CITY OF PENDLETON

WATER MANAGEMENT
&
CONSERVATION PLAN

2012

submitted by

Pendleton Public Works
Water Division

CITY OF PENDLETON
WATER MANAGEMENT & CONSERVATION PLAN
2012

EXECUTIVE SUMMARY

City of Pendleton (City) submitted a Water Management and Conservation Plan (WMCP) in 1999, which was approved by the Department in a letter dated November 16, 1999. City submitted a revised WMCP which was approved by the Department in a letter dated September 26, 2003. In 2008, the City submitted a five-year progress report. As a condition of extension of two water permits, the City was required to submit a new WMCP in 2012. This WMCP has been prepared to meet that requirement.

The WMCP 2012 describes the City's water sources, current service area, water delivery system, and water rights, and it assesses the adequacy and reliability of the existing water supply. The City has invested heavily in its Aquifer Storage Recovery (ASR) Program. City has successfully completed ten ASR cycles of storage and recovery with three ASR wells. The nine years of the ASR Program have demonstrated aquifer recharge, storage, and recovery as a viable method for Pendleton to store and recover treated water and assist with reducing native groundwater declines. In addition, ASR allows the City to have a very sustainable water supply which is probably the most draught-tolerant drinking water supply system in the state of Oregon. In fact, City was awarded the Stewardship and Conservation Award in 2007 by OWRD for its ASR program.

The City has embraced a number of water conservation measures, including a *Water Efficiency Facts & Tips* webpage on the City website, Water Saver Tips on monthly water bills, and annual water conservation give-aways. City has placed emphasis on finding and eliminating leaks in the distribution system and installing fill stations throughout town for contractor use. The Parks Department has started a program to install a computerized system and weather station to allow better control of their irrigation system. City is in the process of replacing older meters and touch-read meters with a new mesh wireless meter-reading system to improve accuracy and raise early alerts for leaks.

However, the City's ASR program remains the main water management and conservation tool. City is in the process of adding two more wells to the ASR program, bringing the total to five operating ASR wells. Not only does this provide the City with a reliable source of water and continue to stabilize the level of the underground aquifer, but City has also added an energy-generating component: the Energy Recovery Technology (ERT) Project. Divided into two phases, the ERT Project will utilize energy generated during the aquifer storage part of ASR, when the water flows down the well column, by utilizing regenerative drives and a micro-turbine. Water, the driving force, will travel down the well column, turning the well bowls and motor. Power is produced by using a variable frequency drive (VFD) as a break to control the speed of the motor while pumping bowls spin backwards. Excess energy produced at the motor is converted through a regenerative drive unit from DC power to 3-phase AC power and delivered to the power utility. Projections for the ERT Project at five wells are 1,242,037 kWh

produced annually. In 2012, the City received both the *Small Project of the Year* and the *Sustainability for Leadership in Renewable Energy* awards from the Oregon Chapter of APWA for its ASR program.

By utilizing ASR instead of continuing to withdraw water from the underground aquifer at the previous rate of 62% of the total water supply, the City has preserved nearly 5 Billion Gallons of native groundwater since 2004 when the ASR program began. Partly because ASR has been so successful, the City has not found it necessary to continue to develop existing water permits. However, because the City needs to plan for different contingencies and to provide redundancy within the system, the City plans to incrementally develop two additional water permits beginning in the near future.

City of Pendleton is proud of its water management and conservation efforts and will continue to improve the conservation elements as well as improve its ASR program in the future. If ASR continues its success, we anticipate a rise in native water table levels due to excess water banked in the aquifer.

In putting together the WMCP 2012, City staff feels that the ASR program has not been given adequate recognition as a conservation method by OWRD commensurate with the effort, time, and money the City and its citizens have invested. City hopes to better convey the significance of ASR as a conservation tool as it develops the ***Water System Master Plan*** in 2013.

