequately address their existing and future water needs is also significantly affected by their financial capabilities, and many of them rely on state funding to help meet their water supply needs.

Recommendations

With the completion of SWSI 2010, CWCB has updated its analysis of the state's water supply needs and recommends Colorado's water community enter an implementation phase to determine and pursue solutions to meeting the state's consumptive and nonconsumptive water supply needs. This will be accomplished through the following recommendations.

These recommendations do not necessarily represent a statewide consensus. The CWCB has deliberated on the information contained in SWSI 2010 and has put forth its view of how to move forward. Section 8 or this report provides additional detail on each recommendation.

1. Actively encourage projects to address multiple purposes, including municipal, industrial, environmental, recreational, agricultural, risk management, and compact compliance needs.
2. Identify and utilize existing and new funding opportunities to assist in implementing projects and methods to meet Colorado's consumptive and nonconsumptive water supply needs.
3. Continue to lead the dialogue and foster cooperation among water interests in every basin and between basins for the purpose of

implementing solutions to Colorado's water supply challenges.

4. Support water project proponents and opponents in resolving conflict and addressing concerns associated with implementing IPPs that will reduce the M&I water supply gap. Identify IPPs that could be implemented by 2020.
5. Support meeting Colorado's nonconsumptive water needs by working with Colorado's water stakeholders to help:
   - Promote recovery and sustainability of endangered, threatened, and imperiled species in a manner that allows the state to fully use its compact and decreed entitlements.
   - Protect or enhance environmental and recreational values that benefit local and statewide economies.
   - Encourage multi-purpose projects that benefit both water users and native species.
   - Pursue projects and other strategies, including CWCB's Instream Flow Program, that benefit consumptive water users, the riparian and aquatic environments, and stream recreation.
   - Recognize the importance of environmental and recreational benefits derived from agricultural water use, storage reservoirs, and other consumptive water uses and water management.
6. Help meet Colorado's agricultural water supply needs by incorporating agricultural water needs into the development of water supply portfolios and supporting the implementation of multi-purpose agricultural water supply projects.
7. In order to determine the appropriate combination of strategies (IPPs, conservation, reuse, agricultural transfers, and the development of new water supplies) and portfolios to meet the water supply needs, CWCB will identify what it considers is achievable for each portfolio element and how those portfolio elements could be implemented.
8. Evaluate multi-purpose projects or packages of projects to develop new water supplies for use on the West Slope and the Front Range.
9. Develop and support risk management strategies so that Colorado can fully use its compact and decree entitlements to best balance Colorado's diverse water needs.
10. Support, encourage, and incentivize water providers in planning for and implementing M&I active conservation best management practices and other demand management strategies.
11. Work with water providers to identify opportunities where additional water could be made available by increased regional cooperation, storage, exchanges, and other creative opportunities.
12. Continue the evaluation of Colorado's water supply availability in all basins to help provide water users with viable analysis tools.
13. Help safeguard Colorado's water supply during times of drought by incorporating drought mitigation and response in statewide and local water supply planning.
14. Support local water supply planning.
15. The CWCB, in consultation with other state agencies, shall develop and implement a plan to educate and promote stewardship of water resources that recognizes water's critical role in supporting the quality of life and economic prosperity of all Coloradoans.
16. Establish a 6-year planning cycle for assessing Colorado's long-term consumptive and nonconsumptive water needs and support the implementation of projects and methods to meet those needs.

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APPENDIX C – COMPREHENSIVE ANNUAL FINANCIAL REPORT WATER FUND SUMMARIES

PUEBLO WEST METROPOLITAN DISTRICT
SCHEDULE OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCE
BUDGET AND ACTUAL
WATER FUND
YEAR ENDED DECEMBER 31, 2006

	Final Budget	Actual Budget Basis	Variance With Final Budget Positive (Negative)
REVENUES AND OTHER FINANCING SOURCES			
Water usage	$ 3,280,800	$ 3,791,226	$ 510,426
Transfer fees	5,000	6,793	1,793
Penalty billing fee	72,000	96,517	24,517
Turn on fees	22,000	31,722	9,722
Hydrant water	37,000	46,135	9,135
Tap connection fees/plant investment fees	4,405,120	5,141,682	736,562
Interest	150,000	526,847	376,847
Other	4,000	49,612	45,612
Transfer in	-	8,044	8,044
Prior year unexpended balance	2,025,498	-	(2,025,498)
TOTAL REVENUES AND OTHER FINANCING SOURCES	10,001,418	9,698,578	(302,840)
EXPENDITURES AND OTHER FINANCING USES			
Current -			
Salaries	995,654	1,026,620	(30,966)
Payroll taxes	75,853	70,578	5,275
Employee pension and benefits	286,328	232,328	54,000
Operating parts, material and supplies	285,023	247,454	37,569
Repairs and maintenance	540,007	434,991	105,016
Uniforms and clothing	5,500	4,405	1,095
Training and education	8,450	4,038	4,412
Legal expense	40,000	57,532	(17,532)
Outside services	130,615	106,682	23,933
Communications	16,700	15,276	1,424
Travel	2,019	1,602	417
Advertising	1,800	2,507	(707)
Insurance	78,285	70,563	7,722
Utilities	560,600	666,881	(106,281)
Lease and rental	5,584	7,075	(1,491)
Water assessments	402,000	378,242	23,758
Other	13,910	22,470	(8,560)
Capital outlay	5,945,090	2,577,032	3,368,058
Debt service -			
Principal	225,000	225,000	-
Interest	383,000	365,662	17,338
TOTAL EXPENDITURES AND OTHER FINANCING USES	10,001,418	6,516,938	3,484,480
NET CHANGE IN FUND BALANCE	$ -	$ 3,181,640	$ 3,181,640

PUEBLO WEST METROPOLITAN DISTRICT
SCHEDULE OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCE
BUDGET AND ACTUAL
WATER FUND
YEAR ENDED DECEMBER 31, 2007

	Final Budget	Actual Budget Basis	Variance With Final Budget Positive (Negative)
REVENUES AND OTHER FINANCING SOURCES			
Water usage	$ 4,890,166	$ 4,618,496	$ (271,670)
Transfer fees	6,500	5,362	(1,138)
Penalty billing fee	80,000	104,080	24,080
Turn on fees	24,000	40,110	16,110
Hydrant water	45,000	43,515	(1,485)
Tap connection fees/plant investment fees	4,687,323	2,913,789	(1,773,534)
Interest	250,000	669,397	419,397
Other	5,000	604,515	599,515
Prior year unexpended balance	7,157,699	-	(7,157,699)
TOTAL REVENUES AND OTHER FINANCING SOURCES	17,145,688	8,999,264	(8,146,424)
EXPENDITURES AND OTHER FINANCING USES			
Current -			
Salaries	1,149,096	1,118,770	30,326
Payroll taxes	87,787	76,796	10,991
Employee pension and benefits	300,674	239,902	60,772
Operating parts, material and supplies	318,850	236,161	82,689
Repairs and maintenance	491,378	374,084	117,294
Uniforms and clothing	6,750	6,904	(154)
Training and education	7,065	6,920	145
Legal expense	80,000	114,417	(34,417)
Outside services	92,700	164,639	(71,939)
Communications	22,500	15,302	7,198
Travel	2,625	1,636	989
Advertising	2,600	1,453	1,147
Insurance	76,850	62,052	14,798
Utilities	709,700	677,983	31,717
Lease and rental	7,960	6,152	1,808
Water assessments	530,000	360,632	169,368
Other	54,660	28,468	26,192
Capital outlay	9,028,414	2,194,590	6,833,824
Debt service -			
Principal	275,000	275,000	-
Interest	315,767	316,066	(299)
Transfers out	3,585,312	3,585,312	-
TOTAL EXPENDITURES AND OTHER FINANCING USES	17,145,688	9,863,239	7,282,449
NET CHANGE IN FUND BALANCE	$ -	$ (863,975)	$ (863,975)

PUEBLO WEST METROPOLITAN DISTRICT
SCHEDULE OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCE
BUDGET AND ACTUAL
WATER FUND
YEAR ENDED DECEMBER 31, 2008

	Final Budget	Actual Budget Basis	Variance With Final Budget Positive (Negative)
REVENUES AND OTHER FINANCING SOURCES			
Water usage	$ 4,100,000	$ 5,296,454	$ 1,196,454
Transfer fees	5,500	4,397	(1,103)
Penalty billing fee	100,000	101,961	1,961
Turn on fees	24,000	44,282	20,282
Hydrant water	32,000	32,813	813
Tap connection fees/plant investment fees	3,221,164	1,636,590	(1,584,574)
Interest	420,000	356,487	(63,513)
Other	27,000	168,218	141,218
Prior year unexpended balance	5,574,861	-	(5,574,861)
TOTAL REVENUES AND OTHER FINANCING SOURCES	13,504,525	7,641,202	(5,863,323)
EXPENDITURES AND OTHER FINANCING USES			
Current -			
Salaries	1,179,529	1,173,174	6,355
Payroll taxes	89,996	80,160	9,836
Employee pension and benefits	334,554	256,621	77,933
Operating parts, material and supplies	266,975	250,367	16,608
Repairs and maintenance	440,385	652,717	(212,332)
Uniforms and clothing	6,700	6,621	79
Training and education	8,200	5,127	3,073
Legal expense	66,310	74,651	(8,341)
Outside services	90,900	126,320	(35,420)
Communications	18,300	14,440	3,860
Travel	2,620	628	1,992
Advertising	2,440	2,089	351
Insurance	76,850	54,484	22,366
Utilities	798,530	672,592	125,938
Lease and rental	8,300	9,306	(1,006)
Water assessments	493,900	378,280	115,620
Other	57,200	10,267	46,933
Capital outlay	8,983,070	765,133	8,217,937
Debt service -			
Principal	290,000	275,000	15,000
Interest	289,766	305,066	(15,300)
TOTAL EXPENDITURES AND OTHER FINANCING USES	13,504,525	5,113,043	8,391,482
NET CHANGE IN FUND BALANCE	$ -	$ 2,528,159	$ 2,528,159

PUEBLO WEST METROPOLITAN DISTRICT
SCHEDULE OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCE
BUDGET AND ACTUAL
WATER FUND
YEAR ENDED DECEMBER 31, 2009

	Final Budget	Actual Budget Basis	Variance With Final Budget Positive (Negative)
REVENUES AND OTHER FINANCING SOURCES			
Water usage	$ 4,327,898	$ 5,361,843	$ 1,033,945
Transfer fees	5,500	3,717	(1,783)
Penalty billing fee	100,100	100,294	194
Turn on fees	37,000	47,625	10,625
Hydrant water	26,500	34,429	7,929
Tap connection fees/plant investment fees	2,105,400	700,677	(1,404,723)
Interest	420,000	230,737	(189,263)
Other	32,000	56,939	24,939
Prior year unexpended balance	1,295,013	-	(1,295,013)
TOTAL REVENUES AND OTHER FINANCING SOURCES	8,349,411	6,536,261	(1,813,150)
EXPENDITURES AND OTHER FINANCING USES			
Current -			
Salaries	1,232,488	1,207,757	24,731
Payroll taxes	93,950	82,190	11,760
Employee pension and benefits	341,479	254,550	86,929
Operating parts, material and supplies	361,683	274,193	87,490
Repairs and maintenance	467,290	255,895	211,395
Uniforms and clothing	10,100	7,362	2,738
Training and education	15,800	6,302	9,498
Legal expense	75,000	200,295	(125,295)
Outside services	127,000	196,411	(69,411)
Communications	15,335	11,491	3,844
Travel	2,550	1,690	860
Advertising	3,550	652	2,898
Insurance	64,000	53,802	10,198
Utilities	866,150	703,640	162,510
Lease and rental	9,010	6,113	2,897
Water assessments	525,000	609,191	(84,191)
Southern delivery system	16,800	354,961	(338,161)
Other	52,950	21,445	31,505
Capital outlay	3,483,984	1,484,390	1,999,594
Debt service -			
Principal	290,000	290,000	-
Interest	295,292	295,441	(149)
TOTAL EXPENDITURES AND OTHER FINANCING USES	8,349,411	6,317,771	2,031,640
NET CHANGE IN FUND BALANCE	$ -	$ 218,490	$ 218,490

PUEBLO WEST METROPOLITAN DISTRICT
SCHEDULE OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCE
BUDGET AND ACTUAL
WATER FUND
YEAR ENDED DECEMBER 31, 2010

	Final Budget	Actual Budget Basis	Variance With Final Budget Positive (Negative)
REVENUES AND OTHER FINANCING SOURCES			
Water usage	$ 4,994,573	$ 6,309,250	$ 1,314,677
Transfer fees	3,500	3,363	(137)
Penalty billing fee	100,100	103,077	2,977
Turn on fees	37,000	40,608	3,608
Hydrant water	42,052	30,779	(11,273)
Tap connection fees/plant investment fees	1,629,300	906,450	(722,850)
Interest	260,000	204,331	(55,669)
Other	40,000	124,081	84,081
Prior year unexpended balance	2,814,460	-	(2,814,460)
TOTAL REVENUES AND OTHER FINANCING SOURCES	9,920,985	7,721,939	(2,199,046)
EXPENDITURES			
Current -			
Salaries	1,213,012	1,197,399	15,613
Payroll taxes	90,640	81,392	9,248
Employee pension and benefits	315,146	281,263	33,883
Operating parts, material and supplies	434,776	322,393	112,383
Repairs and maintenance	205,256	374,393	(169,137)
Training and education	12,770	6,449	6,321
Legal expense	152,500	94,624	57,876
Outside services	460,600	460,947	(347)
Advertising	-	916	(916)
Insurance	64,300	55,404	8,896
Utilities	700,340	733,005	(32,665)
Lease and rental	8,500	7,823	677
Water assessments	515,800	407,185	108,615
Southern delivery system	-	322,226	(322,226)
Other	58,700	18,344	40,356
Capital outlay	5,104,145	759,116	4,345,029
Debt service -			
Principal	300,000	300,000	-
Interest	284,500	284,249	251
TOTAL EXPENDITURES	9,920,985	5,707,128	4,213,857
NET CHANGE IN FUND BALANCE	$ -	$ 2,014,811	$ 2,014,811

APPENDIX D – PWMD 2011 WATER RATES AND FEES

APPENDIX A
RATES AND CHARGES

Category

TABLE 1: READINESS TO SERVE: WATER, SEWER, AND OTHER ¾" EQUIVILENTS, NON-DROUGHT

effective 1 January 2011
per Resolution 1894

Water No Change Base Rate
Sewer 20%

Meter Size

Domestic water	Water RTS	Rate Code #	Sewer RTS (if sewered)	Rate Code #
¾"	$17.46	2	$15.34	*94*
1"	$17.61	3	$15.34	*94*
1 ½"	$17.82	5	$15.34	*94*
2"	$18.41	6	$15.34	*94*
3"	$22.60	7	$15.34	*94*
4"	$24.17	8	$15.34	*94*
6"	$27.81	9	$15.34	*94*
8"	$31.97	10	$15.34	*94*
10"	$37.74	11	$15.34	*94*
12"	$45.75	12	$15.34	*94*
Non-Potable (Raw Water)				
4"	$4.48	16		
6"	$5.16	17		
8" / DESERT HAWK G.C.	$5.27	18/29		
10"	$5.43	19		
12"	$5.66	20		
Hydrant meter for 1 ½"	$78.73	24		
Fire protection meter				
3"	$13.80	30		
4"	$16.90	31		
6"	$23.13	32		
8"	$29.55	33		

WATER RTS RATE CODE TO FIELD 40
NOTE: ONLY CODES 2 THRU 33 IN THIS FIELD

WATER USE RATE CODE TO FIELD 4
NOTE: ONLY CODES 37 THRU 49 IN THIS FIELD

*Sewer readiness to serve will be the same for all meter sizes.

TABLE 2: WATER USE CHARGES

Category

CUSTOMER CLASS	Rate Code #	1-5000 GAL /1000 0%	5,001- 10,000GAL,/1000 35%	>10,000 35%
RESIDENTIAL OR IRRIGATION	*41*	$ 1.75	$ 3.04	$ 4.49
MULTIPLEX 4 OR MORE UNITS PER METER	*42*	$ 2.26	$ 3.04	$ 3.04
COMMERICAL / INDUSTRIAL	*43*	$ 2.46	$ 3.32	$ 3.32
NON-POTABLE / DESERT HAWK GOLF COURSE	*44 / 48*	$ 1.39	$ 1.39	$ 1.39
HYDRANT WATER	*45*	$ 3.56	$ 4.81	$ 4.81
FIRE PROTECTION (Dummy rate)	*49*	$ .00	$ 0.00	$ 0.00
		1-20,000GAL/1000	20,001-40,000GAL,/1000	>40,000
SCHOOL 1 ½" BLOCK RATE (EQUAL TO 4 EA. ¾" EQUIVILENTS)	37	$ 1.94	$ 3.35	$ 4.49
		1-35,000GAL/1000	35,001-70,000GAL,/1000	>70,000
SCHOOL 2" BLOCK RATE (EQUAL TO 7 EA. ¾" EQUIVILENTS)	38	$ 1.94	$ 2.68	$ 3.59
		1-80,000GAL/1000	80,001-160,000GAL,/1000	>160,000
SCHOOL 3" BLOCK RATE (EQUAL TO 16 EA. ¾" EQUIVILENTS)	39	$ 1.94	$ 3.35	$ 4.49
		1-10,000GAL/1000	10,001-20,000GAL,/1000	>20,000
DUPLEX / TRIPLEX 2 OR 3 UNITS PER METER	40	$ 1.94	$ 3.35	$ 4.49

Duplex, triplex = 2 and 3 units per water meter (respectively), NOT units per lot.

TABLE 3 : SEWER USE CHARGES

CUSTOMER CLASS NOTE: EACH CLASS CATEGORY "COST/1000" CAN BE SET INDIVUALLY.

RESIDENTIAL CATEGORIES 20%	Rate Code #	Cost/1000 Gallons of Water Use
RESIDENTIAL (DEFINED AS 3 OR LESS UNITS / METER)	51	$2.11 USES JAN. FEB. AVERAGE
MULTIPLEX (DEFINED AS 4 OR MORE UNITS / METER)	53	$2.11 USES ACTUAL WATER USE FOR EACH MONTH
RESIDENTIAL ADDED FEB-THRU DEC.	86	$27.99 / MONTH, FLAT FEE (A "6" will be placed in the AVG SEWER USE field .)
DUPLEX ADDED FEB THRU DEC	87	$55.40 / MONTH, FLAT FEE (A "6" will be placed in the AVG SEWER USE field .)
MULTIPLEX ADDED FEB THRU DEC	88	$154.39 / MONTH, FLAT FEE (A "6" will be placed in the AVG SEWER USE field .)
COMMERICAL / INDUSTRIAL CATEGORIES		
AUTO STEAM CLEANING	56	$2.11 USES ACTUAL WATER USE FOR EACH MONTH
BAKERY, WHOLESALE	57	$3.45 "
BARS WITHOUT DINING FACILITIES	58	$2.56 "
CAR WASH	59	$2.11 "
DEPARTMENT AND RETAIL STORES	60	$2.11 "
HOSPITAL AND CONVALESCENT	61	$2.24 "
HOTEL WITH DINING FACILITIES	62	$2.65 "
HOTEL MOTEL WITHOUT DINING	63	$2.11 "
INDUSTRIAL LAUNDRY	64	$2.11 "
LAUNDROMAT	65	$2.11 "
LAUNDRY, COMMERCIAL	66	$2.11 "
MARKET WITH GARBAGE GRINDERS	67	$2.11 "
MORTUARY	68	$2.11 "
PROFESSIONAL OFFICE	69	$2.11 "
REPAIR SHOP AND SERVICE STATION	70	$2.11 "
RESTAURANT	71	$3.45 "
SCHOOL AND COLLEGE	72	$2.11 "
SOFT WATER SERVICE	73	$2.11 "
ALL OTHERS	74	$2.11 "
INDUSTRIAL	75	$2.39 ADD SURCHARGE. USES ACTUAL WATER USE.

SEWER USE RATE CODE TO FIELD 5
NOTE: ONLY CODES 51 THRU 75 IN THIS FIELD.

Industrial sewer surcharge is based on the BOD / TSS content of the sites effluent, using the existing formula and rules. Industrial accounts have a field for this surcharge, located on the second screen (financial screen) of each record. This charge will be calculated manually, and entered into this field.

Monthly charges are calculated as follows: Readiness to serve charge (whatever categories are required) + Water use charge + Sewer use charge (when property is sewered) + fire protection fee for customers with fire protection meters + Surcharge for industrial class when required. If service is added after Jan-Feb Average period, then placing consumption into the avg. sewer consumption field sets the sewer charge for Mar thru Dec. For 2006, this value is 6. This value should be calculated each year in March, before billing. Residential / DUP /TRI OR IRRIGATION; Meter sizes can be ¾" to 1 ½". Multiplex can be 1" to 6".Non-potable can be 4" to 12" Hydrant water can be only 1 ½"

Water Connection fees are the sum of the Water plant investment fund (PIF) and the Tap Fee for parts and labor. Larger or additional sizes will be computed upon customer request for connection. Additional equipment such as backflow preventers may be required, at customer cost, for connection to the utility system, depending upon service required.

2011 Fees & Charges 15%	Water PIF	Tap Fee	Water Connection Fee
Meter Size (inches)			
3/4" Displacement or Multi-Jet	$ 10,597	$ 1,278	$ 11,875
1" Displacement or Multi-Jet	$ 16,567	$ 2,344	$ 18,911
1-1/2" Displacement or Class I Turbine	$ 33,146	$ 3,963	$ 37,109
2" Compound Displacement Class I & II Turbine	$ 53,031	$ 5,814	$ 58,845
3" Displacement	$ 99,426	$ 10,902	$ 110,328
3" Compound	$ 106,051	$ 10,902	$ 116,952
3" Class I & II Turbine	$ 115,993	$ 10,902	$ 126,895

Wastewater Connection fees are the sum of the Wastewater plant investment fund (PIF) and the Tap Fee for parts and labor. Larger or additional sizes will be computed upon customer request for connection. 3/4 inch water meter sizing uses a 4 inch sewer tap with 1 inch or larger water meters using a 6 inch sewer tap. Sizing larger than 3 inch water meters may require larger sewer tap sizing depending upon use. Additional equipment such as grease interceptors may be required, at customer cost, for connection to the utility system, depending upon service required.

2011 Fees and Charges 15%	Wastewater PIF	Tap Fee	Sewer Connection Fee
Meter Size (inches)			
3/4" Displacement or Multi-Jet	$ 4,320	$ 1,084	$ 5,404
1" Displacement or Multi-Jet	$ 6,462	$ 1,114	$ 7,576
1-1/2" Displacement or Class I Turbine	$ 12,922	$ 1,114	$ 14,036
2" Compound Displacement Class I & II Turbine	$ 20,675	$ 1,114	$ 21,789
3" Displacement	$ 38,767	$ 1,114	$ 39,881
3" Compound	$ 41,352	$ 1,114	$ 42,466
3" Class I & II Turbine	$ 45,228	$ 1,114	$ 46,342

Misc Charges:	
Fire Hydrant Meter Deposit:	$ 1,490.00

APPENDIX E – WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN AND PUBLIC EDUCATION INFORMATION ON WATER CONSERVATION

Water Rights

RULES AND REGULATIONS OF PUEBLO WEST METROPOLITAN DISTRICT, PUEBLO WEST, COLORADO

TITLE 4

WATER AND SEWER

ARTICLE 1. DEFINITIONS.

4.1.1 Applicant. The person making application for a permit to connect to a District waste water or water facility and shall be the owner of the premises to be served by the waste water or water facility for which a permit is requested, or his authorized agent.

4.1.2 Building Drain. That part of the lowest horizontal piping of a drain system which receives the discharge from soil, waste and other drainage pipes inside the walls of a building, and conveys it to the sewer service line which shall be no more than five feet outside the interface of the building wall.

4.1.3 Cross Connection. Any physical connection between the piping system between any building water service and any water supply other than the District water supply, whereby water from another source may be forced or drawn into the District distribution mains.

4.1.4 Fixture. Any sink, tub, shower, water closet or any other facility connected by drain to a sewer.

4.1.5 Floatable Oil. Oil, fat or grease in a physical state, such that it will separate by gravity from waste water by treatment in an approved pre-treatment facility. The waste water shall be considered free of floatable fat, if it is properly treated and the waste water does not interfere with the collection system.

4.1.6 Garbage. Shall mean the animal and vegetable waste resulting from the handling, preparation, cooking and serving of foods ar the handling, storage and sale of produce.

4.1.7 Interceptor. The device designed and installed so as to separate and retain deleterious, hazardous or undesirable matter from normal wastes and permit normal sewage or liquid waste to discharge into the disposal terminal by gravity.

4.1.8 Natural Outlet. Any outlet into a water course, pond, ditch, lake or other body of surface or ground water.

4.1.9 Outside Sewer. A sanitary sewer beyond the limits of the District not subject to the control or jurisdiction of the District.

4.1.10 Permit. The written authorization required pursuant to this or any other rule, regulation or resolution of the District for the installation of any sewer or water works.

4.1.11 pH. The logarithm of the reciprocal of the hydrogen ion concentration. The concentration is the weight of hydrogen ions in grams per liter of solution. Neutral water, for example, has a pH value of seven and hydrogen ion concentration of 10/7.

4.1.12 Plumbing System Unit. All plumbing fixtures and traps or soil waste and vent pipes and all sanitary sewer pipes within a building and extending to the building's sewer connection.

4.1.13 Properly Shredded Garbage. Shall mean the wastes from the preparation, cooking and dispensing of food that have been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers with r particle greater than one-half inch (1.27 centimeters) in any dimension.

