City of Cortez
Water Conservation Plan

December 2010

Prepared for:

CITY OF CORTEZ
PUBLIC WORKS DEPARTMENT
CORTEZ, COLORADO

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PART 1 - **INTRODUCTION.**

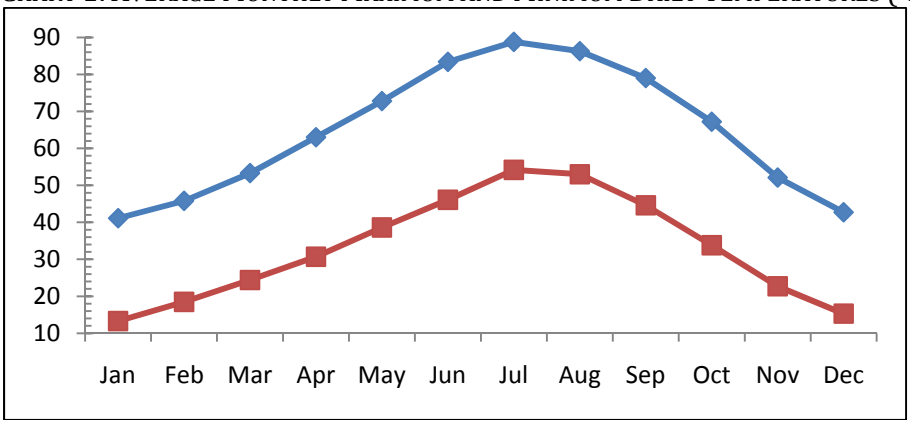
Government, Population, and Land Use.
The City of Cortez is a home-rule municipality that is the seat of Montezuma County, Colorado, within the southwest portion of the state.

Cortez had a population of 9,078 in 2009, and is the most populous city within Montezuma County. The County population is approximately 25,000. Table 1 and Graph 1a, in the Appendix, shows the historic population of the City of Cortez and Montezuma County Water District #1 (MCWD#1) from 1970 to 2009, as well as projected populations to 2040.

Montezuma County is roughly one-third tribal land, one-third federal land (administered by the National Park Service, the United States Forest Service and the Bureau of Land Management), and one-third private or state/county land. The entrance to the Mesa Verde National Park is located nine miles east of Cortez, along State Highway 160. Much of Montezuma County is irrigated cropland, producing alfalfa, wheat, and beans, as well as large numbers of cattle and sheep.

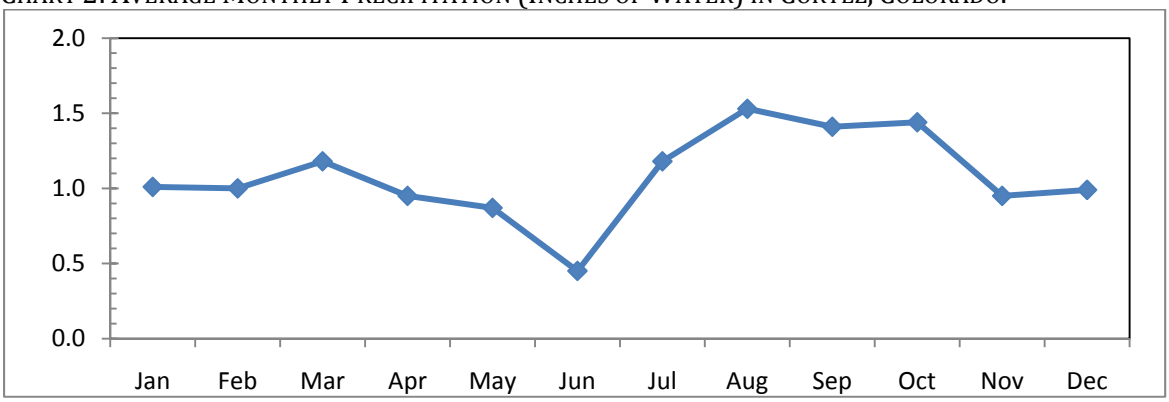
Topography and Climate. Montezuma County is also varied topographically, ranging in elevation from about 6,000 feet to more than 14,000 feet, and from high Colorado Plateau Desert to Alpine Tundra. The La Plata and San Juan Mountains are located to the north and east, within sight of Cortez. Cortez itself is located at an elevation of approximately 6,200 feet. The local climate is characterized by an abundance of sun (approximately 300 days per year), minimal humidity, and an annual average precipitation of only thirteen inches. Significant precipitation often occurs during powerful storms, either strong thunderstorms or snowfall. In summer, average temperatures range from the low fifties to the mid-nineties degrees Fahrenheit. In winter, average temperatures range between the mid-teens and low forties degrees Fahrenheit. The average annual maximum and minimum daily temperatures in Cortez are 64.6°F and 32.9°F, respectively. Chart 1, below, shows the average monthly maximum and minimum daily temperatures in Cortez. Chart 2, below, shows the average monthly precipitation received within Cortez.

CHART 1: AVERAGE MONTHLY MAXIMUM AND MINIMUM DAILY TEMPERATURES (°F) IN CORTEZ, COLORADO.



Source: Western Regional Climate Center (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?cocort)

CHART 2: AVERAGE MONTHLY PRECIPITATION (INCHES OF WATER) IN CORTEZ, COLORADO.



Source: Western Regional Climate Center (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?cocort)

Public Water System.

The City's Department of Public Works operates its own drinking water system that supplies water to residents within the City of Cortez's boundaries, as well as several adjacent areas – the MCWD#1 and the Ute Mountain Ute Tribe. The estimated population supplied by the City of Cortez & MCWD#1 water system is approximately 10,000. The Cortez water system is categorized as a Public Water System (PWS), as defined by the federal Safe Drinking Water Act and the U.S. Environmental Protection Agency. The water provided to the Ute Mountain Ute Tribe is from their annual allocation of municipal & industrial water, and is treated by the City of Cortez. The Ute Mountain Ute Tribe water is outside of the scope of this report, and is only discussed herein to the extent that it affects the operation of the Cortez WTP.

Purpose and Contents of Water Conservation Plan.

This plan constitutes the City of Cortez's strategy for reducing the volume of water withdrawn from its water supply sources, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, and for increasing the reuse of water. The emphasis and overarching goal of this plan is to achieve lasting, long-term improvement in water use efficiency. This plan does this by identifying water conservation measures and programs that have been or will be implemented by the City of Cortez, as well as outlining how these measures and programs will be implemented. The target audiences for the plan include residents, commercial enterprises, governmental institutions, and other users of the Cortez drinking water supply.

Per Capita Water Demand.

Table 1 and Graph 1b in the Appendix show the historic and projected per capita daily water demand for the City of Cortez and MCWD#1. They show that per capita daily water demand fell consistently from approximately 325 gal / person / day (gpcd), leveling at approximately 230 gpcd since 2002. As described later in the plan, the City's short-term goal is for per capita daily water use to remain at this level in the future, with an accompanying long-term commitment to reduce per capita water demand to at or below 200 gpcd.

Plan Resources.

The plan was developed using the additional resources listed in Section 8, particularly the Colorado Water Conservation Board (CWCB) Model Water Conservation Plan. Figure A, below, shows the location of CWCB's Model Water Conservation Plan sections within Cortez's plan. The plan builds upon and updates the City of Cortez's 1996 Water Conservation Plan. Water demand projections were developed utilizing the per capita water demand and population methodology outlined in the American Water Works Association (AWWA) Manual of Water Supply Practices M50, "Water Resources Planning" (2007).

FIGURE A: LOCATION OF CWCB MODEL WATER CONSERVATION PLAN SECTIONS IN CORTEZ'S PLAN.

CWCB Model Water Conservation Plan Section	**Location in Cortez's Plan**
Step 1 – Profile the Existing Water System	
1.1 – Provide Physical Characteristics of Existing Water Supply System	Part 2, § 2.01
1.2 – Identify All Sources of Water	Part 2, § 2.02
1.3 – Identify System Limitations	Part 2, § 2.03
1.4 – Characterize Water Cost and Pricing	Part 2, § 2.04
1.5 – Review Current Policies and Planning Initiatives	Part, 2, § 2.05
1.6 – Summarize Current Water Conservation Activities	Part 2, § 2.06
Step 2 – Characterize Water Use and Forecast Demand	
2.1 – Characterize Current Water Use	Part 3, § 3.01
2.2 – Select Forecasting Method	Part 3, § 3.02
2.3 – Prepare Demand Forecast	Part 3, § 3.03
Step 3 – Profile Proposed Facilities	
3.1 – Identify and Cost Potential Facility Needs	Part 4
3.2 – Prepare an Incremental Cost Analysis	Part 4
3.3 – Develop Preliminary Capacity and Cost Forecasts	Part 4
Step 4 – Identify Conservation Goals	
4.1 – Develop Water Conservation Goals	Part 5, §§ 5.01-5.03
4.2 – Document the Goal Development Process	Part 5
Step 5 – Identify Conservation Measures and Programs	
5.1 – Identify Conservation Measures and Programs	Part 6, § 6.01
5.2 – Develop and Define Screening Criteria	Part 6, § 6.02
5.3 – Screen Conservation Measures and Programs	Part 6, § 6.02
Step 6 – Evaluate and Select Conservation Measures and Programs	
6.1 – Create Combinations of Measures and Programs	Part 6, §§ 6.03-6.04
6.2 – Estimate Costs and Water Savings of Conservation Options	Part 6, § 6.02
6.3 – Compare Benefits and Costs	Part 6, § 6.02
6.4 – Define Evaluation Criteria	Part 6, § 6.02
6.5 – Select Conservation Measures and Programs	Part 6, §§ 6.03-6.04
Step 7 – Integrate Resources and Modify Forecasts	
7.1 – Revise Demand Forecast(s)	Part 7
7.2 – Identify Project-Specific Savings	Part 7
7.3 – Revise Supply-Capacity Forecast(s)	Part 7
7.4 – Summarize Forecast Modifications and Benefits of Conservation	Part 7
7.5 – Consider Revenue Effects	Part 7
Step 8 – Develop Implementation Plan	
8.1 – Develop Implementation Schedule	Part 8, § 8.02
8.2 – Develop Plan for Public Participation in Implementation	Part 8, § 8.03
8.3 – Develop Plan for Monitoring and Evaluation Process	Part 8, § 8.04
8.4 – Develop Plan for Updating and Revising the Conservation Plan	Part 8, § 8.05
8.5 – Define Plan Adoption / Completed / Approval Date	Part 8, § 8.06
Step 9 – Monitor, Evaluate and Revise Conservation Activities and the Conservation Plan	
9.1 – Implement the Plan	Part 8

PART 2 - EXISTING WATER SYSTEM PROFILE.

2.01 PHYSICAL CHARACTERISTICS OF EXISTING WATER SUPPLY SYSTEM.

The City of Cortez's drinking water system supplies the City's residents and several adjacent areas outside of the City's municipal boundaries, including Montezuma Water District No. 1 and the Ute Mountain Ute Tribe. The drinking water supplied to Cortez, MCWD#1 and the Ute Mountain Ute Tribe is their exclusive source of drinking water.

The water system is operated by the City of Cortez's Department of Public Works. The Public Works Director is Jack Nickerson, P.E. The Water Treatment Plant Superintendent is Bruce Smart, P.E.

The City's water system consists of raw water drawn from McPhee Reservoir, followed by a small water storage reservoir, water treatment plant, finished water storage tanks, a distribution system, and associated administrative offices. The treatment plant provides a series of treatment processes, including coagulation, flocculation, sedimentation, multimedia granular filtration, submerged membrane microfiltration, and chlorine disinfection. Adjacent to the treatment plant is a raw water storage pond (the "upper" pond) and a small backwash pond (the "lower" ponds). Water flows from the upper raw water storage pond to the treatment plant by gravity. Backwash water from the treatment plant flows by gravity into the lower backwash ponds, and is then returned via pumping to the upper raw water storage pond.

The City's drinking water system was originally constructed in 1960 and has undergone several subsequent upgrades. The treatment system was upgraded in 2006 to include submerged microfiltration treatment, complementing the existing treatment processes. In early 2010, additional upgrades were made to improve the filter backwash system, as described further in Part 4, below. The recent upgrades have improved system performance and reliability, and helped ensure compliance with increasingly stringent public health and environmental regulations.

Finished water is stored in three above-ground storage tanks that pressurize the distribution system and ensure adequate water is available during high demand periods. Each storage tank has a capacity of two million gallons (MG), and all are located near the drinking water treatment plant. Two tanks are located at a higher elevation than the lower tank. The upper two tanks provide water to the Ute Mountain Ute Tribe. The lower tank provides water to the City of Cortez and Montezuma Water District No. 1.

2.02 WATER SOURCES.

The drinking water supply for the City is from the Dolores River and McPhee Reservoir, the second largest reservoir within Colorado.

The Dolores River is a tributary of the Colorado River, approximately 250 miles long, and flows through Colorado and Utah. It starts in southwestern Colorado near Dolores Peak and Mount Wilson in the San Miguel Mountains. It flows southwest, past the Town of Dolores, where it turns, flowing north and northwest. It then flows through the Dolores River Canyon, cuts across Paradox Valley before receiving the San Miguel River in Montrose County and crossing into Utah, where it joins the Colorado River in Grand County.

McPhee Reservoir was created via the construction of McPhee Dam on the Dolores River, and is part of the Dolores Project. The Dolores Project is managed by the Dolores Water Conservancy District

(DWCD), and consists of a system of canals, tunnels, and laterals that convey water from McPhee Reservoir to a number of nearby agricultural, residential, commercial, and governmental users. McPhee Reservoir has a maximum storage capacity of 229,000 acre-feet of water.

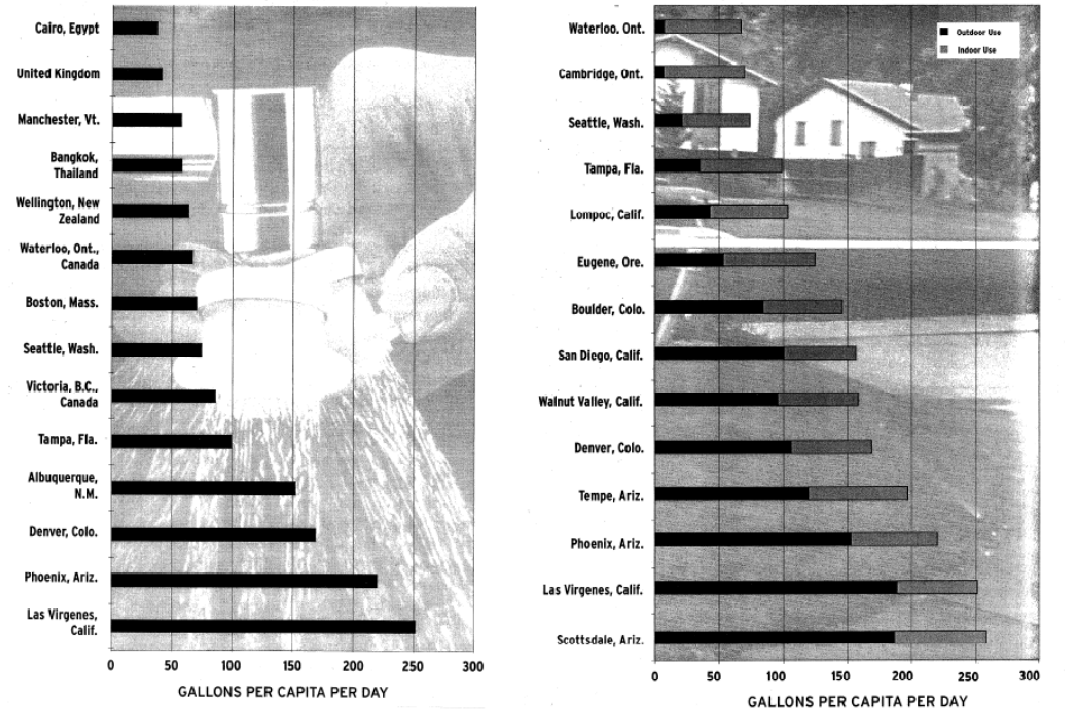
2.03 SYSTEM LIMITATIONS.

The City of Cortez drinking water system has five limitations, described below.

System Limitation #1: Per Capita Water Demand is Relatively High.
As shown in Table 1 and Graph 1b, in the Appendix, the current per capita daily water demand for the City of Cortez & MCWD#1 is 230 gallons per person per day (gpcd). This daily water demand reflects a reduction down from the per capita rate of 325 gpcd in 1990. Per capita daily water demand fell consistently between 1990 and 2002, and has plateaued at 230 gpcd since that time.

As shown in Chart 3, below, 230 gpcd is on the higher end of average water demand for a number of cities in the U.S. and elsewhere in the World. In particular, note how the per capita water demand in Albuquerque, NM; Boulder, CO; Denver, CO; Tempe, AZ; and Phoenix, AZ are all significantly lower than 230 gpcd. Note how the bulk of the water demand for cities above roughly 125 gpcd is for outdoor water use.

CHART 3: AVERAGE PER CAPITA WATER CONSUMPTION IN SELECT CITIES.



Source: Figures 2.2 & 3.2, Amy Vickers, "Handbook of Water Use and Consumption" (2001).

System Limitation #2: Annual Available Raw Water Limited.
The City's drinking water system's second limitation is the amount of raw water available from McPhee Reservoir and the Dolores River. The City currently has senior direct flow water rights for 3,040 acre-feet per year from the Dolores River. The City also purchases rights to 2,300 acre-feet per year from the McPhee Reservoir. Therefore, the City's total available raw water is 5,340 acre-feet per year or 1,740 million gallons (MG).

Table 1 and Graph 1a, in the Appendix, show the available annual water supply relative to the water demand from the City of Cortez & MCWD#1. (The drinking water consumed by the Ute Mountain Ute Tribe is from their municipal & industrial water rights allocation from the Dolores River, and does not count against the water rights for the City of Cortez & MCWD#1.) Table 1 shows that current annual water demand is approximately one-half of the available water supply. Water demand from the City of Cortez & MCWD#1 is projected to increase until 2040, due to anticipated population growth. However, a significant quantity of available water will remain accessible for unforeseen demand and other contingencies.

System Limitation #3: Drinking Water Used for Supplemental Park Irrigation, Street Sweepers. The second limitation of the City's drinking water system is the use of treated drinking water for irrigation at City Park and the City's street sweepers. These uses are ideal for water reuse, such as from reclaimed treated wastewater or used pool water.

City Park, located in downtown Cortez across Montezuma Avenue from Centennial Park, currently uses drinking water for its irrigation system. City Park is the oldest and smallest of three main parks in Cortez, all of which are managed by the City's Department of Parks and Recreation. The irrigation for the other two parks – Centennial Park and Parque de Vida – is primarily from raw, untreated, irrigation water. Centennial Park includes two shelters, a duck pond, a Disc Golf Course, and two-and-a-half miles of paths for walkers and joggers. Irrigation for Centennial Park is from raw water, supplied by a pressurized irrigation pipeline managed by the Montezuma Valley Irrigation Company (MVIC). Treated water from the City's drinking water supply can supplement the normal irrigation supply at Centennial Park, on an as-needed basis. The third City park – Parque de Vida, located immediately across the street from Centennial Park – receives irrigation water exclusively from raw, untreated, irrigation water, not treated drinking water. Parque de Vida includes three multi-purpose fields, a baseball field, softball field, two basketball courts, four tennis courts, a skateboard park, shelters, playground, sand volleyball courts, and a music amphitheater. Combined, Centennial Park and Parque de Vida consume 400,000 gallons of irrigation water during the peak summer recreation period, which is roughly from June to August.

Due to the cost of treating drinking water to potability standards and conveying it from the treatment plant, it is preferable to use either raw, untreated water or reclaimed wastewater for both park irrigation and street sweepers. Reused wastewater would need to be properly treated (including adequate disinfection) to protect public health, and the one-time use limitation, detailed later in the plan, would need to be addressed.

The City also has an additional park – Denny Lake Park – located on the east side of town, along State Highway 160. The irrigation water for this park also is supplied by the City's potable drinking water supply.

Finally, the City's outdoor swimming pool – located in City Park – is filled with treated drinking water. The pool has a capacity of approximately 135,000 gallons, and is filled and emptied fully on an annual basis. The unwanted water from the pools is currently discharged into the wastewater system when emptying the pool. This water could also be used for irrigation / street sweeping purposes, or similar uses where potable water is not required, thereby displacing use of treated drinking water for these purposes.

System Limitation #4: Unmonitored Use for Supplemental Park Irrigation, Pool, Street Sweepers

A master water meter measures the quantity of drinking water consumed by Centennial Park's supplemental irrigation system, the City's outdoor swimming pool, and the City's street sweepers. The water use data at the master meter is currently not monitored.

Individualized water meters would be preferable to quantify and help the City conserve water individually from these separate flows. These meters should be monitored routinely and then recorded.

In lieu of individualized water meters, the data from the master meter on the line used by Centennial Park's supplemental irrigation system, the City's outdoor swimming pool, and the City's street sweeper should be monitored routinely and recorded.

System Limitation #5: Hydrant Flushing Program Unmetered.

The third limitation of the City's drinking water system is the lack of metering of the water consumed during the annual fire hydrant flushing program. The purpose of the program is to flush corrosion products and other unwanted debris trapped within the drinking water distribution system. The flushing both ensures the serviceability of each fire hydrant, but also improves drinking water quality.

The City performs two types of flushing: (1) high volume transmission line flushing, and (2) low volume distribution line flushing. During the high volume water main flushing, Public Works personnel flush three incoming transmission lines six times per year for 90 minutes at a flowrate of 3,000 gallons per minute (gpm). The high volume flushing consumes approximately 5 million gallons (MG) per year. During the low volume distribution line flushing, over 100 hydrants are flushed, and another 6 MG per year is consumed. Thus, the City's entire flushing program consumes an average of 11 MG per year.

2.04 WATER COSTS AND PRICING.

The City's current water rate structure was established by City Council Resolution No. 46, passed in 2009. Resolution No. 46 is included in the Appendix, and is effective January 1, 2010. Highlights of the City's water rate structure are shown in Figure B, below.

FIGURE B: HIGHLIGHTS OF CITY'S WATER RATE STRUCTURE.

User Type	1st 1000 gal (min.)	Each Add'l. 1000 gal
Residential, single-family (3/4" x 5/8" diameter taps)	$13.50 / month	$1.60
Residential, master meter (multi-family residential or occupied mobile home space served by same tap, service line, and/or meter)	$12.75 / month	$1.60
Commercial (3/4" x 5/8" diameter taps)	$13.50 / month[a]	$1.60

Notes:

[a] The minimum monthly rate increases as meter size increases. See City Council Resolution No. 46 (2009), in the Appendix, for more detail.

The City also has a "service line and development charge" for each new service line, with rates varying upon the type and size of the connection. The City also imposes service charges for connecting and reconnecting to the water supply.

The City's water rate structure applies to all water service served within its City limits, as well as users outside. Unmetered services are charged a rate based on estimated usage as determined by the City's Director of Finance.

2.05 CURRENT POLICIES AND PLANNING INITIATIVES.

The City has a number of existing policies in place that affect water use under both normal and drought conditions. These are detailed in the conservation measures – Part 5 – of the plan.

Future Drought Mitigation Planning Initiative.

While drought is mentioned indirectly by this Water Conservation Plan, the potential for drought is ever present in southwest Colorado, particularly in light of the 2002 drought and accompanying wild fires. During and following the historic 2002 drought, the City adopted a number of drought mitigation efforts, including public education and regulatory measures. These measures are addressed further later in the plan.

During the next 5-years, the City expects to develop a separate Drought Mitigation Plan to supplement and support its overall water supply management program, as well as the City's Comprehensive Plan.

The purpose of a Drought Mitigation Plan is to describe a strategy or combination of strategies for temporary supply management and demand management response(s) to temporary and potentially recurring water supply shortages and other water supply emergencies. Drought response measures in this context typically include mandatory restrictions on certain water uses, water allocation, or the temporary use of an alternative water supply. The underlying idea of drought mitigation planning is several fold: (a) while often unpreventable, short-term water shortages and other water supply emergencies can be anticipated; (b) the potential risks and impacts of drought can be considered and evaluated in advance of the actual event; (c) response measures can be determined with implementation procedures defined, in advance, to avoid, minimize, or mitigate the risks and impacts of drought related shortages; and (d) for water providers, the basic goal of drought mitigation planning is to ensure an uninterrupted supply of water in an amount sufficient to satisfy essential human needs, while also minimizing adverse impacts on quality of life, the economy, and the environment.

The City's future Drought Mitigation Plan will, at a minimum, include the following elements:

- Drought Task Force. The drought task force will combine various organizational entities and stakeholders that may influence preparation and implementation of a Plan into a communicating unit for purposes of preparing and implementing the Plan;
- Drought Vulnerability Assessment of the Water Supply System. The vulnerability assessment will consider seniority of water rights, reliability of infrastructure, availability of alternative supplies, and flexibility of water demand to identify key resource needs, and to support development of relevant policy, emergency response, and public education and awareness needs.
- Drought Mitigation Policies. Existing drought mitigation policies will be assessed and revised as necessary, with additional policies created if needed. These policies may include, but are not limited to, establishing drought response principals, objectives and priorities; authorities for declaring drought; triggers for drought-related actions; ordinances for drought measures; lines of internal and external communications protocols and content; and means for monitoring for drought and/or water supply scarcity.

• List of Emergency Response Needs. This list will include, but is not limited to, declarations of drought, emergency water supply programs and methods, extending boat ramps and docks from local lakes / reservoirs, managing new taps, and identifying funding partners and sources for assistance.

• Drought Preparedness Public Education / Awareness Program. Can tie into City's ongoing water conservation public education / awareness program.

The City's future Drought Mitigation Plan will be related to, but separate from, the City's Water Conservation Plan. That said, both will be integrated within the City's overall water supply management program.

2.06 CURRENT WATER CONSERVATION ACTIVITIES.

The City's existing Water Conservation Plan was most recently revised in 1996. It outlined eleven "water conservation approaches" that the City considered in order to reduce per capita water consumption. This plan builds upon and expands the 1996 plan. It includes more detail as to how the City will maintain its success at maintaining per capita water consumption since 2002.

PART 3 - WATER USE AND DEMAND.

3.01 CURRENT WATER USE.

Table 1 in the Appendix shows the annual water demand for the City of Cortez & MCWD#1 between 1990 and 2040. The data from 1990 to 2009 is historic, while the years out to 2040 are projected.

The City of Cortez & MCWD#1 used 770 and 762 MG in 2008 and 2009, respectively. The Ute Mountain Ute Tribe used 223 and 199 MG in 2009, respectively. Thus, the total water used in both service areas was 993 and 961 MG in 2008 and 2009, respectively, well below the available annual water supply of 1,740 MG (5,340 acre-feet).

Table 2 breaks down by user type the water demand by the City of Cortez & MCWD#1 in 2008 and 2009. User types for the City of Cortez include the following categories:

- Residential (single unit);
- Residential (multi-unit);
- Commercial;
- Schools;
- Churches; and
- Government (City & Parks).

Table 3 and Graph 3, in the Appendix, show the number and percentage of taps by user type, and the average water demand per tap.

Tables 4-7 and Graphs 4-7 show the seasonal variation in water demand for the City of Cortez & MCWD#1 and Ute Mountain Ute Tribe, on an individual, collective, and average basis. It shows that water demand peaks during July and is low during December through February. This demand pattern is consistent with significant water use for outdoor, warm weather uses such as landscaping irrigation, vehicle washing, recreation (e.g., outdoor pools, kiddie sprinklers, slip-and-slides, etc.).

Tables 9 and 10, and Graphs 9a, 9b, 10a, and 10b show the seasonal variation in water production and per capita water production between 2000 and 2010. This data, similar to Tables 4-7 and Graphs 4-7, shows significant seasonal variation in water consumption, with the highest rates in mid-

summer and the lowest in mid-winter. This demand pattern is consistent with significant water consumption for outdoor use, particularly landscaping irrigation.

3.02 DEMAND FORECASTING METHOD.

The demand forecasting method used was the per capita and population methodology outlined in the AWWA's Manual of Water Supply Practices M50 ("Water Resources Planning"). Historic populations from 1970 to 2009 were tabulated, and a linear trendline was extrapolated to project population growth out to 2040. This projection uses an annualized growth rate that begins around 1.1% for 2010 through 2015 and gradually declines to 0.9% for 2035 through 2040. This gradual decline in annualized growth rate is consistent with a maturing community approaching its carrying capacity (approximately 16,000 persons for the City of Cortez).

3.03 DEMAND FORECAST.

Table 1, in the Appendix, shows historic and projected population, per capita water use, and annual water demand for the City of Cortez & MCWD#1 between 1990 and 2040. Graphs 1a, 1b, and 1c also depict this data over time.

Demand forecasting was done by estimating population growth and changes in per capita daily water demand between 2010 and 2040. Based on historic population growth trends, it is estimated that the population within the City of Cortez grows on an annualized basis of approximately 1% per year.

Specifically, the demand forecasts followed the per capita methodology outlined in the AWWA's Manual of Water Supply Practices M50, titled "Water Resources Planning" (2nd Ed.), dated 2007. Historic populations were graphed from 1970 to 2009, and a linear trendline extrapolated growth out to 2040. This projection uses an annualized growth rate that begins around 1.1% for 2010-2015 and gradually declines to 0.9% for 2035-2040. This gradual decline in annualized growth rate is consistent with a maturing community that is gradually reaching its carrying capacity (16,000 persons).

PART 4 - PROPOSED FACILITY IMPROVEMENTS.

The City recently performed a series of improvements to its drinking water treatment system. These improvements consisted of the following:

- Removal and replacement of existing granular multi-media filter media (i.e., sand and gravel);
- Replacement of unserviceable filter componentry;
- Installation of additional piping, valves, fittings, and associated hardware in order to improve treatment system operation; and
- Upgrade of electrical and instrumentation & controls equipment, updating of operating software, and replacement of level control equipment.

The improvements were funded by State Revolving Fund (SRF) low-interest loans, administered by the Colorado Water Resources and Power Development Authority (CWRPDA). The improvements improved system performance, but did not add additional treatment capacity to the system. Thus, an incremental cost analysis is not appropriate at this time.

The existing drinking water system has the capacity to treat the available annual water supply of 1,740 MG from the McPhee Reservoir. The drinking water system – including the treatment plant,

storage tanks, and distribution system – has a rated capacity of 9.0 MGD peak flow. The rated capacity is based on 9.0 MGD of pre-treatment capacity and 11 MGD of filtration capacity.

The plant has sufficient operational flexibility and physical robustness to satisfy demand peaks that occur during mid-Summer, as well as operating efficiently during periods of low demand that occur in mid-Winter. During periods of peak demand, the treatment train runs more often and for a longer cycle than under normal flow conditions. Similarly, during periods of low demand, the treatment train cycles less often and for shorter periods of time. In addition, not all of the treatment units (in particular, the submerged membrane microfiltration units, which are oriented in parallel so they are operationally independent) need be operated during low demand periods.

The capacity of the drinking water system shall remain the same over the 30-year planning horizon of this plan. No additions or retirements beyond the scope of the current engineering project are expected.

PART 5 - **WATER CONSERVATION GOALS.**

The City of Cortez has four water conservation goals, described in §§ 5.01 to 5.04, below. These goals were originally developed as part of the City's 1996 Water Conservation Plan. They have been updated and expanded by the City of Cortez, Department of Public Works.

5.01 GOAL #1: IN SHORT-TERM MAINTAIN PER CAPITA WATER DEMAND AT CURRENT REDUCED LEVELS; OVER LONG-TERM, REDUCE PER CAPITA WATER DEMAND TO 200 GPCD.

As shown in Table 1 and Graph 1b, in the Appendix, the current per capita daily water demand for the City of Cortez & MCWD#1 is 230 gpcd. This daily water demand reflects a reduction down from the per capita rate of 325 gpcd in 1990. Per capita daily water demand fell consistently between 1990 and 2002, and has plateaued at 230 gpcd since that time. The City's short-term goal (i.e., over the next 1-2 years) is to maintain its per capita water demand for users supplied by its water system supply area at current reduced levels, and for per capita water demand not to increase. Over the long-term (namely, over the 7-year implementation period of the plan), the City's goal is to reduce per capita water demand to 200 gpcd. Reducing per capita water demand to 200 gpcd will bring the City's water conservation success in line with that seen elsewhere in the region, and will be the foundation for additional reductions in per capita water demand in subsequent years.

Reducing per capita water demand from the current 230 gpcd to 200 gpcd will require aggressive implementation of the water-saving measures / programs contained in this Water Conservation Plan. Future annual updates and comprehensive revision of the plan, detailed in § 8.05 of this plan, will quantitatively determine the City's achievement of this long-term commitment. If the City is not achieving measurable success in reducing the per capita water consumption from 230 gpcd over the medium-term (i.e., over a 3-5 year period), the annual updates will identify the need to more aggressively implement the water saving measures / programs. This would also include the need for additional financial resources to increase the available rebates, distribute more free self-audit kits, offer a greater cost-share on professional commercial water audits, etc.).

Additional reductions beyond the 200 gpcd goal will likely require very long-term efforts (i.e., over 7+ years) and significantly more financial resources that those tentatively outlined in this plan. This will require effectively a distinct cultural change amongst the City's residents with respect to water consumption and conservation, which will require a sustained and diligent water conservation

program by the City as well as wide-spread recognition by City residents of the importance of water conservation.

Towards the end of the report, Figure L provides a quantitative estimate of water savings if per capita water demand falls from 230 to 200 gpcd. Future annual review and comprehensive revisions of the plan will carefully look at whether the city has met this goal, and will revise accordingly depending on the City's success. Again, the City's goal is to reduce per capita water consumption to 200 gpcd during the 7-year implementation period of this plan, and the City will strengthen its water-saving measures / programs as necessary to achieve this goal.

5.02 GOAL #2: FULL METERING / MONITORING.

The City seeks to achieve full metering and monitoring of all users within the Cortez water system. Any existing facilities that are currently unmetered or become unmetered shall have meters installed to monitor water usage. At present, the only unmetered use of drinking water is the City's hydrant flushing program. Drinking water is used for supplemental irrigation at Centennial Park, to fill the City's outdoor swimming pool, and to fill the tanks of the City's street sweepers. A single line with a master meter provides water to these three uses. However, the data measured by the master meter is not monitored and recorded. The City will begin monitoring and recording of this data.

The City's goal is to achieve 100% metering and monitoring of all water users within the City-operated distribution system.

5.03 GOAL #3: IMPROVE QUANTIFICATION OF WATER LOSS, MAINTAIN WATER LOSS OF <5%.

A water system's water loss factor is the ratio of unaccounted water to the total amount of water distributed. Within the municipal drinking water industry, a water system that achieves a water loss factor of 10% or less is considered to be adequately minimizing water loss.

The City has an ongoing aggressive water leak detection and repair program, which has significantly reduced water loss within the City-operated distribution system. This includes replacing old water mains and repairing service lines with detectable water leaks.

The City DPW maintains an ongoing water accounting, comparing water produced at the water treatment plant versus water measured at the numerous users within the distribution system. The City's current water loss accounting estimates than there is less than 5% loss within the distribution system. Table 8 and Graph 8 show annual water production, as distinguished from water use, for the City of Cortez & MCWD#1, Ute Mountain Ute Tribe, and both together between 2000 and 2010. Note that the annual water production for City of Cortez & MCWD#1 of 795 and 761 MGD in 2008 and 2009, respectively, differ from the water demand of 770 and 762 MG. The discrepancy is due to unaccounted for users, water loss, and errors in water meters, and accounts for less than 5% of total water produced. Note that there is significant uncertainty with this estimated water loss percentage, due to factors including the lack of recent acoustic leak detection, potential for inaccurate measurement at water meters and unmetered uses, and lack of a detailed water budget or water loss study. Inherent with the goal of reducing water loss below 5% is to improve quantification of the water loss via a detailed water budget.