CITY OF PENDLETON

WATER MANAGEMENT & CONSERVATION PLAN

2012

City of Pendleton (City) submitted a Water Management and Conservation Plan (WMCP) in 1999, which was approved by the Department in a letter dated November 16, 1999. City submitted a revised WMCP which was approved by the Department in a letter dated September 26, 2003. In 2008, the City submitted a five-year progress report. As a condition of extension of two water permits, the City was required to submit a new WMCP in 2012. This WMCP has been prepared to meet that requirement.

690-086-0030 Municipal Water Supplier

City of Pendleton (City) meets the definition of a "municipal water supplier." City has a publicly owned water treatment and distribution system that delivers potable water for community needs to residential, commercial and industrial customers.

690-086-120 General Provisions

This draft plan has been made available to the following affected local governments: City of Pendleton Planning Department; Umatilla County Planning Department; CTUIR Planning Department; and CTUIR Water Resources Program. The comments received from the affected local governments are included in Attachment A, Comments from Affected Local Governments.

An updated Water Management and Conservation Plan will be submitted ten years from the date this WMCP is approved. We hope to complete an updated Water System Master Plan by June, 2013. The City will use the historic growth rate of 1.4% in developing the projections for this plan.

690-086-0140 Municipal Water Supplier Description

1. Description of the supplier's source of water. City utilizes both surface water and groundwater supplies. The surface water source is the Umatilla River. City withdraws water from the Umatilla River at the Umatilla River Intake, located just east of the City, and filters it through the membrane filtration Water Treatment Plant (WTP) before distributing it to customers. The groundwater source consists of seven deep basalt wells located throughout the City and another deep basalt well located six miles east of the City near Mission.

The wells located within the City are: Byers Well #1, Round-Up Well #2, SW 21st St Well #3, Hospital Well #4, Stillman Well #5, Prison Well #8, and Well #14. The well east of town is Mission Well #7. See Figure 1, City of Pendleton Water System.

There are eight reservoirs in the City: Airport Reservoir has two tanks, each with 500,000 gallon capacity; Clearwell Reservoir, located at the Water Treatment Plant site, has a 1.8 Million Gallon (MG) capacity; North Hill Reservoir has a 1 MG capacity; South Hill Reservoir has 2 tanks, each with 1 MG capacity; Southwest Reservoir has a 1.1 MG capacity; and Skyline Reservoir has a 250,000 gallon capacity. Total storage capacity for the City is 7.15 MG.

2. A delineation of the current service areas and estimate of population served.

   The current service area is the area within the City's Urban Growth Boundary (UGB). See Figure 2, City of Pendleton Zoning Map. The 2010 US Census population within the Pendleton city limits was 16,625. The 2010 urban area population, i.e. the area within the UGB, was estimated at 16,687.

3. An assessment of the adequacy and reliability of the existing water supply considering potential limitations on continued or expanded use.

   Because the City is located on the dry side of the state, we have long been aware of the need to plan for potential draught conditions. The City determined that Aquifer Storage and Recovery (ASR) was one way to address water supply issues. In 2003, the City completed construction on a membrane filtration Water Treatment Plant (WTP). The WTP produces high quality drinking water, allowing the City to begin an ASR pilot study in late 2003/early 2004 under ASR Limited License # 006. Since that time, the City has successfully completed ten ASR cycles of storage and recovery with three ASR wells.

   The ASR project allows the City to maximize the effectiveness of the membrane filtration WTP by operating at full capacity during the winter and spring months when water rights allow, when flow is high in the Umatilla River, and when demand from customers is low. The stored water is recovered during the summer months when demand is high.

   Prior to the ASR program, the City derived about 62% of its supply from native groundwater and about 38% from the City's old "Springs" source. Since the ASR program began, the City has been able to reverse this trend of groundwater and surface water usage and now relies primarily on surface water. In fact, during 2011 and ASR Cycle 9, City obtained 97% of its drinking water supply from surface water and only 3% from native groundwater.

   The nine years of the ASR project have demonstrated aquifer recharge, storage, and recovery as a viable method for Pendleton to store and recover treated water

and assist with reducing native groundwater declines. Historically, groundwater declines averaged 3.4 ft per year. Since the ASR program began, we have seen declines of from 0.4 to 2.0 ft per year at City wells.