4.1.14 Slug. Shall mean any discharge of water or waste water which in concentration of any given constituent or in quantity of flow exceeds for any period longer than 15 minutes, more than five times the average 24-hour concentration. A slug also means any flow during normal operation which shall adversely effect the collection system and/or performance of the waste water treatment works.

4.1.15 Storm Drain. Shall mean the drain or sewer for conveying water, ground water, sub-surface water or unpolluted water from a source.

4.1.16 Suspended Solids. Shall mean total suspended matter that either floats on the surface of, or is in suspension in, water, waste water or other liquids and that is removable by laboratory filtering as prescribed in "Standard Methods for the Examination of Water

4.11.12 Other Fees, Charges and Penalties.

a. A service charge will be levied against any account for which payment has been attempted with a dishonored check. The amount of the service charge is set forth in Appendix A.

b. If for reason of non-payment of Availability of Service charges it is deemed necessary to file a lien against property, a service charge will be added to defray related costs involved. Subsequent payments will be first applied to penalties, then to any interest and lastly to the Availability of Service charge. The amount of the service charge is set forth in Appendix A.

c. All fees, charges and other payments due the District on any account are payable twenty-five (25) days from the billing date. Any payment received by the District more than twenty-five (25) days from the billing date shall be considered delinquent and the party responsible for paying the fee, charge or other payment shall be assessed and charged a penalty as set forth in Appendix A. All payments received by the District shall be first applied to any penalties or interest charges assessed and then against sewer charges, and lastly against water charges.

d. A "transfer charge" shall be made for any change of responsible parties listed on the account. The charge shall be levied against the new responsible party. The amount of the charge is as listed in Appendix A.

e. The final reading fee as set forth in Appendix A shall be charges should any customer request a final reading for transfer or for tur off unless the final reading is on the normal meter reading date for that property. If the transfer of ownership of the property occurs th final billing shall be paid within three (3) days of the date of transfer of the property. If the final billing is not paid within three (3) days o the date of transfer, the District shall turn off water service to the property.

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ARTICLE 12. WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN

4.12.1 PURPOSE. This Water Conservation and Drought Contingency Plan is adopted for the purpose of conserving the available water supply and protecting the integrity of the District's water system with particular regard of domestic water use, sanitation and fi protection and to protect and preserve public health, welfare and safety and minimize the adverse impacts of water supply, shortage or other water supply emergency conditions.

4.12.2 DEFINITIONS. The following definitions shall apply to provisions of this Article 12. Two Year Normal Water Usage shall be defined as the number of 3/4 inch equivalent water taps supplying water to water users within the District existing on May 1 of any year multiplied times ½ acre foot of water multiplied times 2.

Two Year Water Supply shall be defined as the amount of water in storage plus the amount of water estimated to be available to the District by Twin Lakes Reservoir & Canal Company for the then current water year as determined by Twin Lakes Reservoir & Cana Company from time to time.

System Water Demand shall be defined as the amount of water produced and used by District water users on a daily, weekly or monthly basis as set forth in these Regulations.

Landscape Watering shall be defined as watering with underground sprinkler systems or with stationary or movable sprinklers attached to a hose (not hand held) of grass lawns.

Stage 1 – Conservation State – a water conservation state or Stage 1 of the Water Conservation and Drought Contingency Plan sha be in effect if any of the following criteria are met:

a. The District's available two year water supply falls to 90% or less of the current two year normal usage; or

REVISED 6/11/02 EFFECTIVE 6/11/02

b. The system water demand reaches 90% of treatment capacity daily for four (4) consecutive days; or

c. Deficiencies in the District's distribution system limit supply capabilities.

Stage 2 – Water Warning –a water warning state or Stage 2 of the Water Conservation and Drought Contingency Plan shall be in effect if any of the following criteria are met:

a. The District's available two year water supply falls to 80% or less of the current two year normal usage; or

b. The system water demand reaches 96% of treatment capacity daily for four (4) consecutive days; or

c. Deficiencies in the District's water distribution system limit supply capabilities.

Stage 3 – Water Emergency – a water emergency state or Stage 3 of the Water Conservation and Drought Contingency Plan shall be in effect if any of the following criteria are met:

a. The District's available two year water supply falls to 70% or less of the current two year normal usage; or

b. The system water demand reaches 100% of treatment capacity daily for four (4) consecutive days; or

c. Short term deficiencies in the District's water distribution system limit supply capabilities such as but not limited to system outage due to failure or damage of major water system components.

Stage 4 – Water Crisis – a water crisis state or Stage 4 of the Water Conservation and Drought Contingency Plan shall be in effect any of the following criteria are met:

a. The District's available two year water supply falls to 60% or less of the current two year normal usage; or

b. The system water demand reaches 110% of treatment capacity daily for four (4) consecutive days; or

c. Short term deficiencies in the District's water distribution system that limit supply capabilities such as system outage or failure; or

d. Inability to maintain or replenish adequate volumes of water in storage to provide for public health and safety.

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Stage 5 – Emergency Water Shortage – an emergency water shortage state or Stage 5 of the Water Conservation and Drought Contingency Plan shall be in effect if any of the following criteria are met:

a. Major water line breaks or pump or system failures occur which cause unprecedented loss of capability to provide water service;

b. Natural or manmade contamination of the water supply sources.

4.12. 3 SYSTEM MONITORING

A. The District Manager or his or her designee shall monitor the water system and the demand conditions for water usage of the District and shall determine when conditions warrant initiation or termination of each stage of the Water Conservation and Drought Contingency Plan.

4.12.4 REQUIREMENTS AND RESTRICTIONS FOR STAGE 1 – CONSERVATION STATE

When the District Manager determines that Stage 1 or Conservation State water or supply shortage is in effect he shall give notice and request all water users to voluntarily conserve water and voluntarily adhere to the following water use restrictions. The goal is to reduce total monthly water use by 10% of the previous year's usage. The following water use restrictions shall be mandatory for District owned facilities.

a. Landscape watering for each landscaped area shall be limited to two (2) days per week and that such irrigation shall only occur between the hours of 12:01 a.m. and 7:00 a.m. and between the hours of 7:00 p.m. and 12:00 midnight. each day.

b. Hydrant use for road compaction or other uses other than as required for fire fighting shall be eliminated. Where available reuse or well water will be used by the District for road compaction and construction.

c. Vehicle washing shall be reduced except where health, safety and welfare of the public is contingent upon frequent vehicle cleansing.

d. Limit irrigation of flowers, shrubs, trees and ornamental gardens to hand held garden hose, soaker hose, bucket or drip irrigation system.

e. Request that all water users conserve and minimize or discontinue water use for all non-essential purposes.

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B. WATER RESTRICTIONS FOR STAGE 2 – WATER WARNING

When the District Manager determines that Stage 2 or water warning state is in effect he shall give notice and request all water users to voluntarily conserve water. The goal is to reduce total monthly water use by 20% from the previous year's usage. The following water use restrictions shall be in effect.

a. All water restrictions set forth for Stage 1 – Conservation State set forth above.

b. The implementation of a temporary conservation water use charge by the addition of a charge for consumption of all water above 25,000 gallons per month shall be charged at the rate of $6.00 per thousand gallons.

This temporary water conservation rate shall apply to rate code number 41 set forth in Appendix A of the Rates and Charges of the Rules and Regulations of the District.

c. Contracts and supplying of potable water outside the District shall be suspended where applicable.

C. WATER RESTRICTIONS FOR STAGE 3 – WATER EMERGENCY

When the District Manager determines that Stage 3 or water emergency state is in effect he shall give notice and request all water users to conserve water and adhere to the following water use restrictions. The goal is to reduce total monthly water use by 30% from the previous year's usage. The following water use restrictions shall be mandatory for all water users.

a. All requirements of Stage 1 – Conservation State and Stage 2 – Water Warning shall remain in effect.

b. Landscape watering shall be limited to two (2) days per week only between the hours of 12:01 a.m. and 7:00 a.m. and between the hours of 7:00 p.m. and 12 midnight on the day corresponding to the last two (2) digits of the service address as set forth below.

1. Addresses that end in numbers 00 through 33 will be restricted to watering on Monday and Thursday only.

2. Addresses that end in numbers 34 through 66 will be restricted to watering on Tuesday and Friday only.

3. Addresses that end in number 67 through 99 will be restricted to watering on Wednesday and Saturday only.

3. Addresses that end in number 67 through 99 will be restricted to watering on Wednesday and Saturday only.

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No watering shall be allowed from 12:01 a.m. to 12 midnight on Sundays. The lowest address number will identify properties having multiple addresses for one water meter. If no address exists for the property the District Manager or his or her designee will assign a address to the property for the purposes of this Article.

c. The water usage rate for consumption greater than 10,000 gallons but less than 25,000 gallons per month shall be increased to $4.00 per thousand gallons for all customers in rate code number 41 as set forth in Appendix A – Rates and Charges of the Rules and Regulations of the District.

d. Limit irrigation of flowers, shrubs, trees and ornamental gardens to hand held garden hose, soaker hose, bucket or drip irrigation system.

D. WATER RESTRICTIONS FOR STAGE 4 – WATER CRISIS

When the District Manager determines that Stage 4 or water crisis state is in effect he shall give notice and request all water users conserve water and adhere to the following water use restrictions. The goal is to reduce total monthly water use by an amount so th District is able to provide essential potable water for domestic use. The following water use restrictions shall be mandatory for all water users.

a. All requirements of Stage 1 – Conservation State, Stage 2 – Water Warning and Stage 3 – Water Emergency shall remain in effe during Stage 4 – Water Crisis.

b. There shall be no outside water usage permitted during a Stage 4 - Water Crisis.

E. STAGE 5 – EMERGENCY WATER SHORTAGE

The District Manager shall determine what stage or stages and which water restrictions shall be implemented and the specific wate use restrictions necessary to protect the water system and provide adequate water supply for public consumption and hygiene. The goal is to reduce total monthly water use to allow the water system to recover from the emergency condition.

4.12.5 FAILURE TO REACH GOALS

If the water reduction goal of each stage set forth above has not been met the District Manager is authorized to declare a higher sta state of conservation necessary to achieve the required water use reduction.

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4.12.6 VIOLATIONS

a. A water customer violates the restrictions of the Water Conservation and Drought Contingency Plan if he or she makes, causes permits a use of water supplied by the District in violation of any of the restrictive measures implemented by the District Manager as set forth above after notice has been given pursuant to Section 4.12.9.

b. No person shall allow the use of water supplied by the District for residential, commercial, industrial, agriculture, governmental or any other purpose in a manner contrary or in violation of any provision of this Article or in an amount in excess of that permitted by th Article for any water conservation stage in effect at the time pursuant to notice as set forth in Section 4.12.9.

4.12.6 PENALTIES

a. Any water customer found in violation of the mandatory restrictions as set forth above shall be penalized as follows:

1.A warning shall be issued for the first violation.

2.A penalty in the amount of $50.00 shall be assessed for a second violation.
3.A penalty in the amount of $500.00 shall be assessed for a third violation or for any violations in excess of three (3).

b. Each day that one or more of the provisions of the water restrictions set forth in this Article are violated shall constitute a separate violation. If a person commits three or more violations of the restrictions in each time period for which the restrictions have been implemented, after due notice to the customer as set forth in Section 4.11.4 of these Rules and Regulations, the District shall discontinue water service to the premises where such violations occur. Service to any premises where service has been

discontinued shall be restored only upon payment of all fees pursuant to this Title 4 and any other costs incurred by the District in discontinuing service. Should any customer contest the finding of a violation by the

District the customer shall be entitled to a hearing before the District Manager if notice of such contest is received by the District within ten (10) days of the date of mailing of the Notice.

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4.12.8 VARIANCE, WAIVER, OR SUSPENSION OF RESTRICTIONS

a. Any person requesting a variance, wavier or suspension of the provisions of this Article shall file a petition for such variance with the District Manager within five (5) days after notice of a particular water conservation stage has been given by the District Manager. The Petition shall include:

1. The name and address of the petitioner.

2. The purpose of the water use claimed by the petitioner which cannot meet the restrictions.

3. The specific provisions of the Plan from which the petitioner is requesting relief.

4. A detailed statement as to how the specific provisions of the Plan adversely affect the petitioner or what damage or harm will occ to the petitioner or others if the petitioner complies with the restrictions in place.

5. A description of the relief requested.

6. The period of time for which the variance is sought.

7. Alternative water use restrictions or other measures that petitioner has taken or proposed to take to meet the goal of the water us reduction.

8. Other pertinent information.

b. The Manager or his or her designee may grant a temporary variance for existing water uses otherwise prohibited under this Articl if he or she determines that failure to grant such a variance will cause an emergency condition adversely effecting the health, sanitation or fire protection for the public or the person requesting such variance and if one or more of the following conditions are met.

1. Compliance with the provisions of this Article cannot be technically accomplished during the duration of the water supply shortage or other condition for which the restrictions are in effect.

2. Alternative methods can be implemented which achieve the same level of reduction in water use.

c. Any variance granted by the District Manager or his or her designee shall be subject to the following conditions unless waived by the District Manager.

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1. Variance granted shall include a time table for compliance.

2. Variances granted shall expire when restrictions for any particular water conservation stage is no longer in effect or if the petitione fails to meet specified requirements whichever shall occur first.

4.12.9 NOTICES

a. The District shall give notice of all increased rates pursuant to any provisions of this Article by mailing said notice to all water customers at least two (2) weeks prior to the beginning of any billing cycle.

b. The District shall give notice for any landscape watering restrictions two (2) weeks before said restriction goes into effect by mailing said notice to all water customers of the District.

c. In addition to the two (2) weeks mailing notice the District shall request that notification be given to the public by publication in a newspaper in general circulation within the District and shall attempt to give notice by requesting that radio and television stations disseminate the landscape watering restriction notice.

4.12.10 TEMPORARY MODIFICATIONS

a. The District Manager, at the direction of the Board of Directors, may provide temporary modifications to the plan as it relates to hours of watering for landscape watering and for the watering of flowers, shrubs, trees and ornamental gardens.

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SUSTAINABLE LIVING

Water Conservation Tips

from Wildlife Promise

14 2/12/2008 // Danielle Brigida // compost, Gardening, recycling, tips, water

I don't think I need to emphasize how important water is. However, I do want to say that with the number of issues we are facing we aren't paying enough attention to what makes up 75% of our bodies.

The need for water conservation is becoming more and more apparent as drought and other environmental pressures like global warming are affecting our water resources.

More Than Just the Basic Water Conservation Tips

Conserving Water: General Tips

- Turn down your water heater when you are going on a long trip.
- Keep a lookout for water saving appliances. Like this great find by Groovy Green: Eco-friendly washing machine.
- Check your water meter while no water is being used in your house. If it moves, you have a leak.

Conserve Water in the Bathroom

- Avoid flushing the toilet unnecessarily. In other words, don't use it for a garbage. Dispose of tissues, insects and other similar waste in the trash rather than the toilet.
- Test for a leaking toilet by adding food coloring to the tank (not the bowl). Without flushing, note if any color appears in the bowl after 30 minutes.
- Don't let the water run when washing, brushing and shaving. Turn it on and off as needed.
- Take showers instead of baths. A ten minute shower with a low-flow showerhead uses half the water of a regular bath.
- If your shower takes a while to heat up, and you have to let the water run, put buckets in the shower to capture the water for watering plants, washing vegetables, water for pets or washing your car and bike.
- If you are designing your own bathroom, think about putting in the Japanese style of tub that is deeper but more compact – water cools more slowly requiring less input of heated water.
- Get a small sand timer that lasts about 3 minutes and bring it in the shower. Most people can have a shower in six minutes.
- Look into devices that divert water into a bucket from the shower while the water is warming up via a hose.
- Repair dripping faucets or toilets, which use enormous amounts of water.

Conserve Water in the Kitchen

- Avoid washing dishes under a stream of water. Turn off the water in between dishes. Use only a full dishwasher and clothes washer.
- If you like a drink of cold water, but you have to let the tap run for a while before the water gets cold, instead keep a pitcher of water in the fridge.
- Save the water from steaming or boiling vegetables for houseplants, vegetable broth for soup or stir fry liquid.
- Wash food in a bowl or pot of water rather than in running water. This works especially well for herbs because you can swish them around and the dirt will come off their many surfaces. Let the herbs sit a minute and the dirt will sink to the bottom while the herbs float at the top.
- Do not use water to thaw meat. Use the microwave instead.
- Avoid using your garbage disposal system in your sink. It uses lots of water to run. **Compost your scraps instead.**

Conserve Water Outdoors

- Mulch planting beds with newspaper, leaves, bark, or wood chips. Mulches retain soil moisture and improve soil quality.
- Water your plantings with a soaker hose or a drip irrigation system. Less water evaporates this way than with a sprinkler, and you target your watering.
- Use a timing device with any watering system.
- Use "wasted" water for your plants. A rain barrel or cistern that captures rainfall from your roof is a great garden reservoir. In some areas, gray water – water from bathing or washing clothes – can legally be diverted to garden use. Use water from your fish tank when you clean it in the garden because it contains great nutrients. Empty dehumidifiers in the garden.
- Get a squeeze nozzle for your hose. That way you only use water when you need it.
- If you have a swimming pool, keep it covered when not in use.
- Sweep sidewalks with a broom, not a stream of water.
- Group plants according to water needs so you can water with the least amount appropriate.
- Plant native plants that don't require extra watering.
- When washing your car, use a bucket and sponge rather than letting the hose run.
- When mowing your lawn, set the blades a little higher (at least three inches) and your lawn will require less watering.
- Test to see if your garden needs watering by putting a screwdriver into the soil. If it goes in easily, you don't need to water.
- Weed your garden because weeds take the water away from your other plants.

Xeriscape Gardening

Water is a precious commodity in our area.

Xeriscaping is and will be your best option for water conservation for the Pueblo West area.

This involves using vegetation that thrives in this environment, using only water contributed by Mother Nature. Conserve this valuable resource wherever and whenever you can.

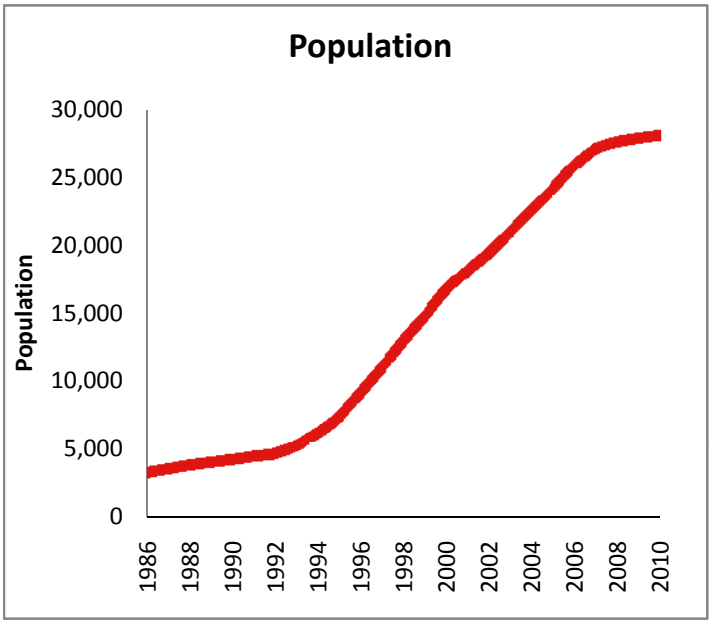
Check out more information on xeriscaping!

APPENDIX F – PWMD HISTORICAL WATER CONSUMPTION DATA AND CALCULATIONS

JVA, Incorporated
1319 Spruce Street
Boulder, CO 80302
Ph: 303.444.1951
Fax: 303.444.1957

Job Name: Pueblo West WCP - Historical Population
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Year	Population	Percent Increase	Number of Water Taps	Percent Increase
1986	3415	n/a	1390	n/a
1987	3686	7.94%	1500	7.91%
1988	3951	7.19%	1608	7.20%
1989	4157	5.21%	1692	5.22%
1990	4344	4.50%	1768	4.49%
1991	4570	5.20%	1860	5.20%
1992	4786	4.73%	1948	4.73%
1993	5388	12.58%	2193	12.58%
1994	6268	16.32%	2551	16.32%
1995	7486	19.44%	3047	19.44%
1996	9275	23.89%	3775	23.89%
1997	11120	19.89%	4526	19.89%
1998	13074	17.57%	5321	17.57%
1999	14904	14.00%	6066	14.00%
2000	16852	13.07%	6567	8.26%
2001	18228	8.16%	7103	8.16%
2002	19503	7.00%	7600	7.00%
2003	21135	8.37%	8236	8.37%
2004	22701	7.41%	8846	7.41%
2005	24258	6.86%	9453	6.86%
2006	25996	7.16%	10130	7.16%
2007	27189	4.59%	10595	4.59%
2008	27697	1.87%	10793	1.87%
2009	27972	0.99%	10900	0.99%
2010	28174	0.72%	10979	0.72%



JVA, Incorporated
1319 Spruce Street
Boulder, CO 80302
Ph: 303.444.1951
Fax: 303.444.1957

Job Name: Pueblo West WCP - Percentage of Use per Category
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

2010 Percentage Breakdown per User Category

Category	# of Taps	% of Total Taps	2010 Water Use (MG)	% of Total Flow
Residential	10297	95.01%	1312	77.73%
Commercial	253	2.33%	196	11.60%
Duplex	221	2.04%	31	1.87%
Multi-Family	62	0.57%	19	1.12%
Non-Potable	1	0.01%	123	7.26%
Non-Residental	4	0.04%	7	0.42%
Total	**10838**		**1,687.58 MG**	

***Total number of taps does not match 10,979 value in report because the number of taps in the accounting data omits duplicate taps. The difference accounts for these duplications. The percentage was applied to the total number of taps 10,979 as stated in the report.**

***Flow data is the total from District accounting software for each category totaled for the entire year (2010).**

JVA, Incorporated
1319 Spruce Street
Boulder, CO 80302
Ph: 303.444.1951
Fax: 303.444.1957

Job Name: Pueblo West WCP - Historical Demand and Production
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Month	Total Raw Water Pumped	Treated Water Production	Metered Water Sales	Desert Hawk	Process Water-CLO2	Processs Water-Cl2	Total Process Water	Other Water Consumption (Tankers)	Real losses	Apparent losses	Total Losses
	(MG)	(MG)	(MG)	(MG)	(MG)	(MG)	(MG)	(MG)	(MG)	(MG)	(MG)
Jan-03		54.467	54.176	1.665	0.291	0.000	0.291				
Feb-03		41.861	41.546	1.971	0.315	0.000	0.315				
Mar-03		55.490	54.883	1.364	0.251	0.356	0.607				
Apr-03		82.882	81.632	10.125	0.411	0.839	1.250				
May-03		120.554	119.157	12.596	0.440	0.957	1.397				
Jun-03		127.227	125.129	10.464	0.637	1.461	2.098				
Jul-03		187.598	184.759	31.121	0.931	1.908	2.839				
Aug-03		167.649	164.761	23.222	0.934	1.954	2.888				
Sep-03		88.719	87.542	11.976	0.380	0.797	1.177				
Oct-03		116.068	114.369	13.466	0.538	1.161	1.699				
Nov-03		68.773	67.337	10.189	0.427	1.009	1.436				
Dec-03		58.130	57.207	2.227	0.289	0.634	0.923				
Annual 2003	**1267.16**	**1169.418**	**1152.498**	**130.386**	**5.844**	**11.076**	**16.920**	**0.000**	**79.760**	**15.980**	**95.740**
Jan-04		58.544	57.654	1.951	0.313	0.577	0.890				
Feb-04		50.072	49.392	0.000	0.377	0.304	0.681				
Mar-04		76.806	75.965	4.667	0.348	0.493	0.841				
Apr-04		79.071	77.879	7.020	0.392	0.800	1.192				
May-04		146.939	145.237	8.281	0.536	1.166	1.702				
Jun-04		155.479	152.915	23.982	0.779	1.785	2.564				
Jul-04		148.052	145.812	16.696	0.735	1.506	2.241				
Aug-04		133.137	130.844	13.160	0.742	1.552	2.294				
Sep-04		143.250	141.350	15.052	0.613	1.287	1.900				
Oct-04		105.713	104.166	9.544	0.490	1.057	1.547				
Nov-04		62.938	61.625	4.958	0.391	0.923	1.314				
Dec-04		61.568	60.590	1.017	0.307	0.672	0.979				
Annual 2004	**1265.79**	**1221.569**	**1203.427**	**106.328**	**6.021**	**12.122**	**18.143**	**0.000**	**25.716**	**16.504**	**42.220**
Jan-05		58.891	58.001	0.633	0.313	0.577	0.890				
Feb-05		56.712	56.032	1.265	0.377	0.304	0.681				
Mar-05		68.277	67.436	2.936	0.348	0.493	0.841				
Apr-05		97.025	95.833	4.330	0.392	0.800	1.192				
May-05		153.480	151.778	9.809	0.536	1.166	1.702				
Jun-05		180.756	178.192	19.659	0.779	1.785	2.564				
Jul-05		235.661	233.325	26.770	0.830	1.506	2.336				
Aug-05		190.224	187.909	17.368	0.763	1.552	2.315				
Sep-05		160.495	158.590	16.414	0.618	1.287	1.905				
Oct-05		97.884	96.297	7.422	0.530	1.057	1.587				
Nov-05		70.532	69.199	2.993	0.410	0.923	1.333				
Dec-05		66.279	65.306	2.427	0.301	0.672	0.973				
Annual 2005	**1461.83**	**1436.216**	**1417.898**	**112.026**	**6.197**	**12.122**	**18.319**	**0.000**	**4.451**	**19.162**	**23.613**
Jan-06		62.871	50.452	1.533	0.326	0.577	0.903				
Feb-06		60.647	57.312	0.683	0.371	0.304	0.675				
Mar-06		72.889	88.809	5.560	0.348	0.493	0.841				
Apr-06		139.751	125.021	9.486	0.392	0.800	1.192				
May-06		188.952	209.719	15.224	0.536	1.166	1.702				
Jun-06		218.711	275.578	26.374	0.779	1.785	2.564				
Jul-06		176.801	166.312	13.600	0.639	1.506	2.145				
Aug-06		160.840	171.768	15.379	0.720	1.552	2.272				
Sep-06		132.437	122.863	6.141	0.608	1.287	1.895				
Oct-06		95.654	110.039	6.919	0.450	1.057	1.507				
Nov-06		70.187	64.140	4.287	0.371	0.923	1.294				
Dec-06		68.014	53.135	1.612	0.312	0.672	0.984				