The City also committed to maintain a water loss ratio of less than 5% of water produced. Future annual updates of the Water Conservation Plan will seek to quantitatively verify this estimated water loss ratio and seek to keep it below 5%.

5.04 GOAL #4: INSTITUTE AUTOMATIC METERING READING SYSTEM.

Automatic Meter Reading (AMR) systems collect water use data at the point-of-use and allow collection or transmission of the data back to utility management. They are used in lieu of traditional door-to-door water meter readers that may take days-to-weeks to collect water demand data from water users.

AMR systems are helpful in water system management in several respects, particularly in expediting routine billing and in identifying water wasters on a nearly real-time basis and reduce errors in transferring usage data from the field to the office. While not conclusively proven, written anecdotal reports have argued that AMR is indeed effective at helping systems conserve water, in addition to improving billing practices. For example, in "Accounting for Use," published in the May - June 2009 edition of "Water Efficiency: The Journal for Water Resource Management"[1], a water manager described AMR as "the ultimate in water conservation." In addition, within southwest Colorado, the Pagosa Area Water & Sanitation District (PAWSD) has found tremendous value in their AMR system in preventing water loss and promoting water conservation. PAWSD published an article on their experience.[2] Mat de Graf, PAWSD's Water Conservation Coordinator, stated that "AMR allows the provider to get a much better idea of how much water is going where and when. Although its primary purpose is as a billing tool, I would argue that its ability to streamline leak detection and provide targeted data sets is invaluable." (Ref. E-mail to Brett Schmidt, Staff Engineer, Briliam Engineering; Subject: Re: Documentation of Water Conservation Benefits of AMR Programs; April 22, 2010; 1:59pm.)

The City's goal is to institute an AMR system within the near-to-medium term, as funds become available. No quantitative cost estimate is yet available for an AMR system. City staff will develop a cost estimate for the AMR system as they get closer to implementing such a system.

PART 6 - WATER-SAVING MEASURES / PROGRAMS.

In the 1996 Water Conservation Plan, the City identified eleven potential "water conservation approaches" to reduce water demand. This plan organizes the water-saving measures / programs into nine groupings, in order to be consistent with CWCB guidance and water conservation planning requirements pursuant to state statutes.

6.01 WATER-SAVING MEASURES / PROGRAMS CONSIDERED.

A wide variety of water-saving measures / programs were considered during the development of this plan. The water-saving measures / programs considered included, but were not limited to, the following:

- Water-efficient fixtures & appliances (e.g., low-flow toilets & urinals, aerating showerheads & faucets, front-loading washing machines);
- Landscape efficiency (e.g., Xeriscaping, drip irrigation systems);
- Industrial and commercial efficiency (e.g., closed-loop cooling systems);
- Water reuse systems (e.g., reclaimed water for landscaping irrigation); and
- Distribution system efficiency (e.g., leak detection and repair).

[1] http://waterefficiency.net/may-june-2009/accounting-for-use.aspx
[2] http://www.pawsd.org/Scoop-AMR-Program-and-Leaks.html

6.02 SCREENING AND EVALUATION OF WATER-SAVING MEASURES / PROGRAMS.

Water-saving measures / programs were selected for this plan based on four criteria:

(1) Estimated breakdown of water consumption by use;
(2) Presence within the 1996 Water Conservation Plan;
(3) Feasibility of implementing conservation measures;
(4) Non-duplication with ongoing water conservation measures.

If a water-saving measure / program was included within the 1996 plan and it is still applicable to the current drinking water system, then it was carried over into this plan. Additional conservation measures were added, if they were feasible (i.e., could be implemented given the context of Cortez's drinking water system) and not duplicative with any ongoing conservation measures.

The selected conservation measures are categorized into ongoing and planned conservation measures, in §§ 6.03 and 6.04, respectively, below.

Note that the City currently lacks sufficient data to perform a proper cost-benefit analysis of the ongoing and planned water-saving measures / programs.

6.03 SELECTED WATER-SAVING MEASURES / PROGRAMS.

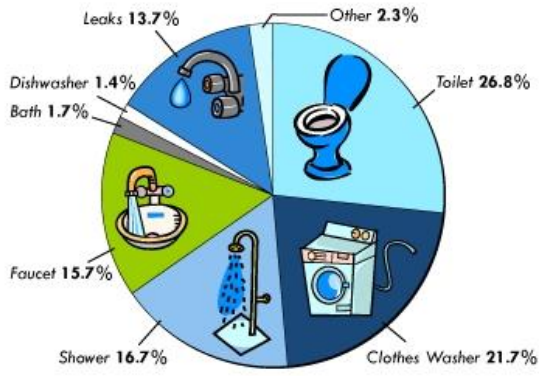
The City's water conservation program consists of nine water-saving measures and programs, as described below.

A. WATER-SAVING MEASURE / PROGRAM #1: WATER-EFFICIENT FIXTURES & APPLIANCES.

As shown in Chart 4, below, on average within the U.S., the majority of water use within residential dwellings is for toilet flushing and clothes washing. (Data on indoor water use for the City of Cortez is unavailable, but the City may develop estimates, based on voluntary and representative sampling, of indoor water use by its customers in the future.)

Therefore, beginning in 2012, the City will adopt an indoor water-efficient toilet and washing machine replacement rebate program. Under this rebate program, customers who purchase and install water-efficient toilets and washing machines will get a rebate applied toward their future water bills.

CHART 4: ESTIMATED BREAKDOWN OF INDOOR HOUSEHOLD WATER USE.



Source: AWWA Research Foundation (2001)

The specific rebate quantities and eligibility criteria for the water-efficient toilet and washing machine replacement rebate program will be developed in the future. What follows is a tentative discussion of the likely rebate quantities and eligibility criteria.

Most likely the toilets rebate will be for users with toilets currently using more than the federally-mandated 1.6 gallons per flush (gpf). As described in Section 2.1 (titled "Toilets") of Amy Vickers' "Handbook of Water Use and Conservation" (2001), 5.0+ gpf toilets were used prior to 1980 and 3.5, 4.0 and 4.5 gpf toilets were installed during 1980-1994 range. 4.5 gpf was used to estimate water saved per toilet replaced. The City's toilet rebate program will target the highest demand water toilets for replacement via two ways. First, the City will focus educational efforts on the toilet rebate program in parts of the City with the oldest housing stock. For example, the City may begin the toilet rebate program in the areas of oldest housing stock, before expanding eligibility to the entire city. Second, if the number of rebate applications will exhaust the funds available to support the rebate program, applications for replacement of the toilets with greatest use or the oldest, least efficient toilets will be prioritized over newer, more efficient toilets or those with relatively less use. This prioritization will maximize the water savings per rebate dollar. In the event that rebate funds are exhausted, additional resources will be allocated for subsequent years to meet the overall demand for rebate funds.

The rebates will likely require that the new toilet achieve at least 1.28 gpf, not merely the 1.6 gpm currently required for new construction or home renovation. 1.28 gpf toilets will likely involve use of dual flush, powerflush, or flapperless technologies, which offer higher performance than more conventional low-volume gravity-tank toilets. Thus each toilet replaced is estimated to save 3.22 gallons per flush.

The washing machine rebate is currently expected be $100 for all WaterSense-certified (a US Environmental Protection Agency water conservation program[3]) front-loading washing machines using 27 gallons per load or less. As described in Section 2.2 (titled "Clothes Washers") of Amy Vickers' "Handbook of Water Use and Conservation" (2001), 51 gallons per load washing machines were used prior to 1980, and 27, 39 or 43 gallon per load have been used to the present day. 43 gallons per load was used to estimate water saved per washing machine replaced. The City's washing machine rebate program will target the highest demand washing machines for replacement. In addition, rebate recipients will likely be offered free faucet aerators to improve the water efficiency of their faucets (kitchen, bathroom, etc.). The plan does not include estimates of water savings from distribution of water efficient faucets, but future plan updates / revision may take these water savings into account. The City may also in the future expand the rebate program to include high efficiency showerheads, but this will be evaluated in future plan updates and revisions.

The toilet and washing machine replacement rebates are anticipated to be offered on a first-come, first-serve basis. No money will be distributed for toilets and washing machines installed prior to the beginning of the program. If the rebate money is exhausted in a particular year, applicants will be automatically rolled into the following year. The City will likely allocate additional funds if rebate funds are quickly exhausted. Similarly, if unused rebate money is available at the end of a year, it will either be carried over into the following year or used for other water conservation programs. The City is currently planning on budgeting a total of $2,000 per year for the indoor water-efficient toilet and washing machine replacement rebate program. Figures C-1 and C-2, below, show the preliminary projected toilet and washing machine rebate rates, participation, and estimated water savings. Figure C-3, also below, summarizes the estimated water savings for these two rebate

[3] http://www.epa.gov/WaterSense/

programs. The City will evaluate the effectiveness of its rebate program during the annual Water Conservation Plan review, beginning in 2013.

FIGURE C-1. PRELIMINARY PROJECTED TOILET REPLACEMENT REBATES AND ESTIMATED WATER SAVINGS.

Year	2012	2013	2014	2015	2016	2017
Water-Efficient Toilet Replacement Rebate Program						
Toilet Rebates Issued Per Year	40	40	40	40	40	40
Cumulative No. of Toilet Rebates Issued	40	80	120	160	200	240
Rebate Per Toilet Replaced	$25	$25	$25	$25	$25	$25
Total Toilet Rebates Issued Per Year	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Estimated Persons per Household[1]	2.64	2.64	2.64	2.64	2.64	2.64
Estimated Flushes per Person per Day[1]	5.1	5.1	5.1	5.1	5.1	5.1
Reduction in Water Use per Flush (gal) [from 4.5 to 1.28 gallons / flush]	3.32	3.32	3.32	3.32	3.32	3.32
Water Savings per Toilet Replaced (gpd)	44.7	44.7	44.7	44.7	44.7	44.7
Estimated Daily Water Savings (gpd)	1,788	3,576	5,354	7,152	8,940	10,728
Estimated Annual Water Savings (MG)	0.7	1.3	2.0	2.6	3.3	3.9

Notes:

[1]Source: Table 2.2, Amy Vickers' "Handbook of Water Use and Conservation" (2001)

FIGURE C-2. PRELIMINARY PROJECTED WASHING MACHINE REPLACEMENT REBATES AND EST. WATER SAVINGS.

Year	2012	2013	2014	2015	2016	2017
Water-Efficient Washing Machine Replacement Rebate Program						
Washing Machine Rebates Issued Per Year	10	10	10	10	10	10
Cumulative Number of Washing Machine Rebates Issues	10	20	30	40	50	60
Rebate Per Washing Machine Replaced	$100	$100	$100	$100	$100	$100
Total Washing Machine Rebates Per Year	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Estimated Persons per Household[1]	2.64	2.64	2.64	2.64	2.64	2.64
Estimated Loads per Person per Day[1]	0.37	0.37	0.37	0.37	0.37	0.37
Reduction in Water Use per Load (gal) [from 43 to 27 gallons / load]	16	16	16	16	16	16
Water Savings per Washing Machine Replaced (gpd)	15.6	15.6	15.6	15.6	15.6	15.6
Estimated Daily Water Savings (gpd)	156	312	468	624	780	936
Estimated Annual Water Savings (MG)	0.06	0.11	0.17	0.22	0.28	0.34

Notes:

[1]Source: Table 2.17, Amy Vickers' "Handbook of Water Use and Conservation" (2001)

FIGURE C-3. SUMMARY OF ESTIMATED WATER SAVINGS FOR WATER-EFFICIENT FIXTURES & APPLIANCES.

Year	2012	2013	2014	2015	2016	2017
Water-Efficient Toilet Replacement Rebate Program (MG)	0.7	1.3	2.0	2.6	3.3	3.9
Water-Efficient Washing Machine Replacement Rebate Program (MG)	0.06	0.11	0.17	0.22	0.28	0.34
Total Estimated Water Savings for Water-Efficient Fixtures & Appliances (MG)	0.8	1.4	2.2	2.8	3.6	4.2

In addition, note that the City has adopted, within Sections 6 and 21 of its City Code, several international building codes, including the International Plumbing Code (IPC). The IPC mandates the use of water-efficient plumbing fixtures on all new construction and building remodeling. These requirements are enforced by City's building inspectors during routine building construction and occupancy inspections.

In addition, the City educates the public generally, and plumbers and other building construction personnel specifically, on water efficient fixtures by distributing written literature, via the City's website, and in routine interaction as to ongoing and future construction projects.

B. WATER-SAVING MEASURE / PROGRAM #2: WATERWISE LANDSCAPING PROGRAM (I.E., WATERWISE LANDSCAPES, DROUGHT-RESISTANT VEGETATION, EFFICIENT IRRIGATION, REMOVAL OF HIGH WATER DEMAND PLANTS).

Waterwise landscaping utilizes native and other climate-appropriate, low water-use plants and other landscaping features that require a minimum of additional watering beyond natural precipitation. Waterwise landscaping features can also include gravel beds, decorative rocks, and stone walkways. (Waterwise landscaping is also known as "Xeriscaping" – a combination of "xeros" (Greek for "dry") and landscape. This term has generally fallen out of favor by water conservation professionals, however, because of public confusion over its meaning.)

No later than 2012, the City will implement a waterwise landscaping program. The core of this program is to more aggressively promote and encourage citizen involvement with the waterwise plant demonstration plots. The program will also involve distribution of a revised and finalized waterwise landscaping brochure, which will both help promote the waterwise plant demonstration plots as well as encourage residents to install waterwise landscaping at their properties.

The City has tentatively budgeted $1,000 for 2012 to fund the waterwise landscaping program, and will allocate more money in subsequent years as required. The waterwise landscaping program will be a joint effort of the Department of Public Works and Parks & Recreation Department, given that DPW has expertise in terms of the water system while Parks & Recreation has experience in organizing programming and dealing with the public, particularly students and volunteers.

Several years ago, City personnel planted two waterwise plant demonstration plots: the first at the City Service Center within the Cortez Industrial Park (110 Progress Circle on the northwest side of town), the other as part of building landscaping of the Police Station near Centennial Park near downtown Cortez. In the Appendix is a schematic of the waterwise landscape demonstration garden planted at the City Service Center, as well as a species list. Both locations are relatively high traffic areas, particularly the downtown plot. Since their installation, however, the City has not sufficiently promoted the waterwise plant demonstration plots. As part of the waterwise landscaping program,

the City will aggressively promote the waterwise landscaping demonstration plots and encourage greater utilization by the community.

The City's waterwise landscaping program is anticipated to consist of six main elements:

- Element #1: Revise and distribute the waterwise landscaping brochure;
- Element #2: Rededication of waterwise landscaping demonstration plots;
- Element #3: Volunteer programming at waterwise landscaping demonstration plots;
- Element #4: Educational programming at waterwise landscaping demonstration plots;
- Element #5: Evaluate future waterwise landscaping audit programs; and
- Element #6: Evaluate future waterwise landscaping rebate programs.

What follows is a detailed description of these six main elements of the City's new waterwise landscaping program.

First, the City will revise and distribute its waterwise landscaping brochure. The draft waterwise brochure included in the Appendix will be the basis for updating the brochure in the future. The draft brochure was originally developed to help promote the waterwise plant demonstration plots, and contains a detailed description of the plant species originally planted in the plots. The revised and finalized brochure will include more detailed guidance on the grass selection and use the term "waterwise" in lieu of "Xeriscape". This brochure will serve two purposes: 1) help promote the waterwise landscaping demonstration plots, and 2) serve as a guide to City residents to show how waterwise plants can be decorative yet require very little watering once established. The waterwise landscaping brochure will reference to Municipal Code Section 27-6(b)(3), which explicitly recommends that residents use water-saving grasses such as fescues, wheatgrasses, and Blue Grama, in-lieu of water-wasting grasses such as Kentucky Bluegrass. (The Municipal Code can be accessed online[4] via the City's website. New ordinances, as they are passed by the City Council, are also posted online.[5]) The City will distribute the waterwise landscaping brochure both online (via the City's website), and in hard copy (at City offices, at distribution boxes at the waterwise landscaping demonstration plots, and at City-sponsored waterwise landscaping programming).

Second, once the waterwise landscaping brochure is revised, finalized, and printed, the City will rededicate the waterwise landscaping demonstration plots in a formal public ceremony. The ceremony will be widely publicized in advance by the local media (particularly the *Cortez Journal*,[6] the local newspaper), and maximum citizen participation will be encouraged. The timing is yet to be determined, but will likely occur on or about Earth Day 2012. It is anticipated that the ceremony will be attended by the Mayor, members of the City Council, select City staff, landscaping enthusiasts, school children, and other interested citizens. Prior to the rededication, the City will post clearly observable signage at the demonstration plots so residents can find them. In addition to the signage at the plots themselves, the City DPW will post road signs denoting "Waterwise Landscaping Demonstration Plots" to direct drivers to the location of the plots. Distribution boxes for the waterwise landscaping brochures will be installed at each of the plots, with City personnel responsible for routine replacement of the brochures as they are depleted. The City will seek to get the waterwise demonstration gardens published by online listing of xeriscape demonstration gardens maintained by CWCB[7] as well as Colorado Waterwise.[8]

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[4] http://www.cityofcortez.com/government/mayor_city_council/city_code

[5] http://www.cityofcortez.com/news_info/ordinances

[6] http://www.cortezjournal.com/

[7] http://cwcb.state.co.us/Conservation/PublicInfo/LocalAreaXeriscapeDemonstrationGardens/LocalAreaXeriscapeDemonstrationGardens.htm

[8] http://coloradowaterwise.org//index.php?option=com_content&task=category&sectionid=10&id=64&Itemid=244

Third, the City Parks & Recreation Department will coordinate volunteer programming at the waterwise landscaping demonstration plots. This volunteer effort will be particularly important in order to improve the plots prior to finalization of the waterwise landscaping brochure, as neglect has likely resulted in the loss of certain waterwise landscaping plants as well as the introduction of unwanted non-waterwise weed species. Groups that will be targeted as part of this volunteer effort will include: school horticulture groups, scout troops, 4-H participants, landscaping clubs, retirement homes, and persons needing to perform community service hours. Young people, in particular, will be encouraged to perform "service learning" projects utilizing the waterwise landscaping demonstration plots. These projects can include, but are not limited to, including routine maintenance (e.g., weed removal, fall / spring cleanup), one-time upgrades (e.g., plot expansion, plant transplants, and construction of amenities such as benches, mulch walkways, etc.), as well as county fair exhibits. The City's Parks & Recreation Department will investigate obtaining and distributing "Waterwise Landscaping" patches for distribution to scouts who perform a minimum number of volunteer hours at the plots. The City will also recognize volunteers who perform significant work at the demonstration plots, with the "Waterwise Landscaping Hero" designation. Such volunteers will receive a "Certificate of Recognition" signed by the Mayor, and their names will be added to a plaque located at an appropriate place in a public location.

Fourth, the City Parks and Recreation Department will coordinate with the Montezuma County Extension office[9] to leverage the waterwise landscaping demonstration plots within their ongoing educational programming, such as the Master Gardener Program and the Native Plant Master Program. In addition, the Parks and Recreation Department will utilize the waterwise landscaping demonstration plots during annual Earth Day activities, that occur on or about April 22 each year. Educational programs on waterwise landscaping will also occur during the Earth Day activities, as well as volunteer opportunities for annual spring clean-up. The Parks and Recreation Department will organize and perform other educational programs at other times of the year, but the Earth Day-related activities at the landscaping demonstration plot will be the keystone event each year.
The City's waterwise landscaping educational programs will address the following topics:

- Evaluation of water consumption by existing landscaping;
- Waterwise plant species;
- Planning and design of waterwise landscaping;
- Water-efficient irrigation system and practices;
- Locations where turf grass makes sense;
- Soil improvements / mulching; and
- Maintenance of waterwise landscaping.

These efforts will supplement the City's waterwise landscaping brochure with literature distributed by the Colorado State University Extension office.[10]

Fifth, no later than 2015, as part of the annual update of the plan, the City will evaluate whether to institute an outdoor landscaping audit program. Under an outdoor landscaping audit program, residents would be offered free on-site audits of their landscaping by a xeriscape specialist (possibly a City staff member with extensive training and experience in efficient outdoor irrigation techniques and xeriscaping / waterwise landscaping). Participating residents would be offered a written report providing specific recommendations on optimizing outdoor irrigation, as well as potential xeriscape improvements. Note that a future outdoor irrigation audit program will require dedicated funding, and likely extensive staff training and time. Therefore, it is premature to implement an outdoor irrigation audit program in the immediate future (i.e., next 1-2 years).

[9] http://www.co.montezuma.co.us/newsite/extensionhome.html
[10] http://www.ext.colostate.edu/pubs/pubs.html#water

Sixth and finally, no later than 2016, as part of the annual update of the plan, the City will evaluate whether to institute a waterwise landscaping / xeriscaping rebate program. Under such a rebate program, residents who remove their existing water-inefficient landscaping (e.g., Kentucky bluegrass) with waterwise landscaping / xeriscaping (e.g., the water-saving grasses recommended by the Municipal Code) will receive a rebate on their water bill. Performance of an outdoor irrigation audit will be one of the prerequisites to receiving a waterwise landscaping rebate. Note that a future waterwise landscaping / xeriscaping rebate program will require dedicated funding, extensive public education, a verification component, and extensive staff training and time. Therefore, it is premature to implement a waterwise landscaping rebate program at this time. This program may be implemented at a future date, particularly if the educational elements and outdoor irrigation audit program of the waterwise landscaping program are determined to have achieved limited success at achieving reductions in outdoor water demand.

In terms of quantifying water savings from the waterwise landscaping program, it is very difficult at this point to estimate the water savings from removal of existing water-efficient landscaping and replacement with waterwise landscaping. The reduction in exterior watering will vary on a number of factors, including: property size, soil type, plant species removed and added, annual rainfall, seasonal temperature averages, topography, and sun exposure, amongst other factors. However, Figure D, below, is an effort to estimate the water savings for the City's waterwise landscaping program. It is estimated that, beginning in 2012, ten households will be inspired and motivated by the waterwise landscaping program to remove their existing water-wasting turf grass and install waterwise landscaping. (This estimate of participation is conservative given that Cortez is a community of roughly 8,500 residents. Assuming 2.64 persons per household, 60 households constitutes 211 people switching from traditional landscaping to xeriscaping. This represents 2.5% of residents, a fairly conservative estimate.) It also is estimated that each household cuts its water consumption in half via the installation of the waterwise landscaping.

FIGURE D. ESTIMATED WATER SAVINGS DUE TO WATERWISE LANDSCAPING PROGRAM.

Year	2012	2013	2014	2015	2016	2017
Households Install Waterwise Landscaping	10	10	10	10	10	10
Cumulative Number of Households	10	20	30	40	50	60
Estimated Persons per Household[1]	2.64	2.64	2.64	2.64	2.64	2.64
Existing Exterior Water Usage (gpcd)[2]	29	29	29	29	29	29
Existing Exterior Water Usage (gal / household / day)	77	77	77	77	77	77
Days During Annual Watering Period (mid-May to mid-October)	150	150	150	150	150	150
Existing Exterior Water Usage (gal / household / year)[3]	11,550	11,550	11,550	11,550	11,550	11,550
Reduction in Exterior Water Usage	50%	50%	50%	50%	50%	50%
Reduction in Exterior Water Usage (gal / household / year)	5,775	5,775	5,775	5,775	5,775	5,775
Cumulative Water Savings (MG)	0.06	0.12	0.17	0.23	0.29	0.35

Notes:

[1]Source, footnote in Table 2.2, Amy Vickers, "Handbook of Water Use and Conservation" (2001).

[2]Source: p. 141, Amy Vickers, "Handbook of Water Use and Conservation" (2001).

[3]Estimate is consistent with the annual estimate of 10,000 gallons of supplemental irrigation per year, with hotter, drier parts of the country using greater amounts, as cited by Vickers (above).

Note that each annual review of the Water Conservation Plan will attempt to gauge the success of the waterwise landscaping program, and reevaluate the water savings estimates previously provided. If it is found that insufficient success has been achieved through the educational programs outlined in waterwise program elements one through four, described above, then elements five and six – the outdoor irrigation audit program and the waterwise landscaping rebate program – will be implemented.

C. WATER-SAVING MEASURE / PROGRAM #3: WATER-EFFICIENT INDUSTRIAL & COMMERCIAL PROCESSES.

The City, no later than 2014, will implement a commercial water audit program. This program will consist of two parts: (1) an educational component consisting of the distribution of a free commercial water conservation self-audit kit, upon written request by commercial water users, and (2) the cost-share of professional water audit.

First, the City's Department of Public Works (DPW) will post educational information on the City's website with guidance for commercial entities (e.g., restaurants, hotels, supermarkets) on how to conserve water. Instructions will include detailed directions on how to perform a water conservation self-audit, within a packaged commercial water conservation self-audit "kit" distributed free to commercial water customers in good standing (i.e., no outstanding water bills), upon written request. These self-audit kits will address both indoor and outdoor water use, and will be applied as appropriate given each customer's unique water usage profile. (For example, a car wash would focus more on the outdoor water use component, while a restaurant with extensive dish-washing would focus more on the indoor water use component.)

Second, the City will cost-share with eligible businesses who request a water audit performed by a trained and experienced water conservation professional. Again, the professional water use audits would address both indoor and outdoor water use, tailored as necessary to the customer's unique water use profile. Likely, in order to be eligible for the cost-share, businesses must be a water customer in good standing (i.e., no outstanding water bills), have performed a water conservation self-audit, submitted a written report of their self-audit to the City, implemented some water conservation measures, and request in writing a cost share. Interested commercial entities will submit a short application to the City DPW for review and approval, before proceeding with the professional water conservation audit. During the audit, the professional water auditor will travel to the commercial enterprise's facility or facilities, perform the audit, and provide written recommendations of ways to reduce water use and an estimate of how it would save money over time. Prior to rolling out the commercial water audit program, the City DPW will determine more specifics about application procedure, eligibility, reimbursement protocol, qualifications required for the auditors and the like. Tentatively, it is anticipated that the cost share would be performed on a 50%/50% basis. The City currently anticipates budgeting $2,000 per year, on an ongoing annual basis beginning in 2014, for this water-saving measure / program. If more commercial businesses apply for the professional audit cost-share program than the available funds allow, then either the amount of available funding will be increased or the City will select which businesses offer the greatest water conservation benefits.

In terms of quantifying water savings from the commercial water audit program, it is very difficult to estimate the water savings. The reduction in water consumption will vary on a number of factors, including: business type (e.g., restaurant, bar, hotel, grocery store, administrative office), size of business, number of employees, number of customers, hours of operation, seasonality of business, efficiency of existing water using processes. That said, Figure E, below, is an effort to estimate the

water savings for the City's commercial water audit program. It is estimated that, beginning in 2014, five commercial businesses will perform water self-audits, based on the City's guidance. The levels of water savings shown in Figure E, below, are consistent with AWWA's Manual of Water Supply Practice M36, "Water Audit and Loss Control Programs" (2009) as well as "Water Loss Control (2nd Ed.)" (2009) by Julian Thornton et al.

FIGURE E. ESTIMATED WATER SAVINGS DUE TO THE CITY'S COMMERCIAL WATER AUDIT PROGRAM.

Year	2012	2013	2014	2015	2016	2017
Commercial Water Audit Program						
Commercial Businesses Performing Water Self-Audit (Via Free "Kit")	0	0	5	5	5	5
Cumulative No. of Commercial Bizs Performing Water Self-Audit	0	0	5	10	15	20
Estimated Daily Water Savings per Commercial Business (gpd / biz)	100	100	100	100	100	100
Annual Water Savings per Business in Yr Self-Audit Performed (gal / yr)	0	0	182,500	182,500	182,500	182,500
Est. Water Savings in Year Self-Audit Performed (MG)	0	0	0.18	0.18	0.18	0.18
Commercial Businesses Receiving Professional Water Audits	0	0	1	2	3	4
Cumulative No. of Commercial Bizs Receiving Professional Water Audits	0	0	1	3	6	10
Estimated Daily Water Savings per Commercial Business (gpd / biz)	250	250	250	250	250	250
Est. Water Savings per Biz in Year Prof Water Audit Performed (gal / yr)	0	0	91,250	182,500	273,750	365,000
Est. Water Savings in Year Prof Water Audit Performed (MG)	0	0	0.09	0.18	0.27	0.37
Estimated Water Savings from Commercial Water Audits Program (MG)	0	0	0.26	0.37	0.45	0.55

Note that the City lacks significant industrial or institutional presence within Cortez. If significant industrial or institutional activities are located within the City, future updates or revisions of the plan will need to take their water demands into account.

Finally, note that the City's current water treatment system improvements project is expected to minimize the backwash water required to operate the plant. These improvements include: complete media replacement and filter surface wash improvements to the existing pre-treatment granular multi-media filters (upstream of the existing submerged microfiltration system), instrumentation & controls improvements, and a new filter-to-waste piping / valve system. Total construction cost for this project is approximately $340k, and is expected to be performed in mid-2010. The improvements will provide the water treatment operators with greater operational and process control flexibility. They are also expected to reduce the quantity of water required and frequency of filter backwashing. Water treatment plant operators will maintain records on the backwashing cycle, which the Superintendent will use to document the change in backwash water quantities.

D. WATER-SAVING MEASURE / PROGRAM #4: WATER REUSE SYSTEMS.

Raw water drawn from McPhee Reservoir is held in a raw water storage pond (the "upper" pond), prior to flowing into the City's water treatment plant. Backwash water -- produced when the filters within the treatment plant are backwashed -- flows into a backwash pond (the "lower" pond). Water within the lower pond is then pumped back into the upper pond, where suspended particulate matter settles out and the recycled water eventually flows back into the treatment plant. 45,000 gallons of backwash water is typically used per filter backwash.

Filter operation at the Cortez WTP can generally be organized into three periods: a peak use period (June through August), a moderate peak use period (May and September), and an off-peak use period (October through April). Prior to the filter improvements, typically filters needed to be backwashed every 24-hour period of operation. Typically four filters were operated during the peak use period, two filters during the moderate use period, and one filter during the off-peak use period. Therefore, on average, four filters were backwashed daily during the peak use period, two filters backwashed daily during the moderate use period, and one filter backwashed daily during the off-peak use period. Due to the recent filter improvements, the filters will need to be backwashed only every 48-hours of operation. Therefore, backwash frequencies are expected to fall to two, one, and one-half backwashes per day during the peak, moderate, and off-peak use periods, respectively.

The water treatment plant operators estimate that roughly one-third of the recycled backwash water is lost due to evaporation or groundwater infiltration, with two-thirds returned to the upper pond.

Figure F, below, contains estimates of the volumes of water recycled back to the upper pond, and the reduction of waster lost in the lower pond due to evaporation / infiltration. The reduction of water lost in the lower pond due to evaporation / infiltration represents the water savings due to longer filter runs / reduced backwash frequency. Note that since the filter improvements have dramatically reduced the amount of backwash water going to the lower pond, the volume of water recycled from the lower pond to the upper pond has actually fallen from 21.1 MG/year to 10.5 MG/year.

FIGURE F. ESTIMATED WATER SAVINGS FROM BACKWASH WATER REDUCTION / RECYCLING.

Year	2012	2013	2014	2015	2016	2017
Water Recycled Back to Upper Pond (MG)	10.5	10.5	10.5	10.5	10.5	10.5
Reduction in Volume Lost in Lower Pond Due to Evaporation / Infiltration (MG)	5.26	5.26	5.26	5.26	5.26	5.26
Estimated Water Savings from Backwash Water Reduction / Recycling (MG)	15.8	15.8	15.8	15.8	15.8	15.8

Detailed calculations of these water savings estimates are provided in the Appendix. Note that given the uncertainties in the anticipated changes in backwash frequency, the above estimates of water savings do not account for anticipated changes in water production between 2012 and 2017. Future annual updates will seek to better quantify the water savings due to the longer filter runs / reduction in backwash frequency.

* * *

While the City is free to recycle backwash water at its treatment plant, the City is contractually limited in its ability to pursue reuse of "reclaimed" treated wastewater effluent. The City's drinking

water supply, provided by the Dolores Water Conservancy District (DWCD)[11], is subject to a contractual clause that reserves post-use water as belonging to the U.S. Bureau of Reclamation. In other words, like many Western Slope communities, the City's water is subject to a one-time use limitation, and water reuse projects would currently violate this requirement. Therefore, for the anticipated 7-year duration of this plan, post-use water reuse is not a feasible option.

That said, over the very long-term (greater than 7-years), the City is interested in pursuing water reuse on a limited basis for irrigation of recreational fields requiring irrigation (e.g., baseball diamonds), vehicle washing at the City's vehicle yard, and other uses where non-potable water is acceptable. The City would need to negotiate with DWCD to modify the water reuse prohibition, as well as coordinate with other interested stakeholders (e.g., U.S. Bureau of Reclamation) prior to utilizing water reuse. Moreover, wastewater within the City currently receives primary and secondary treatment by the Cortez Sanitation District prior to discharge into a nearby surface water source. Water reuse would require extensive additions to the existing wastewater treatment system to meet current environmental and public health regulatory requirements, in addition to a new and separate reclaimed water distribution system. The Cortez Sanitation District is a separate governmental entity from the City of Cortez, and any future potential post-use water reuse would need to obtain their agreement and participation. In summary, any future potential water reuse is currently only at a conceptual level, and it is uncertain over what timeframe the City might proceed.

E. Water-Saving Measure / Program #5: Distribution System Leak Identification and Repair.

The City has an ongoing drinking water distribution system leak prevention, detection, and repair program. In their day-to-day activities running the water system (i.e., operating the water treatment plant, water storage tanks, and the water distribution system), DPW staff continuously evaluate the distribution system, looking for leaks and excessively corroded pipe, as well as faulty hydrants, valves, and other appurtenances. They also carefully observe water quality and pressure conditions both at the water treatment plant and at multiple locations within the distribution system.

The City's distribution system leak prevention, detection and repair program is broader than simply waiting to go out and fix catastrophic water main breaks. For example, as part of the City's fire hydrant maintenance and unidirectional distribution system flushing program, if DPW staff see or suspect a line or appurtenance is leaking (based on noise, cavitation, pressure disruptions, water color, water odor, external or internal pipe corrosion, or observable or measurable water leakage), DPW staff will investigate and make the appropriate repairs. If water system customers complain of water quality or pressure problems in a certain part of the distribution system, DPW staff will investigate and make the appropriate repairs.

When distribution system leaks are suspected, they are investigated immediately. If leaks are detected, they are repaired immediately by DPW staff. These repairs usually consist of either repair or replacement of faulty pipe or appurtenances. Alternatively, if upon investigation a leak cannot be identified, DPW staff will perform more careful inspections within that area of the distribution system looking for areas of concern. For example, if an area of the distribution system is suspected of having several small leaks, DPW staff will make note of the concern and investigate further, looking for the specific leaks, faulty valves or hydrants, or other problems (e.g., pipe obstructions, buckled pipe, extensive pipe corrosion, illegal water connections, etc.).