The City recently added more membranes to the Water Treatment Plant, increasing the capacity from 6.0 MGD to 9.8 MGD. This will allow the City to add two more wells to the ASR program utilizing existing surface water rights. ASR allows the City to have a very sustainable water supply which is probably the most draught-tolerant drinking water supply system in the state of Oregon.

In addition to the ASR project, the City has water rights to allow current growth through 2100, as demonstrated in Section 690-086-0160.

4. A quantification of the water delivered by the water supplier.

Table 1, City of Pendleton Annual Water Usage, attached, shows the annual water use from 2005 through 2011. The City has been operating under the ASR test program during those years, so it is indicative of the way the water system is operating now and will operate in the future. Total water usage increased from 1,408 MG in 2005 to 1,644 MG in 2007 and then dropped off to 1,321 MG in 2011. Average annual water usage during this period was 1,495 MG.

Table 1 also shows the peak month and peak day information. The peak month was July or August, which follows the normal weather patterns in eastern Oregon where July and August are hot, dry months when lawns and gardens require more water. The average water usage for the peak month was 250.291 MG. The peak day was July 23, 2009, with usage of nearly 11 MG. Peak day usage for 2011 was 8.228 MG.

City is in the process of re-prioritizing our well level monitoring, so we should be able to have more accurate readings for peak day usage in the future.

5. A tabular list of water rights.

See Table 2, City of Pendleton Water Rights, attached, for a tabular list of the City of Pendleton's water rights. **The type of beneficial use for all of these rights is municipal.** As you can see, most of the water rights are certificated. The exceptions are ORS 538.450, which is a legislative surface water right to all waters of the North Fork Umatilla River, and two groundwater rights: Permit No. G-2410 and Permit No. G-3225. The City has until 2076 to fully develop G-2410 and G-3225. The only water used under Permit G-2410 during this period was from Well # 14. Under Permit G-3225, both Wells #7 and #11 are used; Well # 11 is used for domestic use only, supplying water to the City's Wastewater Treatment Plant and two residences.

Table 2 also includes Historic Maximum Rate of Diversion for each water right, both when pumping native groundwater (Native GW) and when pumping stored water through Aquifer Storage & Recovery (ASR). Stillman Well #5 can currently produce more water than allowed by the water right. It will be operated at the higher rate when pumping stored water from the well. Once all the stored water has been pumped from the well, the pump rate will be returned to the normal native groundwater pump rate.

The average monthly diversions in million gallons (MG) for each right for the previous five years is shown in Table 3, Average and Maximum Diversions Under Each Water Right, attached. It should be noted that the monthly average gives an inaccurate impression of usage because the City's wells are only operated for a few months each year, primarily during the summer. During most of the year, the City relies on the surface water source and does not operate the wells. For example, during 2011, Byers Well # 1 only operated for 5 months and was not utilized for the other 7 months of the year.

The average daily diversions in million gallons (MG) for each right for the previous five years is also shown in Table 3. As with the monthly averages, the values shown give an inaccurate impression of usage because the City's wells are only operated for a few months each year, primarily during the summer.

The maximum annual diversion in MG for the years 2005 through 2011 is also shown in Table 3. Both groundwater and surface water rights are exercised in order of priority date, so the table shows the total diversion at each well or at the Umatilla River intake. There are currently two wells under Permit G-3225, Well #7 and Well #11. Water is withdrawn from Well #11 for domestic use only, and the amount withdrawn is relatively small. During the 2011 water year, 13,464 gallons were withdrawn from Well #11.

City's groundwater sources (i.e. wells) are not located within the designated boundary of any critical groundwater area.