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Annual 2006	**1494.64**	**1447.755**	**1495.148**	**106.798**	**5.852**	**12.122**	**17.974**	**0.000**	**-**	**-**	**-**
Jan-07		61.046	57.415	0.000	0.300	0.577	0.877				
Feb-07		64.214	59.111	0.000	0.382	0.645	1.027	0.005			
Mar-07		83.598	51.400	5.161	0.300	0.731	1.031	0.040			
Apr-07		94.309	82.672	5.182	0.389	0.949	1.338	0.283			
May-07		123.033	97.553	0.000	0.496	1.121	1.617	0.255			
Jun-07		165.296	118.855	11.758	0.654	1.535	2.189	0.178			
Jul-07		209.110	190.471	21.484	0.843	1.577	2.420	0.186			
Aug-07		183.042	192.107	12.793	0.761	1.742	2.503	0.247			
Sep-07		166.681	152.560	6.882	0.650	1.550	2.200	0.120			
Oct-07		123.912	152.541	15.227	0.522	1.418	1.940	0.283			
Nov-07		76.790	94.744	9.792	0.460	1.122	1.582	0.127			
Dec-07		70.947	55.403	1.346	0.321	0.724	1.045	0.070			
Annual 2007	**1477.52**	**1421.978**	**1304.832**	**89.625**	**6.078**	**13.691**	**19.769**	**1.793**	**102.920**	**17.990**	**120.910**
Jan-08		70.867	58.486	0.000	0.368	0.673	1.041				
Feb-08		63.564	57.106	0.392	0.322	0.746	1.068				
Mar-08		78.542	53.148	2.696	0.311	0.597	0.908				
Apr-08		127.473	77.487	9.133	0.396	0.649	1.045				
May-08		192.265	150.128	13.739	0.476	1.240	1.716				
Jun-08		215.710	179.765	13.406	0.632	1.578	2.210				
Jul-08		243.780	220.006	29.899	0.728	1.708	2.436				
Aug-08		186.115	223.175	18.943	0.664	1.831	2.495				
Sep-08		182.520	162.786	12.169	0.655	1.599	2.254				
Oct-08		126.741	102.508	13.339	0.612	1.457	2.069	0.576			
Nov-08		81.765	84.328	5.654	0.399	1.062	1.461	0.473			
Dec-08		76.951	58.031	1.785	0.347	0.769	1.116	0.273			
Annual 2008	**1719.98**	**1646.293**	**1426.954**	**121.155**	**5.910**	**13.909**	**19.819**	**1.322**	**251.297**	**19.914**	**271.211**
Jan-09		76.507	63.529	0.110	0.375	0.855	1.230	0.179			
Feb-09		73.208	56.838	3.326	0.330	0.598	0.928	0.138			
Mar-09		103.383	65.605	5.988	0.354	1.005	1.359	0.270			
Apr-09		106.653	83.896	7.701	0.410	0.939	1.349	0.625			
May-09		188.816	120.322	10.215	0.445	1.162	1.607	0.613			
Jun-09		201.029	172.218	15.590	0.585	1.655	2.240	0.615			
Jul-09		220.996	205.525	21.441	0.641	1.707	2.348	0.695			
Aug-09		223.475	192.304	17.100	0.514	1.742	2.256	0.495			
Sep-09		163.285	200.685	20.568	0.740	1.807	2.547	0.856			
Oct-09		100.377	123.650	9.438	0.506	1.430	1.936	0.027			
Nov-09		76.046	63.555	4.658	0.328	0.776	1.104	0.074			
Dec-09		77.991	59.870	1.167	0.343	0.762	1.105	0.178			
Annual 2009	**1666.66**	**1611.766**	**1407.997**	**117.302**	**5.571**	**14.438**	**20.009**	**4.765**	**214.063**	**19.591**	**233.654**
Jan-10		75.793	59.144	0.189	0.349	0.832	1.181	0.179			
Feb-10		73.761	55.852	0.276	0.345	0.730	1.075	0.120			
Mar-10		68.346	51.723	0.102	0.321	0.711	1.032	0.089			
Apr-10		96.390	79.374	7.290	0.401	0.958	1.359	0.425			
May-10		143.437	114.752	8.643	0.467	1.174	1.641	0.199			
Jun-10		220.827	207.837	21.786	0.680	1.675	2.355	0.201			
Jul-10		242.513	224.227	20.952	0.682	1.850	2.532	0.192			
Aug-10		223.010	196.146	17.580	0.643	1.602	2.245	0.131			
Sep-10		225.740	212.139	27.108	0.647	1.748	2.395	0.234			
Oct-10		188.818	187.183	6.287	0.675	1.813	2.488	0.027			
Nov-10		105.886	101.973	8.240	0.405	1.006	1.411	0.074			
Dec-10		73.306	55.339	4.115	0.327	0.787	1.114	0.178			
Annual 2010	**1783.55**	**1737.826**	**1545.689**	**122.568**	**5.942**	**14.886**	**20.828**	**2.049**	**193.251**	**21.282**	**214.533**
Jan-11		70.943	58.961	1.027	0.349	0.792	1.141	0.131			
Feb-11		71.105	59.558	0.000	0.341	0.718	1.059	0.077			
Mar-11		64.415	51.374	1.086	0.241	0.652	0.893	0.396			
Apr-11		112.456	93.418	9.538	0.065	0.939	1.004	0.404			
May-11		165.988	153.249	10.764	0.504	1.395	1.899	0.599			
Jun-11		237.381	201.802	16.759	0.636	1.662	2.298	0.702			
Jul-11		251.558	235.063	18.651	0.597	1.775	2.372	0.441			
Aug-11		236.262	207.186	19.660	0.617	1.664	2.281	0.044			
Sep-11		236.263	232.362	18.268	0.752	1.867	2.619	0.023			

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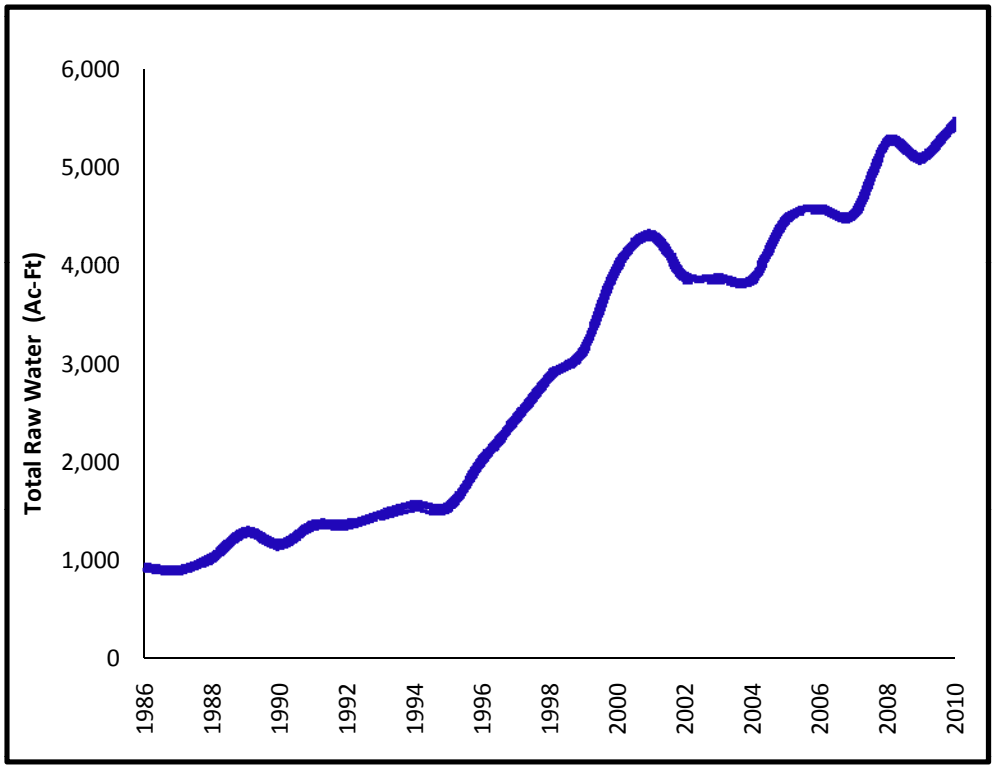
Job Name: Pueblo West WCP - Historical Annual Water Demand
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Year	Total Water Demand
1986	938
1987	908
1988	1042
1989	1294
1990	1172
1991	1361
1992	1370
1993	1472
1994	1561
1995	1554
1996	2029
1997	2449
1998	2887
1999	3164
2000	4013
2001	4321
2002	3910
2003	3889
2004	3885
2005	4486
2006	4587
2007	4535
2008	5279
2009	5115
2010	5474



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Job Name: Pueblo West WCP - Historic Peak Demand Data
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Pueblo West Metropolitan District - Peak Water Consumption

Peak Day (Date)	Finished Water Production (MG)	Water Taps	Peak Daily Consumption (Gallons/Tap)	Average Production (MG)	Average Daily Consumption (Gallons/Tap)	Peaking Factor	Peak Hour (instantaneous) (MGD)
7/13/2000	6.9	6742	1029	3.38	501	2.1	20.5
7/6/2001	8.5	7187	1183	3.62	504	2.3	15.2
6/30/2002	7.0	7708	910	3.51	455	2.0	13.6
7/10/2003	7.3	8600	849	3.20	373	2.3	14.4
6/8/2004	7.5	9335	804	3.34	358	2.3	13.5
7/20/2005	9.0	9189	974	3.93	430	2.3	13.6
7/19/2006	9.3	9886	943	3.97	404	2.3	13.6
6/12/2007	9.2	10401	885	3.90	374	2.4	14.5
7/20/2008	9.5	10694	888	4.51	422	2.1	16.3
7/5/2009	10.0	10866	924	4.51	415	2.2	17.2
7/17/2010	9.6	10954	880	4.51	412	2.1	18.8
5 Year Average			**904**	**4.28**	**405**	**2.24**	**16.08**
Maximum last 5 Years	**10.0**	**10954**	**943**		**422**		**18.8**

Desert Hawk Golf Course - Peak Month, Water Consumption

Month	MG Per Month	Gallons Per Day	Annual Total MG
7/1/2000	27.65	891,839	137.819
6/1/2001	23.63	762,194	152.48
6/1/2002	22.49	725,355	133.075
7/1/2003	31.12	1,003,903	130.366
6/1/2004	23.98	773,613	106.328
7/1/2005	26.77	863,548	112.026
6/1/2006	26.37	850,774	106.798
7/1/2007	21.48	693,032	89.625
7/1/2008	29.90	964,516	121.1553
7/1/2009	21.44	691,613	117.313
8/1/2010	27.11	874,516	122.568
5 Year Average	**26**	**814,890**	**111.58**
Maximum (last 5 years)	**29.90**	**964,516**	**123**

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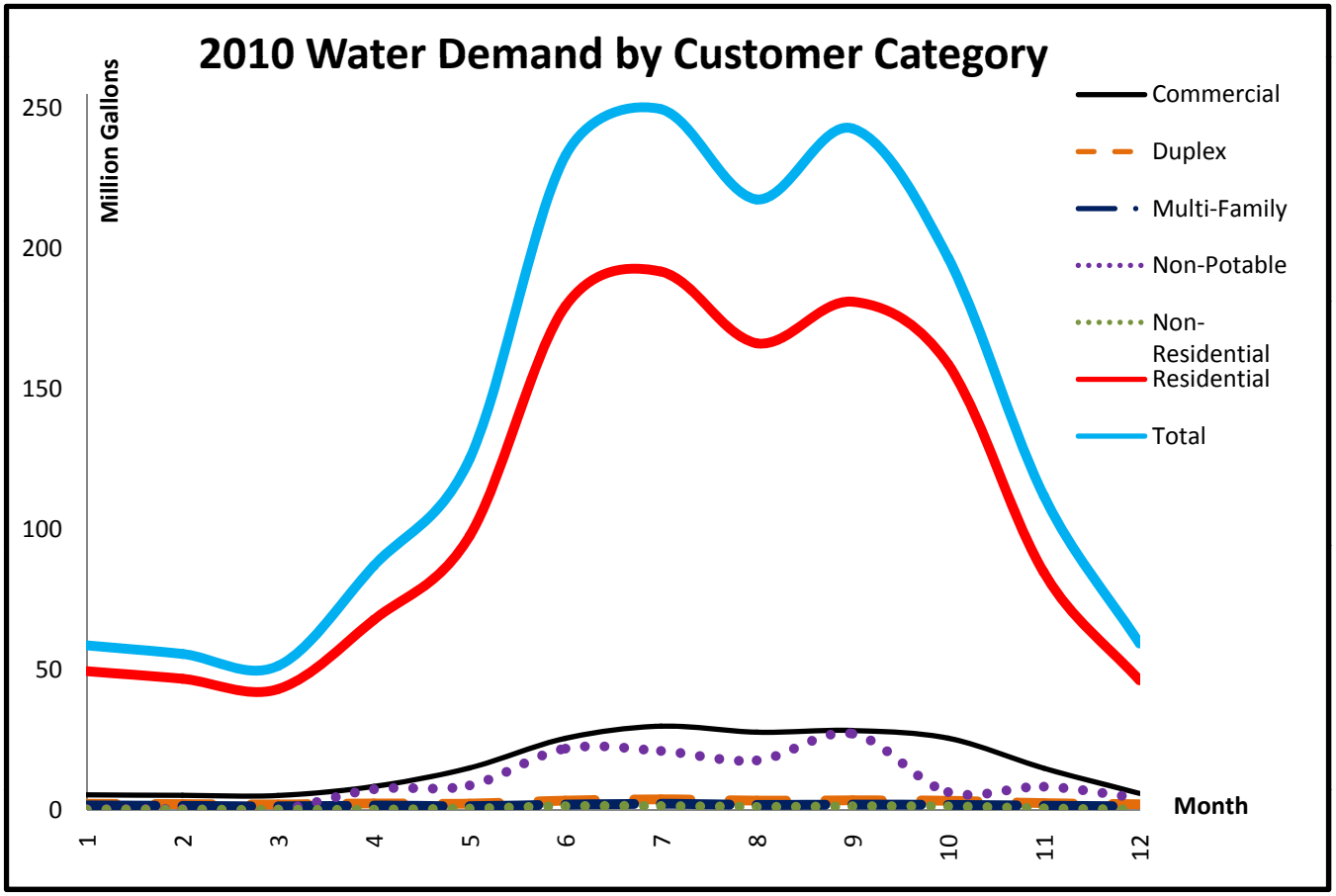
Job Name: Pueblo West WCP - Percentage of Use per Category
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

2010 Monthly Water Use Summary By User Category (MG)

Month	Residential	Commercial	Duplex	Multi-Family	Non-Potable	Non-Residental
January	49.37	5.30	2.138	1.542	0.189	0.038
February	46.67	5.13	2.03	1.39	0.28	0.04
March	42.99	5.07	1.90	1.21	0.10	0.01
April	67.66	8.29	2.23	1.48	7.29	0.02
May	97.57	14.90	2.16	1.29	8.64	0.46
June	179.38	25.45	3.23	1.84	21.79	1.28
July	191.72	29.77	3.69	2.11	20.95	1.32
August	166.16	27.61	3.27	1.72	17.58	1.03
September	180.94	28.22	3.33	1.82	27.11	1.25
October	158.69	25.50	3.19	1.75	6.29	1.21
November	84.51	14.76	2.35	1.47	8.24	0.47
December	46.09	5.80	1.97	1.22	4.12	0.03
Total	**109.31**	**16.31**	**2.62**	**1.57**	**10.21**	**0.60**



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Job Name: Pueblo West WCP - Percentage of Use per Category
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Historical Number of Taps Per Category

Year	Total	Residential	Commercial	Duplex	Multi-Family	Non-Potable	Non-Residental
Percentage		95.0%	2.33%	2.04%	0.57%	0.01%	0.04%
2005	9453	8981	221	193	54	1	3
2006	10130	9624	236	207	58	1	4
2007	10595	10066	247	216	61	1	4
2008	10815	10275	252	221	62	1	4
2009	10891	10347	254	222	62	1	4
2010	10974	10426	256	224	63	1	4

Historical Flow Per Category

Year	Total	Residential	Commercial	Duplex	Multi-Family	Non-Potable	Non-Residental
Percentage		77.7%	11.60%	1.87%	1.12%	7.26%	0.42%
2005	1417	1101	164	26	16	103	6
2006	1430	1112	166	27	16	104	6
2007	1402	1090	163	26	16	102	6
2008	1626	1264	189	30	18	118	7
2009	1592	1237	185	30	18	116	7
2010	1715	1333	200	32	19	125	7

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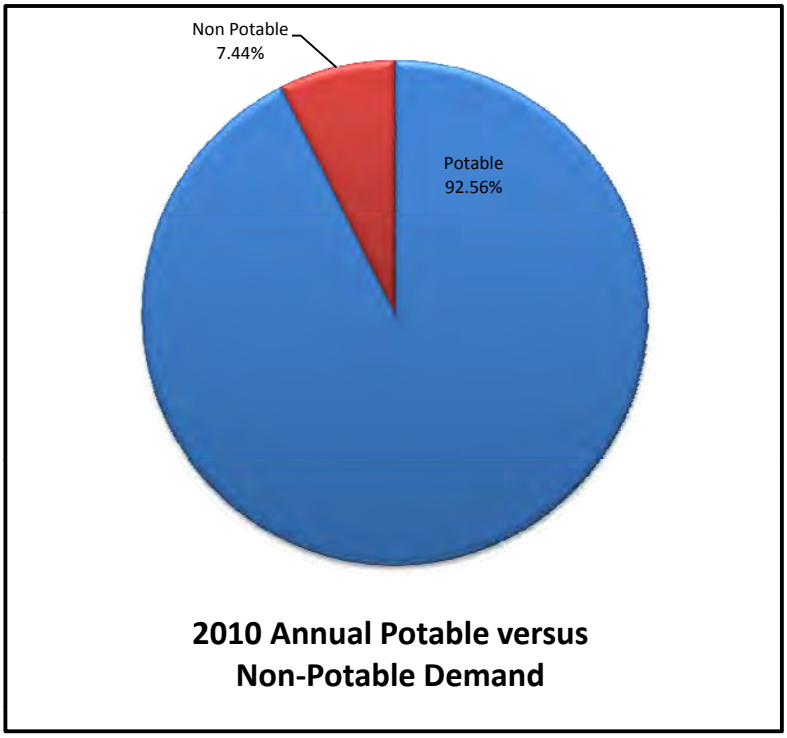
Historical Non-Potable Water Demand

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Tot Non-Potable	Total Annual Potable Water Sales
2003	1.67	1.97	1.36	10.13	12.60	10.46	31.12	23.22	11.98	13.47	10.19	2.23	130.39	1196.9
2004	1.95	0.00	4.67	7.02	8.28	23.98	16.70	13.16	15.05	9.54	4.96	1.02	106.33	1169.2
2005	0.63	1.27	2.94	4.33	9.81	19.66	26.77	17.37	16.41	7.42	2.99	2.43	112.03	1388.5
2006	1.53	0.68	5.56	9.49	15.22	26.37	13.60	15.38	6.14	6.92	4.29	1.61	106.80	1477.2
2007	0.00	0.00	5.16	5.18	0.00	11.76	21.48	12.79	6.88	15.23	9.79	1.35	89.63	1285.1
2008	0.00	0.39	2.70	9.13	13.74	13.41	29.90	18.94	12.17	13.34	5.65	1.79	121.16	1407.1
2009	0.11	3.33	5.99	7.70	10.22	15.60	21.44	17.10	20.57	9.44	4.66	1.17	117.31	1388
2010	0.19	0.28	0.10	7.29	8.64	21.79	20.95	17.58	27.11	6.29	8.24	4.12	122.57	1524.86
Avg	**0.76**	**0.99**	**3.56**	**7.53**	**9.81**	**17.88**	**22.75**	**16.94**	**14.54**	**10.21**	**6.35**	**1.96**	**113.27**	**1354.6**



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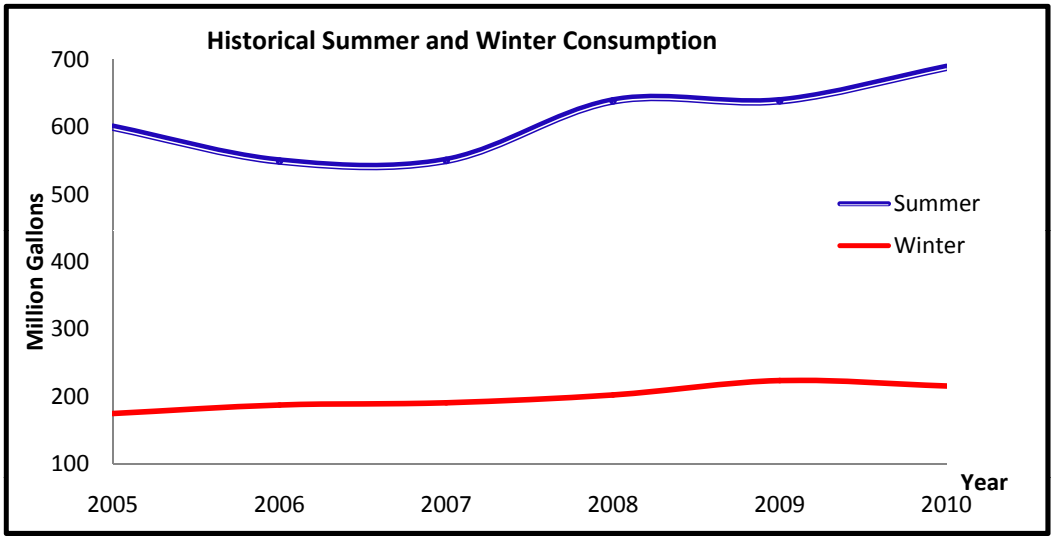
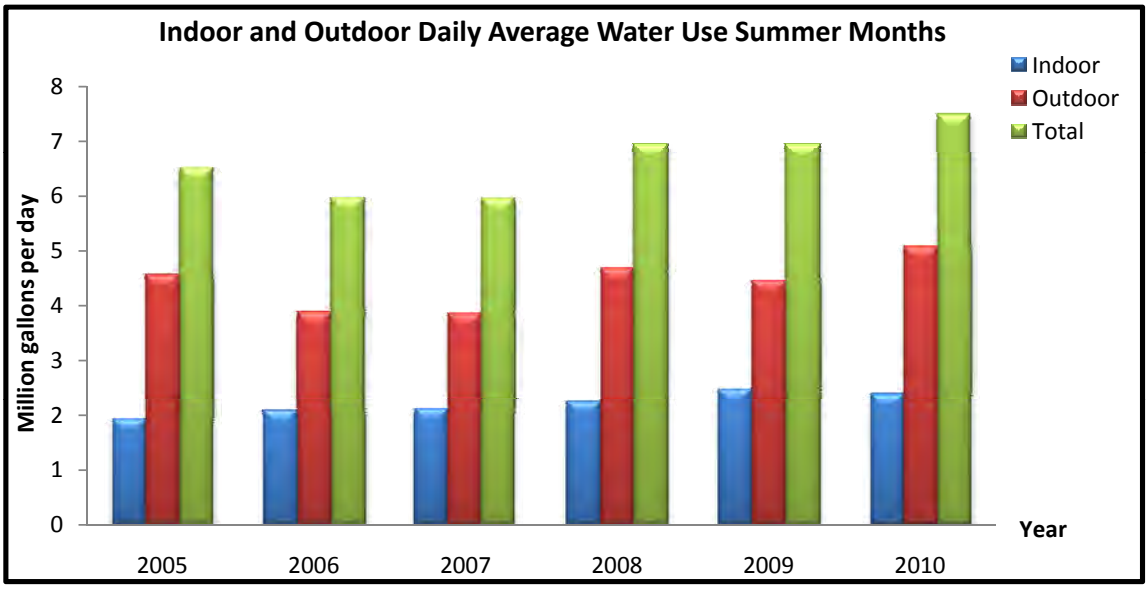
Job Name: Pueblo West WCP - Inddor versus Outdoor Analysis
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Historic Indoor and Outdoor Consumption Patterns

Year	Summer Total	Summer Monthly Avg	Summer Daily Avg	Winter Total	Winter Monthly Avg	Winter Daily Avg	Percent Indoor	Percent Outdoor	Indoor Average	Outdoor Average
	MG	MG	MGD	MG	MG	MGD	%	%	MGD	MGD
2005	599.4	199.8	6.5	174.6	58.2	1.9	29.8%	70.2%	1.94	4.58
2006	549.4	183.1	6.0	187.2	62.4	2.1	34.8%	65.2%	2.08	3.89
2007	550.3	183.4	6.0	190.4	63.5	2.1	35.4%	64.6%	2.12	3.87
2008	638.5	212.8	6.9	202.2	67.4	2.2	32.4%	67.6%	2.25	4.69
2009	638.7	212.9	6.9	223.4	74.5	2.5	35.8%	64.2%	2.48	4.46
2010	688.2	229.4	7.5	215.3	71.8	2.4	32.0%	68.0%	2.39	5.09





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Job Name: Pueblo West WCP - Percentage of Use per Category
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