[11] http://www.doloreswater.com

Records of the distribution system leak identification and repair program are maintained by City DPW personnel and are available for review at the City Service Center. In particular, the DPW maintains and updates a detailed GIS database and AutoCAD drawings of the drinking water distribution system, showing the location, size, and material of each water line and appurtenance. Within these systems, DPW personnel annotate their subjective condition assessment of each line, as part of their routine distribution system maintenance activities. DPW personnel maintain written record drawings (as-builts) depicting when different sections of line were originally built or subsequently repaired. Records also include logs of appurtenance maintenance (e.g., valve opening closing, hydrant flushing, etc.). These records are used to identify water lines most needing replacement in the City's Capital Improvements Program (CIP). (Note that the City's water treatment plant has a sophisticated Supervisory Control and Data Acquisition (SCADA) system that its operators use to efficiently operate the drinking water treatment plant. The SCADA system is used exclusively to control the water treatment plant – particularly the treatment process – but is not used to manage the distribution system, such as the day-to-day operations & maintenance.)

Complementing the City's routine leak detection program, the City in the past has hired external consultants to acoustically evaluate (using sonic leak detection systems) water mains and other portions of the distribution system for otherwise undetectable leaks. Generally speaking, this work is performed as funding becomes available, and was most recently performed in the 1990s by two separate specialty contractors. In the past, City DPW personnel selected areas within the distribution system most needing leak detection evaluation, based on the age and condition of the lines, suspicion or previous presence of leaks, flowrate of water through the line, and time since the line was most recently evaluated. No later than 2015, the City will budget and allocate funds for a comprehensive acoustic leak detection survey. Given that comprehensive acoustic leak detection has not been done in more than 10-years, the comprehensive acoustic leak detection survey will include as much of the entire distribution system as possible.

Note that some areas of the distribution system (e.g., under waterway crossings, through challenging terrain or dense vegetation) may be inaccessible to leak detection survey crews, or the depth of the water lines may make acoustic leak detection ineffective. The goal of the comprehensive acoustic leak detection survey will be to survey as much of the distribution system as is safe and practicable to do so.

Following the comprehensive acoustic leak detection survey, more targeted acoustic leak detection efforts will be performed as necessary, utilizing the comprehensive survey as a baseline. Preliminary estimated cost for the comprehensive acoustic leak detection survey is $50,000. Repairs required of leaky pipes and appurtenances (e.g., valves) identified during the survey are not included in this cost.

It is very difficult to estimate water savings from leak detection in advance, particularly when leak detection has not been performed in some time. The quantity of leaks can depend upon the pressures within the distribution system, variations in water flowrates, extent of corrosion in the water pipeline, extent to which leaks have been repaired upon detection, and other maintenance-related factors. Given these uncertainties, no estimates of water savings due to the 2015 acoustic leak detection have been developed. The future acoustic leak detection, as well as the future water audit / water loss control study, will seek to quantify the current level of water loss so that estimates of water savings from acoustic leak detection can be incorporated into future water conservation plans.

FIGURE G. ESTIMATED WATER SAVINGS DUE TO ACOUSTIC LEAK DETECTION AND REPAIR PROGRAM.

Year	2012	2013	2014	2015	2016	2017
Commercial Water Audit Program						
Estimated Water Savings Due to Leak Detection*	0	0	0	0	0	0

*NOTE: Not estimated due to uncertainties with current water loss and potential benefits of new acoustic leak detection program. Future revisions of water conservation plan will quantify savings from acoustic leak detection and repair program.

As part of implementation of this water conservation plan, the City will continue to refine and improve its water accounting system. In particular, the City will seek to ensure that all water users are metered and all meters are properly calibrated and the data recorded.

F. WATER-SAVING MEASURE / PROGRAM #6: PUBLIC EDUCATION, CUSTOMER WATER USE AUDITS, WATER-SAVING DEMONSTRATIONS.

The City actively seeks to educate its residents and improve public awareness of water conservation through literature distribution, educational programs, and responding to resident's questions and comments. For example, public education literature on water conservation is available for free both at the City's offices and at its website.[12] This literature covers the City's water wasting prohibition and land watering restrictions, drought mitigation steps, and general water saving tips for both indoor and outdoor water uses. Examples of this public education literature are included in the Appendix. Annually, the City distributes to each residence connected to the water supply a Consumer Confidence Report (CCR). The CCR provides information on the water source and water quality, as well as information on how to use water wisely and avoid wasting water. Further, the City submits to the local newspaper short informational clips about water conservation. The Appendix contains an example informational releases on drought mitigation submitted to the *Cortez Journal* in 2002, as well as articles published within the *Cortez Journal* in 2008 through 2010. The City also works with local schools to educate children on water conservation and organizes occasional public tours of the City's drinking water system's facilities. Finally, as they come in, City staff addresses any resident's questions or comments on water conservation, drought mitigation, and the drinking water supply in general.

It is very difficult to estimate water savings due to public education. Water savings depend upon how many residents are reached by the educational program, how many and to what extent those who receive the public education reduce their water demand, whether the changes in water demand are permanent or temporary. As such, a 1% reduction in annual water demand was used as a "best guess" to estimate water savings, shown in Figure H, below. The City will revisit this estimate during future annual updates and comprehensive revisions of the Water Conservation Plan, and seek to more accurately quantify the water savings from educational efforts.

FIGURE H. EST. WATER SAVINGS DUE TO PUBLIC EDUCATION, CUSTOMER AUDITS, WATER-SAVING DEMOS.

Year	2012	2013	2014	2015	2016	2017
Commercial Water Audit Program						
Forecast Annual Water Demand (MG)	788	797	806	814	823	832
Reduction in Water Demand Due to Public Education, Audits, Demos (%)	1%	1%	1%	1%	1%	1%
Estimated Water Savings (MG)	7.9	8.0	8.1	8.1	8.2	8.3

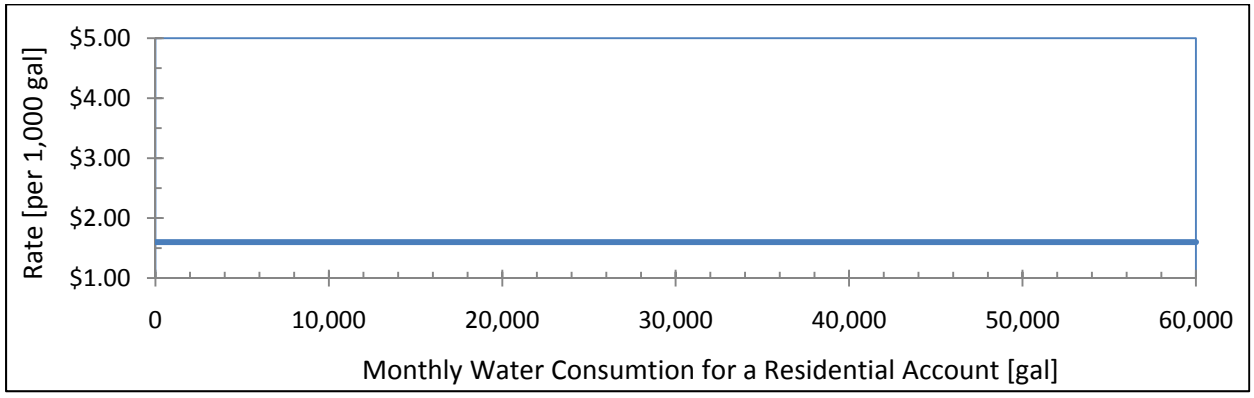
[12] http://www.cityofcortez.com/government/public_works/water/

In future updates / revision of the plan, more detailed estimates of the water savings due to public education will be formulated. The City will, at some point during the plan's implementation, conduct a water conservation survey in which questions include whether people try to conserve water, in what ways do they try to conserve water, what steps the City could take to encourage water conservation, how much they might cut back on water use if water rates were adjusted, etc. The survey could be conducted both online and in hard copy (perhaps distributed as a stuffer within the routine utility bill). The survey likely would be performed over a 30 or 60-day period, after advertising it online, in the newspaper, and within a preceding utility bill. The results of the survey will help the City gauge the effectiveness of its water conservation program, as well as estimate water savings due to its various elements program, particularly public education, customer water-use audits, and water-saving demonstrations.

G. WATER-SAVING MEASURE / PROGRAM #7: WATER RATE STUDY / CONSERVATION PRICING.

The City currently uses a uniform water rate structure. Namely, the City currently charges a base rate for the first 1,000 gallons of monthly usage, with a set rate per each additional 1,000 gallons used. Chart 5, below, shows the flat marginal rate for each additional 1,000 gallons used.

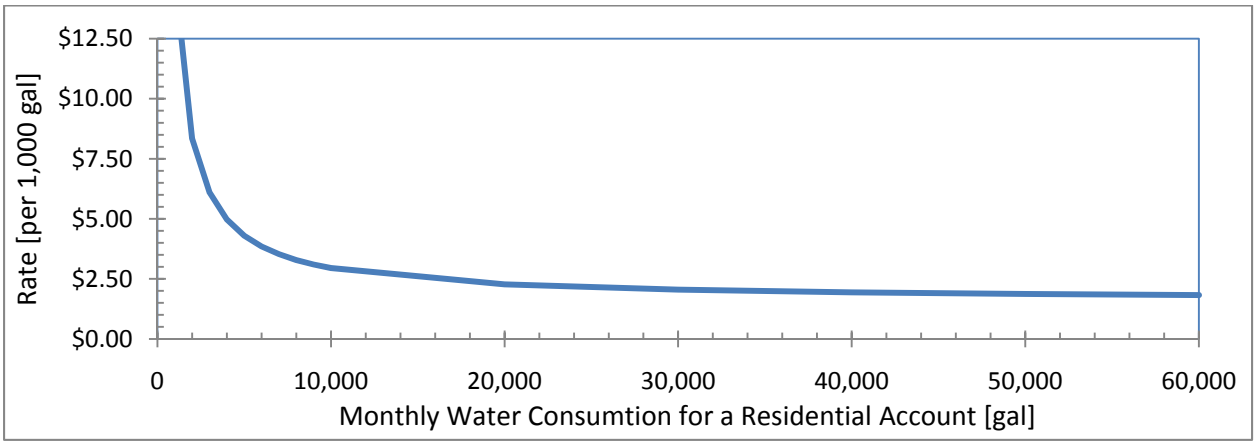
CHART 5: MARGINAL PRICE CURVE OF EXISTING WATER RATE STRUCTURE.



Uniform water rate structures do not provide a particularly strong price signal to encourage conservation, in contrast to conservation-oriented pricing structures such as increasing block rate or seasonal water rate structures. Chart 6, below, shows how the average price of Cortez's existing water rate structure decreases as water use increase. Generally, the positive slope or steepness of the average price curve indicates how effective the water rate structure in sending a conservation price signal. (Ref. Western Resource Associates, "Front Range Water Meter: Water Conservation Ratings and Recommendations for 13 Colorado Communities," November 2007[13]) Thus, the negative slope of Cortez's average price curve reflects its lack of a strong conservation price signal.

[13] http://www.westernresourceadvocates.org/media/watermeter/index.php

CHART 6: AVERAGE PRICE CURVE OF EXISTING WATER RATE STRUCTURE.



Accordingly, the City will consider adjusting its water rate structure to encourage additional conservation by high water users, an approach known as "conservation-oriented rate structures." A potential conservation-oriented rate structure could consist of increasing block rates, whereby the marginal water rate (e.g., dollars charged per 1,000 gallons of additional usage) increases as a customer's monthly water use increases. (The opposite to an increasing block rate structure is a decreasing block rate structure, in which unit price decreases as consumption volume increases. Decreasing block rate structures discourage water conservation, and will not be adopted by the City.) Another conservation-oriented rate structure is seasonal rates, in which a higher is charged during the summer to discourage inefficient outdoor water use (e.g., excessive water sprinkling).

While the City has adjusted water rates as needed over time, a comprehensive water rate study has not been done for the City for approximately 30-years. As such, the City will hire a qualified consultant to perform a water rate study no later than 2013. The City has tentatively budgeted $20,000 for this study. The purpose of the study is to guide a potential future conservation pricing rate structure. It is anticipated that a potential future conservation pricing rate structure would be implemented in 2014.

The Appendix contains a preliminary scope of work for the water rate study. The City's DPW will modify this scope of work as necessary, prior to submitting a request for proposals. Any water rate study will be performed in accordance with standard water industry guidance, such as AWWA Manual of Water Supply Practices M1, "Principles of Water Rates, Fees, and Charges" (2000), and "Water and Wastewater Finance and Pricing: A Comprehensive Guide (3rd Ed.)" by George Raftelis (2005)

Conservation-oriented rate structures that send a strong "price signal" to customers have been shown to provide utilities with stable and sufficient revenue and reduce water use roughly 10 – 30%, based on the experience several Western utilities. (Ref. Western Resources Associates, Structuring Water Rates to Promote Conservation[14]). Accordingly a water savings rate that adjusts upwards from 0% to 10%, over a 4-year period to allow customers to adjust their behavior in response to the conservation pricing structure, has been used to estimate water savings from the potential future conservation-oriented rate structure.

[14] http://www.westernresourceadvocates.org/water/rates.php

Figure I, below, is an estimate of the water savings due to a potential future conservation pricing structure.

FIGURE I. ESTIMATED WATER SAVINGS DUE TO POTENTIAL FUTURE CONSERVATION-ORIENTED RATE STRUCTURE.

Year	2012	2013	2014	2015	2016	2017
Forecast Annual Water Demand (MG)	788	797	806	814	823	832
Est. Reduction in Water Demand from Conservation-Oriented Rate Structure	0%	0%	2.5%	5%	7.5%	10%
Estimated Water Savings (MG)	0	0	20.2	40.7	61.9	83.2

H. WATER-SAVING MEASURE / PROGRAM #8: REGULATORY MEASURES.

The City has adopted a series of regulatory measures to promote water conservation.

Specifically, City's Municipal Code, Chapter 27, regulates its water system and provides the City with several measures to promote water conservation. Excerpts of Chapter 27 are in the Appendix.

First, Section 27-6 prohibits daytime watering between 10am and 5pm from May 15 to September 15. Those caught violating the daytime watering prohibition shall be given a warning upon the first offense, and have the water shutoff upon second offense. After payment of a re-connect fee, the offending resident's water will be turned back on. Section 27-6 also establishes a "new lawn permit" for any new lawn that needs to be watered every day and during the restricted time of 10am to 5pm. The permit shall be issued upon payment of a fee, and is valid for twenty-one days of watering for newly-seeded lawns and fifteen days of watering for sod.

Second, Section 27-19 prohibits water wasting, including through hydrants and faucets, or the constant running of water through toilets or pipes to prevent their freezing.

Third, Section 27-44 mandates that residents keep all fixtures and pipes located on their property in good working order. The City has the power to shut off a resident's water if they fail to make needed repairs after receiving notice.
The City's regulatory measures are enforced via a joint effort of the City's DPW personnel and the City Police Department. If City DPW personnel recognize a code violation – e.g., violation of lawn watering restrictions in time of drought – they will refer the issue to Police, who will issue the formal citation. In addition, City Police have the authority to issue citations without referral from DPW personnel.

Finally, note that the City – as a home-rule municipality – has the authority as part of its inherent governmental police powers to impose additional measures to protect public health, safety and welfare of its residents. Such emergency restrictions might be put in force during time of a prolonged, severe drought such that water level within McPhee Reservoir falls significantly, or if the water system were to become contaminated and water could only be used for non-potable purposes such as laundry and bath.

* * *

Like with educational efforts, it is very difficult to estimate the water savings due to regulatory measures. Water savings from regulatory measures depend upon a variety of factors, many of which are intangible and difficult to access. These include how aggressive current regulatory measures are enforced, the strength of fines or penalties assessed for non-compliance, the willingness of a community's residents to pay fines and continue violating the regulations, and general public

perception of regulation breakers (i.e., is pressure amongst community residents to comply with the regulatory measures). As such, a 1% reduction in water savings was used as a "best guess" to estimate water savings, as shown in Figure J, below. The City will revisit this estimate during future annual updates and comprehensive revisions of the Water Conservation Plan, and seek to more accurately quantify the water savings from regulatory measures.

FIGURE J. ESTIMATED WATER SAVINGS DUE TO REGULATORY MEASURES.

Year	2012	2013	2014	2015	2016	2017
Forecast Annual Water Demand (MG)	786	797	806	814	823	832
Est. Water Savings from Regulatory Measures	1%	1%	1%	1%	1%	1%
Estimated Water Savings (MG)	7.9	8.0	8.1	8.1	8.2	8.3

I. WATER-SAVING MEASURE / PROGRAM #9: INCENTIVES, REBATES TO ENCOURAGE CONSERVATION.

See the City's future indoor water-efficient toilet and washing machine rebate program (water-saving measure / program #1) and commercial water audit program (water-saving measure / program #3), detailed above.

PART 7 - QUANTITATIVE ESTIMATES OF WATER SAVINGS.

Figure K, below, shows the quantitative estimates of water savings by each of the nine water-saving measure / program. Each of these quantitative estimates was outlined earlier within the plan, and will be revised as needed during future annual updates and comprehensive revision of the plan.

FIGURE K. QUANTITATIVE ESTIMATES OF WATER SAVINGS BY WATER-SAVING MEASURE / PROGRAM.

Year	2012	2013	2014	2015	2016	2017
#1: Water-Efficient Fixtures & Appliances	0.8	1.4	2.2	2.8	3.6	4.2
#2: Waterwise Landscapes, Drought-Resistant Vegetation, Efficient Irrigation, Removal of High Water Demand Plants	0.06	0.12	0.17	0.23	0.29	0.35
#3: Water-Efficient Industrial & Commercial Processes	0	0	0.26	0.37	0.45	0.55
#4: Water Reuse Systems (Backwash Water Reduction / Recycling)	15.8	15.8	15.8	15.8	15.8	15.8
#5: Distribution System Leak Identification & Repair	0	0	0	0	0	0
#6: Public Education, Customer Water Use Audits, Water-Saving Demonstrations	7.9	8.0	8.1	8.1	8.2	8.3
#7: Water Rate Study / Conservation Pricing	0	0	20.2	40.7	61.9	83.2
#8: Regulatory Measures	7.9	8.0	8.1	8.1	8.2	8.3
#9: Incentives / Rebates	See #1 above					
Est. Total Water Savings from Selected Water-Savings Measures / Programs (MG)	32.4	33.3	54.7	76.2	98.3	120.7
Estimated Total Water Savings from Selected Water-Savings Measures / Programs (acre-feet)	99.4	102.2	167.8	233.8	301.6	370.4

As shown in Table 1 and Graph 1b, in the Appendix, per capita water use has fallen between 1990 and 2002 from 325gpd and flat-lined at 230 gpcd, since approximately 2001. The demand forecasts within the Appendix utilize 230 gpcd as the per capita daily water demand to determine total annual water demand.

Goal #1 for this plan is to maintain per capita water demand at the current reduced levels of 230 gpcd in the short-term (1-2 years), while decreasing per capita water demand over the long-term (5-7 years) to 200 gpcd. Figure L, below, shows an estimate of the water savings if the 200 gpcd goal is met by the end of the 7-year duration of this plan, as compared to water use if the per capita water use remained at the current 230 gpcd level.

Also shown in Figure L are the estimated total water savings from the previously selected water-savings measures / programs. This side-by-side comparison shows that the estimated water savings of the selected water-saving measures / programs are sufficient to meet the 230 gpcd water conservation goal. In other words, the estimated water savings from selected water-saving measures / programs are significantly greater than water savings required to achieve water conservation goal.

FIGURE L. ESTIMATED WATER SAVINGS IF CONSERVATION GOAL MET.

Year	2012	2013	2014	2015	2016	2017
Forecasted Population	9,338	9,492	9,595	9,699	9,802	9,905
Current Per Capita Water Use (gpcd)	230	230	230	230	230	230
Per Capita Water Use Goal (gpcd)	230	224	218	212	206	200
Water Savings (if Goal Achieved) (MG)	0	20.8	42.0	63.7	85.9	108.5
Water Savings (if Goal Achieved) (acre-feet)	0	63.8	129.0	195.6	263.5	332.9
Estimated Total Water Savings from Water-Savings Measures / Programs (MG)	32.4	33.3	54.7	76.2	98.3	120.7
Estimated Total Water Savings from Water-Savings Measures / Programs (acre-feet)	99.4	102.2	167.8	233.8	301.6	370.4
Estimated Per Capita Water Use from Water-Savings Measures / Programs (gpcd)	221	220	214	208	203	197

* * *

Since this plan's short-term goal is for per capita water use to remain at 230 gpcd, no revenue effects are anticipated, so increased water rates or surcharges will not be needed, at least in the short-term, due to declines in per capita water demand. Additionally, water conservation is not expected to reduce the need for future capital expenditures. If the long-term commitment – reducing per capita water use below 200 gpcd – does begin to impact the City's water revenues, then annual reviews of the Water Conservation Plan will need to consider revenue effects.

PART 8 - IMPLEMENTATION PLAN.

8.01 ROLE OF CONSERVATION PLAN IN CORTEZ'S WATER SUPPLY PLANNING.

The City of Cortez believes that water conservation planning must and will play an integral role in its water supply planning. The City aims to integrate its water conservation program with its water supply planning effort. Given that water supply and demand are interconnected, simultaneous and coordinated water conservation and water supply planning efforts will help ensure these do not remain isolated from one another.

The City recognizes that its water supply from McPhee Reservoir is not unlimited, particularly in the event of a drought or other emergency water shortage. As previously discussed, McPhee Reservoir is

managed by the Dolores Water Conservancy District (DWCD), a governmental entity separate and distinct from the City of Cortez. Given that the City does not have unilateral dominion and control over its raw water source, the City will continue to work collaboratively with the DWCD to ensure that McPhee Reservior is properly managed to provide an adequate supply of water for current and future needs.

In addition, the City will aggressively implement this Water Conservation Plan to ensure that water will be available in the future for the City's water customers, whether in times of water abundance or drought. In particular, the City has committed significant resources, not only to operate, maintain, and recently upgrade its drinking water treatment plant, but to also develop, obtain CWCB approval, and implement this Water Conservation Plan. The Water Conservation Plan is a dramatic improvement from the 1996 plan, and has been significantly strengthened in response to numerous CWCB comments. Section 8.03, below, describes the City's implementation schedule for the plan. Over the plan's 7-year duration, the City will implement the various water-saving measures and programs that the City has committed itself to.

It is important to note that the City DPW's Water Division, which operates and maintains the drinking water system, is responsible for the City's water supply. Accordingly, the Water Division was the proponent for development of this Water Conservation Plan, and is the lead for its implementation. There is no other entity within the City that has greater expertise in water supply management or better understands the importance of water supply planning. Other City Departments will also be involved with the plan's implementation, such as the water-wise landscape demonstration gardens, water conservation educational, and ordinance enforcement, as previously discussed. In addition, the City leadership is informed of and fully supports the water conservation program articulated by this plan. The Mayor and City Council reviewed the draft Water Conservation Plan, conducted a public hearing on the plan, directed staff to develop an ordinance to implement the plan, and subsequently unanimously passed that ordinance.

8.02 IMPLEMENTATION SCHEDULE.

Figure M, below, shows the implementation schedule for the Water Conservation Plan. The implementation schedule includes the "no later than" date that each individual water-saving measure / program will be implemented. Also included is an anticipated budget allocation for each water-saving measure / program.

FIGURE M: IMPLEMENTATION SCHEDULE.

Water-Saving Measure / Program	Implementation Date	Anticipated Budget Allocation
#1: Water-Efficient Fixtures & Appliances	No later than 2012	$2,000 / year
#2: Waterwise Landcaping Program	No later than 2012	$1,000 (one time)
#3: Water-Efficient Industrial & Commercial Processes	No later than 2014	$2,000 / year
#4: Water Reuse Systems	Ongoing	Not Applicable
#5: Distribution System Leak Identification & Repair	No later than 2015	TBD
#6: Public Education, Customer Water Use Audits, Water-Saving Demonstrations	Ongoing	$1,500 / year
#7: Water Rate Study / Conservation Pricing	No later than 2013	$20,000 (one time)
#8: Regulatory Measures	Ongoing	Currently incurred
#9: Incentives, Rebates to Encourage Conservation	No later than 2012	See #1 (above)

8.03 PUBLIC PARTICIPATION.

Public participation in this Water Conservation Plan is integral to the accomplishment of its goals.

The City has taken the following actions to promote participation by the public with the Water Conservation Plan:

- Post the Water Conservation Plan on City's website.
  The City posted the draft plan on March 11, 2010 on the City's website.[15] A copy of the internet notice is in the Appendix.

- Distribute copies of Water Conservation Plan at City's offices.
  Since March 11, 2010, the City DPW has made available copies of the draft plan at the City Service Center and at City Hall. At the May 11 City Council meeting, during which the public hearing was performed, hard copies of the draft Water Conservation Plan were distributed, both to Council members and to the public.

- Seek public written comment during a 60-day public comment period on the draft Water Conservation Plan.
  The public comment period on the draft plan ran from March 11 to May 11, 2010, during which written comments were solicited.

  During the May 11, 2010 City Council meeting, Bruce Smart, Water Treatment Plant Superintendent, City of Cortez and Brett M. Schmidt, P.E., Staff Engineer, Briliam Engineering Services, LLC made presentations to the Council on the water conservation planning process and the draft plan. Following these presentations, a "public hearing" on the draft plan was conducted, during which the public was given an opportunity to provide for oral and/or written public comment on the draft plan. No comments were received.

  The Appendix contains the meeting agenda for the May 11, 2010, with item 5a being the Water Conservation Plan public hearing. Also included is a 3 page interoffice memorandum from Bruce Smart to the City Manager and City Council summarizing the Water Conservation Plan and recommending a schedule for formal approval of the draft plan. The City Council unanimously approved a motion to direct City staff to develop an ordinance implementing the Water Conservation Plan. The meeting minutes from the City Council meeting is also in the Appendix.

- Designate a point-of-contact for public comment including phone number.
  The public notice designated Bruce Smart, P.E., Water Treatment Plant Superintendent as the draft plan's point-of-contact. No members of the public contacted Bruce with questions or comments on the draft plan.

- Issue a responsiveness summary to all comments received during the public comment period.
  No public comments were received on the draft Water Conservation Plan. The City Council did have two oral comments expressed during the Council meeting, as follows:
  • Comment #1: Is the draft Water Conservation Plan specific to Cortez, or was it basically "cookie cutter"?
  • Answer #1: The plan was developed utilizing the CWCB's Model Water Conservation Plan, but was extensively tailored to best suit the City of Cortez's unique circumstances, needs, and challenges. All the water-saving measures / programs were selected by City DPW staff. The

[15] http://www.cityofcortez.com/news_info/public_notices

draft plan was subsequently reviewed by City DPW staff with appropriate modifications made. Further, the appendix contains detailed statistical analysis of the City's water supply and demand. Therefore, the plan is highly specific to Cortez and is in no way "cookie cutter."

• Comment #2: How do the water saving measures / programs within Cortez's Water Conservation Plan compare with other communities in our area?

• Answer #2: Colorado Revised Statutes (C.R.S.) Section 37-60-126 outlines nine water saving measures / programs that must be considered in a CWCB-approved Water Conservation Plan. The water saving measures / programs outlined in Cortez's draft Water Conservation Plan, nine in total, are organized following this statute. This consistency is to help ensure the plan's compliance with the State of Colorado water conservation planning requirements as well as to expedite CWCB's review and comment on the draft plan. As such, the water saving measures / programs selected by Cortez's Water Conservation Plan are consistent with what other similarly-situated communities in Colorado are doing. For example, the Pagosa Area Water and Sanitation District (PAWSD), located approximately 90 minutes east of Cortez, also has a Xeriscape demonstration plan; a rebate incentive program for its customers who replace inefficient toilets and washing machines with newer, more efficient models; as well as an aggressive drinking water distribution system leak detection and repair program; among other water conservation steps. However, as discussed in #1 above, the plan is also focused specifically on Cortez's unique circumstances, needs, and challenges, and was selected by City staff to be suitable for this community.

• Comments #3: Water conservation is important to ensure that the City of Cortez has an adequate water supply in the years ahead.

• Answer #3: Agreed. This Water Conservation Plan can serve as a useful road map for the City's water conservation program, assuming it is implemented effectively. City staff will need to proactively implement the water-saving measures / programs outlined in the plan, and City Council should ensure adequate funding for and oversee implementation of this program. City DPW staff is responsible for conducting an annual review of the plan and the water-saving measures / programs, and the City Council should at least be briefed on the findings of these annual reviews.

- Revise the draft Water Conservation Plan, as necessary, based on public comments received.
  The draft plan has been revised several times, both based on comments provided by the CWCB as well as feedback from the City Council during the May 11, 2010 meeting.

- Continue education and public awareness campaign.
  Upon plan finalization, City staff will implement the public education elements of the plan.

8.04 MONITORING AND EVALUATION.

The City's Department of Public Works (DPW) will be responsible for monitoring and evaluating performance of the Water Conservation Plan, including scrutinizing the costs and water savings of the selected conservation options. Mr. Bruce Smart, P.E., Water Treatment Plant Superintendent, DPW, will lead these efforts. The City Council, as advised by DPW staff, will need to ensure that adequate funding is provided to fulfill the goals and implement the water-saving measures / programs outlined in the plan.

8.05 ANNUAL UPDATES AND COMPREHENSIVE REVISION OF WATER CONSERVATION PLAN.

The City's DPW will perform an annual review of the Water Conservation Plan, and modify the plan in accordance with needs identified during the annual review. DPW will coordinate with other City offices, in particular the Planning and Building Department, the Parks and Recreation Department, and the City Manager's Department, as appropriate during the annual reviews.

Bruce Smart, Water Treatment Plant Superintendent, is designated as the current point-of-contact for the Water Conservation Plan. Bruce is currently expected to lead the annual review process, but this may change depending on personnel changes and other requirements amongst City staff. For example, if the City at some point were to hire a water conservation coordinator, it is likely that person would lead the annual reviews of the Water Conservation Plan.

The end result of each annual review will be, at a minimum, a memorandum to the City Manager and City Council outlining the implementation of the water saving measures / programs within the Water Conservation Plan, budget requirements to finance future year's water conservation program efforts, and recommendations on additional steps to further the City's water conservation goals.

The City will perform a comprehensive revision of the plan if identified as directed by the annual reviews, but absolutely no later than 2017. Colorado state law requires that CWCB-approved Water Conservation Plans be revised on a maximum 7-year rotating cycle. The comprehensive revision will be guided by the annual reviews performed each year beginning in 2011, and will involve another 60-day (minimum) public review and comment period. The comprehensive revision will involve a complete reevaluation of the Water Conservation Plan, and the development of a revised plan. The comprehensive Water Conservation Plan revision will be led by City staff (again, most likely Bruce Smart, Water Treatment Plant Superintendent, Water Division, Department of Public Works), but also involve a newly established "City of Cortez Water Conservation Planning Workgroup." The workgroup will likely consist of at least 3 sitting members of the City Council, members of City staff, and may also include several interested members from the local community. The purpose of the workgroup is to ensure that the new Water Conservation Plan adequately reflects the residents' wishes and desires, to ensure that the democratic representatives are integrally involved with the new plan (as opposed to simply approving the plan after it has already been developed without their active participation), and to involve City staffers who will be involved on a day-to-day basis in the implementation of the plan.

8.06 PLAN APPROVAL.

As previously discussed, the City Council held a 60-day public comment period from March 11 through May 11, 2010 on the draft Water Conservation Plan, as well as a public hearing during the City Council meeting on May 11, 2010. At that time, the City unanimously approved directing the City staff to draft an ordinance to implement the Water Conservation Plan. The City Council approved Ordinance 1143, Series 2010, on June 8, 2010. The Appendix contains the relevant public notices, meeting agendas, and approved ordinances.

8.07 SOLICITATION OF ADDITIONAL FUNDS.

The City's Grants and Special Projects Division, with the City Manager's Department, will seek additional funds in order to support implementation of the plan.