<u>Streamflow-dependent species and water quality parameters.</u>

According to Bill Duke, Fish Biologist with Oregon Fish and Wildlife Department, MCR Steelhead and Bull Trout are the only two federally listed threatened and endangered species on the mainstem Umatilla River; both are listed as threatened. The following species are listed on Oregon's streamflow dependent species list as sensitive, threatened, or endangered:

Steelhead----------Sensitive-Critical
Bull Trout----------Sensitive-Critical
Inland Columbia Redband Trout---Sensitive-Vulnerable
Pacific Lamprey----------Sensitive-Vulnerable
Western Brook Lamprey----------Sensitive-Vulnerable

While Western Brook Lamprey are state-listed as *Sensitive-Vulnerable* in the Umatilla Hydrologic Unit on ODFW's Sensitive Species List, Bill Duke (ODFW fish biologist) indicated that he has not seen any evidence of Western Brook Lamprey in the Umatilla and North Fork Umatilla Rivers.

The following is a list of water quality limited parameters for the mainstem Umatilla River above and through the City of Pendleton:

- Aquatic weeds or algae
- Flow modification
- Habitat modification
- Iron
- pH
- Sedimentation
- Temperature

Of these parameters on the 303(d) list, only iron does not have a TMDL developed for it. This information was provided by Don Butcher, Oregon Department of Environmental Quality.

6. <u>A description of the customers served</u>.

As of March, 2012, the City had 5733 service connections. Usage is broken down into the following categories: Commercial; City; Residential; Multi-Family, Motel/Hotel, and Other. Table 4, Classification of Water Customers, shows the Classification of Water Customers for WY 2002 (as reported in the 2003 WMCP); WY 2007 (as reported in the 2008 WMCP Progress Report); and WYs 2008, 2009, 2010, and 2011. The percentage of commercial meters, which includes compound meters, and residential meters has remained essentially the same over this time period. Some of the other categories have gone up and down over the years, but there are no significant changes.

7. <u>Identification of interconnections with other municipal supply systems.</u>

The City does not have any exchange agreements or water supply or delivery contracts. However, the City does have an historic agreement with the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) to provide them with 750,000 gallons of water per month at no charge from the "spring" line. The City abandoned the "spring" line in 2005 and removed the chlorination facility, but there is still an intertie between CTUIR water system and City's Mission Well #7, which is located on the reservation. City only uses Mission Well #7 for six months a year and has notified CTUIR that if they wish to use the water, they will need to chlorinate it. To date, CTUIR has not utilized the water or the intertie.

City is a member of the Oregon Water/Wastewater Agency Response Network (ORWARN) and has a staff member on the ORWARN board. City considers this to be an extremely important organization to belong to and to be involved with for emergency response preparation. City has hosted and participated in several

emergency response exercises with ORWARN. City would, of course, assist other municipalities, agencies, or businesses with emergencies, including providing potable water should the need arise.

8. A schematic of the system.

   Figure 1, City of Pendleton Water Distribution System, shows a schematic of the City's water distribution system. It shows the sources of water, including both surface water and groundwater wells, the Water Treatment Plant, storage reservoirs, and booster pump stations. Figure 3, City of Pendleton Water Distribution System, shows a schematic of the major transmission and distribution lines. City just completed updating our map of major transmission and distribution lines as part of the master planning effort scheduled for 2012/2013.

9. A quantification and description of system leakage.

   City continues to conduct an Annual Water Audit. The results reported in the 2008 progress report as well as the results for water years 2008 through 2011 are shown below in Table 5, Water Loss. The audits demonstrate continued improvement in methodology, metering, and reduced leakage. For the period WY 2002 through WY 2007, the average water loss was 7.37%. For the period WY 2008 through 2011, the average water loss was 4.75%.

   The City continues to tighten leaks throughout the distribution system and replace older valves and meters as funds allow. We believe these are the main sources of system leakage and are, therefore, our top priority when allocating funds to water conservation measures.

   Estimates of un-metered water use have greatly improved. The following uses are included in the un-metered water use: 1) fire hydrant flushing & training; 2) well flushing; 3) by-pass flow at wells to address problems such as air entrainment; 4) contractor usage; 5) water breaks; 6) pre-lube water at wells; 7) valve leaks, reservoir leaks, and meter leaks; 8) flow to prevent freezing at bridge crossings; 9) fires; 10) Water Treatment Plant water for irrigation; 11) street flushing, dust control, and street sweeping; and 12) reservoir overflows.