2010 Summer/Winter Use By Category (MG)

Category	Dec-Feb	June-Aug	Outdoor Use	% of Outdoor Use	% of Indoor Use
Residential	47.376	179.09	131.71	73.55%	26.45%
Commercial	5.407	27.61	22.20	80.41%	19.59%
Multi-Family	1.382	1.89	0.51	26.91%	73.09%
Duplex	2.045	3.40	1.35	39.82%	60.18%
Non-Potable	1.527	20.11	18.58	92.41%	7.59%
Non-Residental	0.034	1.21	1.18	97.22%	2.78%
Total	**57.770**	**233.30**	**175.53**	**75.24%**	**24.76%**

Indoor/Outdoor Ratio Per Category

Category	Annual Momthly Average	Outdoor Use	Dec-Feb	Outdoor factor	Indoor Factor	Ratio
Residential	109.3	131.7	47.4	1.20	0.43	2.8
Commercial	16.3	22.2	5.4	1.36	0.33	4.1
Multi-Family	1.6	0.5	1.4	0.32	0.88	0.4
Duplex	2.6	1.4	2.0	0.52	0.78	0.7
Non-Residental	0.6	1.2	0.0	1.97	0.06	35.0
Non-Potable	10.2	18.6	1.5	1.82	0.15	12.2

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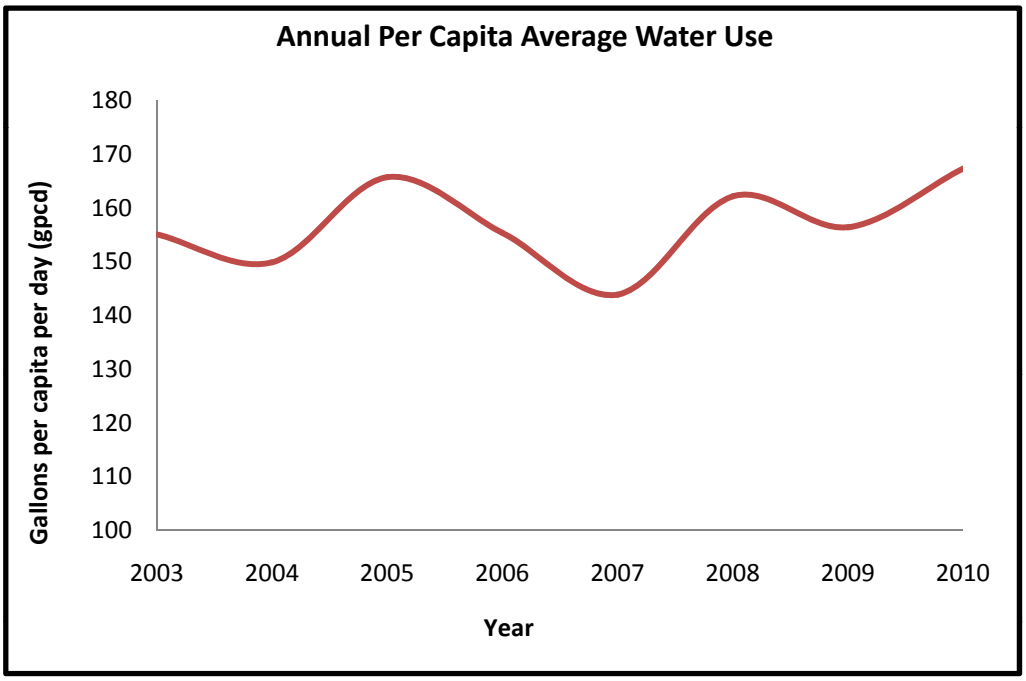
Job Name: Pueblo West WCP -Per Capita Use
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

PWMD Per Capita Water Use

Year	Population	Annual Average (MGD)	Total Per Capita Use (gpcd)	Residental Average (MGD)	Residental Annual Per Capita Use (gpcd)	Residential Summer Per Capita Use (gpcd)	Residential Winter Per Capita Use (gpcd)
2003	20,356	3.16	155	2.45	121	--	--
2004	21,995	3.30	150	2.56	117	--	--
2005	23,437	3.88	166	3.02	129	216	64
2006	25,210	3.92	155	3.04	121	184	64
2007	26,701	3.84	144	2.99	112	174	62
2008	27,475	4.46	162	3.46	126	196	64
2009	27,877	4.36	156	3.39	122	194	69
2010	28,084	4.70	167	3.65	130	207	66



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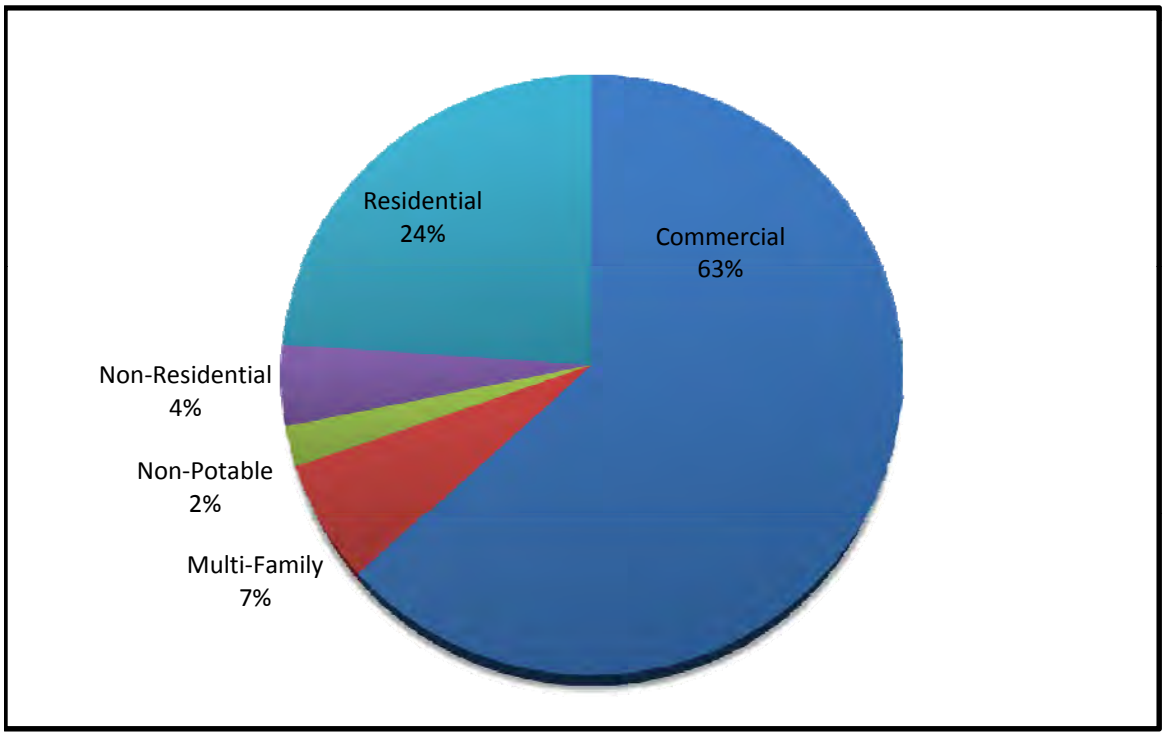
Job Name: Pueblo West WCP - Top 50 User Analysis
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Top 50 Users by Category

Category	Number	Percentage
Commercial	29	63%
Multi-Family	3	7%
Non-Potable	1	2%
Non-Residential	2	4%
Residential	11	24%



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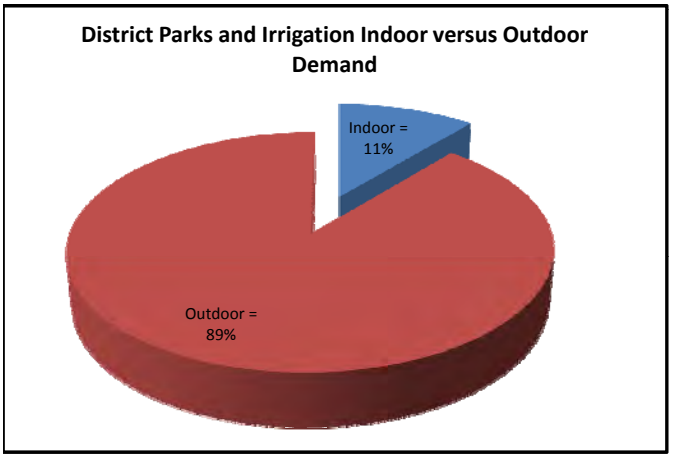
Job Name: Pueblo West WCP - Top 50 User Analysis
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

School Use Summary: Compilation of the nine schools in the District

Month	Two Year Total (MG)	Two Year Average Month (MG)	Average Daily Consumption (gpd)	Avgerage Daily Consumption Per School (gpd)
January	0.9	0.4	13935	1548
February	1.3	0.6	22875	2542
March	1.6	0.8	25306	2812
April	2.9	1.4	48117	5346
May	7.7	3.9	124677	13853
June	13.9	7.0	232017	25780
July	16.6	8.3	267565	29729
August	16.4	8.2	265226	29470
Septmeber	16.4	8.2	272633	30293
October	12.3	6.2	199097	22122
November	6.6	3.3	105710	11746
December	1.4	0.7	23258	2584

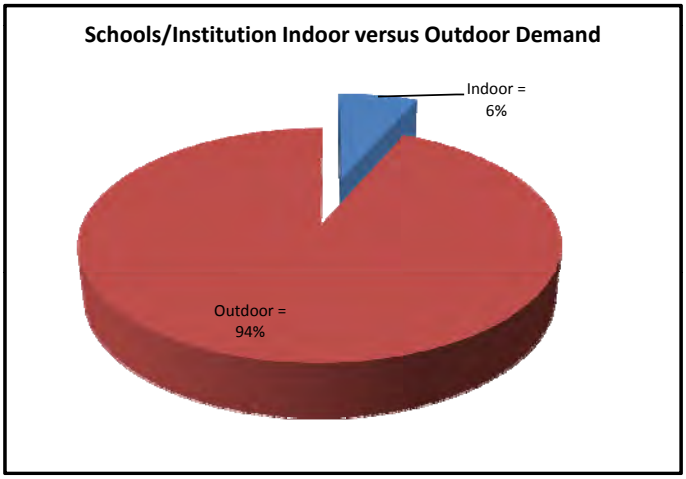
District Irrigation Account Summary

Month	Two Year Total (MG)	Two Year Average Month (MG)	Average Daily Consumption (gpd)
January	0.68	0.23	7,312
February	0.331	0.11	3,940
March	1.756	0.59	18,882
April	2.945	0.98	32,722
May	5.863	1.95	63,043
June	8.015	2.67	89,056
July	9.981	3.33	107,323
August	9.147	3.05	98,355
Septmeber	9.127	3.04	101,411
October	6.847	2.28	73,624
November	3.1	1.03	33,333
December	1	0.33	10,753



School Summer vs. Winter Use Summary

Year	Total Summer Use (MG)	Average Summer Use Per Month (MG)	Total Winter Use (MG)	Average Winter Use Per Month (MG)
2009	15,171,000	7,585,500	1058000	529000
2010	17,862,000	8,931,000	1087000	543500
Two Year Avg. (MG)		**8,258,250**		**536,250**
Daily Avg. (gpd)		**266,395**		**17,298**
	Indoor =	**17,298**	**gpd**	
	Outdoor =	**249,097**	**gpd**	



District Account Summer vs. Winter Use Summary

Year	Total Summer Use (MG)	Average Summer Use Per Month (MG)	Total Winter Use (MG)	Average Winter Use Per Month (MG)
2009	11,756,000	2,939,000	778000	259333
2010	11,756,000	2,939,000	1160000	386667
Two Year Avg. (MG)		**2,939,000**		**323,000**
Daily Avg. (gpd)		**94,806**		**10,419**
	Indoor =	**10,419**	**gpd**	
	Outdoor =	**84,387**	**gpd**	

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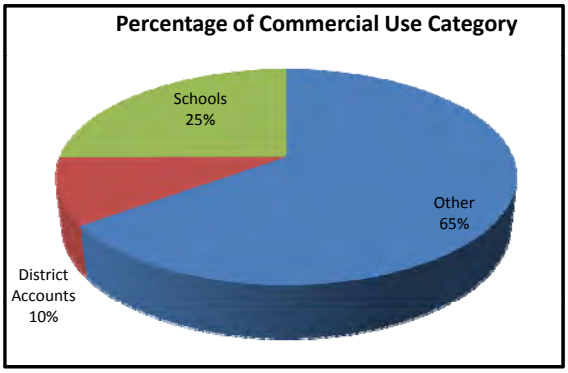
Job Name: Pueblo West WCP - Top 50 User Analysis
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Monthly Commercial Water Demand

Month	Total Commercial Water Demand (MG)	District Parks, etc. Monthly Water Demand (MG)	School Monthly Water Demand (MG)
January	5.3	0.23	0.43
February	5.13	0.11	0.64
March	5.07	0.59	0.78
April	8.29	0.98	1.44
May	14.9	1.95	3.87
June	25.5	2.67	6.96
July	29.8	3.33	8.29
August	27.6	3.05	8.22
September	28.2	3.04	8.18
October	25.5	2.28	6.17
November	14.8	1.03	3.28
December	5.79	0.33	0.72
Total	195.8	19.6	48.99



Annual Demand Per Commercial Category

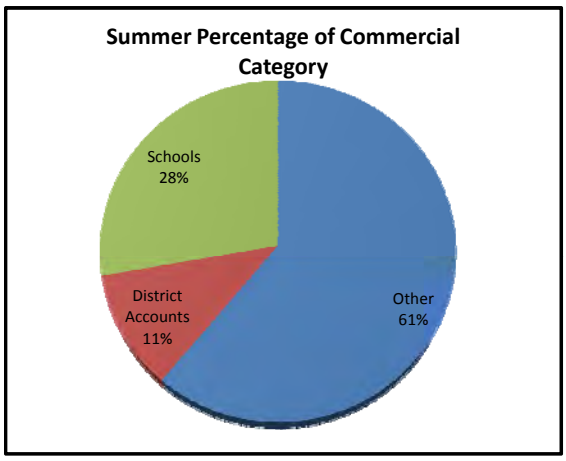
Category	Consumption (MG)
Other	127.21
District Accounts	19.6
Schools	48.99

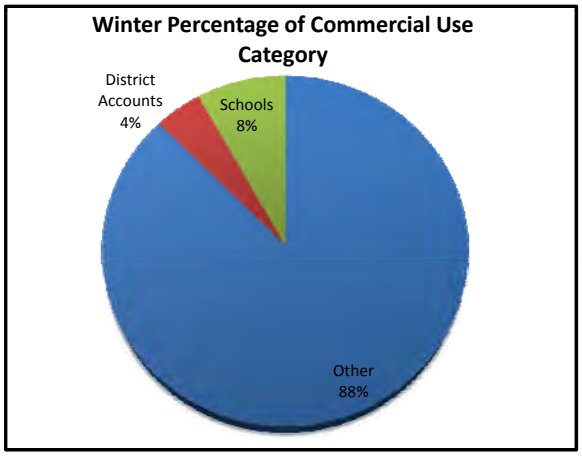
Summer Demand Per Commercial Category

Category	Consumption (MG)
Other	18.18
District Accounts	3.33
Schools	8.29

Winter Demand Per Commercial Category

Category	Consumption (MG)
Other	4.64
District Accounts	0.23
Schools	0.43





AWWA WLCC Free Water Audit Software: Water Balance

WAS v4.2

Water Audit Report For:	Report Yr:
District	2004

Own Sources (Adjusted for known errors) 1,265.790	Water Exported 0.000		Billed Water Exported		
	Water Supplied 1,265.790	Authorized Consumption 1,223.570	Billed Authorized Consumption 1,203.427	Billed Metered Consumption (inc. water exported) 1,203.427	Revenue Water 1,203.427
				Billed Unmetered Consumption 0.000	
			Unbilled Authorized Consumption 20.143	Unbilled Metered Consumption 18.143	Non-Revenue Water (NRW) 62.363
				Unbilled Unmetered Consumption 2.000	
		Water Losses 42.220	Apparent Losses 16.504	Unauthorized Consumption 3.164	
				Customer Metering Inaccuracies 12.339	
				Systematic Data Handling Errors 1.000	
Water Imported 0.000			Real Losses 25.716	Leakage on Transmission and/or Distribution Mains Not broken down	
				Leakage and Overflows at Utility's Storage Tanks Not broken down	
				Leakage on Service Connections Not broken down	

AWWA WLCC Free Water Audit Software: Water Balance

WAS v4.2

Water Audit Report For:	Report Yr:
District	2003

Own Sources (Adjusted for known errors) 1,267.160	Water Exported 0.000		Billed Water Exported		
	Water Supplied 1,267.160	Authorized Consumption 1,171.418	Billed Authorized Consumption 1,152.498	Billed Metered Consumption (inc. water exported) 1,152.498	Revenue Water 1,152.498
				Billed Unmetered Consumption 0.000	
			Unbilled Authorized Consumption 18.920	Unbilled Metered Consumption 16.920	Non-Revenue Water (NRW) 114.662
				Unbilled Unmetered Consumption 2.000	
		Water Losses 95.742	Apparent Losses 15.980	Unauthorized Consumption 3.168	
				Customer Metering Inaccuracies 11.812	
				Systematic Data Handling Errors 1.000	
Water Imported 0.000			Real Losses 79.762	Leakage on Transmission and/or Distribution Mains Not broken down	
				Leakage and Overflows at Utility's Storage Tanks Not broken down	
				Leakage on Service Connections Not broken down	

AWWA WLCC Free Water Audit Software: Water Balance

WAS v4.2

Water Audit Report For:	Report Yr:
District	2005

<table>
<tr><td rowspan="8">Own Sources
(Adjusted for known errors)
1,461.830</td><td rowspan="8">Water Exported
0.000

Water Supplied
1,461.830</td><td colspan="4">Billed Water Exported</td></tr>
<tr><td rowspan="2">Authorized Consumption
1,438.217</td><td rowspan="2">Billed Authorized Consumption
1,417.898</td><td>Billed Metered Consumption (inc. water exported)
1,417.898</td><td rowspan="2">Revenue Water
1,417.898</td></tr>
<tr><td>Billed Unmetered Consumption
0.000</td></tr>
<tr><td rowspan="6">Water Losses
23.613</td><td rowspan="2">Unbilled Authorized Consumption
20.319</td><td>Unbilled Metered Consumption
18.319</td><td rowspan="6">Non-Revenue Water (NRW)
43.932</td></tr>
<tr><td>Unbilled Unmetered Consumption
2.000</td></tr>
<tr><td rowspan="3">Apparent Losses
19.162</td><td>Unauthorized Consumption
3.655</td></tr>
<tr><td>Customer Metering Inaccuracies
14.507</td></tr>
<tr><td>Systematic Data Handling Errors
1.000</td></tr>
<tr><td rowspan="3">Water Imported
0.000</td><td rowspan="3">Real Losses
4.451</td><td>Leakage on Transmission and/or Distribution Mains
Not broken down</td></tr>
<tr><td>Leakage and Overflows at Utility's Storage Tanks
Not broken down</td></tr>
<tr><td>Leakage on Service Connections
Not broken down</td></tr>
</table>

AWWA WLCC Free Water Audit Software: Water Balance

WAS v4.2

Water Audit Report For:	Report Yr:
District	2007

<table>
<tr><td rowspan="8">Own Sources
(Adjusted for known errors)
1,447.520</td><td rowspan="8">Water Exported
0.000

Water Supplied
1,447.520</td><td colspan="3">Billed Water Exported</td></tr>
<tr><td rowspan="2">Authorized Consumption
1,326.601</td><td rowspan="2">Billed Authorized Consumption
1,304.832</td><td>Billed Metered Consumption (inc. water exported)
1,304.832</td><td rowspan="2">Revenue Water
1,304.832</td></tr>
<tr><td>Billed Unmetered Consumption
0.000</td></tr>
<tr><td rowspan="6">Water Losses
120.919</td><td rowspan="2">Unbilled Authorized Consumption
21.769</td><td>Unbilled Metered Consumption
19.769</td><td rowspan="6">Non-Revenue Water (NRW)
142.688</td></tr>
<tr><td>Unbilled Unmetered Consumption
2.000</td></tr>
<tr><td rowspan="3">Apparent Losses
17.999</td><td>Unauthorized Consumption
3.619</td></tr>
<tr><td>Customer Metering Inaccuracies
13.380</td></tr>
<tr><td>Systematic Data Handling Errors
1.000</td></tr>
<tr><td rowspan="3">Water Imported
0.000</td><td rowspan="3">Real Losses
102.920</td><td>Leakage on Transmission and/or Distribution Mains
Not broken down</td></tr>
<tr><td>Leakage and Overflows at Utility's Storage Tanks
Not broken down</td></tr>
<tr><td>Leakage on Service Connections
Not broken down</td></tr>
</table>

AWWA WLCC Free Water Audit Software: Water Balance

WAS v4.2

Water Audit Report For:	Report Yr:
District	2008

Own Sources (Adjusted for known errors) **1,719.980**	Water Exported **0.000**		Billed Water Exported		
	Water Supplied **1,719.980**	Authorized Consumption **1,448.769**	Billed Authorized Consumption **1,426.950**	Billed Metered Consumption (inc. water exported) **1,426.950**	Revenue Water **1,426.950**
				Billed Unmetered Consumption **0.000**	
			Unbilled Authorized Consumption **21.819**	Unbilled Metered Consumption **19.819**	Non-Revenue Water (NRW) **293.030**
				Unbilled Unmetered Consumption **2.000**	
		Water Losses **271.211**	Apparent Losses **19.914**	Unauthorized Consumption **4.300**	
				Customer Metering Inaccuracies **14.614**	
				Systematic Data Handling Errors **1.000**	
Water Imported **0.000**			Real Losses **251.297**	Leakage on Transmission and/or Distribution Mains **Not broken down**	
				Leakage and Overflows at Utility's Storage Tanks **Not broken down**	
				Leakage on Service Connections **Not broken down**	

AWWA WLCC Free Water Audit Software: Water Balance

WAS v4.2

Water Audit Report For:	Report Yr:
District	2010

Own Sources (Adjusted for known errors) 1,783.550	Water Exported 0.000		Billed Water Exported		
	Water Supplied 1,783.550	Authorized Consumption 1,671.230	Billed Authorized Consumption 1,647.430	Billed Metered Consumption (inc. water exported) 1,647.430	Revenue Water 1,647.430
				Billed Unmetered Consumption 0.000	
			Unbilled Authorized Consumption 23.800	Unbilled Metered Consumption 20.800	Non-Revenue Water (NRW) 136.120
				Unbilled Unmetered Consumption 3.000	
		Water Losses 112.320	Apparent Losses 22.310	Unauthorized Consumption 4.459	
				Customer Metering Inaccuracies 16.851	
				Systematic Data Handling Errors 1.000	
Water Imported 0.000			Real Losses 90.010	Leakage on Transmission and/or Distribution Mains Not broken down	
				Leakage and Overflows at Utility's Storage Tanks Not broken down	
				Leakage on Service Connections Not broken down	

AWWA WLCC Free Water Audit Software: Water Balance

WAS v4.2

Water Audit Report For:	Report Yr:
District	2009

Own Sources (Adjusted for known errors) 1,666.660	Water Exported 0.000	Billed Water Exported			
	Water Supplied 1,666.660	Authorized Consumption 1,433.006	Billed Authorized Consumption 1,407.997	Billed Metered Consumption (inc. water exported) 1,407.997	Revenue Water 1,407.997
				Billed Unmetered Consumption 0.000	
			Unbilled Authorized Consumption 25.009	Unbilled Metered Consumption 20.009	Non-Revenue Water (NRW) 258.663
				Unbilled Unmetered Consumption 5.000	
		Water Losses 233.654	Apparent Losses 19.591	Unauthorized Consumption 4.167	
				Customer Metering Inaccuracies 14.424	
				Systematic Data Handling Errors 1.000	
Water Imported 0.000			Real Losses 214.063	Leakage on Transmission and/or Distribution Mains Not broken down	
				Leakage and Overflows at Utility's Storage Tanks Not broken down	
				Leakage on Service Connections Not broken down	

APPENDIX G – FUTURE DEMAND AND PACOG POPULATION PROJECTIONS

JVA, Incorporated
1319 Spruce Street
Boulder, CO 80302
Ph: 303.444.1951
Fax: 303.444.1957

Job Name: Pueblo West WCP - PACOG Household Growth Rates
Job Number: 1770.2c
Date: 1/26/2011
By: BLM