PART 9 - **REFERENCES / ADDITIONAL RESOURCES.**

➔Government:

- Colorado State University Extension – http://www.ext.colostate.edu
  - + Paper "Water Conservation In and Around the House" – http://www.ext.colostate.edu/pubs/consumer/09952.html
- Colorado Water Conservation Board (CWCB) – http://cwcb.state.co.us/
  - + CWCB Water Conservation Plan Development Guidance Document – http://cwcb.state.co.us/Apps/hb1365/index.htm
  - + CWCB Water Efficiency Grant Program - http://cwcb.state.co.us/Conservation/WaterEfficiencyGrantProgram/
- Dolores Water Conservancy District (DWCD) – http://www.doloreswater.com/
- U.S. Environmental Protection Agency (USEPA) – http://www.epa.gov
  - + WaterSense Program – http://www.epa.gov/watersense
  - + Water Use It Wisely – http://wateruseitwisely.com
- Water Information Program (for Dolores and San Juan Watersheds) -http://www.waterinfo.org/

➔Non-For Profit Organizations:

- Alliance for Water Efficiency (AWE) – http://www.allianceforwaterefficiency.org
- American Water Works Association (AWWA) – http://www.awwa.org
  - + AWWA Manual M50 "Water Resources Planning (2nd Ed.)" - http://apps.awwa.org/ebusmain/OnlineStore/ProductDetail.aspx?ProductId=6738
  - + Waterwiser Water Efficiency Clearinghouse – http://www.awwa.org/Resources/Waterwiser.cfm
- Colorado Water Wise - http://coloradowaterwise.org/
- Western Resource Advocates –
  - + Water Conservation Tips – http://www.westernresourceadvocates.org/water/conservetips.php
  - + Water Rate Structures – http://www.westernresourceadvocates.org/water/rates.php

➔Publications:

- AWWA, Manual of Water Supply Practices M1, "Principles of Water Rates, Fees, and Charges" (2000) - http://apps.awwa.org/ebusmain/OnlineStore/ProductDetail.aspx?ProductId=6695
- AWWA, Manual of Water Supply Practices M36, "Water Audits and Loss Control Programs" (2009) - http://apps.awwa.org/ebusmain/OnlineStore/ProductDetail/tabid/55/Default.aspx?ProductId=6725
- AWWA, Manual of Water Supply Practices M50, "Water Resource Planning" (2007) - http://apps.awwa.org/ebusmain/OnlineStore/ProductDetail.aspx?ProductId=6738
- AWWA, Manual of Water Supply Practices M52, "Water Conservation Programs - A Planning Manual" (2006) - http://apps.awwa.org/ebusmain/OnlineStore/ProductDetail.aspx?ProductId=6740
- AWWA, Standard G200, "Distribution Systems Operation and Management" - http://www.awwa.org/Publications/StreamlinesArticle.cfm?ItemNumber=49465
- Ellefson, Connie Lockhart and David Winger, "Xeriscape Colorado: The Complete Guide" (2004)
- Knopf, Jim; "WaterWise Landscaping with Trees, Shrubs, and Vines: A Xeriscape Guide for the Rocky Mountain Region, California, and Desert Southwest" (2005)
- Letterman, Raymond D. (Ed.); "Water Quality and Treatment: A Handbook of Community Water Supplies (5th Ed.)" (1999)
- Mays, Larry W. (Editor); "Water Distribution Systems Handbook" (2000)
- Raftelis, George A.; "Water and Wastewater Finance and Pricing: A Comprehensive Guide (3rd Ed.)" (2005)

- Seneviratne, Mohan; "A Practical Approach to Water Conservation for Commercial and Industrial Facilities" (2007)
- Thornton, Julian et al.; "Water Loss Control (2nd Ed.)" (2008)
- Vickers, Amy; "Water Use and Conservation" (2001) – http://www.waterplowpress.com/
- U.S. Environmental Protection Agency, "Water Conservation Plan Guidelines," Document No. EPA-832-D-98-001 (1998) - http://www.epa.gov/watersense/pubs/guide.html

CITY OF CORTEZ
WATER CONSERVATION PLAN

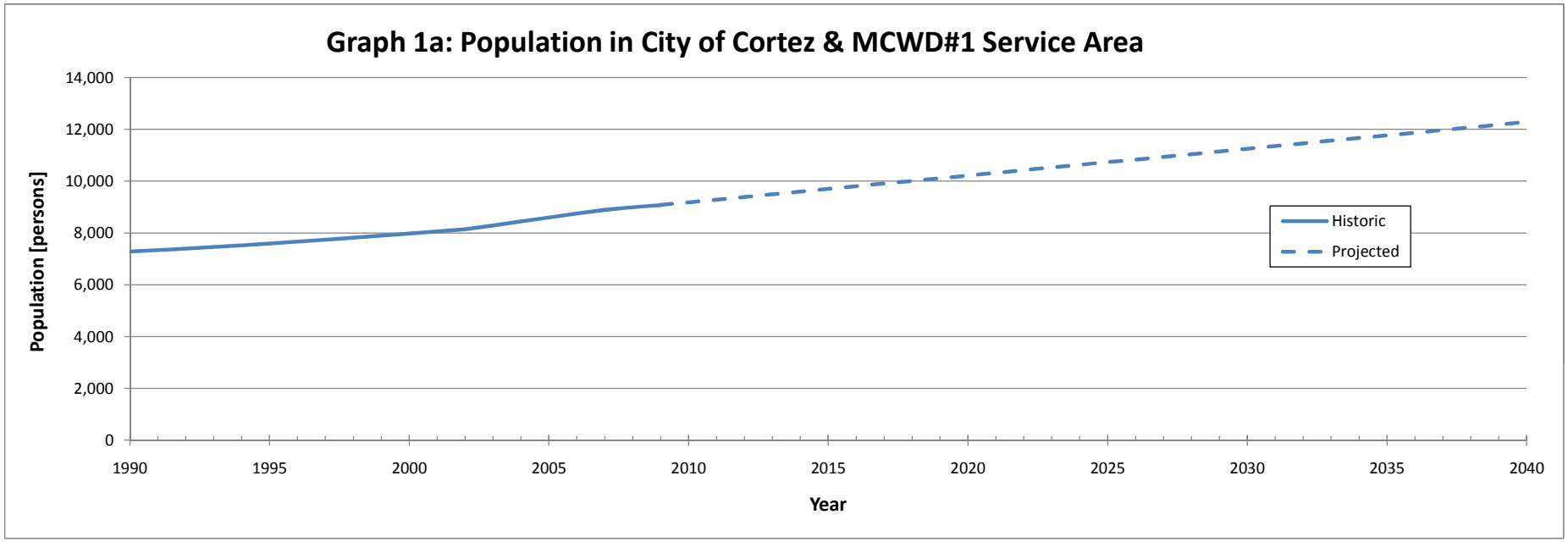
APPENDIX

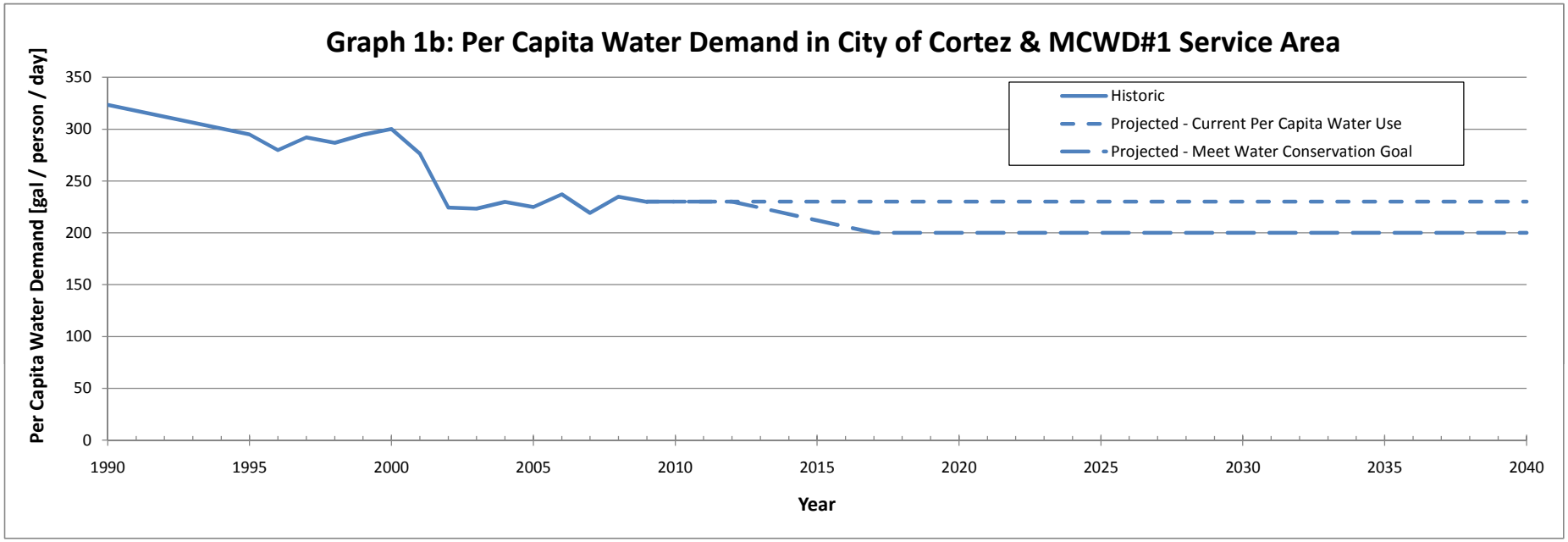
Tables and Graphs

Table 1: City of Cortez & MCWD #1: Population, Annual Water Demand/ Supply, Per Capita Demand

	Population (in Service Area)		Annual Water Demand [MG]			Available Annual Water Supply (Water Rights) [MG]	Per Capita Water Demand		
Year	Historic	Projected	Historic	Projected - Current Per Capita Water Use	Projected - Meet Water Conservation Goal		Historic	Projected - Current Per Capita Water Use	Projected - Meet Water Conservation Goal
1970	6,032					1,740			
1980	7,062					1,740			
1990	7,284		860			1,740	324		
1995	7,587		817			1,740	295		
1996	7,663		783			1,740	280		
1997	7,740		825			1,740	292		
1998	7,817		818			1,740	287		
1999	7,895		849			1,740	295		
2000	7,977		874			1,740	300		
2001	8,057		813			1,740	276		
2002	8,137		666			1,740	224		
2003	8,290		676			1,740	223		
2004	8,442		709			1,740	230		
2005	8,595		706			1,740	225		
2006	8,747		757			1,740	237		
2007	8,900		712			1,740	219		
2008	8,989		770			1,740	235		
2009	9,078	9,078	762	762	762	1,740	230	230	230
2010		9,182		771	771	1,740		230	230
2011		9,285		779	779	1,740		230	230
2012		9,388		788	788	1,740		230	230
2013		9,492		797	776	1,740		230	224
2014		9,595		806	763	1,740		230	218
2015		9,699		814	750	1,740		230	212
2016		9,802		823	737	1,740		230	206
2017		9,905		832	723	1,740		230	200
2018		10,009		840	731	1,740		230	200
2019		10,112		849	738	1,740		230	200
2020		10,215		858	746	1,740		230	200
2021		10,319		866	753	1,740		230	200
2022		10,422		875	761	1,740		230	200
2023		10,526		884	768	1,740		230	200
2024		10,629		892	776	1,740		230	200
2025		10,732		901	783	1,740		230	200
2026		10,836		910	791	1,740		230	200
2027		10,939		918	799	1,740		230	200
2028		11,042		927	806	1,740		230	200
2029		11,146		936	814	1,740		230	200
2030		11,249		944	821	1,740		230	200
2031		11,352		953	829	1,740		230	200
2032		11,456		962	836	1,740		230	200
2033		11,559		970	844	1,740		230	200
2034		11,663		979	851	1,740		230	200
2035		11,766		988	859	1,740		230	200
2036		11,869		996	866	1,740		230	200
2037		11,973		1005	874	1,740		230	200
2038		12,076		1014	882	1,740		230	200
2039		12,179		1022	889	1,740		230	200
2040		12,283		1031	897	1,740		230	200

Inputted Value
Calculated or Estimated Value





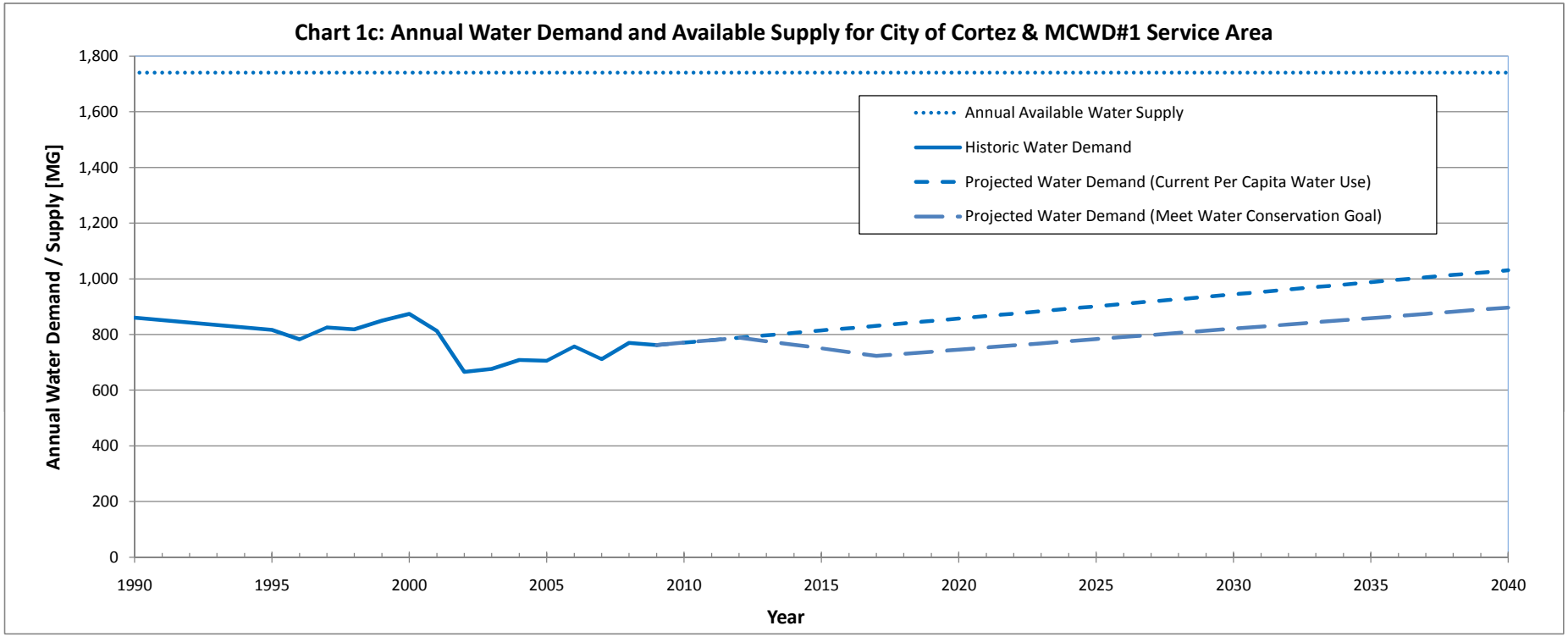


Table 2: Water Demand by User, Metered and Estimated Unmetered (2008 & 2009)

Metered Water User Type[1]	Water Demand [MG] 2008	2009	Change (2008 to 2009) Absolute [MG]	Percentage [%]
City of Cortez				
Residential (Single Unit)	328.9	338.7	9.8	3.0%
Residential (Multi-Unit)	87.9	91.9	4.0	4.6%
Commercial	253.4	239.9	-13.5	-5.3%
Schools	30.6	29.9	-0.7	-2.4%
Churches	7.1	7.6	0.5	6.8%
Government	8.0	7.9	-0.1	-1.5%
Total City of Cortez	715.9	715.9	0.0	0.0%
Montezuma County Water District No. 1	54.2	46.1	-8.0	-14.8%
TOTAL METERED WATER DEMAND	770.1	762.1	-8.1	-1.0%
Unmetered / Unmonitored Water Users (Estimated Water Use)				
Unmonitored Master Meter: Centennial Park Supplemental Irrigation, Swimming Pool, Street Sweepers[2]	1.0	1.0	0.0	0.0%
Unmetered: Hydrant Flushing Program	11.0	11.0	0.0	0.0%
TOTAL ESTIMATED UNMETERED WATER DEMAND	12.0	12.0	0.0	0.0%

Notes:

[1]Water demand by Ute Mountain Ute Tribe is accounted for separately

[2]Metered via a single master meter, but water use data used is not currently monitored

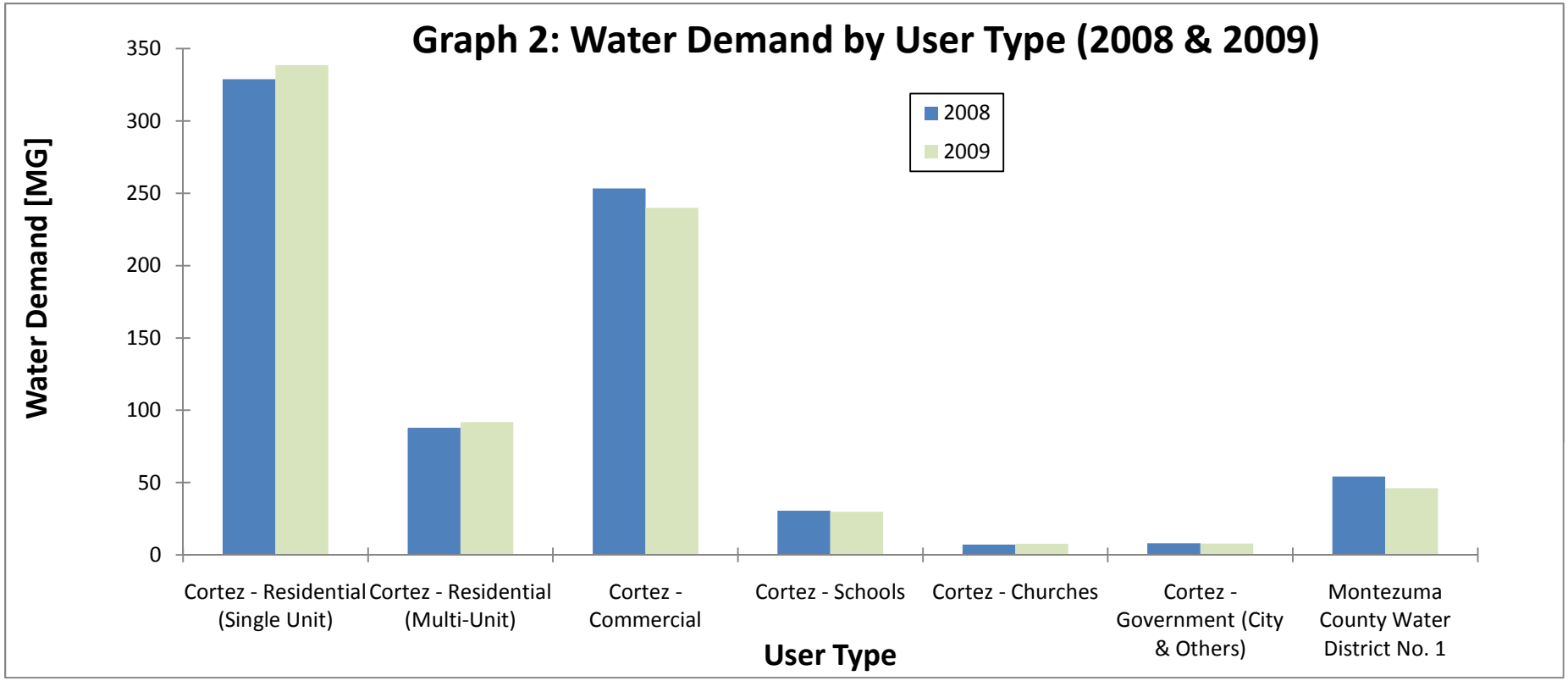


Table 3: Number & Percent of Taps, Water Demand, Average Water Demand by User Type in City of Cortez (2008 & 2009)

Metered Water User Type	Number of Taps	Percent of Taps	Water Demand [MG] 2008	Water Demand [MG] 2009	Average Water Demand Per Tap [MG] 2008	Average Water Demand Per Tap [MG] 2009
City of Cortez						
Residential (Single Unit)	2,791	64.3%	328.9	338.7	0.12	0.12
Residential (Multi-Unit)	1,052	24.2%	87.9	91.9	0.08	0.09
Commercial	429	9.9%	253.4	239.9	0.59	0.56
Schools	18	0.4%	30.6	29.9	1.70	1.66
Churches	30	0.7%	7.1	7.6	0.24	0.25
Government (City & Parks)	21	0.5%	8.0	7.9	0.38	0.38
TOTAL	4,341	100.0%	715.9	715.9		

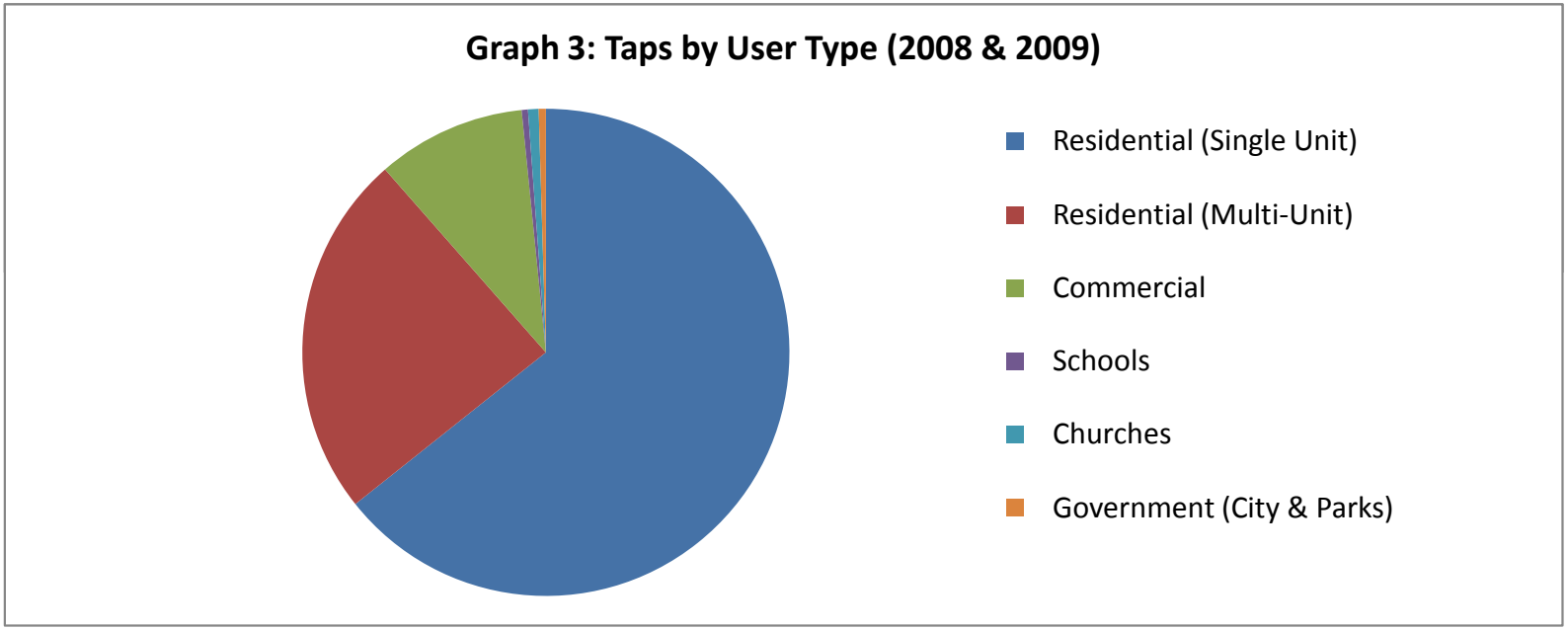


Table 4: Monthly Water Produced at Cortez WTP (2000 - 2010)

Units: [MG]

	Year										
Month	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Monthly Average**
January	46.6	49.6	46.7	42.8	42.6	47.9	46.4	51.6	58.9	49.0	48.2
February	37.4	44.3	41.9	42.1	40.5	40.5	50.3	47.4	60.1	39.2	44.4
March	56.3	51.5	48.9	46.0	54.4	43.3	53.9	49.7	57.2	46.1	50.7
April	69.0	60.8	84.0	57.8	59.6	56.5	80.1	62.3	62.4	55.2	64.8
May	140.3	127.3	120.4	108.4	115.6	105.5	137.8	93.9	106.8	110.6	116.7
June	164.7	155.4	130.3	137.0	138.1	142.9	156.8	148.5	135.4	116.1	142.5
July	169.4	150.7	126.1	157.6	141.8	165.4	145.9	147.2	135.9	150.1	149.0
August	155.0	115.5	118.0	117.8	129.4	121.1	119.1	125.4	137.8	141.3	128.0
September	110.4	117.4	71.1	90.6	87.3	113.4	93.9	100.4	112.7	109.6	100.7
October	72.1	76.2	55.4	67.8	54.2	59.9	72.6	62.0	69.2	62.4	65.2
November	40.5	42.3	43.4	42.9	42.1	40.2	40.6	42.5	41.9	39.1	41.5
December	50.8	44.7	45.2	42.9	42.0	44.8	45.9	42.5	39.9	40.5	43.9
Annual Total	1,112.5	1,035.7	931.4	953.5	947.7	981.4	1,043.2	973.4	1,018.2	959.1	

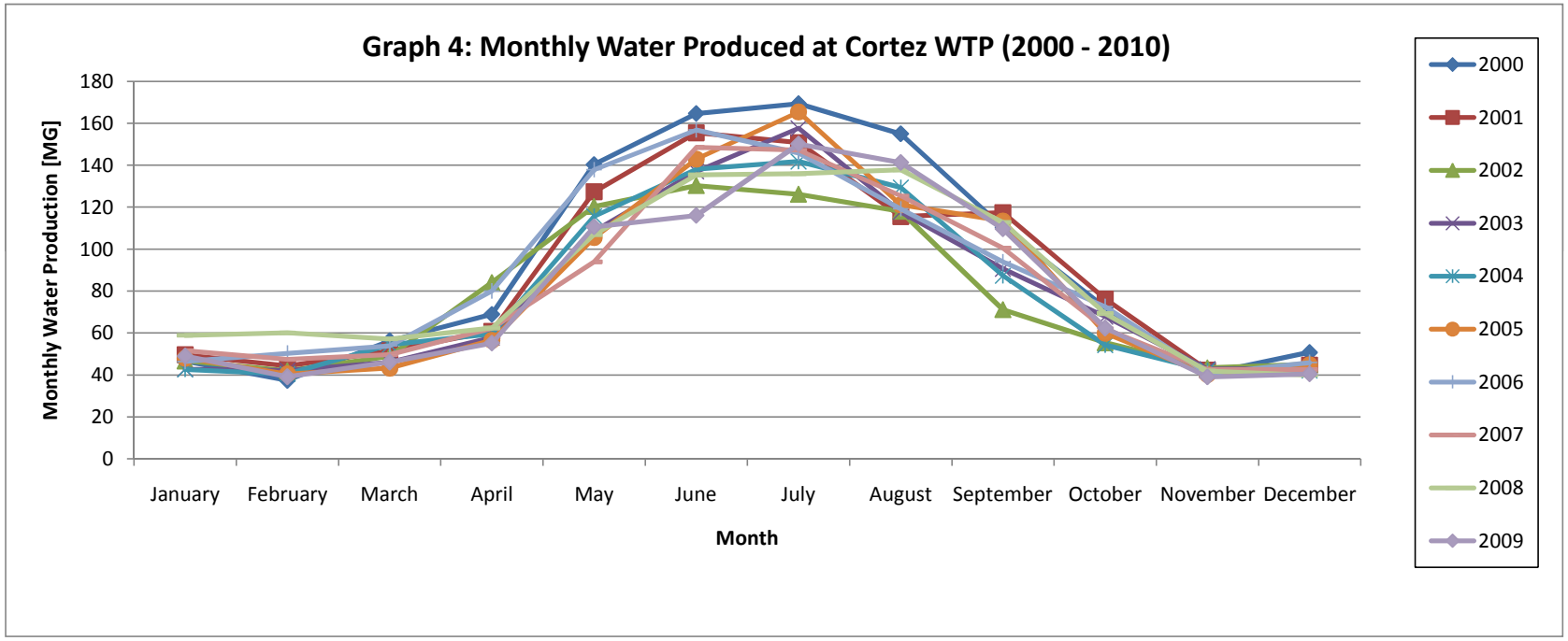


Table 5: Monthly Water Produced for City of Cortez & Montezuma County Water District #1 (2000 - 2010)

Units: [MG]

Month	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Monthly Average
January	34.5	34.4	35.1	22.0	28.3	31.7	34.3	37.2	37.1	37.4	33.2
February	27.1	31.6	29.6	25.8	29.1	28.0	39.5	30.1	45.7	28.8	31.5
March	38.5	38.9	35.3	32.2	40.0	29.7	40.3	34.2	42.0	32.7	36.4
April	53.9	47.7	60.6	36.4	45.3	38.2	62.0	42.6	45.7	42.6	47.5
May	112.9	103.4	100.1	85.9	95.2	75.8	109.9	71.6	86.2	90.8	93.2
June	138.5	129.8	97.4	102.2	103.1	111.8	120.7	114.7	103.0	95.4	111.7
July	143.2	121.1	90.5	115.7	107.6	123.2	107.1	109.8	111.8	122.2	115.2
August	122.5	92.3	92.1	84.9	95.1	86.4	83.5	95.4	114.5	114.4	98.1
September	88.1	96.2	50.2	67.5	68.4	83.7	58.2	74.8	94.8	89.1	77.1
October	48.7	56.5	29.2	48.7	39.1	36.9	42.9	42.2	52.7	47.9	44.5
November	26.8	30.3	23.2	25.5	27.7	27.6	26.7	30.9	33.0	29.9	28.1
December	39.2	30.9	22.8	30.3	29.8	32.4	32.2	28.2	28.5	29.4	30.4
Annual Total	873.8	812.9	666.1	677.1	708.6	705.5	757.2	711.8	794.9	760.5	

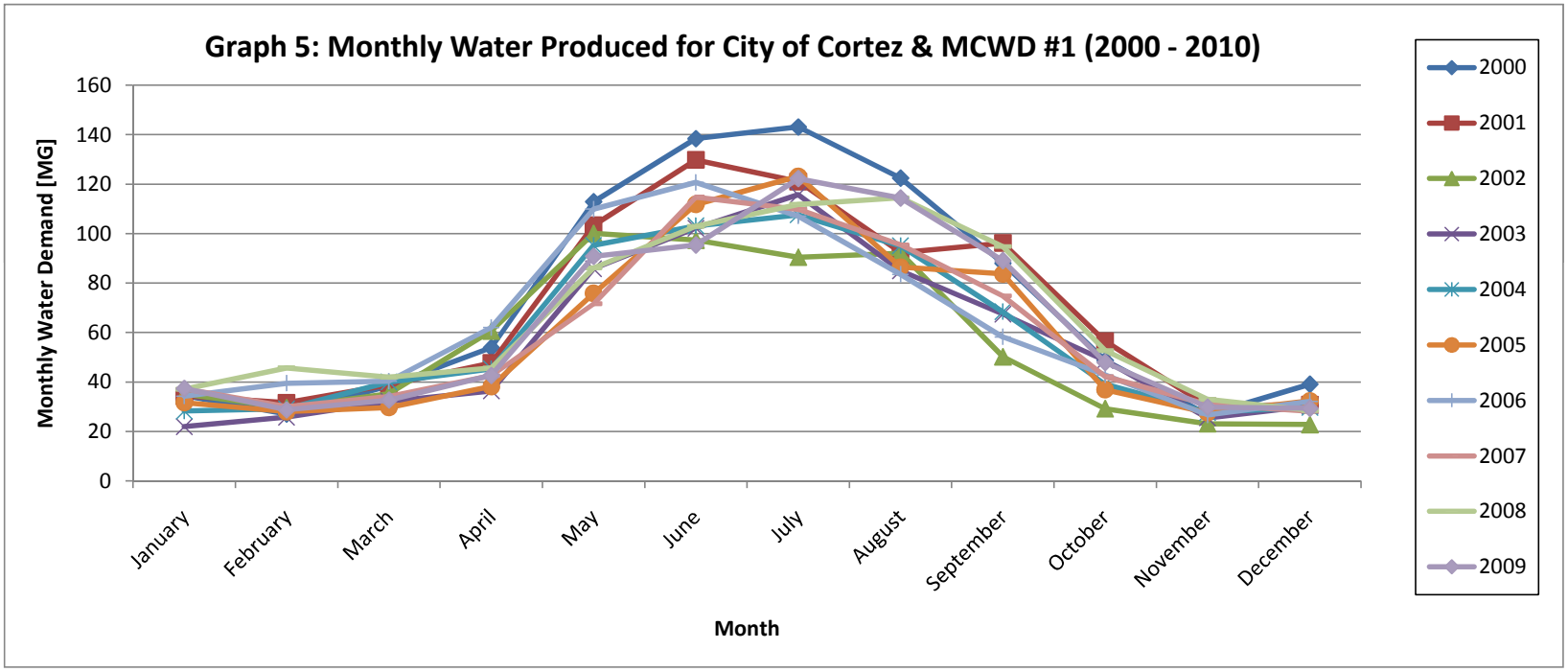


Table 6: Monthly Water Produced for Ute Mountain Ute Mountain Tribe (2000 - 2010)

Units: MG

	Year										
Month	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Monthly Average**
January	12.1	15.2	11.6	20.8	14.4	16.2	12.1	14.4	21.8	11.6	15.0
February	10.3	12.7	12.3	16.3	11.4	12.5	10.8	17.3	14.3	10.4	12.8
March	17.8	12.6	13.7	13.8	14.4	13.5	13.6	15.5	15.2	13.4	14.3
April	15.0	13.1	23.4	21.4	14.3	18.3	18.1	19.7	16.8	12.5	17.3
May	27.4	23.9	20.3	22.6	20.4	29.6	27.9	22.3	20.7	19.8	23.5
June	26.2	25.7	32.9	34.8	35.0	31.1	36.1	33.8	32.4	20.7	30.9
July	26.2	29.7	35.7	41.8	34.2	42.2	38.8	37.4	24.1	27.9	33.8
August	32.5	23.2	25.9	32.8	34.3	34.7	35.6	30.0	23.3	26.9	29.9
September	22.3	21.2	20.9	23.1	18.9	29.7	35.7	25.6	17.9	20.6	23.6
October	23.4	19.8	26.1	19.1	15.2	23.0	29.7	19.8	16.5	14.4	20.7
November	13.7	12.0	20.2	17.3	14.5	12.6	13.9	11.6	8.9	9.2	13.4
December	11.6	13.8	22.4	12.6	12.3	12.4	13.8	14.3	11.4	11.1	13.6
Annual Total	238.7	222.9	265.4	276.4	239.1	275.9	285.9	261.6	223.3	198.6	

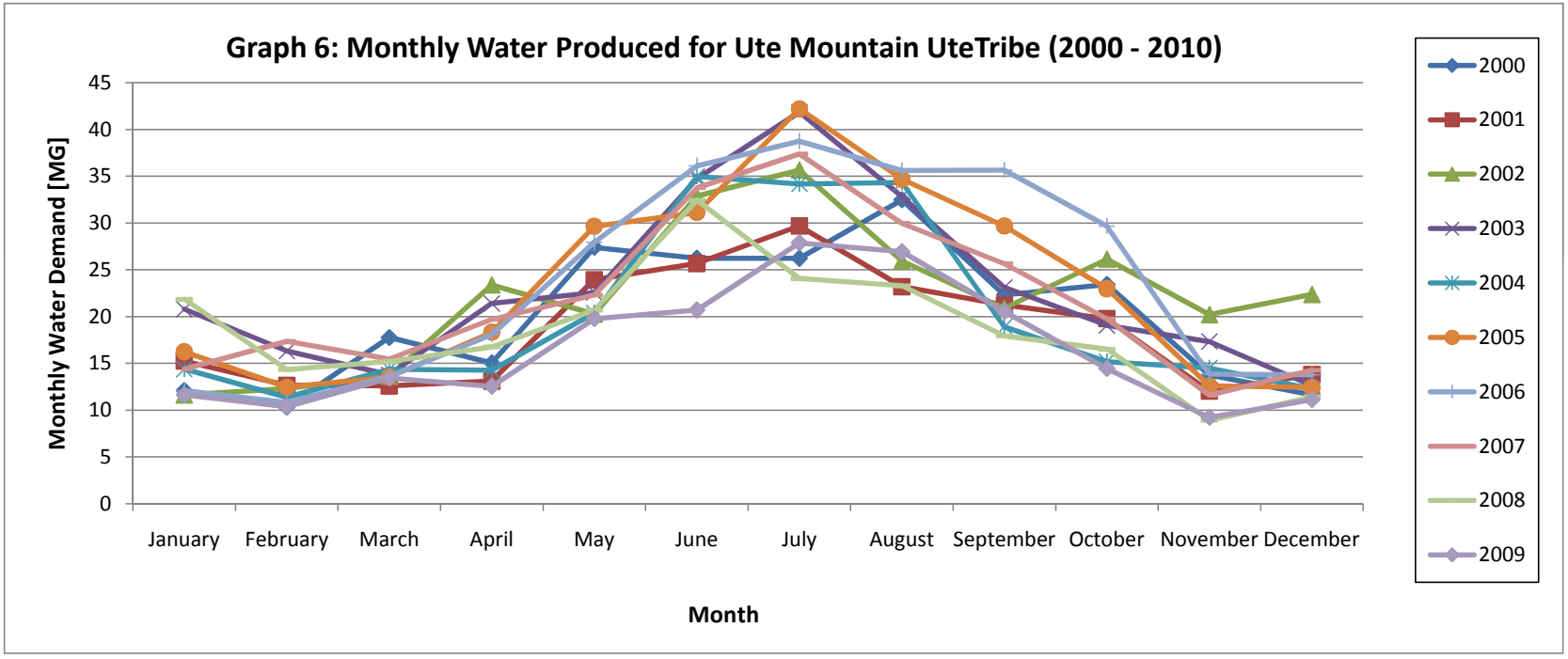


Table 7: Monthly Water Production by User (2000 - 2010)
Units: MG

Month	Total Water Produced	City of Cortez & MWD #1	Ute Mountain Ute Tribe
January	48.2	33.2	15.0
February	44.4	31.5	12.8
March	50.7	36.4	14.3
April	64.8	47.5	17.3
May	116.7	93.2	23.5
June	142.5	111.7	30.9
July	149.0	115.2	33.8
August	128.0	98.1	29.9
September	100.7	77.1	23.6
October	65.2	44.5	20.7
November	41.5	28.1	13.4
December	43.9	30.4	13.6