PACOG HOUSEHOLD GROWTH SUMMARIZED

Zone (Census Tract)	HH. 2005	HH. 2015	HH. 2025	HH. 2035	Num. Chg. 05-15	Num. Chg. 15-25	Num. Chg. 25-35	Num. Chg. 05-35	Pct. Chg. 05-15	Pct. Chg. 15-25	Pct. Chg. 25-35	Pct. Chg. 05-35
1	1228	1250	1346	1378	22	96	32	150	1.8	7.7	2.4	12.2
2	722	774	929	1041	52	155	112	319	7.2	20.0	12.1	44.2
3	2	1	0	0	-1	-1	0	-2	-50.0	-100.0	0.0	-100.0
4	1179	1138	1171	1165	-41	33	-6	-14	-3.5	2.9	-0.5	-1.2
5	1104	1091	1111	1097	-13	20	-14	-7	-1.2	1.8	-1.3	-0.6
6	1927	1704	1833	1931	-223	129	98	4	-11.6	7.6	5.3	0.2
7	5028	4612	4862	5102	-416	250	240	74	-8.3	5.4	4.9	1.5
8	2313	2194	2509	2898	-119	315	389	585	-5.1	14.4	15.5	25.3
9	2	155	204	269	153	49	65	267	7650.0	31.6	31.9	13350.0
10	3062	2855	3152	3160	-207	297	8	98	-6.8	10.4	0.3	3.2
11	711	654	668	670	-57	14	2	-41	-8.0	2.1	0.3	-5.8
12	1814	1756	1874	1876	-58	118	2	62	-3.2	6.7	0.1	3.4
13	781	791	813	807	10	22	-6	26	1.3	2.8	-0.7	3.3
14	1962	1821	1888	1813	-141	67	-75	-149	-7.2	3.7	-4.0	-7.6
15	1011	968	1014	1013	-43	46	-1	2	-4.3	4.8	-0.1	0.2
16	3128	2864	3105	3310	-264	241	205	182	-8.4	8.4	6.6	5.8
17	3055	2872	3242	3663	-183	370	421	608	-6.0	12.9	13.0	19.9
18	1661	1525	1715	1950	-136	190	235	289	-8.2	12.5	13.7	17.4
19	2277	2137	2598	3161	-140	461	563	884	-6.1	21.6	21.7	38.8
20	2168	2079	2527	3138	-89	448	611	970	-4.1	21.5	24.2	44.7
21	1443	1595	2233	2761	152	638	528	1318	10.5	40.0	23.6	91.3
22	1701	1784	1992	2182	83	208	190	481	4.9	11.7	9.5	28.3
23	1068	1768	2633	3895	700	865	1262	2827	65.5	48.9	47.9	264.7
24	1623	1689	2336	3020	66	647	684	1397	4.1	38.3	29.3	86.1
25	1065	1214	1688	2004	149	474	316	939	14.0	39.0	18.7	88.2
26	836	916	1442	2143	80	526	701	1307	9.6	57.4	48.6	156.3
27	1972	2285	3596	4830	313	1311	1234	2858	15.9	57.4	34.3	144.9
28	1576	2467	3110	3409	891	643	299	1833	56.5	26.1	9.6	116.3
29	1260	1640	1855	1966	380	215	111	706	30.2	13.1	6.0	56.0
30	2525	2803	3608	4303	278	805	695	1778	11.0	28.7	19.3	70.4
31	1921	2114	2820	3456	193	706	636	1535	10.0	33.4	22.6	79.9
32	2069	2290	3098	3840	221	808	742	1771	10.7	35.3	24.0	85.6
33	667	668	695	712	1	27	17	45	0.1	4.0	2.4	6.7
34	494	1402	3345	7334	908	1943	3989	6840	183.8	138.6	119.3	1384.6
35	884	1270	1841	2673	386	571	832	1789	43.7	45.0	45.2	202.4
36	1660	1667	2111	2642	7	444	531	982	0.4	26.6	25.2	59.2
37	796	830	1077	1355	34	247	278	559	4.3	29.8	25.8	70.2
38	876	920	1270	1769	44	350	499	893	5.0	38.0	39.3	101.9
39	1350	1394	1709	2012	44	315	303	662	3.3	22.6	17.7	49.0
40	359	1107	2800	7150	748	1693	4350	6791	208.4	152.9	155.4	1891.6
TOTAL	61280	65064	81820	102898	3784	16756	21078	41618	6.2	25.8	25.8	67.9

GEO SUMMARY	HH. 2005	HH. 2015	HH. 2025	HH. 2035	Num. Chg. 05-15	Num. Chg. 15-25	Num. Chg. 25-35	Num. Chg. 05-35	Pct. Chg. 05-15	Pct. Chg. 15-25	Pct. Chg. 25-35	Pct. Chg. 05-35
CITY	43986	44496	54359	66155	510	9863	11796	22169	1.2	22.2	21.7	50.4
PW	**9351**	**11314**	**14491**	**16974**	**1963**	**3177**	**2483**	**7623**	**21.0**	**28.1**	**17.1**	**81.5**
MESA	3332	3417	4458	5766	85	1041	1308	2434	2.6	30.5	29.3	73.0
BEULAH	534	884	1317	1948	350	433	631	1414	65.5	48.9	47.9	264.7
CC-RYE	1701	1784	1992	2182	83	208	190	481	4.9	11.7	9.5	28.3
AVONDALE	1350	1394	1709	2012	44	315	303	662	3.3	22.6	17.7	49.0
NE COUNTY	359	1107	2800	7150	748	1693	4350	6791	208.4	152.9	155.4	1891.6
BALANCE	667	668	695	712	1	27	17	45	0.1	4.0	2.4	6.7
TOTAL	61280	65064	81820	102898	3784	16756	21078	41618	6.2	25.8	25.8	67.9
URBAN												
CITY + PW	53337	55810	68850	83129	2473	13040	14279	29792	4.6	23.4	20.7	55.9
RURAL COUNTY	7943	9254	12971	19770	1311	3717	6799	11827	16.5	40.2	52.4	148.9
RURAL AS % OF URBAN	14.9	16.6	18.8	23.8	53.0	28.5	47.6	39.7	356.0	171.9	252.8	266.6

Rev. 7/9/07

	HH. 2005	HH. 2015	HH. 2025	HH. 2035
Total	61280	65064	81820	102898
PWMD	9351	11314	14491	16974
PWMD % of County	15%	17%	18%	16%
County Growth		3784	16756	21078
County Growth %		6%	26%	26%
District Growth		1963	3177	2483
District Growth %		21%	28%	17%

JVA, Incorporated
1319 Spruce Street
Boulder, CO 80302
Ph: 303.444.1951
Fax: 303.444.1957

Job Name: Pueblo West WCP - PACOG Household Growth Rates
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

PACOG HOUSEHOLD GROWTH SUMMARIZED

GEO SUMMARY	Pop. 2005	Pop. 2015	Pop. 2025	Pop. 2035	Num. Chg. 05-15	Num. Chg. 15-25	Num. Chg. 25-35	Num. Chg. 05-35	Pct. Chg. 05-15	Pct. Chg. 15-25	Pct. Chg. 25-35	Pct. Chg. 05-35
CITY	105465	120819	139445	159273	15354	18626	19828	53808	14.6	15.4	14.2	51
PW	**25108**	**33949**	**40562**	**43915**	**8841**	**6613**	**3353**	**18807**	**35.2**	**19.5**	**8.3**	**74.9**
MESA	8839	10084	12248	14624	1245	2164	2376	5785	14.1	21.5	19.4	65.4
BEULAH	1267	2339	3253	4454	1072	914	1201	3187	84.6	39.1	36.9	251.5
CC-RYE	4166	4875	5083	5155	709	208	72	989	17	4.3	1.4	23.7
AVONDALE	3670	4223	4832	5261	553	609	429	1591	15.1	14.4	8.9	43.4
NE COUNTY	845	2874	6773	15998	2029	3899	9225	15153	240.1	135.7	136.2	1793.3
BALANCE	1747	1953	1898	1798	206	-55	-100	51	11.8	-2.8	-5.3	2.9
TOTAL	151107	181116	214093	250477	30009	32977	36384	99370	19.9	18.2	17	65.8

	Pop 2005	Pop. 2015	Pop. 2025	Pop. 2035
Total	151107	181116	214093	250477
PWMD	25108	33949	40562	43915
PWMD % of County	17%	19%	19%	18%

County Growth		30009	32977	36384
County Growth %		19.9%	18.2%	17.0%
County Annual GR		1.99%	1.82%	1.70%

District Growth		8841	6613	3353
District Growth %		35%	19%	8%
District Annual GR		3.52%	1.95%	0.83%

% of County Growth that is PW		29%	20%	9%

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Job Name: Pueblo West WCP - Population and Tap Connection Projections
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Population Growth Rates

2005 - 2015 GR =	3.52%
2015 - 2025 GR =	1.95%
2025 - 2035 GR =	0.83%

Water Tap Connection Growth Rates

2005 - 2015 GR =	2.10%
2015 - 2025 GR =	2.80%
2025 - 2035 GR =	1.70%

Year	Population	Number of Water Tap Connections
2012	30193	11,445
2013	31255	11,685
2014	32356	11,931
2015	33495	12,181
2016	34148	12,522
2017	34814	12,873
2018	35492	13,233
2019	36185	13,604
2020	36890	13,985
2021	37610	14,376
2022	38343	14,779
2023	39091	15,193
2024	39853	15,618
2025	40630	16,055
2026	40967	16,328
2027	41307	16,606
2028	41650	16,888
2029	41996	17,175
2030	42344	17,467
2031	42696	17,764
2032	43050	18,066
2033	43408	18,373

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Job Name: Pueblo West WCP - Population and Tap Connection Projections
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Date: 1/26/2012
By: BLM

TOTAL PWMD WATER DEMAND PROJECTIONS

YEAR	TOTAL RAW WATER PUMPED	TOTAL RAW WATER PUMPED	GC IRR	GC IRR	GC IRR	TOTAL POTABLE	TOTAL POTABLE	POPULATION	Gallons/ Persons/ Day	NEW TAPS ADDED THIS YR	WATER TAPS AT END OF YR
	(GAL)	(AF)	(GAL)	(AF)	(MGD)	(GAL)	(AF)		(GPCD)		
2011	1,807,767,526	5547.8	122568000	376.1	0.3358	1,685,199,526	5171.7	29166	158.3	231	11210
2012	1,867,086,550	5729.9	122568000	376.1	0.3358	1,744,518,550	5353.7	30193	158.3	235	11445
2013	1,928,493,603	5918.3	122568000	376.1	0.3358	1,805,925,603	5542.2	31255	158.3	240	11685
2014	1,992,062,184	6113.4	122568000	376.1	0.3358	1,869,494,184	5737.3	32356	158.3	245	11931
2015	2,057,868,379	6315.4	122568000	376.1	0.3358	1,935,300,379	5939.2	33495	158.3	251	12181
2016	2,095,606,736	6431.2	122568000	376.1	0.3358	1,973,038,736	6055.0	34148	158.3	341	12522
2017	2,134,080,992	6549.3	122568000	376.1	0.3358	2,011,512,992	6173.1	34814	158.3	351	12873
2018	2,173,305,495	6669.6	122568000	376.1	0.3358	2,050,737,495	6293.5	35492	158.3	360	13233
2019	2,213,294,876	6792.4	122568000	376.1	0.3358	2,090,726,876	6416.2	36185	158.3	371	13604
2020	2,254,064,050	6917.5	122568000	376.1	0.3358	2,131,496,050	6541.3	36890	158.3	381	13985
2021	2,295,628,223	7045.0	122568000	376.1	0.3358	2,173,060,223	6668.9	37610	158.3	392	14376
2022	2,338,002,898	7175.1	122568000	376.1	0.3358	2,215,434,898	6798.9	38343	158.3	403	14779
2023	2,381,203,878	7307.6	122568000	376.1	0.3358	2,258,635,878	6931.5	39091	158.3	414	15193
2024	2,425,247,278	7442.8	122568000	376.1	0.3358	2,302,679,278	7066.7	39853	158.3	425	15618
2025	2,470,149,524	7580.6	122568000	376.1	0.3358	2,347,581,524	7204.5	40630	158.3	437	16055
2026	2,489,634,450	7640.4	122568000	376.1	0.3358	2,367,066,450	7264.3	40967	158.3	273	16328
2027	2,509,281,102	7700.7	122568000	376.1	0.3358	2,386,713,102	7324.6	41307	158.3	278	16606
2028	2,529,090,821	7761.5	122568000	376.1	0.3358	2,406,522,821	7385.3	41650	158.3	282	16888
2029	2,549,064,960	7822.8	122568000	376.1	0.3358	2,426,496,960	7446.6	41996	158.3	287	17175
2030	2,569,204,885	7884.6	122568000	376.1	0.3358	2,446,636,885	7508.5	42344	158.3	292	17467
2031	2,589,511,971	7946.9	122568000	376.1	0.3358	2,466,943,971	7570.8	42696	158.3	297	17764
2032	2,609,987,606	8009.8	122568000	376.1	0.3358	2,487,419,606	7633.6	43050	158.3	302	18066
2033	2,630,633,189	8073.1	122568000	376.1	0.3358	2,508,065,189	7697.0	43408	158.3	307	18373
2034	2,651,450,130	8137.0	122568000	376.1	0.3358	2,528,882,130	7760.9	43768	158.3	312	18686
2035	2,672,439,851	8201.4	122568000	376.1	0.3358	2,549,871,851	7825.3	44131	158.3	318	19003

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Job Name: Pueblo West WCP - Projections Per User Category
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Annual Projected Demand by User Category (A.F.)

Year	Total Demand	Total Potable	Residential	Commercial	MultiFam	Duplex	Non-Res
2013	5730.4	5353.4	4159.6	621.0	64.2	100.1	22.7
2014	5918.9	5541.9	4306.0	642.9	66.5	103.6	23.5
2015	6113.9	5736.9	4457.6	665.5	68.8	107.3	24.3
2016	6315.9	5938.9	4614.5	688.9	71.3	111.1	25.2
2017	6431.7	6054.7	4704.5	702.3	72.7	113.2	25.7
2018	6549.8	6172.8	4796.2	716.0	74.1	115.4	26.2
2019	6670.1	6293.1	4889.8	730.0	75.5	117.7	26.7
2020	6792.9	6415.9	4985.1	744.2	77.0	120.0	27.2
2021	6918.0	6541.0	5082.3	758.8	78.5	122.3	27.7
2022	7045.5	6668.5	5181.4	773.5	80.0	124.7	28.3
2023	7175.5	6798.5	5282.5	788.6	81.6	127.1	28.8
2024	7308.1	6931.1	5385.5	804.0	83.2	129.6	29.4
2025	7443.3	7066.3	5490.5	819.7	84.8	132.1	30.0
2026	7581.1	7204.1	5597.6	835.7	86.4	134.7	30.5
2027	7640.9	7263.9	5644.0	842.6	87.2	135.8	30.8
2028	7701.1	7324.1	5690.9	849.6	87.9	137.0	31.1
2029	7761.9	7384.9	5738.1	856.7	88.6	138.1	31.3
2030	7823.2	7446.2	5785.7	863.8	89.4	139.2	31.6
2031	7885.0	7508.0	5833.7	870.9	90.1	140.4	31.8
2032	7947.4	7570.4	5882.2	878.2	90.8	141.6	32.1
2033	8010.2	7633.2	5931.0	885.4	91.6	142.7	32.4

Annual Projected Demand by User Category (MGD)

Year	Total Demand	Total Potable	Residential (MGD)	Commercial (MGD)	MultiFam (MGD)	Duplex (MGD)	Non-Res (MGD)
2013	1,745	1,744	3.71	0.55	0.053	0.089	0.020
2014	1,806	1,806	3.85	0.57	0.055	0.092	0.021
2015	1,870	1,869	3.98	0.59	0.057	0.096	0.022
2016	1,936	1,935	4.12	0.62	0.059	0.099	0.022
2017	1,973	1,973	4.20	0.63	0.060	0.101	0.023
2018	2,012	2,011	4.28	0.64	0.062	0.103	0.023
2019	2,051	2,051	4.37	0.65	0.063	0.105	0.024
2020	2,091	2,091	4.45	0.66	0.064	0.107	0.024
2021	2,132	2,131	4.54	0.68	0.065	0.109	0.025
2022	2,173	2,173	4.63	0.69	0.066	0.111	0.025
2023	2,216	2,215	4.72	0.70	0.068	0.113	0.026
2024	2,259	2,259	4.81	0.72	0.069	0.115	0.026
2025	2,303	2,303	4.90	0.73	0.070	0.118	0.027
2026	2,348	2,347	5.00	0.75	0.072	0.120	0.027
2027	2,367	2,367	5.04	0.75	0.072	0.121	0.027
2028	2,387	2,387	5.08	0.76	0.073	0.122	0.028
2029	2,407	2,406	5.12	0.76	0.074	0.123	0.028
2030	2,427	2,426	5.17	0.77	0.074	0.124	0.028
2031	2,447	2,447	5.21	0.78	0.075	0.125	0.028
2032	2,467	2,467	5.25	0.78	0.075	0.126	0.029
2033	2,488	2,487	5.30	0.79	0.076	0.127	0.029

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Job Name: Pueblo West WCP - Projections Per User Category
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Annual Projected Daily Summer Demand by User Category (MGD)

Year	Residental (MGD)	Commercial (MGD)	MultiFam (MGD)	Duplex (MGD)	Non-Res (MGD)
2013	4.48	0.75	0.017	0.046	0.040
2014	4.63	0.78	0.018	0.048	0.041
2015	4.80	0.81	0.019	0.049	0.043
2016	4.97	0.84	0.019	0.051	0.044
2017	5.06	0.85	0.020	0.052	0.045
2018	5.16	0.87	0.020	0.053	0.046
2019	5.26	0.89	0.020	0.054	0.047
2020	5.36	0.90	0.021	0.055	0.048
2021	5.47	0.92	0.021	0.056	0.049
2022	5.58	0.94	0.022	0.057	0.050
2023	5.68	0.96	0.022	0.058	0.051
2024	5.80	0.98	0.022	0.060	0.052
2025	5.91	1.00	0.023	0.061	0.053
2026	6.02	1.02	0.023	0.062	0.054
2027	6.07	1.02	0.023	0.062	0.054
2028	6.12	1.03	0.024	0.063	0.055
2029	6.17	1.04	0.024	0.063	0.055
2030	6.23	1.05	0.024	0.064	0.056
2031	6.28	1.06	0.024	0.065	0.056
2032	6.33	1.07	0.024	0.065	0.057
2033	6.38	1.08	0.025	0.066	0.057

Annual Projected Daily Winter Demand by User Category (MGD)

Year	Residental (MGD)	Commercial (MGD)	MultiFam (MGD)	Duplex (MGD)	Non-Res (MGD)
2013	1.61	0.184	0.047	0.070	0.001
2014	1.67	0.190	0.049	0.072	0.001
2015	1.73	0.197	0.050	0.074	0.001
2016	1.79	0.204	0.052	0.077	0.001
2017	1.82	0.208	0.053	0.079	0.001
2018	1.86	0.212	0.054	0.080	0.001
2019	1.89	0.216	0.055	0.082	0.001
2020	1.93	0.220	0.056	0.083	0.001
2021	1.97	0.225	0.057	0.085	0.001
2022	2.01	0.229	0.058	0.087	0.001
2023	2.04	0.233	0.060	0.088	0.001
2024	2.08	0.238	0.061	0.090	0.001
2025	2.13	0.243	0.062	0.092	0.002
2026	2.17	0.247	0.063	0.094	0.002
2027	2.18	0.249	0.064	0.094	0.002
2028	2.20	0.251	0.065	0.096	0.002
2029	2.22	0.253	0.065	0.097	0.002
2030	2.24	0.256	0.066	0.097	0.002
2031	2.26	0.258	0.066	0.098	0.002
2032	2.28	0.260	0.067	0.099	0.002
2033	2.30	0.262	0.068	0.100	0.002

APPENDIX H – COST-BENEFIT EVALUATION FOR WATER CONSERVATION OPTIONS

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Supply Side Meter Testing and Replacement Program

Description: Accuracy of existing water production meters is fundamental for evaluating water conservation efforts and success. This measure implements a program to maintain and replace inaccurate meters.

Program Length =	**20**	**yrs**
Planning Period =	2013 - 2033	

Evaluation of Approximate Water Savings

Annual Estimated Savings Rate =	1.50%	
Phase 1 Estimated Annual Water Production =	1,865,892,380	gal
Total Water Production - Phase 1 =	9,329,461,899	gal
Phase 1 Annual Water Savings =	27,988,386	gal
Total Savings for Phase 1 (2018) =	139,941,928	gal
Phase 2 Estimated Annual Water Production =	1,978,811,757	gal
Total Water Production - Phase 2 =	19,788,117,572	gal
Phase 2 Annual Water Savings =	29,682,176	gal
Total Savings for Phase 2 (2023) =	296,821,764	gal
Phase 3 Estimated Annual Water Production =	2,085,372,033	gal
Total Water Production - Phase 3 =	31,280,580,497	gal
Phase 3 Annual Water Savings =	31,280,580	gal
Total Savings for Phase 3 (2028) =	469,208,707	gal
Planning Period Annual Water Production =	2,170,746,183	gal
Total Water Production - Planning Period =	43,414,923,656	gal
Planning Period Annual Water Savings =	32,561,193	gal
Estimated Savings for Planning Period (2033) =	**651,223,855**	gal

Comments:

The District's UARL (unavoidable real loss: the lowest amount of leakage the system can achieve using best technology) is 19 MG/year or approximately 1% of treated water in 2010. The current system leakage/loss rate is estimated at approximately 10%.

An annual water savings of 1% is assumed.

Associated Costs

Costs to Water Provider:

One Time Labor and Material Costs

One Time Staff Labor Costs =	$0.00
Third Party Costs =	$4,000.00
Evaluation and Follow-up Costs =	$2,000.00
Total One Time Labor/Material Costs =	**$6,000.00**

Costs are approximate and for planning purposes only.

One time third party cost is an estimate of initial meter troubleshooting and calibration fees.

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By: BLM

Labor Costs

Staff Hours =	10	/yr
Hourly Cost =	$45.00	
Annual Staff Costs =	$450.00	/yr
Annual Labor =	**$450.00**	**/yr**

Material Costs

Annual Materials =	**$60,000.00**

Annual Cost Estimate =	**$60,450.00**

Comments:

Annual material costs are associated with the meter maintenance program in the 2011 Capital Improvements Project alternatives.

	2018	2023	2028	2033
Estimated Total Cost	$308,250.00	$610,500.00	$912,750.00	$1,215,000.00
Cost Per 1000 Gallons Saved	**$2.20**	**$2.06**	**$1.95**	**$1.87**

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Leak Detection and Repair

Description: Measure includes leak detection for the District's water distribution system and subsequent replacement and repair as required. The District is currently in the process of developing the leak detection program. Preliminary efforts to develop this program have focused on initial leak detection efforts and leak testing methods. Initial leak detection efforts will focus on valve testing and replacement as the system's valves have been in service for 30-40 years on average and leaks have already been identified surrounding the system's valves. The District will be using sonic leak detection methods until the condition of the valves are suitable for pressure testing methods to be incorporated. Development of the leak detection program is still in the preliminary phases, additional details are not available at this time.

Program Length =	**20**	**yrs**
Planning Period =	2013 - 2033	

Evaluation of Approximate Water Savings

Annual Estimated Savings Rate =	1.50%	
Phase 1 Estimated Annual Water Production =	1,865,892,380	gal
Total Water Production - Phase 1 =	9,329,461,899	gal
Phase 1 Annual Water Savings =	27,988,386	gal
Total Savings for Phase 1 (2018) =	139,941,928	gal
Phase 2 Estimated Annual Water Production =	1,978,811,757	gal
Total Water Production - Phase 2 =	19,788,117,572	gal
Phase 2 Annual Water Savings =	29,682,176	gal
Total Savings for Phase 2 (2023) =	296,821,764	gal
Phase 3 Estimated Annual Water Production =	2,085,372,033	gal
Total Water Production - Phase 3 =	31,280,580,497	gal
Phase 3 Annual Water Savings =	31,280,580	gal
Total Savings for Phase 3 (2028) =	469,208,707	gal
Planning Period Annual Water Production =	2,170,746,183	gal
Total Water Production - Planning Period =	43,414,923,656	gal
Planning Period Annual Water Savings =	32,561,193	gal
Estimated Savings for Planning Period (2033) =	**651,223,855**	gal

Comments:

The District's real and apparent losses are approximately 12 percent of the total treated water. From the AWWA water audit evaluation the average "real loss" (physical water loss) rate is approximately 10%.

Leak detection will be performed annually with a goal of inspecting 1% of the distribution lines annually.

An annual water savings of 1% is assumed.

Associated Costs

Costs to Water Provider:

One Time Labor and Material Costs

One Time Staff Labor Costs =	$0.00
Third Party Costs =	$0.00
Total One Time Labor/Material Costs =	**$0.00**

Costs are approximate and for planning purposes only.

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By: BLM

Labor Costs			
Staff Hours =	30	/yr	
Hourly Cost =	$45.00		
Annual Staff Costs =	$1,350.00	/yr	Assumed a third party consultant will be used for leak detection. This could also be performed by District staff.
Third Party Costs =	$8,000.00	/yr	
Evaluation and Follow-up Costs =	$2,000.00	/yr	
Annual Labor =	**$11,350.00**	**/yr**	

Material Costs			*Comments:*
Unit Costs =	$5,000.00	/Participant	
Number of Participants =	10	/yr	Assume that 10 valves are replaced annually for leak repair.
Gallons Saved Per Unit Per Year (2033)	3,256,119.27	gal	
Annual Materials =	**$50,000.00**		

Annual Cost Estimate =	**$61,350.00**	

	2018	2023	2028	2033
Estimated Total Cost	$306,750.00	$613,500.00	$920,250.00	$1,227,000.00
Cost Per 1000 Gallons Saved	**$2.19**	**$2.07**	**$1.96**	**$1.88**

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Job Name: Pueblo West WCP
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Date: 1/26/2012
By: BLM

Pressure Management

Description: Reduction of pressure in high pressure zones and throughout the distribution system to an average pressure of 80 psi. Reducing system pressure will reduce water loss through the distribution system caused by leaks and increase efficiency of irrigation systems.