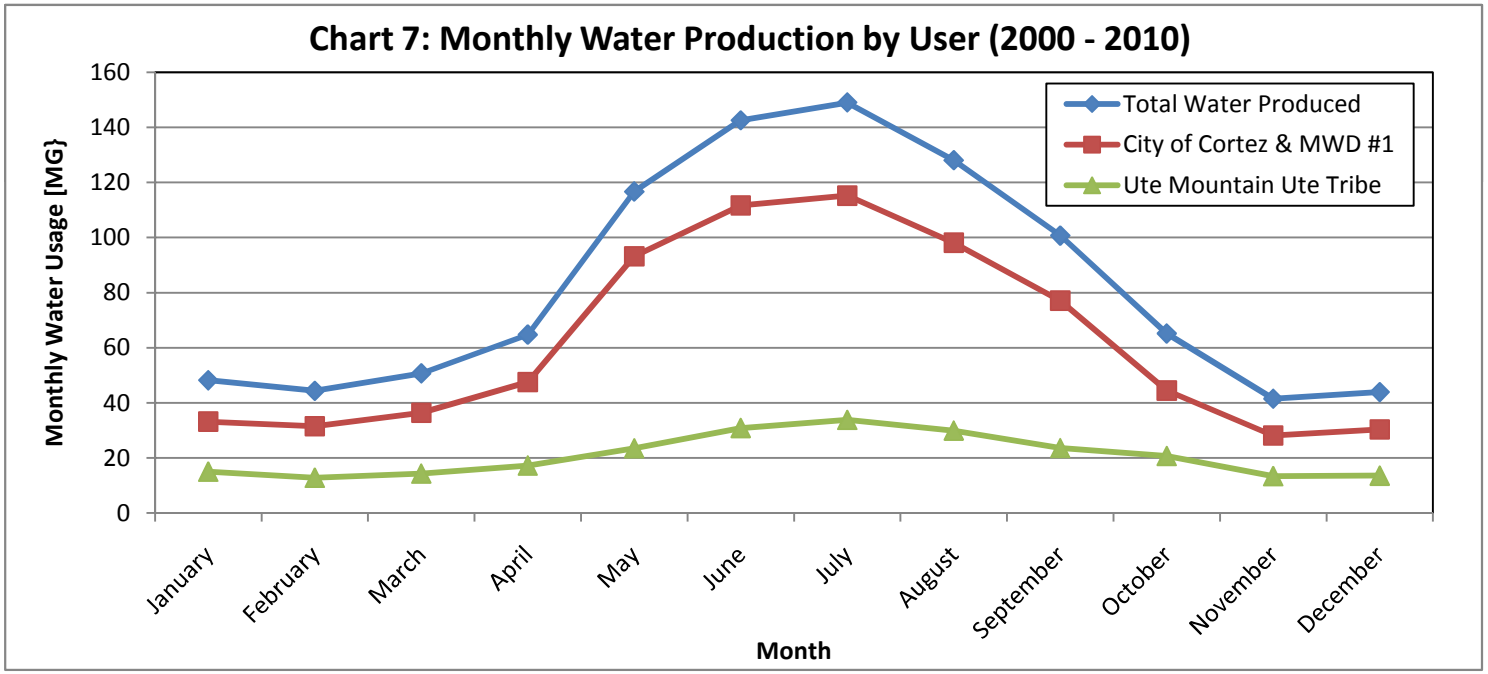


Table 8: Annual Water Production by User (2000 - 2010)

Units: MG

User	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total Water Produced	1,112.5	1,035.7	931.4	953.5	947.7	981.4	1,043.2	973.4	1,018.2	959.1
City of Cortez & MWD #1	873.8	812.9	666.1	677.1	708.6	705.5	757.2	711.8	794.9	760.5
Ute Mountain Ute Tribe	238.7	222.9	265.4	276.4	239.1	275.9	285.9	261.6	223.3	198.6

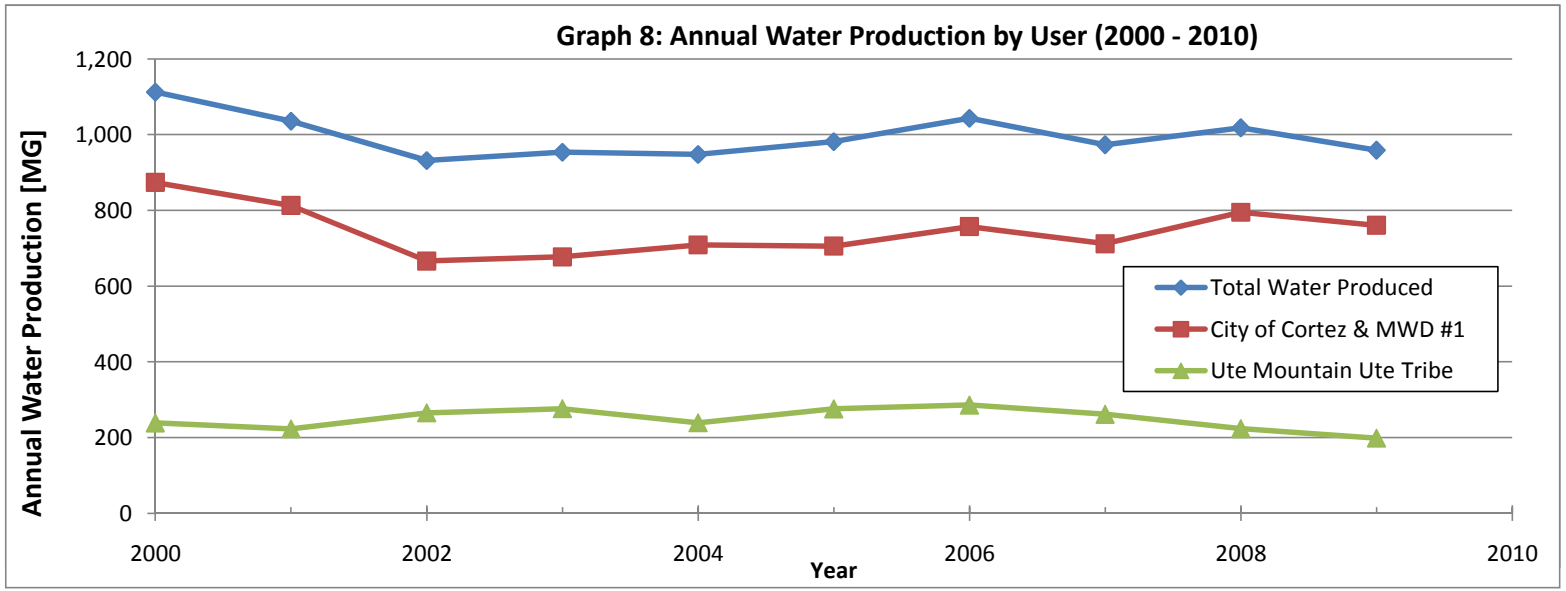
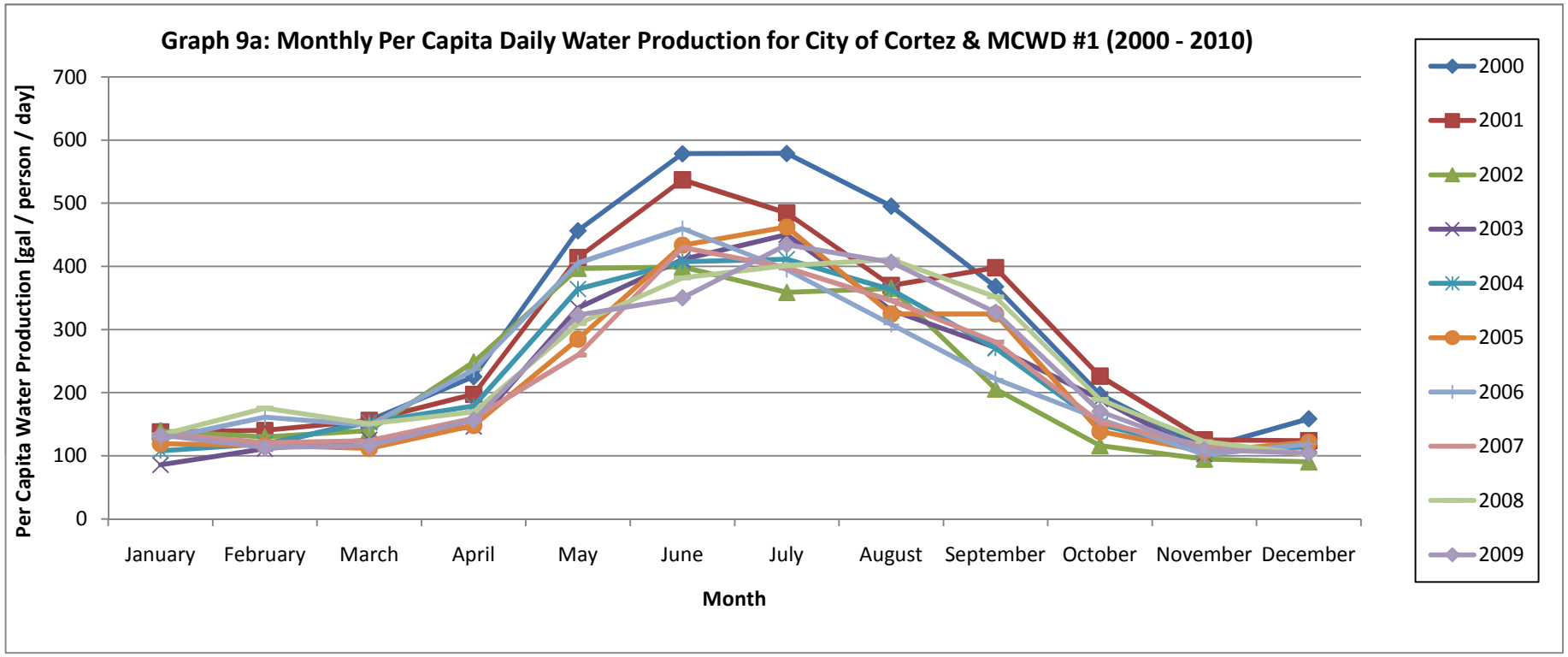
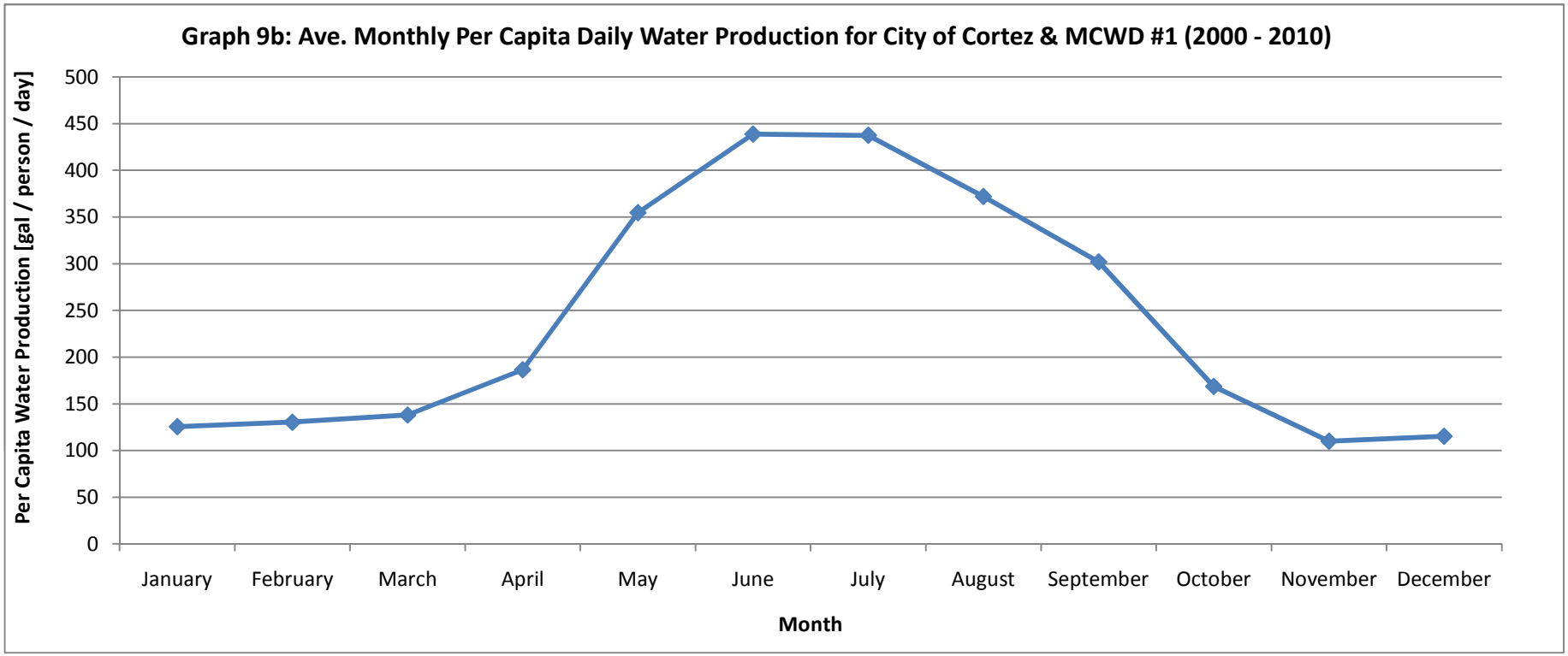
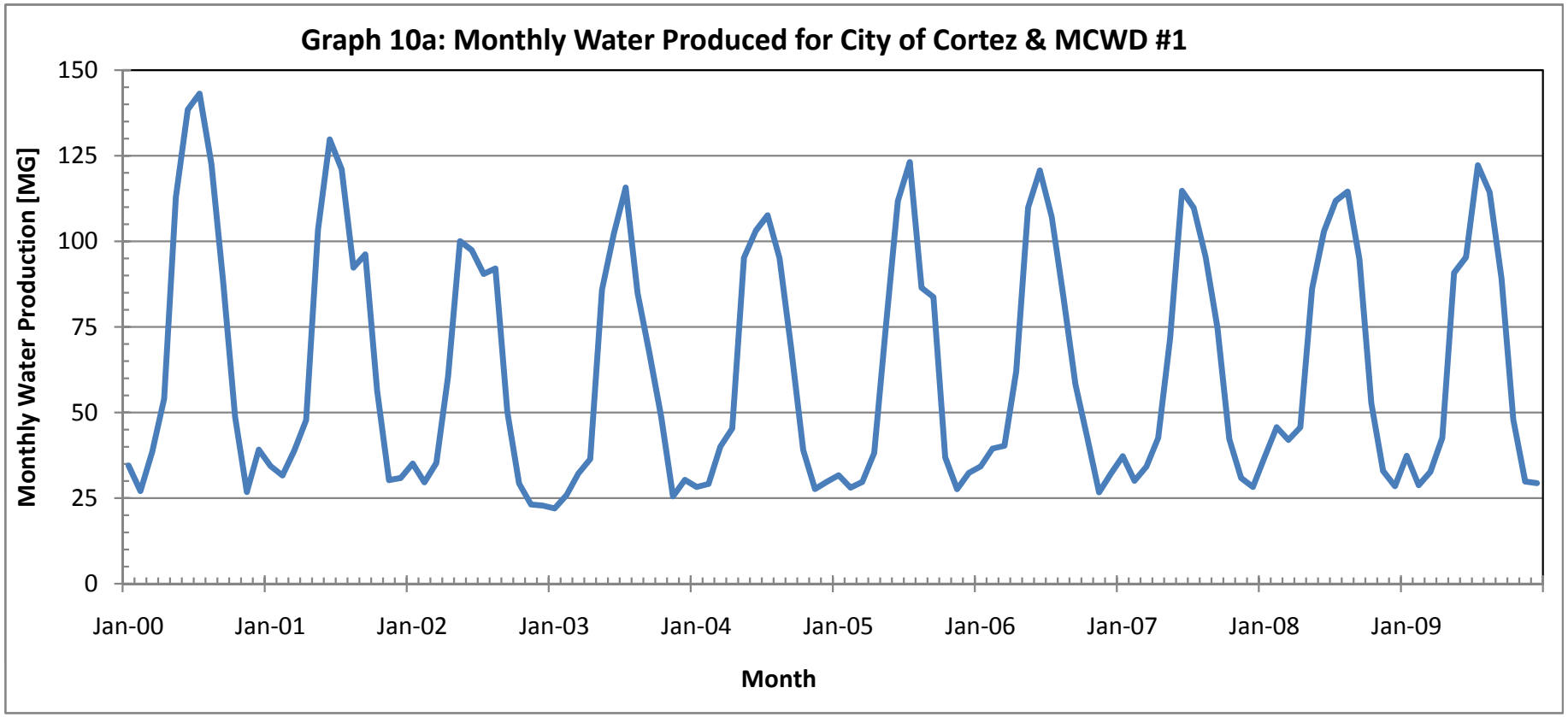


Table 9: Monthly Per Capita Water Production for City of Cortez & Montezuma County Water District #1 (2000 - 2010)

Month	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Monthly Average
January	139.6	137.6	139.1	85.5	107.9	118.9	126.4	134.9	133.0	132.8	125.6
February	117.1	140.1	130.0	111.2	119.0	116.5	161.2	120.6	175.3	113.1	130.4
March	155.9	155.8	139.8	125.2	152.8	111.6	148.6	124.0	150.7	116.2	138.0
April	225.3	197.3	248.3	146.4	178.9	148.2	236.2	159.5	169.3	156.6	186.6
May	456.6	413.8	396.7	334.1	363.9	284.6	405.3	259.6	309.2	322.7	354.6
June	578.6	536.9	399.0	411.0	407.2	433.6	459.9	429.7	381.8	350.2	438.8
July	578.9	484.7	358.7	450.4	411.1	462.2	395.0	397.9	401.4	434.3	437.4
August	495.3	369.6	365.0	330.5	363.3	324.4	308.0	345.8	411.0	406.4	371.9
September	368.0	398.0	205.8	271.3	270.2	324.8	221.9	280.1	351.6	327.1	301.9
October	197.0	226.1	115.9	189.5	149.2	138.5	158.1	153.0	189.2	170.3	168.7
November	112.0	125.1	94.9	102.6	109.2	107.1	101.7	115.8	122.3	109.6	110.0
December	158.3	123.7	90.4	118.0	113.7	121.5	118.6	102.4	102.3	104.4	115.3







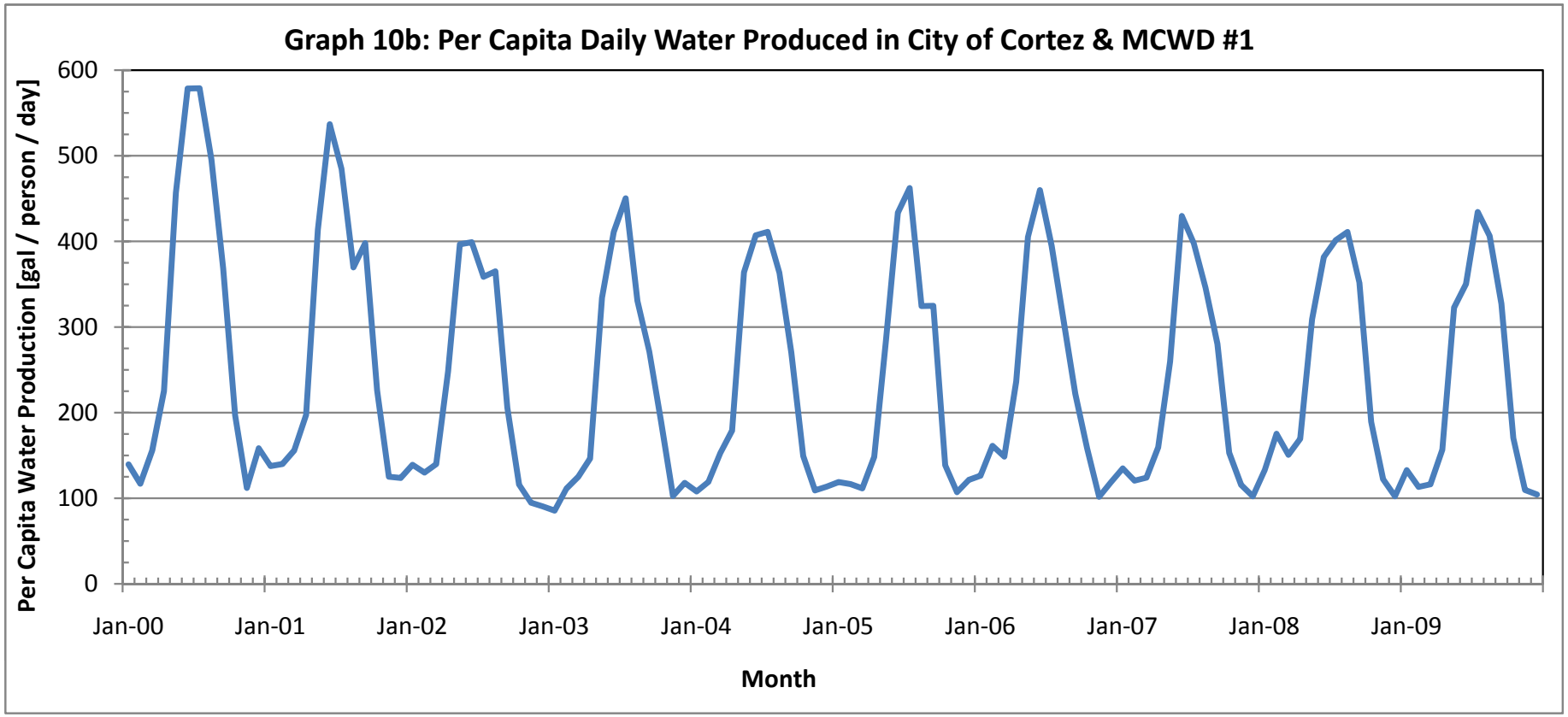


Table 10: Estimates of Water Savings from Longer Filter Runs / Reduced Filter Backwash Frequency

Inputted value
Carried over value
Calculated value

Pre-Filter Improvements		Post-Filter Improvements	
Peak Use Period: June - August		Peak Use Period: May - September	
Backwash Volume (gal / backwash)	45,000	Backwash Volume (gal / backwash)	45,000
Period Length (days / period)	92	Period Length (days / period)	92
Filter Backwash Frequency (backwashes / day)	4	Time Between Backwashes (days/backwash)	2
Number of Filter Backwashes During Period (backwashes / period)	368	Number of Filter Backwashes During Period (backwashes / period)	184
Volume of Backwash Water to Lower Pond (gal / period)	16,560,000	Volume of Backwash Water to Lower Pond (gal / period)	8,280,000
Fraction of Water Lost in Lower Pond Due to Evaporation / Infiltration (-)	0.333	Fraction of Water Lost in Lower Pond Due to Evaporation / Infiltration (-)	0.333
Fraction of Water Recycled Back to Upper Pond (-)	0.667	Fraction of Water Recycled Back to Upper Pond (-)	0.667
Volume of Water Lost Due to Evaporation / Infiltration (gal / period)	5,519,945	Volume of Water Lost Due to Evaporation / Infiltration (gal / period)	2,759,972
Volume of Water Recycled Back to Upper Pond (gal / period)	11,040,055	Volume of Water Recycled Back to Upper Pond (gal / period)	5,520,028
Moderate Use Period: May, September		Moderate Use Period: May, September	
Backwash Volume (gal / backwash)	45,000	Backwash Volume (gal / backwash)	45,000
Period Length (days / period)	61	Period Length (days / period)	61
Filter Backwash Frequency (backwashes / day)	2	Filter Backwash Frequency (backwashes / day)	1
Number of Filter Backwashes During Period (backwashes / period)	122	Number of Filter Backwashes During Period (backwashes / period)	61
Volume of Backwash Water to Lower Pond (gal / period)	5,490,000	Volume of Backwash Water to Lower Pond (gal / period)	2,745,000
Fraction of Water Lost in Lower Pond Due to Evaporation / Infiltration (-)	0.333	Fraction of Water Lost in Lower Pond Due to Evaporation / Infiltration (-)	0.333
Fraction of Water Recycled Back to Upper Pond (-)	0.667	Fraction of Water Recycled Back to Upper Pond (-)	0.667
Volume of Water Lost Due to Evaporation / Infiltration (gal / period)	1,829,982	Volume of Water Lost Due to Evaporation / Infiltration (gal / period)	914,991
Volume of Water Recycled Back to Upper Pond (gal / period)	3,660,018	Volume of Water Recycled Back to Upper Pond (gal / period)	1,830,009
Off-Peak Use Period: October - April		Off-Peak Use Period: October - April	
Backwash Volume (gal / backwash)	45,000	Backwash Volume (gal / backwash)	45,000
Period Length (days / period)	212	Period Length (days / period)	212
Filter Backwash Frequency (backwashes / day)	1	Filter Backwash Frequency (backwashes / day)	0.5
Number of Filter Backwashes During Period (backwashes / period)	212	Number of Filter Backwashes During Period (backwashes / period)	106
Volume of Backwash Water to Lower Pond (gal / period)	9,540,000	Volume of Backwash Water to Lower Pond (gal / period)	4,770,000
Fraction of Water Lost in Lower Pond Due to Evaporation / Infiltration (-)	0.333	Fraction of Water Lost in Lower Pond Due to Evaporation / Infiltration (-)	0.333
Fraction of Water Recycled Back to Upper Pond (-)	0.667	Fraction of Water Recycled Back to Upper Pond (-)	0.667
Volume of Water Lost Due to Evaporation / Infiltration (gal / period)	3,179,968	Volume of Water Lost Due to Evaporation / Infiltration (gal / period)	1,589,984
Volume of Water Recycled Back to Upper Pond (gal / period)	6,360,032	Volume of Water Recycled Back to Upper Pond (gal / period)	3,180,016
TOTAL VOLUME OF BACKWASH WATER TO LOWER POND (gal / year)	31,590,000	TOTAL VOLUME OF BACKWASH WATER TO LOWER POND (gal / year)	15,795,000
TOTAL VOLUME RECYCLED BACK TO UPPER POND (gal / year)	21,060,105	TOTAL VOLUME RECYCLED BACK TO UPPER POND (gal / year)	10,530,053
TOTAL VOLUME LOST DUE TO EVAPORATION / INFILTRATION (gal / year)	10,529,895	TOTAL VOLUME LOST DUE TO EVAPORATION / INFILTRATION (gal / year)	5,264,947
REDUCTION IN VOLUME LOST DUE TO EVAPORATION / INFILTRATION (gal / year)	5,264,947	TOTAL WATER SAVINGS DUE TO REDUCED EVAPORATION / INFILTRATION & BACKWASH WATER RECYCLING (gal / year)	15,795,000
REDUCTION IN VOLUME LOST DUE TO EVAPORATION / INFILTRATION (MG / year)	5.26	TOTAL WATER SAVINGS DUE TO REDUCED EVAPORATION / INFILTRATION & BACKWASH WATER RECYCLING (MG / year)	15.8

CITY OF CORTEZ
WATER CONSERVATION PLAN

APPENDIX

Public Notice
Public Hearing
Public Comment

Published on *City of Cortez Colorado* (http://www.cityofcortez.com)

WATER CONSERVATION PLAN

Subject:
City Council
Planning and Zoning

PUBLIC NOTICE OF WATER CONSERVATION PLAN
CITY OF CORTEZ
PUBLIC COMMENT PERIOD: MARCH 11 – MAY 11, 2010
PUBLIC HEARING: CITY COUNCIL MEETING, MAY 11, 2010

Notice is hereby given that the City of Cortez is updating its Water Conservation Plan, pursuant to State Law. The City is seeking public comment over the next 60-days, and will conduct a Public Hearing on the Plan during the City Council Meeting on Tuesday, May 11, 2010. The City Council Meeting will be called to order at 7:30 p.m. in the Council Chambers at City Hall, 210 East Main Street, Cortez. Comments on the Water Conservation Plan will be received during the time designated in the meeting's agenda.

The City's Water Conservation Plan is designed to promote the efficient consumption of all water usage by residents, businesses, and local governments to more beneficially use our water resources, and insure a future adequate water supply.

The Water Conservation Plan is available for review by the public at City Hall and at the City Service Center, 110 West Progress Circle, Cortez, during regular business hours. All people wishing to comment on the Plan should be present at the May 11, 2010, Council meeting, or have written comments submitted to the City Clerk's Office at City Hall no later than 5:00 p.m. on Tuesday, May 11, 2010.

The point of contact for the Water Conservation Plan is Bruce Smart, P.E., Water Treatment Plant Superintendent, who can be reached at 970-565-9824.

To view a copy of the updated Water Conservation Plan, click here [1].

- Link Policy
- Search
- Subscribe to this Site
- Employee Login

The City of Cortez ::
210 E. Main Street :: Cortez, CO 81321 ::
970.565.3402
::
fax 970.565.8172

Source URL: http://www.cityofcortez.com/news_info/public_notices

Links:
[1] http://www.cityofcortez.com/sites/default/files/file/public_works/2010/Water Conservation Plan - Public Comment Draft.pdf

Proof of Publication

Cortez Journal

STATE OF COLORADO)
) ss.
County of Montezuma)

I, Peggy Daves, do solemnly swear that I am Accounts Receivable clerk for Cortez Journal, and that I have personal knowledge of the essential fact stated herein; that the same is a weekly printed, in whole or in part, and published in the County of Montezuma, State of Colorado, and has a general circulation therein; that said newspaper has been published continuously and uninterruptedly in said County of Montezuma for a period of more than fifty-two consecutive weeks prior to the first publication of the annexed legal notice or advertisement; that said newspaper has been admitted to the United States mails as second class matter under the provisions of the Act of March 3, 1879, or any amendments thereof and that said newspaper is a weekly newspaper duly qualified for publishing legal notices and advertisements within the meaning of the law of the State of Colorado.

That the annexed legal notice or advertisement was published in the regular and entire issue of every number of said weekly newspaper for the period of 2 insertion(s); and that the first publication of said notice was in the issue of said newspaper dated March 11 A.D., 2010 .

and that the last publication of the said notice was in the issue of said newspaper dated March 13 A.D., 2010.

In Witness Whereof I have here unto set my hand this March 13 A.D., 2010.

Peggy Daves
Accounts Receivable Clerk

Subscribed and sworn to before me, a Notary Public in and for the County of Montezuma, State of Colorado, this 3/13/2010

Sue Patterson, Notary Public

123 Roger Smith Avenue
Cortez, CO 81321

My commission expires September 10, 2011.

SUE PATTERSON NOTARY PUBLIC STATE OF COLORADO (SEAL)

31119360

PUBLIC NOTICE
OF WATER
CONSERVATION PLAN
CITY OF CORTEZ
PUBLIC COMMENT
PERIOD:
MARCH 11- MAY 11, 2010
PUBLIC HEARING: CITY
COUNCIL MEETING,
MAY 11, 2010

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The point of contact for the Water Conservation Plan is Bruce Smart, P.E., Water Treatment Plant Superintendent, who can be reached at 970-565-9824.

Published in the Cortez Journal March 11 and 13, 2010.

CORTEZ CITY COUNCIL
REGULAR MEETING
MAY 11, 2010
7:30 p.m.

1. CALL TO ORDER - PLEDGE OF ALLEGIANCE

2. CONSENT AGENDA

The listing under "Consent Agenda" is a group of items to be acted on with a single motion and vote. This agenda is designed to expedite the handling of limited routine matters by City Council. The mayor will ask if a citizen or Council member wishes to have any specific item removed from the Consent Agenda for discussion. Either the public or a Council member may request that an item be removed from the Consent Agenda at that time, prior to Council's vote.

a. Approval of the Minutes of the Regular Meeting of April 27, 2010.

b. Approval of the Payment of the Expenditure Vouchers of May 11, 2010.

c. Approval of a Renewal 3.2% Beer Retail Liquor License for Cortez Chevron

Council will consider approving a renewal 3.2% Beer Retail Liquor License for Navajo Nation Oil and Gas Company Inc., DBA Cortez Chevron, 717 South Broadway, Cortez.

d. Approval of a Renewal Hotel and Restaurant Liquor License for Pepperhead

Council will consider approving a renewal Hotel and Restaurant Liquor License for Pepperhead LLC, DBA Pepperhead, 44 West Main Street, Cortez.

3. COUNCIL ITEMS

a. Swear In Newly-Elected Councilmember Tom Butler.

4. CITIZEN PARTICIPATION

5. PUBLIC HEARINGS

a. 2010 Water Conservation Plan

Council will consider receiving public comment on the 2010 Water Conservation Plan.

b. New Hotel and Restaurant Liquor License for Mr. Happy's Bakery and Cafe

Council will consider approving a New Hotel and Restaurant Liquor License for Mr. Happy's Bakery and Café, 332 East Main Street, Cortez.

c. Emergency Ordinance No. 1142, Series 2010

Council will consider approving Emergency Ordinance No. 1142, Series 2010, regarding a moratorium on issuing sales tax licenses for medical marijuana dispensaries and grow operations.

6. UNFINISHED BUSINESS – None.

7. NEW BUSINESS

   a. Ordinance No. 1140, Series 2010

   Council will consider approving on first reading Ordinance No. 1140, Series 2010, an ordinance amending Land Use Code Subsection 6.19 Historic Preservation, and Land Use Code Subsection 5.06(c)(4)d Regarding Historic Signs, Providing Specific Mandatory Review of Proposed Changes to Historic Structures and/or Historic Recommendations, and Setting a Public Hearing for May 25, 2010.

   b. Set Public Hearing for New Beer and Wine Liquor License for Café Chanterelle LLC

   Council will consider setting a public hearing and neighborhood boundaries for a new Beer and Wine Liquor License for Café Chanterelle LLC, 34 West Main Street, Cortez.

   c. Selection of City's Health Insurance Broker

   Council will consider appointing the City's Health Insurance Broker.

   d. Parks, Recreation, and Forestry Advisory Board

   Council will consider appointment to the Parks, Recreation, and Forestry Advisory Board for the two openings.

   e. Appointment to City Advisory Boards

   Council will be appointed to various City Advisory Boards.

8. DRAFT ORDINANCE/RESOLUTIONS – None.

9. OTHER ITEMS OF BUSINESS – None.

10. ADDITIONAL CITIZEN PARTICIPATION

11. CITY ATTORNEY'S REPORT

12. CITY MANAGER'S REPORT

13. CITY COUNCIL COMMITTEE REPORTS

   a. Mayor's Report on Workshop

14. ADJOURNMENT

Individuals with disabilities needing auxiliary aid(s) may request assistance by contacting City Hall: address – 210 E. Main, Cortez; phone – 970-565-3402; fax 970-565-8172; e-mail – lsmith@cityofcortez.com. We would appreciate if you would contact us at least 48 hours in advance of the scheduled event so arrangements can be made to locate requested auxiliary aid(s).

PW-10-120

City of Cortez
Interoffice Correspondence

Item No: 5.a

Meeting Date: May 11, 2010

TITLE: PUBLIC HEARING AND REVIEW OF THE UPDATED CITY OF CORTEZ WATER CONSERVATION PLAN

SUBMITTING DEPARTMENT: Public Works

ATTACHMENTS: 4/5/2010 Draft Copy of City of Cortez Water Conservation Plan

BACKGROUND

A Water Conservation Plan is a document that describes a City's water resources and how it can utilize those current resources in more efficient ways. Water use within the State of Colorado continues to become more important as time goes on. As water supplies become more scarce, greater importance is placed on how they are used. Conservation practices are becoming a standard part of all water user operations.

The City of Cortez is proposing to update its Water Conservation Plan (Plan) to bring it up to current water conservation practices. It will replace the Water Conservation Plan adopted by Council through Ordinance No. 819 in 1996. The City is required to have an updated Water Conservation Plan adopted after 2007 to comply with the State requirement for accepting grants or loans from the State.

When the City develops a new draft Plan, a public hearing must be held after a minimum of 60 days notice for the public to review the Plan and make comments. The public hearing provides citizens an opportunity to share their views and ask questions of the City in an open forum. The City will then evaluate the comments received at the public hearing and any other input received from the public at other times. Changes can then be made to the draft Plan on items the City identifies as necessary improvements.

Brett Schmidt and Patrick O'Brien from Briliam Engineering will be present at the public hearing to present the Plan and discuss its features. The Plan was primarily prepared by Brett Schmidt and he has worked considerably with the CWCB (Colorado Water Conservation Board) to review the draft Plan and obtain a conditional approval from them.

ISSUES

The Plan contains information on the physical characteristics of the City's existing water system and inventory of resources. It describes water supplies, water pricing, water use, and future forecasts. The first part of the Plan is a good description of what the water system is and how it may develop in the future.

Part "5" describes water conservation goals that the City has identified to pursue for water conservation. Some of those goals are to pursue full metering of all non-revenue uses, institute an automated metering system, and keep system water losses at or below the 5% level.

Part "6" of the draft Plan provides nine water-saving measures and programs proposed to conserve water. These were selected by the following criteria: water consumption use, existence within the 1996 Plan, and feasibility of implementing the proposed conservation measure. These programs will be the City's main focus with respect to impacting water conservation practices within the City's system. Each program takes a varying amount of time and money to put into effect.

- **Water-Saving Program #1: Water-Efficient Fixtures & Appliances (2012+)** – Promotes the use of water-efficient fixtures and appliances in older homes when replacing them. Toilets and washing machines would be targeted for replacement as the new appliances that will save the most water. A rebate program is proposed to be initiated in 2012 to replace 40 toilets and 10 washing machines per year at an annual cost of $2000.

- **Water-Saving Program #2: Water-wise Landscapes, Drought-Resistant Vegetation, Efficient Irrigation, and Removal of High Water Demand Plants (2012+)** – The City will promote water-wise landscaping by highlighting its existing water-wise (Xeriscape) demonstration plots at the Service Center and the Police Building with brochures showing plant varieties and non-turf landscaping. A budget of $1000 is proposed to complete the brochures. Provide Parks programs to show interested groups the benefits of water-wise landscaping. Expand the information found in handouts to include water consumption of plant varieties, types of plant species, water-efficient irrigation practices, and soil improvements.

- **Water-Saving Program #3: Water-Efficient Industrial & Commercial Processes (2014+)** – The initial program will consist of providing educational information on the City's website for commercial entities (e.g., restaurants, motels) on how to conserve water. The second phase will extend to cost-sharing with more complex businesses a water audit performed by a professional service in 2014 with a projected budget of $2000.

- **Water-Saving Program #4: Water Re-use Systems** – Re-use restrictions may apply for DWCD Project Water. Legal issues and the cooperation of the Cortez Sanitation District would need to be resolved. This will be evaluated in the future.

- **Water-Saving Program #5: Distribution System Leak Identification & Repair (2015)** – The City has a low water loss history from unidentified leaks and will continue to keep it low. The City will continue the replacement of water lines as they reach a point of accelerated leaks and keep the system's flushing program on an annual basis. In the future, the City will bring in professional leak detection firms to provide additional inspections to identify any leaks with a budget of $50,000 in 2015.

- **Water-Saving Program #6: Public Education, Customer Water Use Audits, & Water-Saving Demonstrations** – The City is to continue reaching out to the Citizens with educational programs such as annual letters, information brochures, and trained staff to answer questions. A survey on water conservation issues may be a possibility in the near future.

- **Water-Saving Program #7: Water Rate Study (2013)** – The City currently charges a set rate per 1,000 gallons used. Sometimes a "conservation pricing" schedule may encourage conservation by large-quantity water users. As the City has not performed a

water rate study for 30 years, it is planned to have one performed by 2013 at a budget of $20,000 to evaluate all of the pricing issues of the City.

- **Water-Saving Program #8: Regulatory Measures** – The City has adopted a series of regulatory measures to promote water conservation. The City continues to monitor its regulations and will continue to adjust them or expand them to include more comprehensive drought restrictions or emergency regulations.

- **Water-Saving Program #9: Incentives & Rebates to Encourage Conservation** – The State likes to promote the use of incentives and rebates to encourage water users to conserve water. This plan provides those incentives within Program #1 for washing machine and toilet rebates as well as to cost-share audits.

It is proposed to implement the water-saving programs with larger expenses in different years to minimize the impact to the City. Ongoing projects are planned to be done within existing City operations as they are currently performed.

After this initial public hearing on the Plan itself, the next step for the City is to adopt the Water Conservation Plan by Ordinance. If public comments and other input received at the public hearing are favorable and do not require further study and in-depth review, the ordinance can be ready for first reading at the next Council meeting on May 25. The second reading and public hearing for the ordinance can then be held on June 8, 2010. The CWCB office may also have further input to the Plan.

RECOMMENDATION

After Council has heard the presentation from Briliam Engineering on the aspects of the Water Conservation Plan and received comments from the public at the public hearing, they can discuss the sufficiency of the Plan and authorize any necessary alterations and/or additions to the Plan. Once those items are incorporated, Staff recommends adopting the updated Plan. If Council agrees with Staff, then **Council can make a motion to direct Staff to draft an ordinance to adopt the updated 2010 Water Conservation Plan for the City of Cortez with first reading on May 25, 2010, and set a public hearing for June 8, 2010.**

PREPARED BY: Bruce Smart, Water Treatment Plant Superintendent WBS

Jay Harrington, City Manager

CORTEZ CITY COUNCIL
REGULAR MEETING
TUESDAY, MAY 11, 2010

1. The meeting was called to order at 7:30 p.m., and was opened with the Pledge of Allegiance. Councilmembers present were Mayor Dan Porter, Bob Archibeque, Donna Foster, Mayor Pro-tem Matt Keefauver, Robert Rime, and Betty Swank. Newly-elected Councilmember Tom Butler was also present. Staff members present were Chief of Police Roy Lane, Director of Planning and Building Kirsten Sackett, Water Treatment Plant Superintendent Bruce Smart, City Clerk Linda Smith, City Manager Jay Harrington, and City Attorney Mike Green. There were eight people present in the audience.

2. The Consent Agenda items acted upon by Council were as follows:

   a. Approval of the minutes of the Regular Meeting of April 27, 2010.

   b. Approval of the payment of the Expenditure Vouchers of May 11, 2010.

   c. Approval of a renewal 3.2% Beer Retail Liquor License for Navajo Nation Oil and Gas Company, Inc., DBA Cortez Chevron, 717 South Broadway, Cortez.

   d. Approval of a renewal Hotel and Restaurant Liquor License for Pepperhead LLC, DBA Pepperhead, 44 West Main Street, Cortez.

   Mayor Pro-tem Keefauver moved that the consent agenda be approved. Councilmember Swank seconded the motion, and the vote was as follows:

Archibeque	Foster	Keefauver	Porter	Rime	Swank
Yes	Yes	Yes	Yes	Yes	Yes

3. COUNCIL ITEMS

   a. Swear in Newly-Elected Councilmember Tom Butler. Newly-Elected Councilmember Tom Butler took his oath of office.

4. CITIZEN PARTICIPATION

   a. Council Minutes. John Stramel asked when the April 27, 2010, minutes would be posted on the web site. City Clerk Smith stated that the minutes are posted after Council approval and would be posted on the web site on Wednesday, April 28, 2010.

5. PUBLIC HEARINGS

   a. 2010 Water Conservation Plan. Water Treatment Plant Superintendent Smart stated that the 2010 Water Conservation Plan has been recently completed and updates the Water

Conservation Plan that was adopted by Council in 1996. He stated that the intent of a Water Conservation Plan is to try to improve the use of City water. He stated that the City is required to have an updated Water Conservation Plan to comply with the State requirements for accepting grants or loans from the State. He stated that the public hearing process provides citizens an opportunity to share their views and ask questions of the City in an open forum. He stated that after the public hearing is held, changes can be made to the draft plan. He introduced Brett Schmidt and Patrick O'Brien from Briliam Engineering and stated that they completed the majority of the work on the Water Conservation Plan.

Brett Schmidt, Briliam Engineering, stated that their company specializes in water and waste water engineering for municipal and industrial clients throughout the Four Corners region. He stated that they are working with the City on the drinking water treatment plant improvements that are currently under construction. He stated that the Water Conservation Plan must be approved by the Colorado Water Conservation Board which is located in Denver and they have a number of specific requirements which must be included in the plan. He stated the City's 1996 Water Conservation Plan was incorporated with the Colorado Water Conservation Board's model plan to create the 2010 Water Conservation Plan. He stated that the plan establishes four goals which include maintaining the per-capita water demand at the levels that have been maintained since 2002; achieve metering of all uses within the water distribution system; maintain water loss at less than 5%; and institute an automatic meter reading program that would expedite billing and help with the overall management of the drinking water system. He stated that the plan is required to address nine different water saving programs which he reviewed from the proposed draft plan. Mr. Schmidt stated that public notice was placed in the Cortez Journal on March 11 and March 13, 2010, allowing the 60-day period required to allow public comment to be received. He stated that the Colorado Water Conservation Board has conditionally approved the plan pending the outcome of the public hearing.

Councilmember Keefauver asked what other municipalities Briliam Engineering has worked for and if the program proposed for the City aligns with other plans which Briliam Engineering has completed. Mr. Schmidt stated that they are based in Pagosa Springs and have completed work for the Water and Sanitation District in Pagosa Springs as well as the Town of Pagosa Springs. He stated they have also completed work for the City of Durango and the Town of Bayfield. Mr. Schmidt stated that the City's plan was customized specific for Cortez and was a significant improvement from the 1996 plan. He stated that the recommendation is that the plan be updated every seven years. Councilmember Keefauver stated that he would like the City to promote the Water Conservation Plan so that residents know that the City supports the conservation efforts and is a model for the citizens. Mayor Porter opened the public hearing; however, no one spoke and the hearing was closed.

Mayor Pro-tem Keefauver moved that staff draft an ordinance to adopt the updated 2010 Water Conservation Plan for the City of Cortez with first reading held on May 25, 2010, and a public hearing set for June 8, 2010. Councilmember Foster seconded the motion, and the vote was as follows:

Archibeque	Butler	Foster	Keefauver	Porter	Rime	Swank
Yes	Yes	Yes	Yes	Yes	Yes	Yes

b. New Hotel and Restaurant Liquor License for Mr. Happy's Bakery and Café. Chief of Police Lane was sworn in and gave his report on the investigation for the application of a new Hotel and Restaurant Liquor License for Mr. Happy's Bakery and Café, owners Jill and David Chisholm, to be located at 332 East Main Street. He stated that a public notice was given by posting a sign on April 21, 2010, on the property and notice was published in the Cortez Journal on April 22, 2010. He stated that the poll of the surrounding neighbors and businesses showed that 59 people were in favor of granting the license, 12 were against, and 15 were neutral and did not wish to express an opinion. His report was presented to the City Attorney for inclusion in the record. Jill Chisholm and Bernadette Harris were sworn in and presented their four petitions in support of the issuance of the liquor license. Ms. Chisholm stated that she is owner of Mr. Happy's Bakery and Café and that the plan is to serve wine and beer with burgers for lunch and in the summer they hope to extend their hours to late afternoons and evenings on the weekends. She stated that the patio will be open during the summer and they would like to offer beverages to their customers. She stated that she witnessed the signatures on the petition that she had circulated and in answer to a question from City Attorney Green, Ms. Harris stated that she witnessed the people that signed the three petitions which she circulated. The original petitions were entered into the record. Mayor Porter opened the public hearing; however, no one else spoke and the hearing was closed.

Councilmember Swank moved that Council approve the new Hotel and Restaurant Liquor License for Mr. Happy's Bakery and Café, 332 East Main Street, after considering the reasonable requirements of the neighborhood, the desires of the adult inhabitants, the necessity of any restrictions on the license, the good character of the applicants, and compliance with all the provisions of Title 12, Article 47, Colorado Revised Statutes. Mayor Pro-tem Keefauver seconded the motion, and the vote was as follows:

Archibeque	Butler	Foster	Keefauver	Porter	Rime	Swank
Yes	Yes	Yes	Yes	Yes	Yes	Yes

c. Emergency Ordinance No. 1142, Series 2010. City Manager Harrington stated that Emergency Ordinance No. 1142, Series 2010, is an ordinance regarding a moratorium on issuing sales tax licenses for medical marijuana dispensaries and grow operations. He stated that the agenda was amended on Monday, May 10, 2010, giving more than the 24-hour required notice and that staff felt the issue needed to be handled as an emergency ordinance. He stated that a moratorium would be placed on the issuance of a sales tax license for medical marijuana dispensaries until July 13, 2010. He explained that the moratorium would allow a brief time out on the issuance of sales tax licenses for medical marijuana dispensaries to allow the State's new legislation to be put in place. He stated that the City has seen numerous inquiries on medical marijuana dispensaries and the City has taken the approach that when the Land Use Code amendment was made the market would dictate how many dispensaries there would be; however, with the pending State

legislation on dispensaries there has been a lot of inquiries for dispensaries in Cortez and staff has spent a lot of time with the applicants. City Attorney Green stated that the period of time for the moratorium will allow the City to review the law and make sure the City is going along the correct path. He stated that when the law is completed, the existing dispensaries will have to comply with the new law as no one will be grandfathered in. City Manager Harrington stated that discussion has been held with several neighboring jurisdictions on the amount of inquiries for dispensaries and, after consulting with the Chief of Police, it was decided to recommend that a moratorium be put in place until July 13, 2010. Chief of Police Lane stated that the City needs time to review the new law and make sure the City is doing the right thing. Mayor Porter opened the public hearing; however, no one spoke for or against the emergency ordinance and the hearing was closed.

Councilmember Foster moved that Emergency Ordinance No. 1142, Series 2010, be approved as presented. Councilmember Swank seconded the motion, and the vote was as follows:

Archibeque	Butler	Foster	Keefauver	Porter	Rime	Swank
Yes	Yes	Yes	Yes	Yes	Yes	Yes

6. UNFINISHED BUSINESS – None.

7. NEW BUSINESS

a. Ordinance No. 1140, Series 2010. Director of Planning and Building Sackett stated that Ordinance No. 1140, Series 2010, approves an amendment to Land Use Code Subsection 6.19, Historic Preservation, and Land Use Code Subsection 5.06(c)(4)d, regarding historic signs, providing specific mandatory review of proposed changes to historic structures and/or historic recommendations. She stated that changes to the Land Use Code have been suggested by the Historic Preservation Board as they would like to apply for the City to be designated as a Certified Local Government (CLG) through the Colorado Historical Society. Linda Towle, Chairman of the Historic Preservation Board, gave a presentation on what a CLG is and what the benefits of becoming a CLG would mean to the community. She stated that May 22, 2010, has been designated as Historic Preservation Day in Cortez and a walking tour of the historic properties in Cortez will take place that day. City Manager Harrington thanked Ms. Towle for all her work on completing the process for the CLG designation. Director of Planning and Building Sackett stated that Dan Corson from the State Office of Archaeology and Preservation has approved the changes that have been made to the Land Use Code Historic Preservation section and Planning and Zoning reviewed the changes at their last two meetings. She reviewed the changes that were made to the ordinance and stated that property owners making alterations or constructing new buildings adjacent to registered building, landmarks, or districts are requested to consult with the Historic Preservation Board prior to beginning construction; however, compliance with the review criteria shall be voluntary. She reviewed the section regarding historic signs and stated that presently there are five or six designated historic signs that are left in the community. Discussion was held about

grant money that would be available if the City was a CLG and how it could be used. City Manager Harrington stated that the City would probably use some of the grant money to complete an in-depth historic survey of the buildings in Cortez. In answer to a question from Councilmember Swank, City Manager Harrington stated that there are tourists that enjoy looking into the history of communities. He stated that economic development opportunities are created for property owners as they look at refurbishing their buildings as they can apply for outside funding. City Attorney Green asked about the language included in the Land Use Code regarding alterations made to a building that is adjacent to a historic structure, and City Manager Harrington stated that the ordinance asks that the property owner of the adjacent building contact the Historic Preservation Board prior to making any changes to make sure that the changes would not affect the historic structure. He stated that the City is not looking at design guidelines and in answer to a question from City Attorney Green, Director of Planning and Building Sackett stated that there are not any penalties of any kind included in the ordinance. Ms. Towle stated that the Historic Preservation Board would remain a voluntary advisory board and explained that the ordinance asks that people who have historic properties and make major alterations to the appearance of the building to consult with the Historic Preservation Board prior to their construction. She stated that the property owners can still do what they would like to do with their property.

Mayor Pro-tem Keefauver moved that Council approve Ordinance No. 1140, Series 2010, on first reading, amending Land Use Code Section 6.19, Historic Preservation, and Land Use Code Section 5.06(c)(4)d, regarding historic signs, providing specific criteria for the expertise of historic preservation board members, for mandatory review of proposed changes to historic properties and/or historic signs, and allowing for voluntary compliance with the Board's recommendations, and set a public hearing and second reading for May 25, 2010. Councilmember Foster seconded the motion, and the vote was as follows:

Archibeque	Butler	Foster	Keefauver	Porter	Rime	Swank
Yes	Yes	Yes	Yes	Yes	Yes	Yes

b. Set Public Hearing for New Beer and Wine Liquor License for Café Chanterelle LLC. City Clerk Smith stated that a new Beer and Wine Liquor License was applied for on May 4, 2010, for the Café Chanterelle LLC, to be located at 34 West Main Street, location of the old book store. She stated that a public hearing date would need to be set as well as the neighborhood boundaries.

Mayor Pro-tem Keefauver moved that Council set a public hearing for June 8, 2010, for a new Beer and Wine Liquor License for Café Chanterelle LLC, 34 West Main Street, and the neighborhood boundaries set as the City limits. Councilmember Swank seconded the motion, and the vote was as follows:

Archibeque	Butler	Foster	Keefauver	Porter	Rime	Swank
Yes	Yes	Yes	Yes	Yes	Yes	Yes

c. Selection of City Health Insurance Broker. City Manager Harrington stated that the City's Insurance Committee, made up of various employees of City departments, reviewed the 11 proposals which were received in early April, to serve as the City's Health Insurance Broker. He stated that three groups were interviewed by the committee, Segal Company, M3 Insurance Solutions for Business, and Wells Fargo. He stated that Wells Fargo is the current broker for the City and has been since 1992. City Manager Harrington reviewed the fee structure and stated that the committee recommended that the City stay with Wells Fargo Insurance Services as the City's insurance broker. He stated that the City would probably revisit the process again in three years. He stated that Wells Fargo has expressed that the renewal amount for the City would be about the same as was quoted last year. He stated that the renewal date for the City's insurance is due in June. He stated that the City's employee insurance will have to be reviewed over the next three years due to the impacts that the Federal Health Care Legislation may have on the City's insurance coverage. Chief of Police Lane and Director of Planning and Building Sackett, both serving on the City's Insurance Committee, commented on the process and stated that once the broker is approved, the committee will then review the items covered in the policy. City Manager Harrington stated that if Wells Fargo is chosen as the broker, they have indicated they will probably suggest a change of the third party administrators for the City's plan.

Mayor Pro-tem Keefauver moved that Council approve the re-appointment of the City's present Health Insurance Broker, Wells Fargo Insurance Services. Councilmember Swank seconded the motion, and the vote was as follows:

Archibeque	Butler	Foster	Keefauver	Porter	Rime	Swank
Yes	Yes	Yes	Yes	Yes	Yes	Yes

d. Parks, Recreation, and Forestry Advisory Board. Mayor Porter stated that two applicants were interviewed during the worksession for the Parks, Recreation, and Forestry Advisory Board. Councilmember Swank moved that Council appoint Ty Keel and Debi Berger to the Parks, Recreation, and Forestry Advisory Board. Councilmember Foster seconded the motion, and the vote was as follows:

Archibeque	Butler	Foster	Keefauver	Porter	Rime	Swank
Yes	Yes	Yes	Yes	Yes	Yes	Yes

Mayor Porter thanked Ms. Berger and Mr. Keel for applying for the Parks, Recreation, and Forestry Advisory Board positions.

e. Appointment to City Advisory Boards. Mayor Pro-tem Keefauver moved that the following City Council members be appointed to the following boards: Parks, Recreation, and Forestry Advisory Board – Tom Butler; Golf Advisory Board – Robert Rime and Bob Archibeque; Library Advisory Board – Donna Foster; Mesa Verde Country Tourism Committee – Donna Foster, Betty Swank, and Tom Butler; Montezuma County Economic Development – Dan Porter; Southwest Council of Governments – Jay Harrington and

Alternate Matt Keefauver. Councilmember Foster seconded the motion, and the vote was as follows:

Archibeque	Butler	Foster	Keefauver	Porter	Rime	Swank
Yes	Yes	Yes	Yes	Yes	Yes	Yes

8. DRAFT ORDINANCES/RESOLUTIONS – None.

9. OTHER ITEMS OF BUSINESS

a. Naming of Tennis Courts. Councilmember Swank moved that Council recommend that formal action be taken at the June 8, 2010, Council meeting on the naming of the Parque de Vida Tennis Courts after Coach Jim Harkendorff, and that public input be received over that period of time regarding the possible action. She also moved that the Parks, Recreation, and Forestry Advisory Board provide a formal naming policy for City facilities. Councilmember Rime seconded the motion, and the vote was as follows:

Archibeque	Butler	Foster	Keefauver	Porter	Rime	Swank
Yes	Yes	Yes	Yes	Yes	Yes	Yes

10. ADDITIONAL CITIZEN PARTICIPATION – None.

11. CITY ATTORNEY'S REPORT – None.

12. CITY MANAGER'S REPORT

a. Clean Up Week. City Manager Harrington thanked everyone that was involved in the Clean Up Week and that the City appreciated the cooperation of the County on the landfill use.

b. Hydro Plant. City Manager Harrington stated that the Hydro Plant is up and running and the City is producing power that the water supply will permit; however, there are still some engineering issues that need to be completed to match up with the Empire Electric system.

13. CITY COUNCIL COMMITTEE REPORTS

a. Mayor's Report on Workshop. Mayor Porter stated that two applicants were interviewed for the Parks, Recreation, and Forestry Advisory Board and discussion was held on the Council Board Appointments. He stated that Council reviewed the Parks, Recreations, and Forestry Advisory Board recommendation on facility naming and discussion was held on the Sunday, July 4, 2010, fireworks event.

The meeting was adjourned at 8:45 p.m.

_____
Dan L. Porter, Mayor

ATTEST:

_____
Linda L. Smith, City Clerk

Published on *City of Cortez Colorado* (http://www.cityofcortez.com)

Water Conservation Plan

Subject:
City Council
Planning and Zoning

PUBLIC HEARING NOTICE OF ORDINANCE NO. 1143, SERIES 2010

ADOPTING THE 2010 WATER CONSERVATION PLAN
FOR THE CITY OF CORTEZ
PUBLIC HEARING: CITY COUNCIL MEETING, JUNE 8, 2010

Notice is hereby given that the City of Cortez is updating its Water Conservation Plan, pursuant to State Law. The City will conduct a Public Hearing on Ordinance No. 1143, Series 2010, to adopt the Plan at the City Council Meeting on Tuesday, June 8, 2010. The City Council Meeting will be called to order at 7:30 p.m. in the Council Chambers at City Hall, 210 East Main Street, Cortez. Comments on the Water Conservation Plan will be received during the time designated in the meeting's agenda.

The City's Water Conservation Plan is designed to promote the efficient consumption of all water usage by residents, businesses, and local governments to more beneficially use our water resources, and insure a future adequate water supply.

The Water Conservation Plan is available for review by the public at City Hall and at the City Service Center, 110 West Progress Circle, Cortez, during regular business hours. All people wishing to comment on the Plan should be present at the June 8, 2010, Council meeting.

The point of contact for the Water Conservation Plan is Bruce Smart, P.E., Water Treatment Plant Superintendent, who can be reached at 970-565-9824.

To view a copy of the updated Water Conservation Plan, click here. [1]

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PUBLIC NOTICE

The City of Cortez has received an Application for a Preliminary Plat of the Flaugh-Clark Subdivision. The proposal is to create a 4-lot subdivision on property located to the east of the Brandon's Gate Subdivision, and west of the Montezuma Heights Subdivision. The subdivision includes the dedication of right-of-way for the extension of Tucker Lane that will tie into Kaleigh

Circle in the Brandon's Gate Subdivision. The property consists of 4.5 acres, with 4 lots proposed for single-family residences. Lot A at 1.035 acres, is already developed with a single-family home. Lot B is 1.28 acres in size and consists of property recently annexed into the City, on the west side of the Cortez Lateral Irrigation Canal. Lots C and D are located on the east side of the Cortez Lateral, consisting of 1.05 acres and 1.11 acres respectively.

A Public Hearing on this application will be held before the Cortez City Council at their regular meeting on Tuesday, June 22, 2010, at 7:30 p.m. in the City Council Chambers at City Hall, 210 East Main Street, Cortez.

The City urges anyone with an interest in this matter to attend the above meeting. For further information, please contact the Planning & Building Department in the City Service Center at 110 West Progress Circle, Cortez, or call 970.565.7320.

****

PUBLIC NOTICE

The City of Cortez has received an application from Montezuma Hearing Clinic for review of a site development plan for the construction of a new medical facility. The proposed facility will total 3,535 square feet in size, with two units, and be constructed on Lot 7 of the Hospital PUD. The applicant intends to utilize Unit 1 for their own office, with a separate unit available for lease to another medical office. The property is located on the north side of Cottonwood Street, and to the west of Mildred Road. According to the Land Use Code, all commercial site plans must go through public hearings prior to approval by the City.

A Public Hearing on this application will be held before the Cortez City Council at their regular meeting on Tuesday, June 22, 2010, at 7:30 p.m. in the City Council Chambers at City Hall, 210 East Main Street, Cortez.

The City urges anyone with an interest in this matter to attend the above meeting. For further information, please contact the Planning & Building Department in the City Service Center at 110 West Progress Circle, Cortez, or call 970.565.7320.

210 E. Main Street :: Cortez, CO 81321 ::
970.565.3402
::
fax 970.565.8172

Source URL: http://www.cityofcortez.com/news_info/public_notices

Links:
[1] http://www.cityofcortez.com/sites/default/files/file/public_works/2010/Wtr Cons plan 4-5-2010.pdf

CORTEZ CITY COUNCIL
REGULAR MEETING
TUESDAY, JUNE 8, 2010
7:30 p.m.

1. CALL TO ORDER - PLEDGE OF ALLEGIANCE

2. CONSENT AGENDA

The listing under "Consent Agenda" is a group of items to be acted on with a single motion and vote. This agenda is designed to expedite the handling of limited routine matters by City Council. The mayor will ask if a citizen or Council member wishes to have any specific item removed from the Consent Agenda for discussion. Either the public or a Council member may request that an item be removed from the Consent Agenda at that time, prior to Council's vote.

a. Approval of the Worksession and the Minutes of the Regular Meeting of May 25, 2010.

b. Approval of the Payment of the Expenditure Vouchers of June 8, 2010.

c. Approval of a Renewal Tavern Liquor License for the Cortez Elks 1789

Council will consider approving a renewal Tavern Liquor License for the Cortez Elks Association, DBA Cortez Elks 1789, 2100 North Dolores Road, Cortez.

3. PRESENTATIONS – None.

4. CITIZEN PARTICIPATION
(Comments may be limited to three (3) minutes per person, please comment on items not listed as a public hearing. Council may or may not respond to comments.)

5. PUBLIC HEARINGS

a. New Beer and Wine Liquor License for Café Chanterelle

Council will consider approval of a new Beer and Wine Liquor License for Café Chanterelle LLC, to be located at 34 West Main Street, Cortez.

b. Resolution No. 8, Series 2010

Council will consider approving Resolution No. 8, Series 2010, approving the Final Plat of Phase I of the Brubaker Subdivision, subject to certain conditions, as submitted by Terri Wheeler of the Housing Authority of Montezuma County.

c. Ordinance No. 1143, Series 2010

Council will consider approving on final reading Ordinance No. 1143, Series 2010, adopting by reference the 2010 Water Conservation Plan for the City of Cortez, promoting the efficient consumption of all water usage by residents, businesses, and local governments to more beneficially use our water resources and insure a future adequate water supply, with minor additions (if any) required from the Colorado Water Conservation Board.

6. UNFINISHED BUSINESS

   a. Resolution No. 9, Series 2010

   Council will receive public input from the community regarding the naming of the Parque de Vida Tennis Courts after Jim Harkendorff, and consider approval of Resolution No. 9, Series 2010.

7. NEW BUSINESS

   a. Approval of the Intergovernmental Agreement with the Southwest COG

   Council will consider approving the Intergovernmental Agreement with the Southwest COG regarding Telecommunication Infrastructure Project – Energy and Mineral Impact Assistance Program Award.

8. DRAFT RESOLUTION/ORDINANCES – None.

9. OTHER ITEMS OF BUSINESS – None.

10. ADDITIONAL CITIZEN PARTICIPATION

11. CITY ATTORNEY'S REPORT

12. CITY MANAGER'S REPORT

13. CITY COUNCIL COMMITTEE REPORTS

   a. Mayor's Report on Workshop.

14. ADJOURNMENT

Individuals with disabilities needing auxiliary aid(s) may request assistance by contacting City Hall: address – 210 E. Main Street, Cortez; phone – 970-565-3402; fax – 970-565-8172; e-mail – lsmith@cityofcortez.com. We would appreciate if you would contact us at least 48 hours in advance of the scheduled event so arrangements can be made to locate requested auxiliary aid(s).

CITY OF CORTEZ
ORDINANCE NO. 1143, SERIES 2010

AN ORDINANCE ADOPTING BY REFERENCE THE 2010 WATER CONSERVATION PLAN FOR THE CITY OF CORTEZ, COLORADO, PROMOTING THE EFFICIENT CONSUMPTION OF ALL WATER USAGE BY RESIDENTS, BUSINESSES, AND LOCAL GOVERNMENTS TO MORE BENEFICIALLY USE WATER RESOURCES AND INSURE A FUTURE ADEQUATE WATER SUPPLY

WHEREAS, it is the intent of the City of Cortez to promote water conservation in such way as to have efficient consumption of all water usage by residents, businesses, and local governments and to provide beneficial uses of our water resources; and,

WHEREAS, the following items are the basis for providing a Water Conservation Program:

- Conservation of water and the promotion of efficient usage are important to the City;
- A Water Conservation Plan will help extend existing water supplies to serve more uses;
- Reduction of summer water usage with lower demands can result in deferring future capital expenditures;
- The State of Colorado has determined that each water supplier that treats 2,000 acre feet or more of water must have a Water Conservation Plan; and,

WHEREAS, by Ordinance No. 819, Series 1996, passed and adopted on April June 25, 1996, the City Council (the "Council") of the City of Cortez, Colorado (the "City"), adopted by reference the Water Conservation Plan for the City of Cortez, for the purpose of promoting the efficient consumption of all water usage by residents, businesses, and local governments to more beneficially utilize our water resources and insure a future adequate water supply; and,

WHEREAS, the City has had a new Water Conservation Plan developed in accordance with State requirements, and has solicited public comment through public forums at duly-advertised public meetings before the City Council; and,

WHEREAS, Council has reviewed the new Plan and has considered the evidence and testimony presented at said public hearings, as evidenced in the adoption of Ordinance No. 1143, Series 2010, and the approved minutes of the Council meeting of June 8, 2010.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CORTEZ, COLORADO:

I. REPEAL

City Ordinance No. 819, Series 1996, adopting by reference a Water Conservation Plan for the City of Cortez, is hereby repealed and all ordinances or parts of ordinances in conflict with this ordinance are likewise expressly repealed.

II. ADOPTION BY REFERENCE

There is hereby adopted by reference, as though the same were fully printed and set forth herein, the 2010 Water Conservation Plan for the City of Cortez. The 2010 City of Cortez Water Conservation Plan is designed to be a dynamic document intended to be modified and added to on a regular basis. Modifications to the Plan may be done by resolution.

III. COPIES ON FILE

Three true and exact official copies of the 2010 Water Conservation Plan are on file in the City Clerk's Office, 210 East Main Street, Cortez, Colorado 81321, duly certified by the Mayor and attested by the City Clerk, and may be examined, duplicated, or copied by any interested person during the regular business hours of said offices, all such reproduction or copying to be at the expense of the person requesting the same.

PUBLIC HEARING: This Ordinance shall be considered for second and final reading on Tuesday, the 8th day of June 2010, at 7:30 p.m. in City Council Chambers in City Hall, 210 East Main Street, Cortez, Colorado, at which time and place all persons desiring to appear and be heard concerning the same may do so.

MOVED AND APPROVED ON FIRST READING THIS 25TH DAY OF MAY 2010.

Dan Porter, Mayor

ATTEST:

Linda L. Smith, City Clerk

MOVED, SECONDED, AND ADOPTED ON FINAL READING THIS 8TH DAY OF JUNE 2010.