Program Length =	**20**	**yrs**
Planning Period =	2013 - 2033	

Evaluation of Approximate Water Savings

Annual Estimated Savings Rate =	1.50%	
Phase 1 Estimated Annual Water Production =	1,865,892,380	gal
Total Water Production - Phase 1 =	9,329,461,899	gal
Phase 1 Annual Water Savings =	27,988,386	gal
Total Savings for Phase 1 (2018) =	139,941,928	gal
Phase 2 Estimated Annual Water Production =	1,978,811,757	gal
Total Water Production - Phase 2 =	19,788,117,572	gal
Phase 2 Annual Water Savings =	29,682,176	gal
Total Savings for Phase 2 (2023) =	296,821,764	gal
Phase 3 Estimated Annual Water Production =	2,085,372,033	gal
Total Water Production - Phase 3 =	31,280,580,497	gal
Phase 3 Annual Water Savings =	31,280,580	gal
Total Savings for Phase 3 (2028) =	469,208,707	gal
Planning Period Annual Water Production =	2,170,746,183	gal
Total Water Production - Planning Period =	43,414,923,656	gal
Planning Period Annual Water Savings =	32,561,193	gal
Estimated Savings for Planning Period (2033) =	**651,223,855**	gal

Associated Costs

Costs to Water Provider:

One Time Labor and Material Costs

One Time Staff Labor Costs =	$0.00
Third Party Costs =	$4,000.00
Evaluation and Follow-up Costs =	$2,000.00
Total One Time Labor/Material Costs =	**$6,000.00**

Labor Costs

Staff Hours =	50	/yr
Hourly Cost =	$45.00	
Annual Staff Costs =	$2,250.00	/yr
Annual Labor =	**$2,250.00**	**/yr**

Comments:

The District's current average pressure throughout the system is 98 psi. Pressure zones 1 and 2 have average pressures between 140 - 160 psi.

Pressure zone 1 has an average pressure of 142 psi and 1,120 water connections as of December 2011, with a total of 1,730 possible connections in this zone at build out.

Ultimate goal is to reduce system pressure to 80 psi average and 90 psi maximum.

Costs are approximate and for planning purposes only.

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Material Costs

Annual Materials = **$20,000.00**

Annual Cost Estimate = **$22,250.00**

Comments:

Potential annual material costs are associated with addressing pressure concerns, installing pressure reducing valves, etc.

	2018	2023	2028	2033
Estimated Total Cost	$117,250.00	$228,500.00	$339,750.00	$451,000.00
Cost Per 1000 Gallons Saved	**$0.84**	**$0.77**	**$0.72**	**$0.69**

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Water Conservation Officer

Description: Evaluation of hiring a full time employee (8 hours per day, 40 hours per week) to conduct water conservation activities

Program Length = **20** **years**
Planning Period = 2013 - 2033

Evaluation of Approximate Water Savings

Estimated Annual Water Savings = 4.0%

Phase 1 - 2018

Customer Category	Average Outdoor Water Use (gallons)	Estimated Annual Water Savings (gallons)
Residential	574,424,218	22,976,969
Commercial	96,829,143	3,873,166
Non-Residential	5,134,681	205,387

Annual Projected Water Savings = 27,055,522 gal
Estimated Savings for Phase 1 = 135,277,608 gal

Phase 2 - 2023

Customer Category	Average Outdoor Water Use (gallons)	Estimated Annual Water Savings (gallons)
Residential	609,193,344	24,367,734
Commercial	102,690,081	4,107,603
Non-Residential	5,445,476	217,819

Annual Projected Water Savings = 28,693,156 gal
Estimated Savings for Phase 2 = 286,931,560 gal

Phase 3 - 2028

Customer Category	Average Outdoor Water Use (gallons)	Estimated Annual Water Savings (gallons)
Residential	642,004,432	25,680,177
Commercial	108,220,958	4,328,838
Non-Residential	5,738,769	229,551

Annual Projected Water Savings = 30,238,566 gal
Estimated Savings for Phase 3 = 453,578,495 gal

Planning Period - 2033

Customer Category	Average Outdoor Water Use (gallons)	Estimated Annual Water Savings (gallons)
Residential	668,292,077	26,731,683
Commercial	112,652,196	4,506,088
Non-Residential	5,973,749	238,950

Annual Projected Water Savings = 31,476,721 gal
Estimated Savings for Planning Period = 629,534,418 gal

Comments:

The role of the Conservation Officer will initially be to target outdoor water users. The responsibility of this position can be re-assessed as the Plan is implemented.

Outdoor water use is approximated conservatively for four months of the year by multiplying the projected outdoor daily demand by 120 days. These values are an average annual approximation for planning purposes only.

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Associated Costs

Costs to Water Provider:

One Time Labor and Material Costs

One Time Staff Labor Costs =	$0.00	
Third Party Costs =	$0.00	
Total One Time Labor/Material Costs =	**$0.00**	

Labor Costs

Staff Hours =	-	/yr
Hourly Cost =	$0.00	
Annual Staff Costs =	$60,000.00	/yr
Third Party Costs =	$0.00	/yr
Evaluation and Follow-up Costs =	$0.00	/yr
Annual Labor =	**$60,000.00**	**/yr**

Material Costs

Unit Costs =	$0.00	
Number of Participants =	0	/Participant
Gallons Saved Per Unit Per Year	0	/yr
Annual Materials =	**$0.00**	gal

Annual Cost Estimate = $60,000.00

2011 Water Rates for Use (per 1000 gallons)

Category	Rate
Residential and Irrigation (41)	$3.04
Commercial/Industrial (43)	$3.32

Comments:

Costs are approximate and for planning purposes only.

Full time salary employee.

Average rates from 2011 for the mid range water use category (5,000 - 10,000 gal/1000) were used. Rates are provided for planning purposes only and are not reflective of projected revenues, as rates will change over the course of the planning period.

	2018	2023	2028	2033
Estimated Total Cost For Period	$300,000.00	$600,000.00	$900,000.00	$1,200,000.00
Annual Revenue Loss Due to Conservation	$83,390.78	$88,438.31	$93,201.59	$97,017.84
Period Revenue Loss	$416,953.90	$884,383.13	$1,398,023.86	$1,940,356.84
Estimated Cost Plus Revenue Loss	$716,953.90	$1,484,383.13	$2,298,023.86	$3,140,356.84
Cost Per 1000 Gallons Saved	**$5.30**	**$5.17**	**$5.07**	**$4.99**

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Job Name: Pueblo West WCP
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Date: 1/26/2012
By: BLM

Commercial and High Irrigation Demand User Audits and Rebates

Description: Measure will offer free water audits to the large outdoor irrigation customers and provide a rebate to those customers electing to receive audits. The rebate will have a maximum value of $500 per customer and can be applied to water efficiency measures indicated by the water audit.

Program Length = **20** **years**

Planning Period = 2013 - 2033

Evaluation of Approximate Water Savings

Estimated Annual Water Savings = 17.0%

Phase 1 - 2018

Customer Category	Average Water Use (gallons/tap)	Number of Participants	Estimated Annual Water Savings (gallons)
Commercial	775,335	15	1,977,105

Annual Projected Water Savings = 1,977,105 gal

Estimated Savings for Phase 1 = 9,885,526 gal

Phase 2 - 2023

Customer Category	Average Water Use (gallons/tap)	Number of Participants	Estimated Annual Water Savings (gallons)
Commercial	763,781	15	1,947,641

Annual Projected Water Savings = 1,947,641 gal

Estimated Savings for Phase 2 = 19,476,409 gal

Phase 3 - 2028

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of Participants	Estimated Annual Water Savings (gallons)
Commercial	758,146	15	1,933,272

Annual Projected Water Savings = 1,933,272 gal

Estimated Savings for Phase 3 = 28,999,083 gal

Planning Period - 2033

Customer Category	Average Water Use (gallons/tap)	Number of Participants	Estimated Annual Water Savings (gallons)
Commercial	702,119	15	1,790,404

Annual Projected Water Savings = 1,790,404 gal

Estimated Savings for Planning Period = 35,808,074 gal

Comments:

This effort will identify high commercial water users and offer free water audits and a $500 water efficiency rebate to those customers who participate in the water audit. Elidgibility of the rebates is contingent on the results of the District water audit.

Assumes 15 commercial water audits are performed each year.

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Associated Costs

Costs to Water Provider:

One Time Labor and Material Costs

One Time Staff Labor Costs =	$2,000.00	
Third Party Costs =	$0.00	
Total One Time Labor/Material Costs =	**$2,000.00**	

Labor Costs

Staff Hours =	10	/yr
Hourly Cost =	$20.00	
Annual Staff Costs =	$200.00	/yr
Third Party Costs =	$0.00	/yr
Evaluation and Follow-up Costs =	$200.00	/yr
Annual Labor =	**$400.00**	**/yr**

Material Costs

Unit Costs =	$300.00	
Number of Participants =	15	/yr
Unit Costs (Rebates) =	$500.00	
Number of Participants =	15	/yr
Annual Materials =	**$12,000.00**	gal

Annual Cost Estimate =	**$12,400.00**

2011 Water Rates for Use (per 1000 gallons)

Category	Rate
Commercial/Industrial (43)	$3.32

Comments:

Costs are approximate and for planning purposes only.

One time labor costs are associated with program development and policy planning required for initial start up and implementation.

Annual labor cost include coordination with third party consultants, and reviewing program progress and success.

The approximate cost of hiring a consultant for commercial audits is approximately $300 per audit.

Each rebate is assumed at the maximum potential value of $500 per customer.

Average rates from 2011 for the mid range water use category (5,000 - 10,000 gal/1000) were used. Rates are provided for planning purposes only and are not reflective of projected revenue, as rates will change over the course of the planning period.

	2018	2023	2028	2033
Estimated Total Cost For Period	$64,000.00	$126,000.00	$188,000.00	$250,000.00
Annual Revenue Loss Due to Conservation	$6,563.99	$6,466.17	$6,418.46	$5,944.14
Period Revenue Loss	$32,819.95	$64,661.68	$96,276.96	$118,882.80
Estimated Cost Plus Revenue Loss	$96,819.95	$190,661.68	$284,276.96	$368,882.80
Cost Per 1000 Gallons Saved	**$9.79**	**$9.79**	**$9.80**	**$10.30**

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Water Restrictions

Description: This measure further restricts outdoor water use during the summer months (May - September). Outdoor water use will not be permitted between 11 a.m. and 6 p.m. during these months.

Program Length = **20** **years**
Planning Period = 2013 - 2033

Evaluation of Approximate Water Savings

Estimated Annual Water Savings = 7.0%

Phase 1 - 2018

Customer Category	Average Outdoor Water Use (gallons)	Estimated Annual Water Savings (gallons)
Residential	727,604,010	50,932,281
Commercial	122,650,248	8,585,517
Non-Residential	6,503,929	455,275

Annual Projected Water Savings = 59,973,073 gal
Estimated Savings for Phase 1 = 299,865,365 gal

Phase 2 - 2023

Customer Category	Average Outdoor Water Use (gallons)	Estimated Annual Water Savings (gallons)
Residential	771,644,902	54,015,143
Commercial	130,074,103	9,105,187
Non-Residential	6,897,603	482,832

Annual Projected Water Savings = 63,603,163 gal
Estimated Savings for Phase 2 = 636,031,626 gal

Phase 3 - 2028

Customer Category	Average Outdoor Water Use (gallons)	Estimated Annual Water Savings (gallons)
Residential	813,205,613	56,924,393
Commercial	137,079,880	9,595,592
Non-Residential	7,269,107	508,837

Annual Projected Water Savings = 67,028,822 gal
Estimated Savings for Phase 3 = 1,005,432,331 gal

Planning Period - 2033

Customer Category	Average Outdoor Water Use (gallons)	Estimated Annual Water Savings (gallons)
Residential	846,503,297	59,255,231
Commercial	142,692,781	9,988,495
Non-Residential	7,566,749	529,672

Annual Projected Water Savings = 69,773,398 gal
Estimated Savings for Planning Period = 1,395,467,959 gal

Comments:

Conservation measure targets outdoor water use.

The outdoor water use restriction approximated as in effect for May - September (152 days). This measure is the only option utilizing the maximum irrigation period to demonstrate the difference between the existing WCDP and a more stringent regulation. Other outdoor water use measures utilize June - September (approximately 120 days) as a conservative estimate. These values are an average annual approximation for planning purposes only.

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Associated Costs

Costs to Water Provider:

One Time Labor and Material Costs

One Time Staff Labor Costs =	$6,000.00	
Third Party Costs =	$0.00	
Total One Time Labor/Material Costs =	**$6,000.00**	

Labor Costs

Staff Hours =	150	/yr
Hourly Cost =	$20.00	
Annual Staff Costs =	$3,000.00	/yr
Third Party Costs =	$0.00	/yr
Evaluation and Follow-up Costs =	$0.00	/yr
Annual Labor =	**$3,000.00**	**/yr**

Material Costs

Unit Costs =	$0.00	
Number of Participants =	0	/Participant
Gallons Saved Per Unit Per Year	0	/yr
Annual Materials =	**$0.00**	gal

Annual Cost Estimate = $3,000.00

2011 Water Rates for Use (per 1000 gallons)

Category	Rate
Residential and Irrigation (41)	$3.04
Commercial/Industrial (43)	$3.32

Comments:

Costs are approximate and for planning purposes only.

One time labor costs are associated with program development and policy planning required for initial start up and implementation.

Annual labor costs include continued research and development of program, public notification of restrictions and annual enforcement/inspection.

Average rates from 2011 for the mid range water use category (5,000 - 10,000 gal/1000) were used. Rates are provided for planning purposes only and are not reflective of projected revenue, as rates will change over the course of the planning period.

	2018	2023	2028	2033
Estimated Total Cost For Period	$21,000.00	$36,000.00	$51,000.00	$66,000.00
Annual Revenue Loss Due to Conservation	$184,849.56	$196,038.26	$206,596.86	$215,056.22
Period Revenue Loss	$924,247.82	$1,960,382.60	$3,098,952.89	$4,301,124.33
Estimated Cost Plus Revenue Loss	$945,247.82	$1,996,382.60	$3,149,952.89	$4,367,124.33
Cost Per 1000 Gallons Saved	**$3.15**	**$3.14**	**$3.13**	**$3.13**

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Job Name: Pueblo West WCP
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Date: 1/26/2012
By: BLM

Water Efficient Toilets for Existing and New Construction

Description: This measure would require homeowners with toilets with higher flow than 1.6 gpm to replace their existing toilets. All future construction would be required to install 1.6 gpm toilets.

Program Length = **20** **years**
Planning Period = 2013 - 2033

Evaluation of Approximate Water Savings

Estimated Annual Water Savings = 0.5%

Phase 1 - 2018

Customer Category	Average Indoor Water Use (gallons/tap)	Number of Participants	Estimated Annual Water Savings (gallons)
Residential	52,824	500	132,061

Annual Projected Water Savings = 132,061 gal
Estimated Savings for Phase 1 = 660,305 gal

Phase 2 - 2023

Customer Category	Average Indoor Water Use (gallons/tap)	Number of Participants	Estimated Annual Water Savings (gallons)
Residential	48,797	500	121,992

Annual Projected Water Savings = 121,992 gal
Estimated Savings for Phase 2 = 1,219,921 gal

Phase 3 - 2028

Customer Category	Average Indoor Water Use (gallons/tap)	Number of Participants	Estimated Annual Water Savings (gallons)
Residential	45,277	500	113,193

Annual Projected Water Savings = 113,193 gal
Estimated Savings for Phase 3 = 1,697,901 gal

Planning Period - 2033

Customer Category	Average Indoor Water Use (gallons/tap)	Number of Participants	Estimated Annual Water Savings (gallons)
Residential	43,322	500	108,304

Annual Projected Water Savings = 108,304 gal
Estimated Savings for Planning Period = 2,166,081 gal

Comments:

Conservation measure targets indoor water use. Majority of the District's population growth and construction occurred after the 1993 regulation for 1.6 gpm toilets.

The number of existing homes with the potential for low flow toilets was determined base on the number of connections prior to 1993, approximately 2,000.

All new construction is already required to install toilets with a 1.6 gpm maximum flow and therefore have not been included.

Assumes 500 toilets are replaced each period.

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Associated Costs

Costs to Water Provider:

One Time Labor and Material Costs

One Time Staff Labor Costs =	$2,000.00
Third Party Costs =	$0.00
Total One Time Labor/Material Costs =	**$2,000.00**

Labor Costs

Staff Hours =	40	/yr
Hourly Cost =	$20.00	
Annual Staff Costs =	$800.00	/yr
Third Party Costs =	$0.00	/yr
Evaluation and Follow-up Costs =	$200.00	/yr
Annual Labor =	**$1,000.00**	**/yr**

Material Costs

Unit Costs =	$0.00	
Number of Participants =	500	/yr
Gallons Saved Per Unit Per Year (2033)	216.61	/yr
Annual Materials =	**$0.00**	gal

Annual Cost Estimate = $1,000.00

2011 Water Rates for Use (per 1000 gallons)

Category	Rate
Residential and Irrigation (41)	$3.04

Comments:

Costs are approximate and for planning purposes only.

One time labor costs are associated with program development and policy planning required for initial start up and implementation.

Annual labor cost include coordination with customers required to purchase new fixtures and reviewing program progress and success.

Material costs will be evaluated with future planning efforts, to determine the feasibility of rebates and incentives for this program.

Average rates from 2011 for the mid range water use category (5,000 - 10,000 gal/1000) were used. Rates are provided for planning purposes only and are not reflective of projected revenue, as rates will change over the course of the planning period.

	2018	2023	2028	2033
Estimated Total Cost For Period	$7,000.00	$12,000.00	$17,000.00	$22,000.00
Annual Revenue Loss Due to Conservation	$401.47	$370.86	$344.11	$329.24
Period Revenue Loss	$2,007.33	$3,708.56	$5,161.62	$6,584.88
Estimated Cost Plus Revenue Loss	$9,007.33	$15,708.56	$22,161.62	$28,584.88
Cost Per 1000 Gallons Saved	**$13.64**	**$12.88**	**$13.05**	**$13.20**

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Job Name: Pueblo West WCP
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Date: 1/26/2012
By: BLM

Commercial and Residential Rain and Wind Sensor Requirement

Description: This measure would require installation of a rain and wind sensor on all irrigation systems that are installed (or renovated) in the District and all new developments. Rain and wind sensors are installed to turn off irrigation systems when it is raining or during periods of high winds in order to reduce unnecessary water consumption.

Program Length = **20** **years**

Planning Period = 2013 - 2033

Evaluation of Approximate Water Savings

Estimated Annual Water Savings = 6.0%

Phase 1 - 2018

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of New Taps Added and Renovations	Estimated Annual Water Savings (gallons)
Residential	50,562	259	787,084
Commercial	346,887	8	169,189

Annual Projected Water Savings = 956,273 gal

Estimated Savings for Phase 1 = 4,781,366 gal

Phase 2 - 2023

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of New Taps Added	Estimated Annual Water Savings (gallons)
Residential	50,185	362	1,090,948
Commercial	344,302	11	220,139

Annual Projected Water Savings = 1,311,086 gal

Estimated Savings for Phase 2 = 13,110,864 gal

Phase 3 - 2028

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of New Taps Added	Estimated Annual Water Savings (gallons)
Residential	49,384	381	1,128,648
Commercial	338,802	11	225,915

Annual Projected Water Savings = 1,354,562 gal

Estimated Savings for Phase 3 = 20,318,433 gal

Planning Period - 2033

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of New Taps Added	Estimated Annual Water Savings (gallons)
Residential	48,485	283	822,822
Commercial	332,634	9	173,713

Annual Projected Water Savings = 996,535 gal

Estimated Savings for Planning Period = 19,930,709 gal

Comments:

Conservation measure targets outdoor water use.

Outdoor water use is approximated conservatively for four months of the year by multiplying the projected outdoor daily demand per tap by 120 days. These values are an average approximation for planning purposes only.

Assumes 10 residential and 2 commercial renovations occur each year in additional to the number of new taps.

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Associated Costs

Costs to Water Provider:

One Time Labor and Material Costs

One Time Staff Labor Costs =	$6,000.00	
Third Party Costs =	$0.00	
Total One Time Labor/Material Costs =	**$6,000.00**	

Labor Costs

Staff Hours =	350	/yr
Hourly Cost =	$20.00	
Annual Staff Costs =	$7,000.00	/yr
Third Party Costs =	$0.00	/yr
Evaluation and Follow-up Costs =	$0.00	/yr
Annual Labor =	**$7,000.00**	**/yr**

Material Costs

Unit Costs =	$0.00	
Number of Participants =	0	/Participant
Gallons Saved Per Unit Per Year	0	/yr
Annual Materials =	**$0.00**	gal

Annual Cost Estimate = $7,000.00

Comments:

Costs are approximate and for planning purposes only.

One time costs are associated with program development and policy planning required for initial start up and implementation.

Labor cost include continued research and development of program, annual inspection of new tap connections and review of program progress and success.

2011 Water Rates for Use (per 1000 gallons)

Category	Rate
Residential and Irrigation (41)	$3.04
Commercial/Industrial (43)	$3.32

Average rates from 2011 for the mid range water use category (5,000 - 10,000 gal/1000) were used. Rates are provided for planning purposes only and are not reflective of projected revenues, as rates will change over the course of the planning period.

	2018	2023	2028	2033
Estimated Total Cost For Period	$41,000.00	$76,000.00	$111,000.00	$146,000.00
Annual Revenue Loss Due to Conservation	$2,954.44	$4,047.34	$4,181.13	$3,078.11
Period Revenue Loss	$14,772.22	$40,473.41	$62,716.88	$61,562.15
Estimated Cost Plus Revenue Loss	$55,772.22	$116,473.41	$173,716.88	$207,562.15
Cost Per 1000 Gallons Saved	**$11.66**	**$8.88**	**$8.55**	**$10.41**

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Turf/Landscape/Irrigation System Standards for New Development

Description: Implement irrigation, landscape, and/or turf standards as part of building permit review process. This policy regulates the landscape standards and affects new residential, commercial, and non-residential (irrigation) users.

Program Length = **20** **years**

Planning Period = 2013 - 2033

Evaluation of Approximate Water Savings

Estimated Annual Water Savings = 10.0%

Phase 1 - 2018

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of New Taps Added	Estimated Annual Water Savings (gallons)
Residential	50,562	249	1,261,245
Commercial	346,887	6	212,605
Annual Projected Water Savings =		1,473,849	gal
Estimated Savings for Phase 1 =		7,369,246	gal

Phase 2 - 2023

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of New Taps Added	Estimated Annual Water Savings (gallons)
Residential	50,185	352	1,768,061
Commercial	344,302	9	298,037
Annual Projected Water Savings =		2,066,098	gal
Estimated Savings for Phase 2 =		20,660,984	gal

Phase 3 - 2028

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of New Taps Added	Estimated Annual Water Savings (gallons)
Residential	49,384	371	1,831,696
Commercial	338,802	9	308,764
Annual Projected Water Savings =		2,140,460	gal
Estimated Savings for Phase 3 =		32,106,895	gal

Planning Period - 2033

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of New Taps Added	Estimated Annual Water Savings (gallons)
Residential	48,485	273	1,322,886
Commercial	332,634	7	222,995
Annual Projected Water Savings =		1,545,881	gal
Estimated Savings for Planning Period =		30,917,622	gal

Comments:

Conservation measure targets outdoor water use.

Outdoor water use is approximated conservatively for four months of the year by multiplying the projected outdoor daily demand per tap by 120 days. These values are an average approximation for planning purposes only.

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Associated Costs

Costs to Water Provider:

One Time Labor and Material Costs

One Time Staff Labor Costs =	$6,000.00	
Third Party Costs =	$0.00	
Total One Time Labor/Material Costs =	**$6,000.00**	

Labor Costs

Staff Hours =	100	/yr
Hourly Cost =	$20.00	
Annual Staff Costs =	$2,000.00	/yr
Third Party Costs =	$0.00	/yr
Evaluation and Follow-up Costs =	$0.00	/yr
Annual Labor =	**$2,000.00**	**/yr**

Material Costs

Unit Costs =	$0.00	
Number of Participants =	0	/Participant
Gallons Saved Per Unit Per Year	0	/yr
Annual Materials =	**$0.00**	gal

Annual Cost Estimate = $2,000.00

2011 Water Rates for Use (per 1000 gallons)

Category	Rate
Residential and Irrigation (41)	$3.04
Commercial/Industrial (43)	$3.32

Comments:

Costs are approximate and for planning purposes only.

One time costs are associated with program development and policy planning required for initial start up and implementation.

Labor cost include continued research and development of program, annual inspection of new tap connections and review of program progress and success.

Average rates from 2011 for the mid range water use category (5,000 - 10,000 gal/1000) were used. Rates are provided for planning purposes only and are not reflective of projected revenues, as rates will change over the course of the planning period.

	2018	2023	2028	2033
Estimated Total Cost For Period	$16,000.00	$26,000.00	$36,000.00	$46,000.00
Annual Revenue Loss Due to Conservation	$4,540.03	$6,364.39	$6,593.45	$4,761.92
Period Revenue Loss	$22,700.16	$63,643.90	$98,901.77	$95,238.35
Estimated Cost Plus Revenue Loss	$38,700.16	$89,643.90	$134,901.77	$141,238.35
Cost Per 1000 Gallons Saved	**$5.25**	**$4.34**	**$4.20**	**$4.57**

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Practical Turf for Sports Fields and District Irrigation Areas

Description: This measure would require all schools and institutions, as well as District owned natural grass fields to be replaced with synthetic turf fields.

Program Length = **20** **years**

Planning Period = 2013 - 2033

Evaluation of Approximate Water Savings

Estimated Annual Savings = 10.0%

Customer	Average Outdoor Water Use (gallons/yr)	Estimated Water Savings (gallons/yr)
PWMD Sports Complex (Tract No. 100-0-26)	6,802,000	680,200
PWMD Sprinkler (Tract No. 100-0-25)	1,637,333	163,733
PWMD Cattail Crossing	1,680,667	168,067
PWMD Lovell Park	3,089,000	308,900
School: 661 W Capistrano Ave	21,612,000	2,161,200
School: 386 E Hahns Peak Ave	19,333	1,933
School: 500 S Spaulding Ave	2,951,000	295,100
School: 484 S Maher Dr	8,543,000	854,300
School: 451 S Gilia Dr	17,167	1,717
School: 1047 S Camino De Bravo	4,641,667	464,167
School: 935 S Palomar Dr	3,831,833	383,183
School: 579 E Earl Dr.	2,727,667	272,767
School: 1267 W Oro Grande Dr.	1,447,000	144,700

Estimated Annual Savings = 5,899,967 gal

Estimated Savings for Phase 1 (2018) = 29,499,833 gal

Estimated Savings for Phase 2 (2023) = 58,999,667 gal

Estimated Savings for Phase 3 (2028) = 88,499,500 gal

Estimated Savings for Planning Period (2033) = **117,999,333** gal

Comments:

The outdoor water use for each of these accounts was averaged using meter data from 2008 - 2010. The indoor water use (January and February average) was subtracted from each of the months to determine the outdoor use. For this calculation it was assumed that there are no plans for additional schools/institutions or District sports fields/irrigation areas during the 20 yearplanning period. It is also assumed that outdoor water consumption will not increase for these customers during the planning period.