Dan Porter, Mayor

ATTEST:

Linda L. Smith, City Clerk

APPROVED AS TO FORM:

City Attorney

j:\pwadmin\council\ordinances\2010 ords\adopt 2010 wtr consv plan #1143.doc

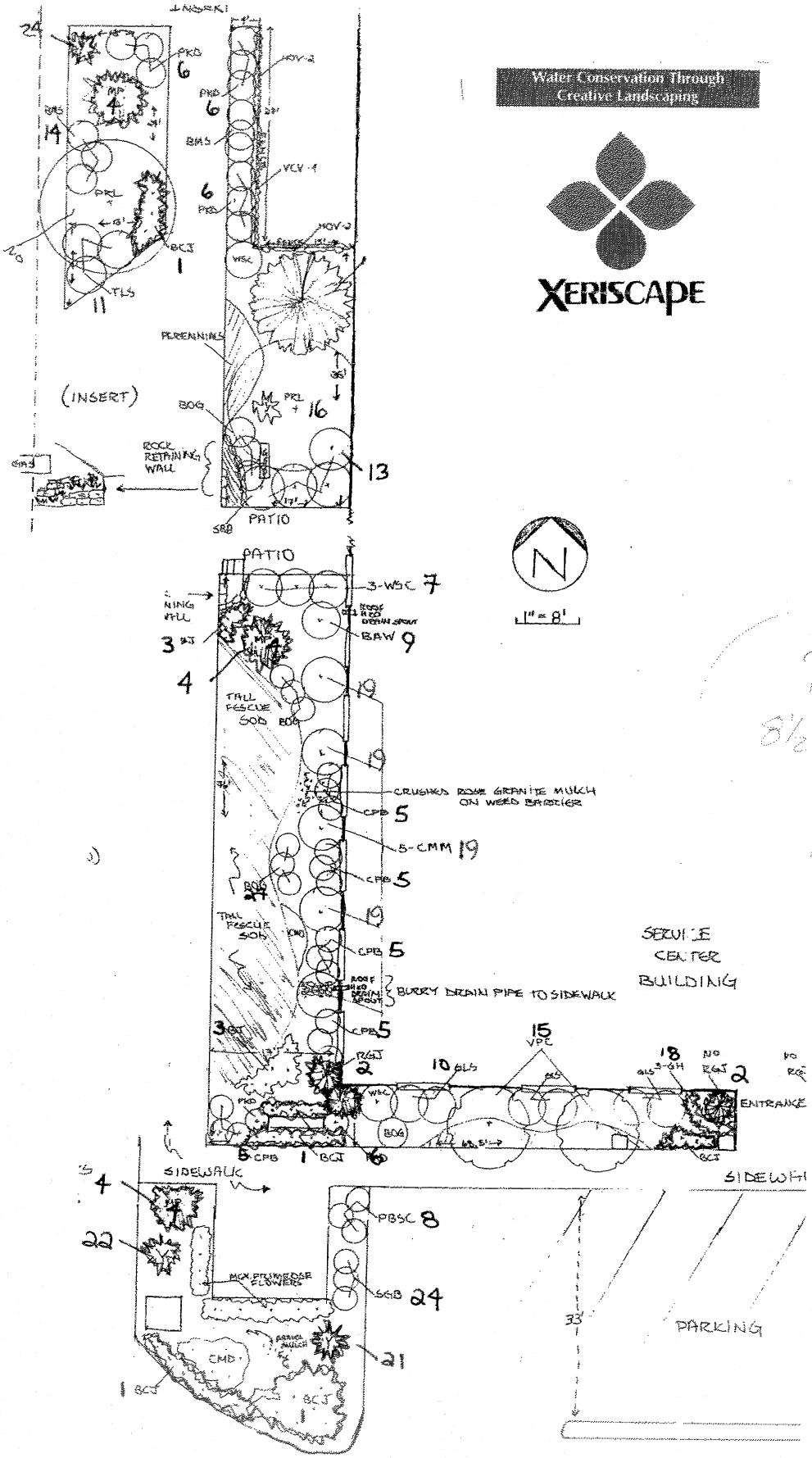
CITY OF CORTEZ
WATER CONSERVATION PLAN

APPENDIX

Waterwise Landscaping
Demonstration Garden Information
&
Draft Brochure

Water Conservation Through Creative Landscaping

XERISCAPE



Reduced
8½ x 14 to 8½ x 11

Brochure
Page 1

City of Cortez Service Center Xeriscape Beds

Symbol	Plant Name	Xeriscape
Evergreens		
1	Blue Chip Juniper	X
2	Robusta Green Upright Junipe	X
3	Buffalo Juniper	X
4	Mugho Pine Shrub	X
Shrubs		
5	Crimson Pygmy Barberry	X
6	Potentilla 'Katherine Dykes'	X
7	Western Sandcherry	XX
8	Pawnee Buttes Sandcherry	XX
9	Blue Arctic Willow	
10	Gro-lo Sumac	X
11	Three Leaf Sumac	XXX
12	Littleleaf Sumac	XX
13	Silver Buffaloberry	X
14	Blue Mist Spirea	XX
Trees		
15	Velvet Pillar Upright Crabapple	
16	Purple Robe Locust	XX
17	Austrian Pine	X
Broadleaf Evergreens		
18	Compact Oregon Grape Holly	X
19	Curleaf Mt. Mahogany	X
20	Littleleaf Mt Mahogany	X
21	Yucca Banana	XXX
22	Yucca Narrowleaf	XXX
23	Yucca Red Flowering	X
24	Spanish Broom	XX
Perennials		
25	Blue Catmint Compact	X
26	Mexican Primrose	X
27	Blue Oat Grass	XX
28	Parkers Yarrow	XXX
29	Penstemon varieties	X
30	Sedum Autumn Joy	XX

X=Dry
XX=Very Dry
XXX=Extra Dry

Water Wise

(reduced 8½×14 to 8½×11)

Brochure Page 2

+KON1

CITY OF CORTEZ
SERVICE CENTER
110 W. PROGRESS CIRCLE
CORTEZ, CO 81321

SITE LANDSCAPE PLAN AND PLANT MATERIAL FOR A DROUGHT TOLERANT LANDSCAPE.

Page 1

XERISCAPE™

(2)

PROMOTING WATER CONSERVATION THROUGH CREATIVE LANDSCAPING

Fundamentals of Xeriscape...

Planning & Design

Many people create their own designs with excellent results. Landscape professionals can also serve as helpful resources. They can provide advice, critique or develop your plan for you. Planning is one of the most important steps to a successful Xeriscape because it allows you to install your landscape in phases, which minimizes initial expenses.

Turf Alternatives

Locate turf where it provides functional benefits and separate it from other plantings so that it can be watered more efficiently. Consider alternatives to turf, such as patios, decks, mulches, and native or low water-use plantings that add to your property value, while they beautify your landscape.

Mulches

Mulched planting beds are an ideal replacement for turf areas. Mulches cover the soil and minimize evaporation, reduce weed growth and slow erosion. Organic mulches typically include bark chips, wood grindings and pole peelings. Non-organic mulches include rock and various gravel products.

Zoning of Plants

Plantings, including turf areas, should be divided into separate water use areas according to their function and location in the landscape. Take advantage of microclimates or existing water in the landscape and locate plants according to their specific water and cultural needs. Try to consolidate high water-use plants to the most accessible and easily maintainable portion of the landscape. Then, utilize the many beautiful low water-use plants available in zones designated for them. Use your plantings to create "rooms" or use areas in the landscape, and be sure to allow space for mature plant size.

Soil Improvements

Rocky mountain soils are improved with the addition of organic matter. This allows for better absorption of water and improved water holding capacity of the soil. Soils that have organic matter also provide beneficial nutrients to plants, as well as air for deep root growth. Improve the soil prior to planting and installation of automatic irrigation systems.

PLANT LIST

Very Low Water Zone

Trees

Bur Oak
Quercus macrocarpa
70-80'

Pinyon Pine
Pinus edulis
15-50'

Russian Olive
Elaeagnus angustifolia
15-40', gray leaves

Shrubs

Curlleaf Mountain Mahogany
Cercocarpus ledifolius
5-10'

Mexican Cliffrose
Cowania mexicana
6-10', yellow flowers

New Mexican Privet
Forestiera neomexicana
5-8'

Rubber Rabbitbrush
Chrysothamnus nauseosus
2-4', yellow flowers

Russian Sage
Perovskia atriplicifolia
3-5', purple flowers

Sand Cherry
Prunus besseyi
4-6'

Saskatoon Serviceberry
Amelanchier alnifolia
7-15', blue berries

Shrubby Sage
Artemisia spp.
2-5', gray leaves

Three Leaf Sumac
Rhus trilobata
3-5', red fall color

Ground Covers

Creeping Juniper
Juniperus horizontalis
6-12"

Creeping Red Penstemon
Penstemon pinifolius
6-12", red flowers

Fringed Sage
Artemisia frigida
8-20", gray leaves

Hardy Ice Plant
Delosperma nubigenum
3", yellow flowers

Pussytoes
Antennaria rosea
3", white/pink flowers

Sedum Spp.
Sedum spp.
3-15", multicolor flowers

Snow-In-Summer
Cerastium tomentosum
6-10", white flowers

Sulfur Flower
Eriogonum umbellatum
6-8", yellow flowers

Woolly Thyme
Thymus pseudolanuginosus
2", pink flowers

Perennials

Blanket Flower
Gaillardia aristata
18-30", yellow/red flowers

Blue Flax
Linum perenne
15-18", blue flowers

Gayfeather
Liatris punctata
18-24", purple flowers

Prairie Coneflower
Ratibida columnaris
15-18", yellow/orange flowers

Rocky Mountain Penstemon
Penstemon strictus
18-24", blue flowers

Silverleaf Cinquefoil
Potentilla hippeana
6-10", yellow flowers

Annuals

Annual Baby's Breath
Gypsophilla elegans
18-20", white flowers

Page 2

Annual Coreopsis
Calliopsis tinctoria
12-18" orange/red flowers

California Poppy
Eschscholtzia californica
6-8", yellow/orange flowers

untain Bachelor Button
ntaurea cyanus
15", blue flowers

tice
ionium sinuata
26", blue/yellow flowers

TURF AREA
BUFFALO GRASS
BLUEGRAMA

PLANT LIST

Low Water Zone

Trees

Bigtooth Maple
Acer grandidentatum
18-25', red fall color

Golden Rain Tree
Koelreuteria paniculata
30-40', yellow flowers

Green Ash
Fraxinus pennsylvanica
55-75'

Kentucky Coffee Tree
Gymnocladus dioicus
60-75'; pods

Ponderosa Pine
Pinus ponderosa
25-50'

Rocky Mountain Juniper
Juniperus scopulorum
30-40'

Rocky Mountain Maple
Acer glabrum
12-18', red fall color

Russian Hawthorne
Crategus ambigua
12-20', red fruit

Western Catalpa
Catalpa speciosa
45-70', white flowers

Western Hackberry
Celtis occidentalis
40-60'

Shrubs

American Plum
Prunus americana
4-6', white flowers

Bluemist Spirea
Caryopteris clandonensis
30"-3', blue flowers

Golden Currant
Ribes aureum
3-4', yellow flowers

Littleleaf Mockorange
Philadelphus microphyllus
6-8', white flowers

Mugho Pine
Pinus mugo mughus
3-10'

Shrub Rose
Rosa rugosa
12"-3', pink flowers

Spreading Cotoneaster
Cotoneaster divaricata
18-24", red fruit

Ground Covers

Creeping Baby's Breath
Gypsophila repens
2-4", white flowers

Creeping Grape Holly
Mahonia repens
12-18", yellow flowers

Creeping Potentilla
Potentilla verna-nana
2", yellow flowers

Euphorbia
Euphorbia myrsinites
10-18", yellow leaves

Himalayan Border Jewel
Polygonum affine
8-12", white/pink flowers

Sweet Woodruff
Gallum odorata
6-12", white flowers

Perennials

Asters, New York
Aster novae-belgii
12-26", purple/white flowers

Basket-of-Gold
Alyssum saxatile
6-12", yellow flowers

Carpathian Harebell
Campanula carpatica
4-6", blue/white flowers

Cottage Pinks
Dianthus plumaris
3-6", pink flowers

Daylilies
Hemerocallis spp.
12-24", multicolor

Evergreen Candytuft
Iberis sempervirens
6-12", white flowers

Evening Primrose
Oenothera spp.
6-30", yellow/white flowers

Iceland Poppy
Papaver nudicale
6-10", multicolor

Perennial Statice
Limonium latifolium
15", white/purple flowers

Annuals

Moss Rose
Portulaca grandiflora
6", multicolor

Siberian Wallflower
Cheiranthes allionii
6-10", yellow/orange

Strawflower
Helichrysum bracteatum
12-36", multicolor

TURF AREA
BUFFALO GRA
BLUEGRAMA
WHEATGRASS
SHEEP FESCU

The plants listed for Very Low and Low Water Zones are suitable for Xeriscapes. This is a partial list, additional species with similar characteristics may also be appropriate. (Contact your nursery for further information.)

Use plants listed under Moderate Water Zone only in naturally moist areas or areas receiving frequent irrigation.

Page 3

Moderate Water Zone

Trees
Colorado Blue Spruce
Picea pungens
60-75'

Quaking Aspen
Populus tremuloides
30-50', yellow fall color

Shrubs
Cranberry Viburnum
Viburnum trilobum
4-6', red fall color

Dwarf Arctic Willow
Salix purpurea nana
4-8'

Kalmia St. Johnswort
Hypericum var. kalmianum
2-3', yellow flowers

Winged Euonymus
Euonymus alata
10-18', red fall color

Ground Covers
Bishop's Weed
Aegopodium podagraria
10-15", variegated leaves

Bugleweed
Ajuga reptans
4-6", purple flowers

Periwinkle
Vinca minor
4-6", blue/purple flowers

Perennials
Native Blue Columbine
Aquilegia caerulea
18-24", blue/white flowers

Shasta Daisy
Chrysanthemum maximum
2-3', white flowers

Annuals
Four O'Clock
Mirabilis jalapa
24-30", magenta flowers

Globe Amaranth
Gomphrena globosa
30"-4', red flowers

Turf Selections

Turf Areas
Blue Grama
Buffalo Grass
Kentucky Bluegrass
Tall Fescue

Ornamental Grasses
Blue Avena
Blue Fescue
Miscanthus Grass

Borders
Blue Grama
Wheatgrass

BLUE GRASS ALTERNATIVES:

THERE ARE MANY OTHER GRASSES THAT ARE SUITABLE FOR TURF AREAS THAT REQUIRE MUCH LESS WATER. GRASSES ARE EITHER COOL SEASON, (THEY LIKE COOL WEATHER AND ARE GREEN MOST OF THE YEAR) OR WARM SEASON. (THESE LIKE IT HOT AND ARE DORMANT MOST OF THE WINTER AND COOLER MONTHS.

COOL SEASON) GRASS:...
- BLUE GRASS
- TALL FESCUE
- SHEEP FESCUE
- WHEATGRASSES

WARM SEASON).....
- BUFFALOGRASS
- BLUE GRAMA GRASS

BARK CHIPS OR SHREADED WOOD PRODUCTS MAKE A GREAT GROUNDS COVER CRUSHED GRANITE, LAVA ROCK AND RIVER COBBLES ARE ALL GREAT LAWN SUBSTITUTES. MANY COLORS AND SIZE AGGREGATES ARE AVAILABLE USE A WEED BARRIER FABRIC UNDER ALL BARK CHIP OR GRAVEL GROUND COVERS

IRRIGATION:

WATERING IS NEEDED TO GET EVEN DROUGHT TOLERANT PLANTS ESTABLISHED. THE FIRST GROWING SEASON AND WINTER ARE MOST CRUCIAL TO ESTABLISHING MANY PLANTS.

WHETHER A DRIP SYSTEM, SPRINKLER SYSTEM OR A HOSE AND BUCKET ARE YOUR CHOICE OF WATERING PLEASE ALLOW 2-3 YEARS FOR MOST PLANTS TO BECOME FULLY DROUGHT TOLERANT.

Page 4

XERISCAPE LANDSCAPING WILL HELP YOU CONSERVE WATER

These seven simple steps will produce a beautiful water saving landscape.

- Good Design
- Soil Improvement
- Reduced Turf Area
- Larger Mulch Areas
- Use Low Water Demand Plants
- Zoned Irrigation Systems
- Good Maintenance

GRASSES ARE AVAILABLE MAINLY FROM SEED. SOME VARIETIES SUCH AS BLUE GRASS, TALL FESCUE AND BUFFALOGRASS ARE AVAILABLE AS SOD OR PLUGS.

WATER REQUIREMENTS

BLUE GRASS	1" / WEEK 40"/YEAR
TALL FESCUE	18-30" / YEAR
SHEEP FESCUE	ENOUGH TO KEEP GREEN
WHEATGRASSES	ENOUGH TO KEEP GREEN
BUFFALO GRASS	10-15" / YEAR
BLUE GRAMA	10-15" / YEAR

MANY DROUGHT TOLERANT GRASSES CAN GO DORMANT IN SUMMER DROUGHTS AND GREEN UP WHEN RAINS OR IRRIGATION IS APPLIED. IT IS BEST TO KEEP GRASSES THAT ARE ESTABLISHED WATERED ENOUGH SO AS THEY STILL APPEAR GREEN. THIS MIGHT ONLY BE ONCE A WEEK ON MOST GRASSES.

CITY OF CORTEZ
WATER CONSERVATION PLAN

APPENDIX

Public Education Literature

Excerpts from City of Cortez Municipal Code, Chapter 27

Sec. 27-6. Imposition of emergency or conservation restrictions.

(a) Daytime watering restrictions.

(1) Watering of yards will not be allowed between the hours of 10.00 A.M. and 5:00 P.M.

(2) These watering restrictions will be enforced between May fifteenth and September fifteenth of each year.

(3) Anyone violating the ordinance codified in this chapter, will be given a warning notice upon observation of the first offense.

(4) Upon a second observed offense, the person who is violating the ordinance codified in this chapter shall have his/her water shut off.

(5) After water service has been shut off, there shall be a re-connect fee set by the current fee resolution, to restore service to the offending home or business.

(b) Lawn watering permits.

(1) Any person installing a new lawn that needs to be watered every day and during the restricted time of 10:00 A.M. to 5:00 P.M. needs to obtain a "new lawn permit" from the public works department.

(2) The permit will be valid for twenty-one days of watering for newly-seeded lawns and fifteen days of watering for sod.

(3) The city strongly recommends using alternative grass types such as fescues, wheatgrasses, and Blue Grama in-lieu of Kentucky Bluegrass.

(4) The "new lawn permit" fee will be set according to the current fee resolution. The permit shall be displayed in a prominent, visible area in the front lawn. Watering violations will be enforced for new lawns that do not have a permit. (Ord. No. 427, art. 2, § 5; Ord. No. 1013.)

Sec. 27-13. Prohibited uses enumerated.

The following uses of water shall be considered as unlawful and punishable:

(a) Hoses with overflow or nozzle greater than 5/8 of an inch in diameter.

(b) Open hoses.

(c) Watering after hours or during water use restrictions.

(d) The use of booster pumps upon the user's premises.

(e) Unattended hoses. It shall be deemed unlawful for any householder or user of water to permit water to run through hoses when such householder is away from such premises, and it shall be the duty of each user to turn all water hoses off at the time such user leaves the premises; provided, that no other responsible person is left in charge.

(f) The use of any type of any inflow and outflow air conditioner. Such type is defined as that type which does not have a recirculating pump or device mounted on such cooler and which permits the water to run from such cooler onto the ground or back into the city sewage system.

(g) Cooling water for refrigeration units. (Code 1968, § 7-8-1.)

Sec. 27-15. Tag permit required.
No person shall take water from any source supplied from the city water works without having first obtained and paid for a tap permit therefor. (Code 1968, § 7-8-3.)

Sec. 27-19. Wasting water prohibited.
No person shall:

(a) Waste the water at any hydrant or faucet or permit the water to be wasted through such source.

(b) Leave or permit the water to be left running through such to prevent freezing or for any other purpose except under the direction of the superintendent.

(c) Make use of any form of water closet which necessitates the constant running of water.

(d) In any manner waste or permit the waste of water from any pipe, fixtures or appliances under his control. (Code 1968, § 7-8-7.)

Sec. 27-20. Metered service required.
Service to all consumers of water from the municipal water system shall be by meter only at the applicable meter rates set forth herein or as the same may be altered from time to time by resolution of the city council. (Ord. No. 452, art. 2.)

Sec. 27-44. Maintenance generally.

(a) The owner of any premises to which water shall be conducted shall keep all fixtures and pipes from the property line to the point of use inside the premises in good repair. Unless the owner shall promptly repair any fixtures or pipes inside the premises when notified by the Superintendent, the water shall be turned off and shall not be turned on again until such repairs are made.

(b) Within the city limits the city shall have the responsibility to repair or replace the service line from the property line of the user to the city main, not exceeding, however, one hundred feet of such service line, and such repair or replacement shall be at the city's expense. (Ord. No. 427, art. 9, § 4; Ord. No. 486, § 2.)

Sec. 27-53. Metered service required.
Water will be served to out of city limits users only through a meter to be installed by the city and under no circumstances on a flat-rate basis. (Ord. No. 427, art. 11, § 5.)

CITY OF CORTEZ
COUNCIL RESOLUTION NO. 46, SERIES 2009

A RESOLUTION ESTABLISHING THE WATER RATE CHARGES AND THE WATER DEVELOPMENT CHARGES FOR THE CITY OF CORTEZ, COLORADO, AND SUPERSEDING RESOLUTION NO. 37, SERIES 2008

WHEREAS, the present revenues of the City of Cortez, Colorado, water system have been found to be insufficient to meet the requirements of operations, maintenance, and bond debt service; and

WHEREAS, the deficiency in revenues has been brought about by cost increases in chemical supplies, equipment parts, supplies, and all general maintenance requirements; and

WHEREAS, the City of Cortez has determined that the water rates are to be established to meet the City's operating costs and depreciation costs.

NOW, THEREFORE, BE IT RESOLVED BY THE CORTEZ CITY COUNCIL:

Effective with the **January 1, 2010**, billing, the City of Cortez shall initiate the following schedule of water rate charges and water tap fees and all previous schedules or resolutions in conflict with this resolution are hereby repealed.

I. METERED WATER RATES

A minimum fee – as shown below - will be charged for the first 1,000 gallons of water usage for all residential and non-residential units. Except: a master meter fee – as shown below - will be charged for each dwelling unit or occupied mobile home space when those units are served by the same tap, service line, and/or meter. In addition to the minimum fee, **$1.60** for each additional 1,000 gallons of water usage shall also be charged. The rates herein shall apply to all water service provided outside the City limits. Unmetered services will be charged a rate based on estimated usage as determined by the Director of Finance.

A. RESIDENTIAL

Base Rate	Minimum Monthly Rate
Single-family (3/4" x 5/8")	**$ 13.50**
Master Meter (Multi-family/MH Park)	**$ 12.75**
Plus Usage	**$ 1.60** per thousand gallons

B. COMMERCIAL

Base Rate	Minimum Monthly Rate
3/4" x 5/8" Meter	**$ 13.50**
1" Meter	**$ 20.00**
1-1/2" Meter	**$ 27.75**
2" Meter	**$ 38.80**
3" + Meter	**$ 55.50**
Plus Usage	**$ 1.60** per thousand gallons

COMMERCIAL WATER DOCK - $2.00 for 500 gallons

C. SERVICE LINE AND DEVELOPMENT CHARGES

1. Single-family, commercial, and other uses not listed in Items 2 – 5 below.

Size of Tap	Inside City
3/4"	**$ 3,300**
1"	**$ 5,520**
1-1/2"	**$ 11,030**
2"	**$ 17,650**
Over 2"	**Negotiated**

2. In the case of multi-unit dwellings or mobile home spaces being served by the same tap, service line, and/or meter, the development fee will be calculated as follows:

No. of Units	Development Fee/Unit
First Unit	**$ 3,300**
Over One (1) Unit	**$ 1,650**

3. If multi-unit dwellings, mobile home spaces, or a ¾-inch "irrigation only" system are served off individual meters on a private service line, the development fee will be calculated as follows:

No. of Units	Development Fee/Unit
First Unit	**$ 3,300**
Over One (1) Unit	**$ 2,425**

4. For sizes larger than 2" that include provisions for fire protection by sprinkler systems or hydrants, the fee shall be based on that portion of the size applied for that is not applicable to fire protection, plus the cost of providing the tap, the sum thereof constituting the tap fee.

5. There shall be added to the schedule of development charges herein a fifty percent (50%) additional charge for all water service connections outside the City limits.

D. SERVICE CHARGE FEES

1. Water Service Fee – The water service fee for connecting water service to new customers and/or existing customers shall be $15.00.

2. Reconnect Fee – If the water service is turned off due to non-payment of a bill owed, **a reconnect fee of $40.00** will be charged. The amount due, plus the reconnect fee, must be paid before the water service can be turned back on. Any special payment provisions must be approved by the Director of Finance.

II. DEFINITIONS

1. Dwelling Unit – a single unit providing complete, independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking, and sanitation.

2. Mobile Home Space – an area designed for use by a wheel-mounted dwelling unit, which space is provided with a connection to the water system of the City for use by the dwelling unit.

3. Residential Customer Unit – the occupant and/or owner of a single-family dwelling unit (detached or attached such as condominium or townhouse) or mobile home space, wherein title to land or the right to occupy in the case of a condominium, is conveyed. In the case of two or more multiple-family dwelling units, such as duplexes, triplexes, apartments, or mobile home spaces rented or leased, each shall be a residential customer.

4. Irrigation Only System – A metered service line to be used solely for irrigation of landscaping and lawns and does not flow to the sanitation system. It will be charged as an additional service when active.

5. Non-Residential Unit - all other types and classes of units.

PASSED, APPROVED, AND ADOPTED THIS 8TH DAY OF DECEMBER 2009.

Orly Lucero, Mayor

ATTEST:

Linda L. Smith, City Clerk

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ORDINANCE NO. 1013
SERIES 2004

AN ORDINANCE ESTABLISHING WATER USE RESTRICTIONS DUE TO SEVERE DROUGHT CONDITIONS

WHEREAS, the City of Cortez and the surrounding community is currently undergoing severe drought such as to create an emergency for the City and its citizens, and

WHEREAS, the City Council has the authority under Chapter 27, Section 6, of the Cortez City Code to impose emergency or conservation water use restrictions; and

WHEREAS, the City has the right to disconnect the service of anyone who violates the restrictions; and

WHEREAS, the City has the right to establish, by ordinance, re-connect fees after water has been shut off.

NOW THEREFORE, be it ordained by the City Council of the City of Cortez, Colorado, that Chapter 27, Section 6, Imposition of emergency or conservation restrictions, shall read:

I. DAYTIME WATERING RESTRICTIONS

A. Watering of yards will not be allowed between the hours of 10:00 a.m. and 5:00 p.m.
B. These watering restrictions will be enforced between May 15th and September 15th of each year.
C. Anyone violating Ordinance No. 1013, Series 2004, will be given a warning notice upon observation of the first offense.
D. Upon a second observed offense, the person who is violating this Ordinance shall have his/her water shut off.
E. After water service has been shut off, there shall be a re-connect fee set by the current fee resolution, to restore service to the offending home or business.

II. LAWN WATERING PERMITS

A. Any person installing a new lawn that needs to be watered every day and during the restricted time of 10:00 a.m. to 5:00 p.m. needs to obtain a "New Lawn Permit" from the Public Works Department.
B. The permit will be valid for twenty-one (21) days of watering for newly-seeded lawns and fifteen (15) days of watering for sod.

C. The City strongly recommends using alternative grass types such as fescues, wheatgrasses, and Blue Grama in-lieu of Kentucky Bluegrass.
D. The "New Lawn Permit" fee will be set according to the current fee resolution. The permit shall be displayed in a prominent, visible area in the front lawn. Watering violations will be enforced for new lawns that do not have a permit.

PUBLIC HEARING. This ordinance shall be considered for second and final reading on the 27th day of April, 2004, at the hour of 7:30 p.m. in the City Council Chambers in City Hall, Cortez, Colorado, at which time and place all persons may appear and be heard concerning the same.

PASSED, ADOPTED AND APPROVED ON FIRST READING THIS 13TH DAY OF APRIL, 2004.

CITY OF CORTEZ

CHERYL BAKER, MAYOR

ATTEST:

LINDA L. SMITH, CITY CLERK

PASSED, ADOPTED AND APPROVED ON SECOND AND FINAL READING THIS 27th DAY OF APRIL, 2004.

CITY OF CORTEZ

Mayor

ATTEST:

LINDA L. SMITH, CITY CLERK

APPROVED AS TO FORM:

JAMES HATTER, City Attorney

City of Cortez
Service Center
110 West Progress Circle
Cortez, CO 81321

APPLICATION FOR EXEMPTION FROM WATERING RESTRICTIONS

Name: _____
Mailing Address:_____
City: _____ **State**:_____ **Zip**:_____
Home Phone:_____ **Work Phone**:_____ **Email**:_____
Address Requiring Exemption: _____

Signature of Property Owner/Resident_____

Lawn Permit:

( ) Yes ( ) No Is this a residential property?
( ) New lawn installation – Front & Back Yard
( ) New lawn installation – Front Yard Only
( ) New lawn installation – Back Yard Only
( ) Xeriscape landscaping – Must meet Municipal Code standards(15.05.090.H) and plans must be approved.

BEST ESTIMATE -
Approximate Square Footage: _____ New Lawn Date Installed: _____
Seed/Sod (35 days for seed/21 days for sod)

Request for: ( ) Temporary from: _____ to:_____ ( ) Entire Season
Requested two day watering schedule _____

Please bring completed application to the Public Works Department at the address shown above.

For Office Use Only

Sod: Date Issued_____ **Date Expires**_____ **Permit #**_____
Seed: Date Issued_____ **Date Expires**_____ **Permit #**_____

Approved By: _____ **Date:**_____

Denied By:_____**Date:**_____

Phone: 970-565-7320 *Fax: 970-565-8356*

WATERING RESTRICTIONS IN EFFECT

The City of Cortez established watering restrictions in 2004, through Ordinance No. 1013, to reduce water usage in the area and avoid water shortages due to drought conditions in dry years.

Watering restrictions are enforced between May 15th and September 15th each year. During this time, watering of yards is not allowed between the hours of 10:00 a.m. and 5:00 p.m.

Anyone violating this ordinance will be given a warning upon observation of the first offense. Upon a second observed offense, the person who is violating this ordinance shall have their water shut off and will be required to pay the current re-connect fee to restore service.

If you are installing a new lawn that needs to be watered every day and during the restricted time of 10:00 a.m. to 5:00 p.m., you can obtain a new lawn permit from the Public Works Department, located at the City Service Center, 110 West Progress Circle. The fee for this permit is $20. The permit will be valid for 21 days for newly-seeded lawns and 15 days for sod.

The City recommends using alternative grass types such as fescues, wheat grasses, and Blue Grama, rather than Kentucky Bluegrass. They require less water and are easier to maintain. Your local garden center can give you more information on the best grass for you.

If you would like to report a watering violation, please call the City of Cortez water billing office at 564-4012.

The City of Cortez ::
210 E. Main Street :: Cortez, CO 81321 ::
970.565.3402
::
fax 970.565.8172

CITY OF CORTEZ
WATER CONSERVATION PLAN

APPENDIX

Regulatory Measures

City of Cortez
2009 Drinking Water
Consumer Confidence Report
For Calendar Year 2008

Public Water System ID # CO0142200

Esta es información importante. Si no la pueden leer, necesitan que alguien se la traduzca.

The City of Cortez is pleased to present to you this year's water quality report. Our constant goal is to provide you with a safe and dependable supply of drinking water.

General Information About Drinking Water

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV-AIDS or other immune system disorders, some elderly, and infants can be particularly at risk of infections. These people should seek advice about drinking water from their health care providers. For more information about contaminants and potential health effects, or to receive a copy of the U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and microbiological contaminants call the EPA *Safe Drinking Water Hotline* at 1-800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- ***Microbial contaminants***, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- ***Inorganic contaminants***, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- ***Pesticides and herbicides*** that may come from a variety of sources, such as agriculture, urban stormwater runoff, and residential uses.
- ***Organic chemical contaminants***, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and also may come from gas stations, urban storm water runoff, and septic systems.
- ***Radioactive contaminants***, that can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the Colorado Department of Public Health and Environment prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Our Water Source(s)

Source	Water Type
McPhee Reservoir	Surface Water

The Colorado Department of Public Health and Environment has provided the City with a Source Water Assessment Report for our water supply. You can obtain a copy of the report by visiting www.cdphe.state.co.us/wq/sw/swaphom.html or by contacting Bruce Smart at 970-565-9824.

The City's source water area includes the Dolores River drainage above McPhee Reservoir to the mountain ranges. According to the State's Source Water Assessment Report (SWAR), the potential sources of contamination in our source water area come from:

- Permitted wastewater discharge sites;
- Leaking storage tanks, both above and under ground;
- Solid waste sites;
- Existing and abandoned mine sites;
- Commercial, industrial, and transportation land uses;
- Residential uses;
- Urban recreational grasses;
- Row crops;
- Pasture and hay fields;
- Forest uses:
- Septic systems;
- Oil and gas wells; and
- Road miles.

The Source Water Assessment Report provides a screening-level evaluation of potential contamination that **could** occur. It does not mean that the contamination **has or will** occur. The City can use this information to evaluate the need to improve our current water treatment capabilities and prepare for future contamination threats. This can help us ensure that quality finished water is delivered to your homes. In addition, the source water assessment results provide a starting point for developing a source water protection plan.

Please contact Bruce Smart at 970-565-9824 to learn more about what you can do to help protect your drinking water sources, any questions about the Drinking Water Consumer Confidence Report, to learn more about our system, or to attend scheduled public meetings. We want you, our valued customers, to be informed about the services we provide and the quality water we deliver to you every day.

Terms and Abbreviations

The following definitions will help you understand the terms and abbreviations used in this report:

- ***Parts per million (ppm) or Milligrams per liter (mg/L)*** - one part per million corresponds to one minute in two years or a single penny in $10,000.
- ***Parts per billion (ppb) or Micrograms per liter (ug/L)*** - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.
- ***Parts per trillion (ppt) or Nanograms per liter (nanograms/L)*** - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in $10,000,000,000.
- ***Parts per quadrillion (ppq) or Picograms per liter (picograms/L)*** - one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in $10,000,000,000,000.
- ***Picocuries per liter (pCi/L)*** - picocuries per liter is a measure of the radioactivity in water.
- ***Nephelometric Turbidity Unit (NTU)*** - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person
- ***Action Level*** **(AL)** - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- ***Treatment Technique (TT)*** - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.
- ***Maximum Contaminant Level Goal*** **(MCLG)** - The "Goal" is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- ***Maximum Contaminant Level*** **(MCL)** - The "Maximum Allowed" is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- ***Maximum Residual Disinfectant Level Goal*** **(MRDLG)** - The level of a drinking water disinfectant, below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- ***Maximum Residual Disinfectant Level*** **(MRDL)** - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- ***Running Annual Average (RAA)*** - An average of monitoring results for the previous 12 calendar months.
- ***Gross Alpha, Including RA, Excluding RN & U*** - This is the gross alpha particle activity compliance value. It includes radium-226, but excludes radon 222 and uranium.
- ***Microscopic Particulate Analysis (MPA)*** - An analysis of surface water organisms and indicators in water. This analysis can be used to determine performance of a surface water treatment plant or to determine the existence of surface water influence on a ground water well.

Detected Contaminants

The City of Cortez routinely monitors for contaminants in your drinking water according to Federal and State laws. The following table(s) show all detections found in the period of January 1 to December 31, 2008, unless otherwise noted. The State of Colorado requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. Therefore, some of our data, though representative, may be more than one year old. The "Range" column in the table(s) below will show a single value for those contaminants that were sampled only once. Violations, if any, are reported in the next section of this report.

Note: Only detected contaminants appear in this report. If no table appears in this section, it means that the City of Cortez did not detect any contaminants in the last round of monitoring.

Organics and Inorganics	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
BARIUM	12/11/2008	0.1	0.1	ppm	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
NITRATE	12/11/2008	0.04	0.04	ppm	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Disinfection By-Products	Date	Average	Range	Highest RAA	Unit	MCL	MCLG	Typical Source
TOTAL HALOACETIC ACIDS (HAA5)	2008	26.7	13 - 36	40	ppb	60	N/A	By-product of drinking water disinfection
TOTAL TRIHALOMETHANES (TTHM)	2008	53.6	44 - 63	63	ppb	80	N/A	By-product of drinking water chlorination

Disinfection By-Products	Year	Compliance Description	Requirement	Typical Sources
CONTROL OF DISINFECTION BY-PRODUCT PRECURSORS	2008	We used enhanced treatment to remove the required amount of natural organic material and/or we demonstrated compliance with alternative criteria.	TT	Natural organic material that is present in the environment

Turbidity	Sample Date	Level Found	TT Requirement	Typical Source
TURBIDITY	Date: August 26, 2008	Highest single measurement: 0.80	Maximum 1 NTU for any single measurement	Soil Runoff
	Month: August	Lowest monthly percentage of samples meeting TT requirement for our technology: 99%	In any month, at least 95% of samples must be less than 0.3 NTU	

Lead and Copper	Collection Date	90TH Percentile	Unit	AL	Typical Source
COPPER, FREE	2008 - 2010	0.098	ppm	1.3	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
LEAD	2008 - 2010	4.2	ppb	15	Corrosion of household plumbing systems; Erosion of natural deposits

Radionuclides	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
COMBINED RADIUM (-226 & -228)	1/15/2008	0.2	0.2	pCi/L	5	0	Erosion of natural deposits
GROSS ALPHA, EXCL. RADON & U	3/31/2008	0.3	0.3	pCi/L	15	0	Erosion of natural deposits

Secondary Contaminants/ Other Monitoring	Collection Date	Highest Value	Range	Unit	Secondary Standard
MPA WTP RAW AND FINISHED	12/4/2008	0.98	0.98 to 6.1	UNITS	N/A
SODIUM	12/11/2008	12	12	MG/L	10000
TDS	3/31/2008	218	218	MG/L	500

Secondary standards are non-enforceable guidelines for contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor or color) in drinking water. EPA recommends these standards but does not require water systems to comply.

Health Information About Water Quality

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800)426-4791.

There are no additional required health effects notices.