Associated Costs

Costs to Water Provider:

One Time Labor and Material Costs

One Time Staff Labor Costs =	$1,000.00	
Third Party Costs =	$0.00	
One Time Material Costs (Unit Cost) =	$400,000.00	per synthetic field
Number of Fields =	4	
Gallons Saved Per Field Per Year =	1,320,900	gal/field/yr
One Time Materials =	$1,600,000.00	
Total One Time Labor/Material Costs =	**$1,601,000.00**	

Costs are approximate and for planning purposes only.

One time labor costs include costs associated with program development and policy planning required for initial start up and implementation.

One time material costs are only calculated for District systems and are reflective of the approximate cost per synthetic field. Gallons saved per unit in this calculation refers to District facilities.

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

Labor Costs

Staff Hours =	300	/yr
Hourly Cost =	$20.00	
Annual Staff Costs =	$6,000.00	
Evaluation and Follow-up Costs =	$0.00	
Annual Labor =	**$6,000.00**	

Material Costs

Unit Costs =	$0.00	
Number of Participants =	0	
Annual Materials =	**$** -	

Annual Cost Estimate =	**$6,000.00**

Comments:

Annual labor costs include inspection of institutions. Annual maintenance of the turf is not included as that is assumed to be included in existing budgets for maintenance of the existing natural grass fields.

2011 Water Rates for Use (per 1000 gallons)

Category	Rate
Commercial/Industrial (43)	$3.32

Annual Revenue Loss Due to Conservation =	**$19,587.89**

Average rates from 2011 for the mid range water use category (5,000 - 10,000 gal/1000) were used. Rates are provided for planning purposes only and are not reflective of projected revenue, as rates will change over the course of the planning period.

	2018	2023	2028	2033
Estimated Total Cost For Period	$1,631,000.00	$1,661,000.00	$1,691,000.00	$1,721,000.00
Annual Revenue Loss Due to Conservation	$19,587.89	$19,587.89	$19,587.89	$19,587.89
Period Revenue Loss	$97,939.45	$195,878.89	$293,818.34	$391,757.79
Estimated Cost Plus Revenue Loss	$1,728,939.45	$1,856,878.89	$1,984,818.34	$2,112,757.79
Cost Per 1000 Gallons Saved	**$58.61**	**$31.47**	**$22.43**	**$17.90**

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Job Name: Pueblo West WCP
Job Number: 1770.2c
Date: 1/26/2012
By: BLM

New and Replacement Lawn/Landscape Permit

Description: Requires all properties in the District that will be landscaped (new or replacement) to pass an inspection prior to plant material installation

Program Length = **20** **years**
Planning Period = 2013 - 2033

Evaluation of Approximate Water Savings

Estimated Annual Water Savings = 2.5%

Phase 1 - 2018

Customer Category	Average Outdoor Water Use (gallons)	Estimated Annual Water Savings (gallons)
Residential	574,424,218	14,360,605
Commercial	96,829,143	2,420,729
Non-Residential	5,134,681	128,367

Annual Projected Water Savings = 16,909,701 gal

Estimated Savings for Phase 1 = 84,548,505 gal

Phase 2 - 2023

Customer Category	Average Outdoor Water Use (gallons)	Estimated Annual Water Savings (gallons)
Residential	609,193,344	15,229,834
Commercial	102,690,081	2,567,252
Non-Residential	5,445,476	136,137

Annual Projected Water Savings = 17,933,223 gal

Estimated Savings for Phase 2 = 179,332,225 gal

Phase 3 - 2028

Customer Category	Average Outdoor Water Use (gallons)	Estimated Annual Water Savings (gallons)
Residential	642,004,432	16,050,111
Commercial	108,220,958	2,705,524
Non-Residential	5,738,769	143,469

Annual Projected Water Savings = 18,899,104 gal

Estimated Savings for Phase 3 = 283,486,559 gal

Planning Period - 2033

Customer Category	Average Outdoor Water Use (gallons)	Estimated Annual Water Savings (gallons)
Residential	668,292,077	16,707,302
Commercial	112,652,196	2,816,305
Non-Residential	5,973,749	149,344

Annual Projected Water Savings = 19,672,951 gal

Estimated Savings for Planning Period = 393,459,011 gal

Comments:

Conservation measure targets outdoor water use.

Outdoor water use is approximated conservatively for four months of the year by multiplying the projected outdoor daily demand per tap by 120 days. These values are an average approximation for planning purposes only.

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Associated Costs

Costs to Water Provider:

One Time Labor and Material Costs

One Time Staff Labor Costs =	$6,000.00	
Third Party Costs =	$0.00	
Total One Time Labor/Material Costs =	**$6,000.00**	

Labor Costs

Staff Hours =	10	/yr
Hourly Cost =	$45.00	
Annual Staff Costs =	$450.00	/yr
Third Party Costs =	$0.00	/yr
Evaluation and Follow-up Costs =	$200.00	/yr
Annual Labor =	**$650.00**	**/yr**

Material Costs

Unit Costs =	$100.00	
Number of Participants =	10	/Participant
Gallons Saved Per Unit Per Year (2033) =	1,967,295.05	gallons
Annual Materials =	**$1,000.00**	/yr

Annual Cost Estimate =	**$1,650.00**

2011 Water Rates for Use (per 1000 gallons)

Category	Rate
Residential and Irrigation (41)	$3.04
Commercial/Industrial (43)	$3.32

Comments:

Costs are approximate and for planning purposes only.

One time costs are associated with program development and policy planning required for initial start up and implementation.

Annual labor costs include continued research and development of program, coordination with third party consultant and review of program progress and success.

This duty can be provided by the water conservation officer or a third party consultant.

Third party consultant can be utilized for approximately $100 per inspection.

Average rates from 2011 for the mid range water use category (5,000 - 10,000 gal/1000) were used. Rates are provided for planning purposes only and are not reflective of projected revenue, as rates will change over the course of the planning period.

	2018	2023	2028	2033
Estimated Total Cost For Period	$14,250.00	$22,500.00	$30,750.00	$39,000.00
Annual Revenue Loss Due to Conservation	$52,119.24	$55,273.95	$58,250.99	$60,636.15
Period Revenue Loss	$260,596.19	$552,739.45	$873,764.91	$1,212,723.03
Estimated Cost Plus Revenue Loss	$274,846.19	$575,239.45	$904,514.91	$1,251,723.03
Cost Per 1000 Gallons Saved	**$3.25**	**$3.21**	**$3.19**	**$3.18**

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10% Lot Irrigation Restriction

Description: This policy restricts the amount of the customer's lot which can be irrigated. Policy affects new residential, commercial, and non-residential (irrigation) categories. The 10% value was obtained from the City of Evans Conservation Plan (2009). Other municipalities use 20% (Albuquerque, New Mexico), 35% (Marin Municipal Water District in California), etc. The 10% value can be adjusted to a less conservative estimate in a follow up evaluation if deemed appropriate.

Program Length = **20** **years**

Planning Period = 2013 - 2033

Evaluation of Approximate Water Savings

Estimated Annual Water Savings = 10.0%

Phase 1 - 2018

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of New Taps Added	Estimated Annual Water Savings (gallons)
Residential	50,562	249	1,261,245
Commercial	346,887	6	212,605

Annual Projected Water Savings = 1,473,849 gal

Estimated Savings for Phase 1 = 7,369,246 gal

Phase 2 - 2023

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of New Taps Added	Estimated Annual Water Savings (gallons)
Residential	50,185	352	1,768,061
Commercial	344,302	9	298,037

Annual Projected Water Savings = 2,066,098 gal

Estimated Savings for Phase 2 = 20,660,984 gal

Phase 3 - 2028

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of New Taps Added	Estimated Annual Water Savings (gallons)
Residential	49,384	371	1,831,696
Commercial	338,802	9	308,764

Annual Projected Water Savings = 2,140,460 gal

Estimated Savings for Phase 3 = 32,106,895 gal

Planning Period - 2033

Customer Category	Average Outdoor Water Use (gallons/tap)	Number of New Taps Added	Estimated Annual Water Savings (gallons)
Residential	48,485	273	1,322,886
Commercial	332,634	7	222,995

Annual Projected Water Savings = 1,545,881 gal

Estimated Savings for Planning Period = 30,917,622 gal

Comments:

Conservation measure targets outdoor water use.

Outdoor water use is approximated conservatively for four months of the year by multiplying the projected outdoor daily demand per tap by 120 days. These values are an average approximation for planning purposes only.

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Associated Costs

Costs to Water Provider:

One Time Labor and Material Costs

One Time Staff Labor Costs =	$6,000.00	
Third Party Costs =	$0.00	
Total One Time Labor/Material Costs =	**$6,000.00**	

Labor Costs

Staff Hours =	350	/yr
Hourly Cost =	$20.00	
Annual Staff Costs =	$7,000.00	/yr
Third Party Costs =	$0.00	/yr
Evaluation and Follow-up Costs =	$0.00	/yr
Annual Labor =	**$7,000.00**	**/yr**

Material Costs

Unit Costs =	$0.00	
Number of Participants =	0	/Participant
Gallons Saved Per Unit Per Year	0	/yr
Annual Materials =	**$0.00**	gal

Annual Cost Estimate =	**$7,000.00**

Comments:

Costs are approximate and for planning purposes only.

One time costs are associated with program development and policy planning required for initial start up and implementation.

Labor cost include continued research and development of program, annual inspection of new connections and review of program progress and success.

Average rates from 2011 for the mid range water use category (5,000 - 10,000 gal/1000) were used. Rates are provided for planning purposes only and are not reflective of projected revenues, as rates will change over the course of the planning period.

2011 Water Rates for Use (per 1000 gallons)

Category	Rate
Residential and Irrigation (41)	$3.04
Commercial/Industrial (43)	$3.32

	2018	2023	2028	2033
Estimated Total Cost For Period	$41,000.00	$76,000.00	$111,000.00	$146,000.00
Annual Revenue Loss Due to Conservation	$4,540.03	$6,364.39	$6,593.45	$4,761.92
Period Revenue Loss	$22,700.16	$63,643.90	$98,901.77	$95,238.35
Estimated Cost Plus Revenue Loss	$63,700.16	$139,643.90	$209,901.77	$241,238.35
Cost Per 1000 Gallons Saved	**$8.64**	**$6.76**	**$6.54**	**$7.80**

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Summary of Cost-Benefit Analysis for Phase 1 (2013 - 2018)

	Conservation Measure or Program	# of Participants Annually	Annual Water Savings (gallons)	5 Year Water Savings (gallons)	Annual Revenue Loss Due to Decreased Use	Total Cost			Annual Cost	5 Year Total Cost	Cost per 1000 Gallons Saved	Rank
						One Time Labor and Material Cost	Annual Labor	Annual Materials				
Supply measures and programs	**Maintenance Programs**											
	Water Meter Testing and Replacement Program	-	27,988,386	139,941,928	$0	$6,000	$450	$60,000	$60,450	$308,250	$2.20	3
	Leak Detection & Repair Program	10	27,988,386	139,941,928	$0	$0	$11,350	$50,000	$61,350	$306,750	$2.19	2
	Pressure Management	-	27,988,386	139,941,928	$0	$6,000	$2,250	$20,000	$22,250	$117,250	$0.84	1
Demand measures and programs	**Education Programs**											
	Designated Water Conservation Officer	-	27,055,522	135,277,608	$83,391	$0	$60,000	$0	$60,000	$716,954	$5.30	7
	Audits, Rebates and Incentives											
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	15	1,977,105	9,885,526	$6,564	$2,000	$400	$12,000	$12,400	$96,820	$9.79	9
	Regulations and Standards											
	Water Restrictions - Hour/Days	-	59,973,073	299,865,365	$184,850	$6,000	$3,000	$0	$3,000	$945,248	$3.15	4
	Water-Efficient Toilets for Existing Residential Customers	500	132,061	660,305	$401	$2,000	$1,000	$0	$1,000	$9,007	$13.64	11
	Commercial and Residential Rain and Wind Sensor Requirement	-	956,273	4,781,366	$2,954	$6,000	$7,000	$0	$7,000	$55,772	$11.66	10
	Irrigation, Turf and Landscape Standards for New Construction	-	1,473,849	7,369,246	$4,540	$6,000	$2,000	$0	$2,000	$38,700	$5.25	6
	Practical Turf for Sports Fields	-	5,899,967	29,499,833	$19,588	$1,601,000	$6,000	$0	$6,000	$1,728,939	$58.61	12
	New Landscape Lawn Permits	10	16,909,701	84,548,505	$52,119	$6,000	$650	$1,000	$1,650	$274,846	$3.25	5
	10% of Lot Irrigation Restriction	-	1,473,849	7,369,246	$4,540	$6,000	$7,000	$0	$7,000	$63,700	$8.64	8

Summary of Cost-Benefit Analysis for Phase 2 (2013 - 2023)

	Conservation Measure or Program	# of Participants Annually	Annual Water Savings (gallons)	10 Year Water Savings (gallons)	Annual Revenue Loss Due to Decreased Use	Total Cost			Annual Cost	10 Year Total Cost	Cost per 1000 Gallons Saved	Rank
						One Time Labor and	Annual Labor	Annual Materials				
Supply measures and programs	**Maintenance Programs**											
	Water Meter Testing and Replacement Program	-	29,682,176	296,821,764	$0	$6,000	$450	$60,000	$60,450	$610,500	$2.06	2
	Leak Detection & Repair Program	10	29,682,176	296,821,764	$0	$0	$11,350	$50,000	$61,350	$613,500	$2.07	3
	Pressure management	-	29,682,176	296,821,764	$0	$6,000	$2,250	$20,000	$22,250	$228,500	$0.77	1
Demand measures and programs	**Education Programs**											
	Designated Water Conservation Officer	-	28,693,156	286,931,560	$88,438	$0	$60,000	$0	$60,000	$1,484,383	$5.17	7
	Audits, Rebates and Incentives											
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	15	1,947,641	19,476,409	$6,466	$2,000	$400	$12,000	$12,400	$190,662	$9.79	10
	Regulations and Standards											
	Water Restrictions - Hour/Days	-	63,603,163	636,031,626	$196,038	$6,000	$3,000	$0	$3,000	$1,996,383	$3.14	4
	Water-Efficient Toilets for Existing Residential Customers	500	121,992	1,219,921	$371	$2,000	$1,000	$0	$1,000	$15,709	$12.88	11
	Commercial and Residential Rain and Wind Sensor Requirement	-	1,311,086	13,110,864	$4,047	$6,000	$7,000	$0	$7,000	$116,473	$8.88	9
	Irrigation, Turf and Landscape Standards for New Construction	-	2,066,098	20,660,984	$6,364	$6,000	$2,000	$0	$2,000	$89,644	$4.34	6
	Practical Turf for Sports Fields	-	5,899,967	58,999,667	$19,588	$1,601,000	$6,000	$0	$6,000	$1,856,879	$31.47	12
	New Landscape Lawn Permits	10	17,933,223	179,332,225	$55,274	$6,000	$650	$1,000	$1,650	$575,239	$3.21	5
	10% of Lot Irrigation Restriction	-	2,066,098	20,660,984	$6,364	$6,000	$7,000	$0	$7,000	$139,644	$6.76	8

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By: BLM

Summary of Cost-Benefit Analysis for Phase 3 (2013 - 2028)

	Conservation Measure or Program	# of Participants Annually	Annual Water Savings (gallons)	15 Year Water Savings (gallons)	Annual Revenue Loss Due to Decreased Use	Total Cost			Annual Cost	15 Year Total Cost	Cost per 1000 Gallons Saved	Rank
						One Time Labor and Material Cost	Annual Labor	Annual Materials				
Supply measures and programs	**Maintenance Programs**											
	Water Meter Testing and Replacement Program	-	31,280,580	469,208,707	$0	$6,000	$450	$60,000	$60,450	$912,750	$1.95	2
	Leak Detection & Repair Program	10	31,280,580	469,208,707	$0	$0	$11,350	$50,000	$61,350	$920,250	$1.96	3
	Pressure Management	-	31,280,580	469,208,707	$0	$6,000	$2,250	$20,000	$22,250	$339,750	$0.72	1
Demand measures and programs	**Education Programs**											
	Designated Water Conservation Officer	-	30,238,566	453,578,495	$93,202	$0	$60,000	$0	$60,000	$2,298,024	$5.07	7
	Audits, Rebates and Incentives											
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	15	1,933,272	28,999,083	$6,418	$2,000	$400	$12,000	$12,400	$284,277	$9.80	10
	Regulations and Standards											
	Water Restrictions - Hour/Days	-	67,028,822	1,005,432,331	$206,597	$6,000	$3,000	$0	$3,000	$3,149,953	$3.13	4
	Water-Efficient Toilets for Existing Residential Customers	500	113,193	1,697,901	$344	$2,000	$1,000	$0	$1,000	$22,162	$13.05	11
	Commercial and Residential Rain and Wind Sensor Requirement	-	1,354,562	20,318,433	$4,181	$6,000	$7,000	$0	$7,000	$173,717	$8.55	9
	Irrigation, Turf and Landscape Standards for New Construction	-	2,140,460	32,106,895	$6,593	$6,000	$2,000	$0	$2,000	$134,902	$4.20	6
	Practical Turf for Sports Fields	-	5,899,967	88,499,500	$19,588	$1,601,000	$6,000	$0	$6,000	$1,984,818	$22.43	12
	New Landscape Lawn Permits	10	18,899,104	283,486,559	$58,251	$6,000	$650	$1,000	$1,650	$904,515	$3.19	5
	10% of Lot Irrigation Restriction	-	2,140,460	32,106,895	$6,593	$6,000	$7,000	$0	$7,000	$209,902	$6.54	8

Summary of Cost-Benefit Analysis for Phase 4 (2013 - 2033)

	Conservation Measure or Program	# of Participants Annually	Annual Water Savings (gallons)	20 Year Water Savings (gallons)	Annual Revenue Loss Due to Decreased Use	Total Cost			Annual Cost	20 Year Total Cost	Cost per 1000 Gallons Saved	Rank
						One Time Labor and Material Cost	Annual Labor	Annual Materials				
Supply measures and programs	**Maintenance Programs**											
	Water Meter Testing and Replacement Program	-	32,561,193	651,223,855	$0	$6,000	$450	$60,000	$60,450	$1,215,000	$1.87	2
	Leak Detection & Repair Program	10	32,561,193	651,223,855	$0	$0	$11,350	$50,000	$61,350	$1,227,000	$1.88	3
	Pressure Management	-	32,561,193	651,223,855	$0	$6,000	$2,250	$20,000	$22,250	$451,000	$0.69	1
Demand measures and programs	**Education Programs**											
	Designated Water Conservation Officer	-	31,476,721	629,534,418	$97,018	$0	$60,000	$0	$60,000	$3,140,357	$4.99	7
	Audits, Rebates and Incentives											
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	15	1,790,404	35,808,074	$5,944	$2,000	$400	$12,000	$12,400	$368,883	$10.30	9
	Regulations and Standards											
	Water Restrictions - Hour/Days	-	69,773,398	1,395,467,959	$215,056	$6,000	$3,000	$0	$3,000	$4,367,124	$3.13	4
	Water-Efficient Toilets for Existing Residential Customers	500	108,304	2,166,081	$329	$2,000	$1,000	$0	$1,000	$28,585	$13.20	11
	Commercial and Residential Rain and Wind Sensor Requirement	-	996,535	19,930,709	$3,078	$6,000	$7,000	$0	$7,000	$207,562	$10.41	10
	Irrigation, Turf and Landscape Standards for New Construction	-	1,545,881	30,917,622	$4,762	$6,000	$2,000	$0	$2,000	$141,238	$4.57	6
	Practical Turf for Sports Fields	-	5,899,967	117,999,333	$19,588	$1,601,000	$6,000	$0	$6,000	$2,112,758	$17.90	12
	New Landscape Lawn Permits	10	19,672,951	393,459,011	$60,636	$6,000	$650	$1,000	$1,650	$1,251,723	$3.18	5
	10% of Lot Irrigation Restriction	-	1,545,881	30,917,622	$4,762	$6,000	$7,000	$0	$7,000	$241,238	$7.80	8

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By: BLM

Summary of Cost-Benefit Analysis for Phase 1 (2012 - 2017)

	Conservation Measure or Program	# of Participants Annually	Annual Water Savings (gallons)	5 Year Water Savings (gallons)	Annual Revenue Loss Due to Decreased Use	Total Cost			Annual Cost	5 Year Total Cost	Cost per 1000 Gallons Saved	Rank
						One Time Labor and Material Cost	Annual Labor	Annual Materials				
Supply measures and programs	**Maintenance Programs**											
	Water Meter Testing and Replacement Program	-	27,988,386	139,941,928	$0	$6,000	$450	$60,000	$60,450	$308,250	$2.20	3
	Leak Detection & Repair Program	10	27,988,386	139,941,928	$0	$0	$11,350	$50,000	$61,350	$306,750	$2.19	2
	Pressure Management	-	27,988,386	139,941,928	$0	$6,000	$2,250	$20,000	$22,250	$117,250	$0.84	1
Demand measures and programs	**Education Programs**											
	Designated Water Conservation Officer	-	27,055,522	135,277,608	$83,391	$0	$60,000	$0	$60,000	$716,954	$5.30	7
	Audits, Rebates and Incentives											
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	15	1,977,105	9,885,526	$6,564	$2,000	$400	$12,000	$12,400	$96,820	$9.79	9
	Regulations and Standards											
	Water Restrictions - Hour/Days	-	59,973,073	299,865,365	$184,850	$6,000	$3,000	$0	$3,000	$945,248	$3.15	4
	Water-Efficient Toilets for Existing Residential Customers	500	132,061	660,305	$401	$2,000	$1,000	$0	$1,000	$9,007	$13.64	11
	Commercial and Residential Rain and Wind Sensor Requirement	-	956,273	4,781,366	$2,954	$6,000	$7,000	$0	$7,000	$55,772	$11.66	10
	Irrigation, Turf and Landscape Standards for New Construction	-	1,473,849	7,369,246	$4,540	$6,000	$2,000	$0	$2,000	$38,700	$5.25	6
	Practical Turf for Sports Fields	-	5,899,967	29,499,833	$19,588	$1,601,000	$6,000	$0	$6,000	$1,728,939	$58.61	12
	New Landscape Lawn Permits	10	16,909,701	84,548,505	$52,119	$6,000	$650	$1,000	$1,650	$274,846	$3.25	5
	10% of Lot Irrigation Restriction	-	1,473,849	7,369,246	$4,540	$6,000	$7,000	$0	$7,000	$63,700	$8.64	8

Summary of Cost-Benefit Analysis for Phase 2 (2012 - 2022)

	Conservation Measure or Program	# of Participants Annually	Annual Water Savings (gallons)	10 Year Water Savings (gallons)	Annual Revenue Loss Due to Decreased Use	Total Cost			Annual Cost	10 Year Total Cost	Cost per 1000 Gallons Saved	Rank
						One Time Labor and	Annual Labor	Annual Materials				
Supply measures and programs	**Maintenance Programs**											
	Water Meter Testing and Replacement Program	-	29,682,176	296,821,764	$0	$6,000	$450	$60,000	$60,450	$610,500	$2.06	2
	Leak Detection & Repair Program	10	29,682,176	296,821,764	$0	$0	$11,350	$50,000	$61,350	$613,500	$2.07	3
	Pressure management	-	29,682,176	296,821,764	$0	$6,000	$2,250	$20,000	$22,250	$228,500	$0.77	1
Demand measures and programs	**Education Programs**											
	Designated Water Conservation Officer	-	28,693,156	286,931,560	$88,438	$0	$60,000	$0	$60,000	$1,484,383	$5.17	7
	Audits, Rebates and Incentives											
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	15	1,947,641	19,476,409	$6,466	$2,000	$400	$12,000	$12,400	$190,662	$9.79	10
	Regulations and Standards											
	Water Restrictions - Hour/Days	-	63,603,163	636,031,626	$196,038	$6,000	$3,000	$0	$3,000	$1,996,383	$3.14	4
	Water-Efficient Toilets for Existing Residential Customers	500	121,992	1,219,921	$371	$2,000	$1,000	$0	$1,000	$15,709	$12.88	11
	Commercial and Residential Rain and Wind Sensor Requirement	-	1,311,086	13,110,864	$4,047	$6,000	$7,000	$0	$7,000	$116,473	$8.88	9
	Irrigation, Turf and Landscape Standards for New Construction	-	2,066,098	20,660,984	$6,364	$6,000	$2,000	$0	$2,000	$89,644	$4.34	6
	Practical Turf for Sports Fields	-	5,899,967	58,999,667	$19,588	$1,601,000	$6,000	$0	$6,000	$1,856,879	$31.47	12
	New Landscape Lawn Permits	10	17,933,223	179,332,225	$55,274	$6,000	$650	$1,000	$1,650	$575,239	$3.21	5
	10% of Lot Irrigation Restriction	-	2,066,098	20,660,984	$6,364	$6,000	$7,000	$0	$7,000	$139,644	$6.76	8

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Summary of Cost-Benefit Analysis for Phase 3 (2012 - 2027)

	Conservation Measure or Program	# of Participants Annually	Annual Water Savings (gallons)	15 Year Water Savings (gallons)	Annual Revenue Loss Due to Decreased Use	Total Cost			Annual Cost	15 Year Total Cost	Cost per 1000 Gallons Saved	Rank
						One Time Labor and Material Cost	Annual Labor	Annual Materials				
Supply measures and programs	**Maintenance Programs**											
	Water Meter Testing and Replacement Program	-	31,280,580	469,208,707	$0	$6,000	$450	$60,000	$60,450	$912,750	$1.95	2
	Leak Detection & Repair Program	10	31,280,580	469,208,707	$0	$0	$11,350	$50,000	$61,350	$920,250	$1.96	3
	Pressure Management	-	31,280,580	469,208,707	$0	$6,000	$2,250	$20,000	$22,250	$339,750	$0.72	1
Demand measures and programs	**Education Programs**											
	Designated Water Conservation Officer	-	30,238,566	453,578,495	$93,202	$0	$60,000	$0	$60,000	$2,298,024	$5.07	7
	Audits, Rebates and Incentives											
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	15	1,933,272	28,999,083	$6,418	$2,000	$400	$12,000	$12,400	$284,277	$9.80	10
	Regulations and Standards											
	Water Restrictions - Hour/Days	-	67,028,822	1,005,432,331	$206,597	$6,000	$3,000	$0	$3,000	$3,149,953	$3.13	4
	Water-Efficient Toilets for Existing Residential Customers	500	113,193	1,697,901	$344	$2,000	$1,000	$0	$1,000	$22,162	$13.05	11
	Commercial and Residential Rain and Wind Sensor Requirement	-	1,354,562	20,318,433	$4,181	$6,000	$7,000	$0	$7,000	$173,717	$8.55	9
	Irrigation, Turf and Landscape Standards for New Construction	-	2,140,460	32,106,895	$6,593	$6,000	$2,000	$0	$2,000	$134,902	$4.20	6
	Practical Turf for Sports Fields	-	5,899,967	88,499,500	$19,588	$1,601,000	$6,000	$0	$6,000	$1,984,818	$22.43	12
	New Landscape Lawn Permits	10	18,899,104	283,486,559	$58,251	$6,000	$650	$1,000	$1,650	$904,515	$3.19	5
	10% of Lot Irrigation Restriction	-	2,140,460	32,106,895	$6,593	$6,000	$7,000	$0	$7,000	$209,902	$6.54	8

Summary of Cost-Benefit Analysis for Phase 4(2012 - 2032)

	Conservation Measure or Program	# of Participants Annually	Annual Water Savings (gallons)	20 Year Water Savings (gallons)	Annual Revenue Loss Due to Decreased Use	Total Cost			Annual Cost	20 Year Total Cost	Cost per 1000 Gallons Saved	Rank
						One Time Labor and Material Cost	Annual Labor	Annual Materials				
Supply measures and programs	**Maintenance Programs**											
	Water Meter Testing and Replacement Program	-	32,561,193	651,223,855	$0	$6,000	$450	$60,000	$60,450	$1,215,000	$1.87	2
	Leak Detection & Repair Program	10	32,561,193	651,223,855	$0	$0	$11,350	$50,000	$61,350	$1,227,000	$1.88	3
	Pressure Management	-	32,561,193	651,223,855	$0	$6,000	$2,250	$20,000	$22,250	$451,000	$0.69	1
Demand measures and programs	**Education Programs**											
	Designated Water Conservation Officer	-	31,476,721	629,534,418	$97,018	$0	$60,000	$0	$60,000	$3,140,357	$4.99	7
	Audits, Rebates and Incentives											
	Annual Irrigation Audit and $500 Irrigation Rebate for Large Users	15	1,790,404	35,808,074	$5,944	$2,000	$400	$12,000	$12,400	$368,883	$10.30	9
	Regulations and Standards											
	Water Restrictions - Hour/Days	-	69,773,398	1,395,467,959	$215,056	$6,000	$3,000	$0	$3,000	$4,367,124	$3.13	4
	Water-Efficient Toilets for Existing Residential Customers	500	108,304	2,166,081	$329	$2,000	$1,000	$0	$1,000	$28,585	$13.20	11
	Commercial and Residential Rain and Wind Sensor Requirement	-	996,535	19,930,709	$3,078	$6,000	$7,000	$0	$7,000	$207,562	$10.41	10
	Irrigation, Turf and Landscape Standards for New Construction	-	1,545,881	30,917,622	$4,762	$6,000	$2,000	$0	$2,000	$141,238	$4.57	6
	Practical Turf for Sports Fields	-	5,899,967	117,999,333	$19,588	$1,601,000	$6,000	$0	$6,000	$2,112,758	$17.90	12
	New Landscape Lawn Permits	10	19,672,951	393,459,011	$60,636	$6,000	$650	$1,000	$1,650	$1,251,723	$3.18	5
	10% of Lot Irrigation Restriction	-	1,545,881	30,917,622	$4,762	$6,000	$7,000	$0	$7,000	$241,238	$7.80	8

APPENDIX I – PUBLIC REVIEW PROCESS COMMENT

AUTOMOTIVE

Automobiles

1996 Mercury Villager LS, Leather, seats 7, extremely good condition in/out, <136K, 70-80% brakes left, 13K miles on tires, never smoked in, always garaged, runs great. $2,999 **Call** 719-334-3730

Automobiles

Buick Century, 1997. $2700. Books $3400. 547-3980/ 251-1114.

Buick LaCrosse, 2010. Mint condition. Only 3,200 miles. $24,000. 719-251-3382

Buick LeSabre, 2003, 89,000 miles, excellent condtion. $5,200 543-4267

Automobiles

Buick Lacrosse CX, 2005. Like new, **only 70K,** 32mpg showroom condition, **garaged. $9,800**/ offer. 252-2008

Cadillac Deville SD, 2003. Runs great, low miles. $7,500/ offer. 719-369-2179/ 719-544-4316

Cadillac STS-V8 2005. 28,000 Miles, $17,900. **Excellent condition.** 545-2440

Chevy Cavalier, 2002. Great first car, 79k, 4-door, runs great, interior very clean, A/C. $3800/ offer. 719-994-8027

Dodge Coronet 440, 1969. 719-214-2853

Dodge Stratus, 2001, low compression, 74K, $1200. 720-400-6371.

Honda Accord, 1997. Automatic, $1,300/ offer. 201-9381

Honda Acord EX, 2006. Low miles, 1 owner. $14,000. **547-0492**

Hyundai Santa Fe, 2007. Excellent condition, low miles, $16,000. 719-251-3382

"It was the 3rd call..."

Chevy Cavalier, 2003. Great condition, 4 door, 5 speed. $2,000/ offer. SOLD.

"...and BAM it was gone!" R.M.

Mercury Sable GS, 2003. 46,500 original miles, one owner. $5,000. 719-251-3024

Oldsmoblile Royale, 1995, automatic. $1675. 566-9523.

Plymouth Breeze, 1997. Runs great! $2,000/ offer. 994-4216

Plymouth Voyager, 1997. Beautiful in and out, runs great, $3,000. 719-252-6893

Plymouth Voyager, 1995. Runs and looks great, low miles. $1,400. 201-9381

Pontiac, 1992 Firebird convertible, runs good, $3000 or best offer. Cell: 303-601-0546.

Saturn Station Wagon, 1997. Runs good, new tires, good on gas, $1,600/ offer. 369-6653

Suzuki, 1986 4 cylinder. 4x4, 4 speed. Excellent aluminum body. $2,800 or will trade for motorcycle or ATV. 542-2380 423-0305

Toyota Corolla, 2010 Silver sedan, 48K miles. 4021 Ridge Dr. $14,200. Cell **671-5178.**

SUVs

Isuzu Rodeo, 1998. Very clean. V-6, 5 speed, 4x4, 4 door, 243,000 miles, $1475. 778-6256.

Toyota Sequoia, 2002. Fully loaded and in great shape. Seats 8, leather seats, 2 DVD screens with headsets, tow package, moon roof, power seats, 3rd row seating, privacy glass. 212,000 miles. $7,995 or best reasonable offer. Eric 719-251-9357

Trucks

Chevy Z71, 1999, off road, 4x4, very, very clean, $7999, 719-680-3365.

Ford F-250, 1997. 2-wheel drive, automatic, extended cab. $2,800. Jose, 778-7446.

Toyota Pick Up, 1986. 5 speed, camper shell, $1,500. 489-2235

Trucks

Ford F250, 2005, Super Cab, long bed, Lariat, 4x4, 6.0 diesel, 62,000 miles, automatic, leather, power everything, B&W turn over ball hitch, white, 2 tone, $22,000, 719-248-7185.

Toyota Tundra TRD, 2003. 103k, 4-wheel drive, towing pakage. $12,500. 561-0118

RV's /Campers & Trailers

5th Wheel, $1,200/ offer. 569-1771

Airex Motorhome, 1991: Class A, 23', luxury motorhome, many extras, great condition, $7500/offer, 566-3872.

Alpenlite, 1988, 5th wheel, 29', great condition, good tires, $5500/offer, 719-240-0200.

Camp trailer, Starcraft, 03', 24', loaded like new. $12,000/ offer. Call for more information 738-2530 or 941-4032

Dodge Motor Home, 1972. 18', 96,500 miles. $1500 firm. Call **546-0034** or **719-225-5930.**

Dutchman Travel Trailer, 27', 2002, slide out, heated tanks, underbelly, **shop and compare.** 647-2637

Palomino pop-up camper, 2010 . Sleeps 8, furnace, refrigerator, range. $7,000. 544-8117

Trailer
20' car trailer. Great condition. $1,300. 582-3444

Trailer, homemade boat or water tank trailer, 16'. $150. Call 546-0034 or 719-225-5930.

RV's /Campers & Trailers

Travel Trailer, Palomino Stampede UL, 2010, 1 slide, sleeps 8, $16,500 547-2634

Travel Trailer 18', 2005. Excellent condition, fully contained, $7500. 719-250-6796/ 719-564-5341

Truck Camper, 9 1/2' , nice shape, bathroom/ shower, microwave, automatic lights, furnace and water heater, $4,500. 719-569-1220

Winnebago Motor home, 1986, 27'. $4,500. 248-8294 or 564-6658

Special Interest Auto

Cadillac Convertable, 1966. Needs work, $1,300. 582-3444

Chevelle, 1972. 350/ 350, completely restored. **$12,000**/ possible trade. 719-980-1090.

Chevy Nomad, 1958, needs restoration, $9000 or best offer, 806-346-0195, San Luis Valley

Toyota Celica, 2002. Wide body, Lambo doors, graphic silver paint, loaded, $13,000. 289-2132

Motorcycles / ATV

Dune Buggy, off road Dingle. Runs good. $400. 565-0562

Harley Davidson Sportster Nightster, 2008. **Low miles, with extras,** $6,500. 719-469-8298

Harley Davidson, 1973. $12,500/ offer. 320-0565

Motorcycles / ATV

Honda Magna 750, 1987. 14K, cherry, $2,900/ offer. 565-7142

Kawasaki, Bayou, 220CC, **ideal for kids,** new battery and tune-up. Call after 7 p.m. 719-544-4410

Vulcan 800, 1996. **Extra sharp**, low miles. $3,000. 250-0288

Yamaha dirt bike**,** 2002. 250cc, $1,800/ offer. **Good condition**. 544-0402

Boats / Jet Skis

Alumacraft, 1984. 19hp, Johnson electric start. Trolling motor. $900/ offer. **719-242-6074**

Caravelle Intercepter 23', 2008. Like new. Factory warranty, $29,500. **252-1005**

XP Seadoo, 1994 and **GTX 3 seater Seadoo**, 1997. $3,500 both with trailer. **564-3012**

Parts & Service

Tires, free all sizes! 719-225-9232

Wanted Autos

Avoid Fines! Cash paid for cars or trucks running or not. 553-8028

We pay cash today for junk cars. No title ok. 320-9008

ANNOUNCEMENTS

Lost & Found

★ **FOUND** ★
Dogs & Cats
Updated 5-24-2012

•A0993459 Chicken, Black, Female
•A0993461 Chicken, Red, Female
•A0993464 Chicken, White, Female
•A0993669 Cat- Long Hair, Gray, Male
•A0993542 Cat- Long Hair, Seal Point /White, Male
•A0993672 Cat- Long Hair, Tortoiseshell, Female
•A0993660 Cat- Medium Hair, Black Tiger, Female
•A0993661 Cat- Medium Hair, Gray, Male
•A0994019 Cat- Medium Hair, Gray /White,
•A0993629 Cat- Medium Hair, Orange /White, Male
•A0993545 Cat- Medium Hair, Seal Point /White, Male
•A0993546 Cat- Medium Hair, Seal Point /White, Female
•A0993639 Cat- Short Hair, Black, Female
•A0993659 Cat- Short Hair, Black, Female
•A0993663 Cat- Short Hair, Black, Female
•A0993543 Cat- Short Hair, Black /White, Male
•A0993951 Cat- Short Hair, Black /White, Female
•A0993939 Cat- Short Hair, Black Tiger /White, Male
•A0993940 Cat- Short Hair, Black Tiger /White, Male
•A0993528 Cat- Short Hair, Blue, Male
•A0993458 Cat- Short Hair, Brown Tabby,
•A0993544 Cat- Short Hair, Brown Tabby, Female
•A0993526 Cat- Short Hair, Brown Tiger, Male
•A0993507 Cat- Short Hair, Calico, Spayed Female
•A0993937 Cat- Short Hair, Calico, Female
•A0993948 Cat- Short Hair, Calico, Female
•A0993671 Cat- Short Hair, Gray,
•A0993527 Cat- Short Hair, Gray /White, Male
•A0993938 Cat- Short Hair, Gray Tabby, Male
•A0993724 Cat- Short Hair, Gray Tiger /White, Male
•A0993987 Cat- Short Hair, Orange /White, Female
•A0993933 Cat- Short Hair, Orange Tabby, Female
•A0993936 Cat- Short Hair, Orange Tabby, Male
•A0993949 Cat- Short Hair, Orange Tabby,
•A0993547 Cat- Short Hair, Seal Point /White,
•A0993468 Cat- Short Hair, Tortoiseshell,
•A0993929 Cat- Short Hair, Tortoiseshell, Female
•A0994010 Cat- Short Hair, White /Chocolate,

Pueblo Animal Services
4600 Eagleridge Place
544-3005
Low cost spay/neuter available

Weekdays Noon -6 pm
Weekends Noon-4:30pm

Found: American bulldog mix, tricolored, neutered male with collar, Wednesday, May 23rd, vicinity Northern & Cypress at Lady Fair Laundromat. Owner identify. 543-6464.

Lost & Found

★ **FOUND** ★
Dogs & Cats
Updated 5-24-2012

•A0993396 Beagle, Tricolor, Male
•A0993633 Boxer, Brown /White, Male
•A0993903 Boxer / Mix, Brown /White, Female
•A0993920 Chihuahua- Short Hair, Black /Tan, Male
•A0993657 Chihuahua- Short Hair, Brown /Tan, Male
•A0993531 Chihuahua - Short Hair, Brown Brindle, Male
•A0993346 Chihuahua - Short Hair, Tricolor, Female
•A0993893 Chihuahua - Short Hair, Black /White, Male
•A0993487 Labrador Retriever, Yellow, Female
•A0993486 Labrador Retriever, Yellow, Neutered Male
•A0993900 Labrador Retriever, Black /White, Neutered Male
•A0993904 Labrador Retriever, Black /Brown, Male
•A0993393 Mastiff, Brown /Black, Male
•A0993676 Pit Bull, Black /White, Female
•A0993879 Pit Bull, Brown Brindle /White, Female
•A0993674 Pit Bull, White /Blue, Male
•A0993634 Pit Bull, White /Brown, Female
•A0993677 Pit Bull, White /Brown, Male
•A0993930 Pit Bull / Mix, Black /White, Male
•A0993572 Queensland Heeler, Blue Merle, Female
•A0993899 Queensland Heeler, Tricolor, Male
•A0993532 Shih Tzu, Black /White, Male
•A0993990 Siberian Husky / Mix, White, Male
•A0958393 Terrier / Mix, Black /Brown, Neutered Male

Pueblo Animal Services
4600 Eagleridge Place
544-3005
Low cost spay/neuter available

Weekdays Noon -6 pm
Weekends Noon-4:30pm

Found: Black Lab approximately 1 year old. Southside off Hollywood Dr., today 5-23. Owner identify, 543-6464.

Found: Chihuahua, brown neutered male, with collar Saturday, May 5th, vicinity Beuah & Lake Ave. Owner identify. 543-6464.

Found: Pekingese, black, female, Tuesday, May 22 Northern & Stone. Owner identify. 543-6464.

Lost: Pueblo West "Gypsy"

Female Pit Bull mix, brown brindle, white chest, white back toes, golden eyes, shy, sweet. **$2000 REWARD.** NO QUESTIONS ASKED! 547-1305

Lost: Female, older Terrier mix. Black with grey highlights. Lost on Mother's Day at Lake Minnequa. **Reward! 821-2826 or 242-3580**

STUFF FOR SALE

Estate Sales

814 E. Mesa. Friday, Saturday 9 - 5. **Must sell 70-year estate. Depression Glass, Antique Furniture, Collectibles,** Linens and More. ABSOLUTELY **NO EARLY BIRDS!** Cash only, no new/ big currency.

95 Cornell Circle Friday and Saturday. 8 -3. **Nice quality:** Howard Miller Grandfather Clock, Drexel curio, bedroom set, bar stools, bookcases, water bed, Nordic track, retro sofa, dining-room set, early American dry sink, dictionary stand, small refrigerator, women's medical clothes, desks, frames, doilies, cat figurines, coffee table, lamps, file cabinets, more.

Appliances

Dryer, used, Kenmore, gas, like new. $200/ best offer. 544-2064.

"My ad worked..."

Dishwasher, GE, white, works well. $25. SOLD.

"...I sold my dishwasher!" C.B.

Refrigerator, $200. Clean, excellent condition. 561-8434.

Swamp cooler, commercial. down draft, $600/ offer. 240-3552

T.V., 32" Sony, $30. 544-0470

Miscellaneous for Sale

AC, ROOM TO ROOM EVAPORATIVE ROLL AROUND,WITH REMOTE CONTROL.$150. 719-542-2670

Air conditioner, refrigerated, for a window mount. $45. 543-3009

Miscellaneous for Sale

Air conditioner
Window mount. In very good condition. **$250.**926 W. Adams.

Bassinet, Kolcraft with mattress and skirt, excellent conditon, $50. 564-0280.

Bicycle
Trek 1200, aluminum, $200. 406-3530

Boys Suit, Size 7, Beige and Black, Light Weight, Nice for Summer, $15. (719)547-7330

Cabinet, 30x15x60" storage shed, 3 shelves with sliding doors. Pressed wood, good shape. $20. 561-4783

Carpet, never used. Stored and covered, medium gray, 12' wide x 50' long. $500/ offer. St. Charles Mesa, **948-2228.**

Carseats/carriers for infant, great condition, $35-$60. 778-8723.

Chair converts to twin bed with storage, recliner chair, student desk, curio cabinet, lamps, accessories collectibles, name brand clothing. 545-4418, leave message.

Chairs, solid oak, medium finish, beautiful design, set of 4, $150. 924-4699

China set, service for 12, $75. 225-8116

Courtyard fountain, Large, 34"x34"x42" tall, Aged terra cotta color, holds 20 gallons, falls from 2 tiers. $190. 719-671-5485

Decorative tin canisters, free. 564-9117

Doors: Indoor/outdoor, 7, $70 for all. 778-1466.

Electric twin hospital bed, $150. 719-676-4393

Freezer, chest type. 8', good condition. $90. 406-3360

Miscellaneous for Sale

Gazebo, 10ft x 12ft, fully enclosed, solid wood, needs some repairs, $200, (719) 547-7330.

Hedge trimmer: gas powered 24", new condition, $180. 369-8346.

Keyboard
Casio LK100 with stand, new $150. 406-3530

Little Tikes Large Table and Chair, Blue, Red and Yellow, $15. (719)547-7330

QSA Thrift Store
and Estate Sales. 1725 Martin

Sink, pedestal, **antique** pale jade, **from 1919,** with matching **toilet stool.** $300/ offer 544-3360

Stroller - Disney "Cars" Deluxe Umbrella Stroller, Like New, Black and Red, $15. (719)547-7330

Stroller, Graco with matching infant carseat/ carrier, excellent condition, $50. 564-0280.

Swamp Cooler, free delivery, works, window mount, $350. 994-1839

Swamp cooler, large. Good condition, $165. 564-8463

Swamp coolers, (2) roof mount, covers and **thermostat included.** Excellent condition, $250 each. **719-846-6364**

Table Saw, ridged, 10" table saw, with **Hercelift and wheel,** $325 547-3549

TV, 40". Excellent condition, $200. 719-924-8481

Walker, good condition, $50. 542-3843.

Welder, Lindee, 230 amp, cables and automatic hood. $175. 547-3549

Wheelchair, good condition, $100. 542-3843.

PUBLIC NOTICES

NATIONAL FOREST TIMBER FOR SALE
PIKE-SAN ISABEL NATIONAL FOREST

The Hunter Gulch Salvage Reoffer Sale is located within T49N., R7E., Sec. 24 NMPM Chaffee County, Colorado. The Forest Service will receive sealed bids in public at GM-UNC-GUNN NF Supervisor's Office at 2:00 PM local time on 06/25/2012 for an estimated volume of 398 CCF of Douglas-fir & other conifer species (Live & Dead) sawtimber, and 33 CCF of Ponderosa Pine (Live & Dead) sawtimber marked or otherwise designated for cutting. In addition, there is within the sale area an unestimated volume of Douglas-fir & other species misc-conv. that the bidder may agree to remove at a fixed rate. The Forest Service reserves the right to reject any and all bids. Interested parties may obtain a prospectus from the office listed below. A prospectus, bid form, and complete information concerning the timber, the conditions of sale, and submission of bids is available to the public from the Salida RD, 325 W. Rainbow Blvd., Salida, CO 81201 (719) 539-3591. The USDA is an equal opportunity provider and employer. L51377

Comments Requested on Pueblo West Metropolitan District Water Conservation Plan

Pueblo West, CO: The Pueblo West Metropolitan District (District) has developed a Water Conservation Plan (Plan), which summarizes strategies for water conservation. The Plan describes how proposed water conservation programs and measures can be implemented to more efficiently use the District's water resources. These efforts can ultimately serve to reduce water system operating costs, postpone the need for investments in District infrastructure, which may result in reducing the need for future water rate increases.

A draft of the Plan, prepared by JVA Inc., on behalf of the District, is available for review and comments for a 60-day period, after which it will be considered for approval by the District Board. The draft Plan describes the existing conditions in the District including per capita consumption of water, water losses in the distribution system, existing water conservation programs, and describes new programs the District should consider to postpone the need to invest in new water treatment facilities and alternate supply sources.

The plan is available for review at the Pueblo West Metropolitan District office, the Pueblo West Public Library, or on-line at www.pueblowestmetro.com under Notices.The public comment period will extend until 4:30 p.m. on July 23, 2012. Comments must be submitted in writing to:

PWMD
C/O Scott Eilert
20 W. Palmer Lake Dr.
Pueblo West, Colorado 81007
Or via the PWMD website email.

The Plan will be presented to the District board on July 24, 2012 for approval. For questions, please contact the Interim Director of Utilities, Scott Eilert at (719) 547-5044. L51376

PETS

Pets

AAA Dog Training
southerncoloradokennelclub.org
485-3011, 715 N. Grand

"All Sold..."

Australian Shepherd/ Border collie pups, shots, So CUTE!!!. $250. SOLD.

"...within 4 days!" S.M.

Cat, beautiful, gentle. Needs loving home. Has all shots, **FREE.** 566-3715

Chorkie, female puppy. Ready for new home. Small, lacks companion. $300. **719-469-6307**

Pets

Australian Shepherd Puppies, mini. Cute. Tricolors and Merles. 719-946-5504

Blue Heeler/ Aussie Shepherd-Border Collie pups, 9 weeks, $275. 719-561-2200.

Dachshund puppies, miniature, $250. 719-994-0776

Pets

Cats (2), spayed, neutered, de-clawed, must stay together, indoor only, 568-7800.

Golden Retriever puppies, AKC. 9 weeks old, dew-clawed, first shots, vet checked, pedigreed papers, $500. **719-980-5558**

Kittens (2), **FREE.** Box trained, **582-7858**

Maltese, Maltipoos, Morkies, $300-$600. 719-372-6315

Min Pin puppies, Red, 10 weeks old, 3 females, $300. 719-529-0736 or 719-523-4840

Old English Bulldogs
Registered and first shots. Ready now! $800.**719-672-0115**

Pit Bull, female, all shots, spayed. Free to good home. 569-1771

Poodles, 5 weeks. (2) cream, (2) chocolates, (1) apricot. **719-994-0550/ 719-924-9484**

Poodles: 8 weeks, 2 females, 1 male, APR registered. $400. 719-242-1746 719-214-7861.

Pets

Pitbulls, purebred, parents onsite. Blue, fawns and black. $250. Call 778-3100

Rodent habitat, 24"x12"x16", great for rodent pets. Hampsters love it. Large water bottle and extras, great condition, $50. 564-0280.

Scottish Terrier puppies, AKC, wormed, shots, absolutely adorable, $325. 719-242-8337.

Terrarium 55 gallon with storage cabinet and cover, full set up, great starter for turtles, reptiles or plants. Great condition. $190. 564-0280.

Yorkie Poodle Shih-Tzu, 2 years old, female, spayed, $100. 334-0300

HOROSCOPE

FRIDAY, MAY 25, 2012