Violations

Type	Category	Analyte	Compliance Period
No Violations Occurred in the Calendar Year of 2008			

Use Water Wisely

The City of Cortez continues to promote water conservation as an important part of daily water usage. The phrase "Use Water Wisely" is the focal point of water conservation. City water supplies are plentiful and water users will be able to water as needed while complying with the **"No Watering Between 10:00 a.m. and 5:00 p.m."** restriction. The "no watering during the hottest part of the day" restriction is a permanent ordinance and will be enforced.

The City passed Ordinance No. 1013, Series 2004, which permanently banned irrigation watering between the hours of 10:00 a.m. and 5:00 p.m. to be enforced from May 15th through September 15th every year. On the first violation, the water user will receive a warning. On the second violation, the water will be turned off. A $50.00 fee will be required to have the water turned back on. The best water conservation measure available is to just not waste water.

Violations – The City will be enforcing Sec. 27-19 of the Cortez City Code: **"Wasting Water Prohibited"** concerning unattended hoses/watering systems or excessive waste due to poor watering practices. The City will notify residents violating the ordinance with a courtesy warning; however, successive violations will receive a citation subject to fines. Should the City declare a water conservation emergency, restrictions will be specifically stated and notices delivered to residents as to the extent of necessary water conservation. Questions can be directed to the Public Works Department in the City Service Center at 970-565-7320.

Recommended Watering Schedule – It is recommended that residents implement a "Two or Three Times a Week Watering Schedule." Residents can choose the two days that best work for their lawns and garden. Those residents with automatic sprinklers for their lawns should be able to program their controllers to meet these recommendations. No watering is allowed between 10:00 a.m. and 5:00 p.m. from May 15th through September 15th every year as a result of Ordinance No. 1013, Series 2004, because most of the water evaporates in the heat of the day.

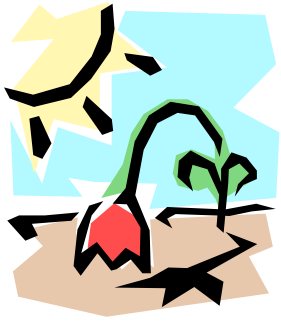
Best Lawn Watering Practices – Lawns should be watered in the early morning hours between 3:00 a.m. and 7:00 a.m. or late evening between 7:00 p.m. and 11:00 p.m. Wetting the soil 4 to 6 inches deep, with several days between watering, develops deep, solid roots. Lawns with deep root growth are more resistant to drought. Use a goal of applying approximately one inch or less of water per week on the lawn. Other water conservation tips for lawns should be followed whenever possible.

In-Home Water Conservation – There are many water conservation practices you can do in the home that will save water. Some of these include taking quicker showers, not letting the water run while shaving or brushing your teeth, and only running full loads of clothes or dishes.

No Wasted Water – Do Not Allow Hoses to Run Unattended; Fix Plumbing Leaks Immediately; and Fix Leaking Toilets. Report any Water Main Leaks in the street to the Public Works Department in the City Service Center by calling 970-565-7320.

SOUTHWESTERN COLORADO WILL HAVE A FULL WATER SUPPLY IN 2009

Southwest Colorado has had a near average snowpack this year with a forecast of a normal spring runoff. McPhee Reservoir is forecasted to be filled this year with the runoff ending in early June. Despite a plentiful supply of water this year, the area continues to have alternating years of below-average water supply and above-average water supply. Water users must continue to practice using water beneficially and be careful not to waste water.



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In-Home Water Conservation – There are many water conservation practices you can do in the home that will save water. Some of these include taking quicker showers, not letting the water run while shaving or brushing your teeth, and only running full loads of clothes or dishes.

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Lawn Watering Conservation – Some basic lawn watering conservation rules are:

- Water in early morning and evening hours. **Do not water in the heat of the day between the hours of 10:00 a.m. and 5:00 p.m.** This is against City Ordinances and **fines will be imposed for violations.**
- Water lawns and landscaping only - not streets, sidewalks, or driveways.
- Avoid watering during windy weather - this wastes water due to increased evaporation and actually blows the water away from the area intended to be watered.
- Keep your grass height at 2½ to 3 inches - taller grass holds water better. Leave grass clippings on the lawn to form a temporary layer of mulch to conserve moisture.
- Mow often enough to cut only 25% of the length – this prevents excessive shock that causes grass to turn yellow.
- Monitor your lawn to water only when needed - typically when grass blades begin to look dull and bluish-gray.

No Wasted Water – Do not allow hoses to run unattended; Fix plumbing leaks immediately; Fix leaking toilets; and Report water main leaks in the street to the Public Works Department in the City Service Center by calling 565-7320.

Xeriscaping – When planning new areas for shrubs, consider plants that require less amounts of water to survive. A booklet titled ***"At Home With Xeriscape"*** is available at no charge at the City Service Center in the Industrial Park and at City Hall on Main Street. In addition, residents can look into less water-intensive grass types such as fescues, blue grama, wheat grass, and buffalo grass, which all use less water than bluegrass. The landscaping at the City Service Center in the Industrial Park is an example of Xeriscaping with a fescue grass plot, gravel beddings, and low-water usage plants.

New Lawn Permit Available – Anyone who intends to start a new lawn this year and feels they need to water between 10:00 a.m. and 5 p.m. must get a "New Lawn/Additional Watering Permit" from the Public Works Department in the City Service Center. The permit would allow daily watering between 10:00 a.m. and 5:00 p.m. for up to 21 days to start the grass growing. **New Lawns that will <u>not</u> need watering between 10 a.m. and 5 p.m. do not need a lawn permit.** There is a $20 charge for the permit and it should be displayed prominently in the front yard. There are many grass variety alternatives available that use less water. Each variety has different characteristics to consider. Contact the Public Works Department at 565-7320 for more information.

AN AVERAGE PERSON CAN GO NEARLY TWO MONTHS WITHOUT EATING. **BUT LESS THAN A WEEK WITHOUT WATER COULD KILL YOU.**

YET, AS IMPORTANT AS WATER IS, MOST OF US KNOW LITTLE ABOUT IT. TAKE THIS TEST AND SEE HOW MUCH YOU KNOW ABOUT WATER.

1. What percentage of the world is covered by water?

2. What percentage of the world's water is readily available for humans to use?

3. How much water is contained in the human body?

4. Which contains more water as a percentage of body weight, a woman's body or a man's body?

5. Why do male and female bodies tend to have different amounts of water?

6. How much water does the human body lose in a typical day?

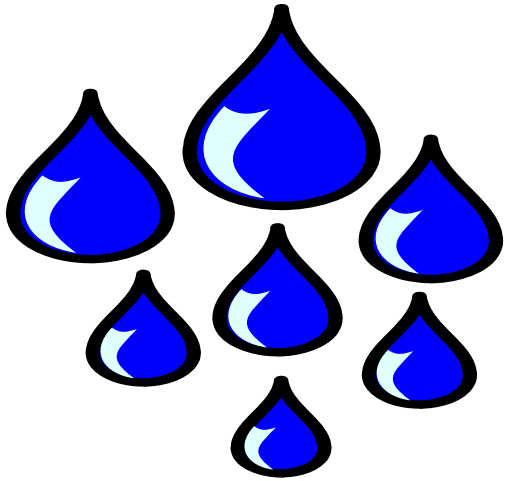
7. Why is water especially good for people on a diet?

8. What is the largest use of water outdoors?

9. What is the largest use of water indoors?

10. Public water systems produce billions of gallons of drinking water every day, more than 180 gallons per person. What percentage of that is consumed by people?

SEE ANSWERS ON BACK



WATER TIPS

There is as much water in the world today as there was thousands of years ago. Actually, it's the same water. The water from your faucet could contain molecules that dinosaurs drank. Perhaps Columbus sailed across it.

For the price of a single 12-ounce can of soda - about 50 cents - many communities deliver up to 1,000 gallons of fresh, clean drinking water to homes 24 hours a day. If drinking water and soda pop were equally costly, your water bill would skyrocket more than 10,000%!!!

If everyone in the United States flushed the toilet just one less time per day, we could save a lakeful of water about a mile long, a mile wide, and four feet deep every day.

Little leaks add up in a hurry. A faucet drip or invisible toilet leak that totals only two tablespoons a minute comes to 15 gallons a day. That's 105 gallons a week and 5,460 wasted gallons of water a year.

Is it possible your toilet has a secret leak? You can test it by putting ten drops of food coloring in the tank. Don't flush for 15 minutes. If the colored water shows up in the bowl, the tank is leaking.

Seventy-five percent of a tree is water.

Plant drought-resistant trees and plants. Many beautiful trees and plants thrive with far less watering than other species.

Use your automatic dishwasher and automatic washing machine only for full loads.

Some people thoughtlessly flush away tissues and other bits of trash in the toilet. Using a wastebasket, instead, will save all those gallons of water that otherwise go wastefully down the drain.

Information taken from:
Catalog No. 70077 ©1991 AWWA
Catalog No. 70071 © 1991 AWWA

ANSWERS:

1. Some 80% of the world is covered by water or ice. Only about 20% is dry land.

2. 97% of the world's water is salty or otherwise undrinkable. Another 2% is locked in ice caps and glaciers. That leaves just 1% for all of humanity's needs - all its agricultural, manufacturing, community, and personal household needs.

3. If you're an adult, your body contains about 40 quarts (10 gallons) of water.

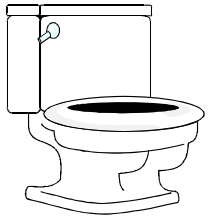
4. A man's body is 60-65% water. A woman's body is 50-60% water. The human brain is about 75% water.

5. Muscle tissue contains a large amount of water. Fat tissues contain virtually no water. Men tend to have more muscle as a percentage of body weight while women have more fat.

6. You lose 2-1/2 to 3 quarts of water per day through normal elimination, sweating and breathing. If you exercise or live in a humid climate, you may lose another quart.

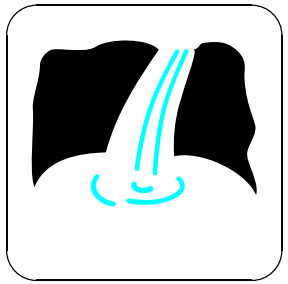
7. It has zero calories and zero sugar, but a good drink of water can reduce hunger. Water also helps your body metabolize stored fats, helps maintain proper muscle tone, and helps rid the body of wastes.

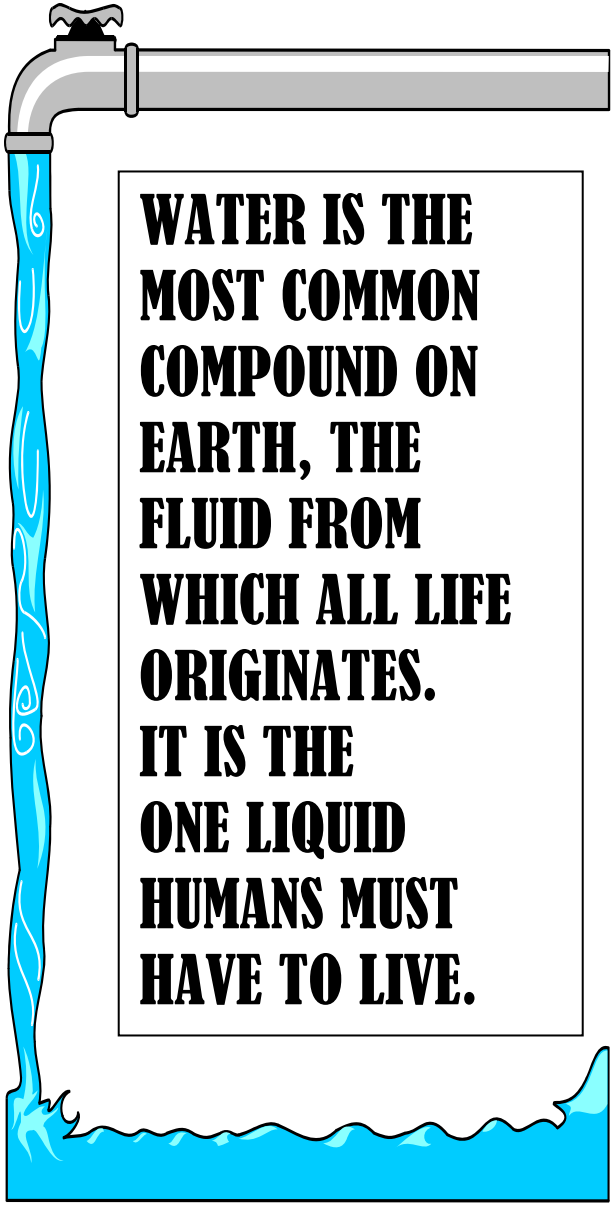
8. Lawn sprinkling uses the most water outdoors.



9. Inside, toilets use the most water, with an average of 27 gallons per person per day. Laundry averages 17 gallons per person per day and showers 14 gallons.

10. Typically, less than 1% of the treated drinking water produced by utilities is actually consumed by people. Most goes for lawns, showers and tubs, toilets, etc.





CITY OF CORTEZ
Service Center
110 West Progress Circle
Cortez, CO 81321
Phone: 970-565-7320

Water Conservation Information Provided to Local Newspaper in 2002

CITY OF CORTEZ WATER CONSERVATION PROGRAM

A drought continues to plague Southwest Colorado for the fifth consecutive year. McPhee Reservoir is nearly empty and will remain low until above-average moisture returns to our area. The City of Cortez water users must continue with water conservation measures to preserve the existing City water supply. A water conservation effort of 20% below 2001 water usage is our goal. Water Conservation Information will be sent out in mid-May to City water users. Some of the key issues are listed below.

- The City will enforce its "wasting water" ordinance found in Section 27-19 of the Cortez City Code. Unattended hoses/watering systems and excessive waste caused by poor watering practices that allow water to run onto streets and sidewalks will be brought to the attention of the water user. Residents violating the ordinance will receive a courtesy warning first; however, users with successive violations can receive a citation subject to fines.

- In addition, outdoor watering between 10:00 a.m. and 5:00 p.m. will be prohibited on all days between May 1st and September 30th. First offense violators will receive a warning notice. Second offenders will have water service shut off and will be charged a $50.00 reconnect fee to restore service.

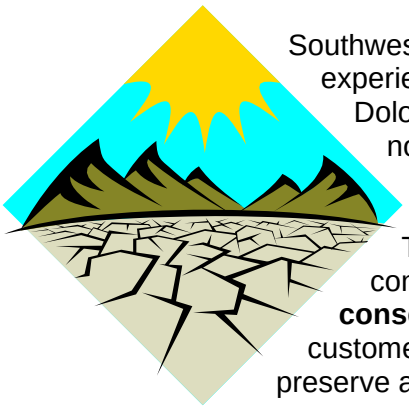
- An "Odd & Even Address Watering Program" is being implemented again within the City effective May 1st to help balance the water demand. Residents who have an even-numbered address should water on even-numbered days and those with odd-numbered addresses should water on odd-numbered days. It is strongly recommended that residents develop a plan to try watering on a **twice a week schedule**. Watering every other day will not save much water and may actually waste some.

- Residents wishing to plant new lawns are required to get a permit if they want to water during the 10:00 a.m. to 5:00 p.m. daytime period in order to keep the grass seed damp enough to germinate. Permits can be acquired from the Public Works Department at the City of Cortez Service Center. The basic fee for a new lawn permit is $20.

For further information or questions, please contact the Public Works Department at the City Service Center at 565-7320.

Water Conservation Needed In Cortez

Severe Drought In Southwest Colorado - May 1, 2002



Southwestern Colorado, and the Rocky Mountain Region in general, is experiencing drought conditions with critically low water supplies. The Dolores River Basin runoff forecast is between 20 and 30 percent of normal. Agricultural water users will be experiencing major water restrictions.

The City of Cortez and all its water users need to join together in conserving our precious water supply wherever we can. A **20% water conservation goal** is being requested of City water users. If each water customer can reduce their water usage by 20% this year, we can help preserve a significant amount of our water supply.

Lawn and landscape watering represent the majority of the summer water use within the City and is where much of the water conservation must come from. It is not the intent of the City to restrict watering to the point of damaging any lawns, shrubs, or trees. Several conservation measures can be used that reduce lawn-watering demands. Applying only the minimum amount of water the lawn needs will help conserve water.

Odd & Even Address Watering Restrictions – An "Odd & Even Address Watering Program "is being implemented within the City effective today to help balance the water demand. Residents who have an even-numbered address should water on even-numbered days and those with odd-numbered addresses should water on odd-numbered days. Residents are encouraged to water on 4-to-6-day intervals and skip some of their "normal" watering days.

Best Lawn Watering Practices – Lawns should be watered in the early morning between 3:00 a.m. and 7:00 a.m. or late evening between 7:00 p.m. and 11:00 p.m. Wetting the soil 4 to 6 inches deep, with several days between watering, develops deep, solid roots. Lawns with deep root growth are more resistant to drought. Use a goal of applying approximately one inch or less of water per week on the lawn. Other water conservation tips for lawns should be followed whenever possible.

Watering for Public Lawns and Parkways – The City Parks and Recreation Department has already implemented 20%-30% water reduction on all City properties. Sprinkler and drip systems have been recalibrated to reduce the amount of water and to control the time of day that watering will occur. The City will also monitor the sprinkler systems to try to keep water out of the streets. Sprinkler heads do get vandalized and out of adjustment so, if you see sprinklers hitting the street, please let the Parks Department know by calling City Hall at 565-3402.

City staff is also making contingency plans in case the summer does not bring moisture to our area. The City will first cut back on watering at all facilities. However, if the drought should intensify, additional steps will be taken. Greenways and medians will be the first to have a stoppage of watering. Secondly, the passive parks will have a stoppage of watering and some parks may be closed. The Golf Course would only have tees and greens watered and carts restricted to specific paths. Finally, the active spaces of parks may be designated and activity in parks may be limited to active areas with minimal irrigation.

As a result, your City Parks and facilities will not have the luscious turf that you are used to seeing. We appreciate your cooperation and understanding concerning this summer's drought conditions and its affects on the parks. Let's all hope that we get our summer monsoons.

In-Home Water Conservation – There are many water conservation practices you can do in the home that will save water. Some of these include taking quicker showers, not letting the water run while shaving or brushing your teeth, and only running full loads of clothes or dishes. A pamphlet entitled "Water Conservation At Home" is included with this letter to give water users some basic ideas on how to preserve our water supply.

Lawn Watering Conservation – Some basic lawn watering conservation rules are:

- Water in early morning and evening hours - **not during the heat of the day between the hours of 10:00 a.m. and 5:00 p.m. Fines will be imposed for violations.**
- Water lawns and landscaping only - not streets, sidewalks, or driveways.
- Avoid watering during windy weather - this wastes water due to increased evaporation and actually blows the water away from the area intended to be watered.
- Keep your grass height at 2½ to 3 inches - taller grass holds water better. Leave grass clippings on the lawn to form a temporary layer of mulch to conserve moisture.
- Mow often enough to cut only 25% of the length – this prevents excessive shock that causes grass to turn yellow.
- Monitor your lawn to water only when needed - typically when grass blades begin to look dull and bluish-gray.
-

No Wasted Water –

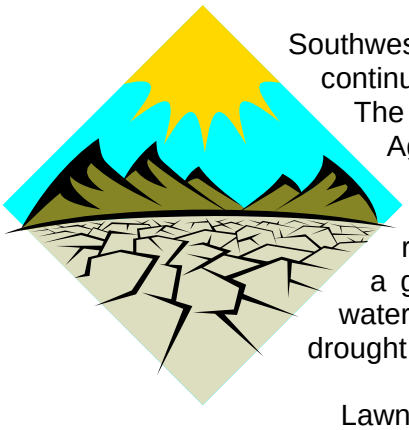
- Do not allow water to reach into the street when watering lawns,
- Do not allow hoses to run unattended,
- Fix leaks in the plumbing immediately,
- Fix leaking toilets, and
- Report water main leaks in the street to the Public Works Department in the City Service Center by calling 565-7320.

Xeriscaping – When planning new areas for shrubs, consider plants that require less amounts of water to live on. Also look at less water-intensive grass types such as fescues, blue grama, wheat grass, and buffalo grass, which all use less water than bluegrass. The City has developed two xeriscape (or low-water-user) show plots to provide actual grass and plants that can be used in landscaping. The main large demonstration plot showing alternative grass types and xeriscape shrubs is located in Centennial Park on the north side of the Cortez Police Building. In addition, the City Service Center in the Industrial Park is xeriscaped with a fescue grass plot, gravel beddings, and low water needing plants.

New Lawns & Gardens – The City is delaying new lawn planting in the Parks due to the uncertainty of water availability this summer. Residents may also want to consider delaying new lawn planting, or at least cutting back on the planned grass areas. For home gardens, residents may want to cut back on the size of their gardens and practice water conservation methods to reduce water use, such as heavy compost addition and drip irrigation.

Violations – The City will be enforcing Sec. 27-19 of the Cortez City Code: ***"****Wasting Water Prohibited"* concerning unattended hoses/watering systems or excessive waste due to poor watering practices. The City will notify residents violating the ordinance with a courtesy warning; however, successive violations may receive a citation subject to fines. Should the City declare a water conservation emergency, restrictions will be specifically stated and notices delivered to residents as to the extent of necessary water conservation. Questions can be directed to the Public Works Department in the City Service Center at 565-7320.

Water Conservation Needed In Cortez
Drought Continues In Southwest Colorado - May 15, 2003



Southwestern Colorado, and the Rocky Mountain Region in general, is continuing to experience drought conditions with critically low water supplies. The Dolores River Basin runoff forecast is 60 percent of normal. Agricultural water users will be experiencing water restrictions. The City of Cortez and all its water users need to join together in conserving our precious water supply wherever we can. The goal this year is to repeat the water conservation effort that was done in 2002. Last year, a goal of 20% water reduction over 2001 was accomplished. If each water customer can again reduce their water usage by 20% over non-drought years, we can help preserve a significant amount of our water supply.

Lawn and landscape watering represent the majority of the summer water usage within the City and is where much of the water conservation must come from. It is not the intent of the City to restrict watering to the point of damaging any lawns, shrubs, or trees. Several conservation measures can be used that reduce lawn-watering demands. Applying only the necessary amount of water the lawn needs will help conserve water. Providing gardens with generous compost/mulch holds water better.

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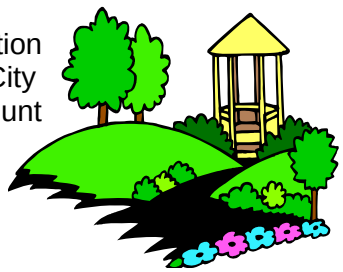
Odd & Even Address Watering Schedule – An "Odd & Even Address Watering Program" is being implemented again within the City effective May 1st to help balance the water demand. Residents who have an even-numbered address should water on even-numbered days and those with odd-numbered addresses should water on odd-numbered days. It is strongly recommended that residents develop a plan to try watering on a **twice a week schedule**. Watering every other day will not save much water and may actually waste some.

Best Lawn Watering Practices – Lawns should be watered in the early morning between 3:00 a.m. and 7:00 a.m. or late evening between 7:00 p.m. and 11:00 p.m. Wetting the soil 4 to 6 inches deep, with several days between watering, develops deep, solid roots. Lawns with deep root growth are more resistant to drought. Use a goal of applying approximately **one inch or less of water per week** on the lawn. Other water conservation tips for lawns should be followed whenever possible.



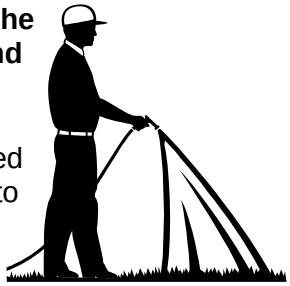
Watering for Public Lawns and Parkways – The City Parks and Recreation Department has already implemented 20%-30% water reduction on all City properties. Sprinkler and drip systems have been recalibrated to reduce the amount of water and to control the time of day that watering will occur. The City will also monitor the sprinkler systems to help keep water out of the streets. Sprinkler heads do get vandalized and out of adjustment so, if you see sprinklers hitting the street, please let the Parks Department know by calling City Hall at 565-3402.

City staff will again be making contingency plans in case the summer does not bring moisture to our area. If the drought should intensify, the following additional steps will be taken. Greenways and medians will be the first to have their watering stopped. Secondly, the passive parks will have a stoppage of watering and some parks may be closed. The Golf Course will only have tees and greens watered and carts will be restricted to specific paths. Finally, active spaces may be designated in the parks and activity in parks may be limited to active areas with minimal irrigation.

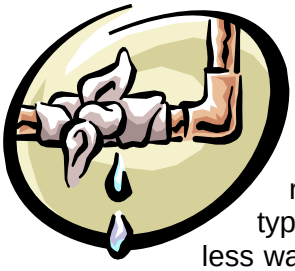
As a result, your City Parks and facilities will not have the luscious turf that you are used to seeing. We appreciate your cooperation and understanding concerning this summer's drought conditions and its effect on the parks. Let's all hope that we get our summer monsoons.

In-Home Water Conservation – There are many water conservation practices you can do in the home that will save water. Some of these include taking quicker showers, not letting the water run while shaving or brushing your teeth, and only running full loads of clothes or dishes. A pamphlet entitled "55 Facts, Figures, & Follies of Water Conservation" is included with this letter to give water users some basic ideas on how to preserve our water supply.

Lawn Watering Conservation – Some basic lawn watering conservation rules are:



- Water in early morning and evening hours. **Do not water between the hours of 10:00 a.m. and 5:00 p.m. This is the heat of the day and fines will be imposed for violations.**
- Water lawns and landscaping only - not streets, sidewalks, or driveways.
- Avoid watering during windy weather - this wastes water due to increased evaporation and actually blows the water away from the area intended to be watered.
- Keep your grass height at 2½ to 3 inches - taller grass holds water better. Leave grass clippings on the lawn to form a temporary layer of mulch to conserve moisture.
- Mow often enough to cut only 25% of the length – this prevents excessive shock that causes grass to turn yellow.
- Monitor your lawn to water only when needed - typically when grass blades begin to look dull and bluish-gray.



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New Lawn Permit – **The City is requiring anyone who intends to start a new lawn this year to get a "new lawn permit" from the Public Works office.** The permit would allow daily watering and periodic watering between 10:00 AM and 5:00 PM for up to 21 days to start the grass seeds growing. There is a $20 charge for the permit and it should be displayed prominently in the front yard. Residents may also want to consider delaying new lawn planting or cut back on the planned grass areas (See xeriscaping above). There are many grass variety alternatives available that use less water. Each variety has different characteristics to consider.

CITY OF CORTEZ
WATER CONSERVATION PLAN

APPENDIX

Local Newspaper Articles or Notices Posted on City Website

PRINT

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CORTEZ JOURNAL.com

Saturday, March 20, 2010

City of Cortez flushes lines to remove sediment in water

Saturday, March 20, 2010

Some areas of Cortez this week have been experiencing dirty or brown-colored water, which is a result of a fire-flow test that was performed on Tuesday, March 16.

The large volume of water rushing through the main lines loosens sediment and pushes it through the water lines, resulting in a brown-colored water. The city was flushing fire hydrants to mitigate the water problems caused by the fire-flow test.

For additional information, contact the Cortez Public Works Department at 565-7320.

PRINT

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CORTEZ JOURNAL.com

Thursday, April 16, 2009

Cortez public works will flush water mains for 2 months

Thursday, April 16, 2009

The Cortez Public Works Department began unidirectional flushing of the city's water mains Monday. This flushing began at Alamosa Street and Colorado Highway 145 and will progress toward town. The entire process will take approximately two months.

Although not probable, possible outages might occur. If residents experience a water outage, they can call the Public Works Department at 565-7320 immediately.

Additionally, residents might experience brown-tinged water due to sediment being disturbed. Discoloration in the water supply in no way means the water is unsafe for human consumption. The city of Cortez Water Treatment Plant will continue treating the water as usual.

For more information, contact the Public Works Department at 565-7320.

Published on *City of Cortez Colorado* (http://www.cityofcortez.com)

UNIDIRECTIONAL FLUSHING OPERATIONS

City of Cortez crews will be conducting flushing operations according to the following schedule:
April 12 - 23, 2010:
• Flushing will occur on the north side of Main Street and Main Street. Crews will be flushing critical areas at night during the week of April 19-23, 2010, to minimize any impacts on the system.
April 26 – 30, 2010:
• Flushing operations will stop during the week of April 26 through April 30 for Clean-Up Week.
May 3 – 14, 2010:
• Flushing will resume May 3rd and continue through May 14th in all neighborhoods south of Main Street.

When utilities flush their water system in response to customer complaints about water quality (reactionary flushing), the process usually only improves water quality temporarily. Unidirectional flushing provides a long-term solution because it uses a higher velocity and flushes from a potable source outward.
Unlike reactionary hydrant flushing, Unidirectional flushing is a methodical approach to water quality maintenance that involves design sequences to open and close valves and hydrants for the entire system. Reactionary flushing usually doesn't achieve velocities sufficient to remove loose pipe deposits, while the unidirectional flushing achieves higher velocities by closing off selected valves and isolating specific areas. This allows the flush to properly scour and remove deposits from the pipes. Thus, the possibility of reintroducing debris into a previously-flushed pipe is minimized.
Residents may experience some discolored water during the flushing period. We apologize for any inconvenience this may cause. Please be assured that all of the water in the lines has been treated and is safe to drink. For any questions or concerns, contact the Public Works Department at the City Service Center at 565-7320.

The City of Cortez ::
210 E. Main Street :: Cortez, CO 81321 ::
970.565.3402

::

fax 970.565.8172

Source URL: http://www.cityofcortez.com/node/734

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CORTEZ JOURNAL.com

Friday, November 14, 2008

Water turns orange from pipe break

Steve Grazier
Journal Staff Writer

Friday, November 14, 2008

Crew members from the Cortez Public Works Department are working today (Friday) to flush out water lines from a broken main artery in the city's water system.

The break occurred Thursday night south of Mesa Elementary School causing some light orange, discolored water for city customers. Discolored water is visible after flushing a toilet or running a residential faucet for an extended amount of time.

"(The water's) just a little discolored and not unsafe," said John Holliday, supervisor for the city's public works office.

Holliday noted that city work crews will be flushing out water lines and hydrants most of today to clean out the pipes. The problem should be rectified by this evening, he said.

The official cause of the water-line break is not known, according to Holliday.

"It's just an old cast-iron pipe, and they sometimes get weak and break over time," he said.

For more information on the water-line break, contact the city public works office at 565-7320.

Reach Steve Grazier at steveg@cortezjournal.com.

CITY OF CORTEZ
WATER CONSERVATION PLAN

APPENDIX

Preliminary Scope of Work for Future Water Rate Study

CITY OF CORTEZ
FUTURE WATER RATE STUDY
PRELIMINARY SCOPE OF WORK

A. **STUDY OBJECTIVES:**

1. Provide a comparison of current water system costs (operations, capital improvements, bonded debt) against appropriate industry benchmarks.
2. Recommend baseline rate structures required to fund the water system and consider annual inflationary, indexed adjustments to rates needed to maintain the water utility, as well as encourage water conservation by high water use customers.

B. **STUDY REQUIREMENTS:**

The study is to be performed in conformance with the following policy directions:

1. The recommended rate structure shall be based on cost of service and shall be sufficient to meet the revenue requirements of the water utility funds.
2. The study shall recommend rate structures that consider and make provisions for the following factors:
    a. Current and future cost of providing water service in accordance with established and anticipated standards and regulations.
    b. Projected demands.
    c. Age and condition of systems including repair and replacement cycle.
    d. Funding requirements for all current long-term liabilities and debt obligations (bond and loans).
3. The recommended rate structures shall provide direct identification of revenues appropriated to major funded activities and infrastructure.
4. The recommended rate structures shall be consistent with industry practice for utility rate making in Colorado.
5. The benefits of any proposed modifications shall be weighed against the financial impacts on ratepayers.
6. Justifications for any special classes of customers under the recommended rate structure shall be demonstrated.
7. The recommended rate structure shall result in no decrease in stability of the revenue stream, as compared to the current structure. An analysis will be completed to determine if funding is available for increased water conservation efforts. Consideration will also be given to funding past and future depreciation (i.e., replacement of facilities).
8. The recommended rate structure shall be easy to administer and understand.
9. The City of Cortez's existing billing system should be able to handle any proposed rate structure.
10. The recommended rate structure shall be planned for five years from <start date> through <end date>.
11. The recommended rate structure shall be consistent with and reflect the city's policy direction as reflected in the City's most recent Comprehensive Plan and Water System Plan as of <date>.

12. The recommended rate structure will encourage water conservation by providing a sufficient pricing signal to high water use customers to encourage water conservation.

C. STUDY ELEMENTS:

In making its rate structure recommendations, the final report shall explicitly include the following elements and analysis:

1. Current Rate Structure: Assess the current rate structure's performance as a baseline for comparing recommended changes.
2. Equity: Assess the equity of recommended water rates for all types of property ownership to include multi-family units.
3. Sensitivity Analysis: Assess the ability of the revenue stream generated by the recommended rate structures to continue to fully fund water system costs. Assessment is to include a sensitivity analysis where the long-term revenue generated under each alternative shall be illustrated when confronted with the impacts of growth.
4. Other Service Charges: Assess existing customer service fee structure and identify other potential areas for service and system charges and recommend changes.
5. Annual operating fund balance targets.
6. Annual target contingency fund balances and level of liquidity.
7. Budgeting Horizon and Cycle: Assess appropriate budgeting horizon and cycle needed to support recommended rate structures.
8. Comprehensive Summary of Recommended Rate Structure(s): Assess performance of each recommended rate structure and provide recommendation on preferred rate structure. In recommending a rate structure the requirements of the Colorado law must be achieved.
9. Supporting Data: Provide data supporting conclusions and observations made for each of the areas above and site within study.
10. Utility Bond Rating: Identity utility bond rating enhancement opportunities.
11. Conservation Signal: Assess the strength of the pricing signal, of both the existing and recommended price structure, to encourage customers, particularly high water use customers, to conserve water.

D. SERVICES TO BE PROVIDED BY CONSULTANT:

1. Conduct a review of the existing water rates and status of the utility funds. Develop a general familiarity with the City of Cortez's billing system.
2. Meet or confer with staff as needed. Meet with a special committee during one late afternoon to obtain comments. Attend two meetings one late afternoon and one during the evening with the City Council to present the interim status of the study and obtain their input.
3. Conduct analyses as required to address the scope of work.
4. Preliminary Report:
    a. Prepare a preliminary study report and tentative rate structure.
    b. Submit 15 copies.
    c. Present preliminary report and tentative rate structure to staff and/or committee for comments.

d. Present preliminary report and tentative rate structures to the City Council.

5. Final Report:
   a. Incorporate changes pursuant to comments received at the first presentation.
   b. Submit 15 copies, plus one reproducible copy.
   c. Provide a disk with report in MS Word format, with spreadsheets in Excel format including a rate model with all assumptions.
   d. Present the final report and recommended rate structure to the City Council and members of the public at a regular Council meeting.
   6. Supply a time schedule for developing the preliminary and final reports. The final report shall be delivered to the City by <date>.

E. SERVICES TO BE PROVIDED BY THE CITY DEPARTMENT OF PUBLIC WORKS:

The services to be provided by the City Department of Public Works include, but are not necessarily limited to the following:

1. Furnish all reasonably available records and information, including financial reports, budgets, and consumption data.
2. Provide staff and engineering support and assistance as required and agreed to in advance of study.

CITY OF CORTEZ
WATER CONSERVATION PLAN
MARCH 2010

APPENDIX

Preliminary Scope of Work for Future Water Rate Study

CITY OF CORTEZ
FUTURE WATER RATE STUDY
PRELIMINARY SCOPE OF WORK

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