690-086-0150 Municipal Water Conservation Element

In order to address the items in this section efficiently, we have created a table that includes benchmarks from previous conservation plans, progress on those benchmarks, and five-year benchmarks for the future. See Table 6, Water Conservation Measures and Benchmarks, for this information. However, in addition to the table, we would like to highlight some of the conservation measures that we are particularly proud of.

- The City's Aquifer Storage & Recovery (ASR) project continues to make the City one of the most drought-tolerant cities in the state. During the winter months when there is excess water in the Umatilla River and water rights permit, the City pumps water from the Umatilla River, treats it at the membrane filtration Water Treatment Plant, and stores it in the underground aquifer. The water is withdrawn (recovered) from the aquifer when demand is high. ASR itself is a water conservation program. In 2007, the City won the OWRD Stewardship and Conservation Award for this project. (see below)

City of Pendleton (May 2007) Stewardship & Conservation Award

Faced with continuing declines in their water supply wells, the City of Pendleton developed, in coordination with the Department, an aquifer storage and recovery (ASR) program. The City injects and stores treated Umatilla River water in basalt wells during the winter and spring months when water is available in the river. When the City can no longer use water from the Umatilla River during the summer and fall months for injection purposes, the stored treated water is pumped back out of the wells and served to the community. With the use of ASR, the City has been able to shore up its water supplies while reducing reliance on critical ground water supplies by using surface water collected during wet months.

- The ASR project started in the winter of 2003 and recently successfully completed nine cycles of storage and recovery. To date, we have stored over 12,173 MG in the underground aquifer. Prior to the ASR program, the groundwater level was observed to be dropping at a rate of over 3-feet per year, and the City derived about 62% of its supply from native groundwater and about 38% from the City's old "Springs" source (a series of collector galleries located in the alluvium next to the Umatilla River). Since the ASR program began in 2004, the City has been able to reverse this trend of groundwater and surface water usage and now relies primarily on surface water. In addition, the City has been able to decrease the decline in static water levels. Prior to ASR, the decline in static level measurements was 3.4 ft per year. After nine cycles of ASR, the

decline in static level measurements averaged 1 ft per year. Currently, the City stores water at three ASR wells. We are in the process of adding two more wells to the ASR pilot project, which will greatly expand the amount of water the City can store.

- Beginning in 2008, Public Works Dept. and Parks Dept. began a program to install a computerized irrigation system and weather station. The system allows the Parks Dept. to control the sprinkler system at the parks from a computer or I-Pad. The system reduces waste by: a) allowing the Parks to turn off irrigation quickly when it is raining; b) alerting the Parks to leaks in the system; and c) giving Parks better control of the amount of water applied to each individual park. Currently, 17 parks are on the system. Initial cost was approximately $14,000 plus an additional $3000 for each park on the system. There are 11 more parks that will be added to the system as funding allows.
- The Water Division has been installing fill stations throughout town for contractor use. Currently, 5 stations have been installed located at: Cemetery Booster, Mt. Hebron Booster, Hospital Well #4, Well #14, and First Station #2. Another fill station will be installed at the Airport in the future. These stations will allow contractors to input a usage code and obtain water for their various projects. It allows the City to accurately meter and bill for the usage, and each station has backflow protection, so we are assured that there are no contaminants introduced into the system. The fill stations should be on line in late 2012.
- The City's webpage, *Water Efficiency Facts and Tips,* was recognized in 2011 by Ronald Brew, OWRD staff, who asked us to share with OWRD's webpage. Brew said the City's webpage was, "one of the best I've seen in its coverage of many aspects of water conservation and answers to questions most consumers would have in order to understand the importance of the issue."
- The City has a dynamic solar program. Solar panels have been installed at both the Water Treatment Plant and the Wastewater Treatment Plant. In addition, the City promotes both residential and commercial solar programs by offering no-interest loans to qualifying residents and businesses. To date, 67 homeowners have participated in the program, and 4 businesses have participated.
- The City is embarking on an Energy Recovery Technology (ERT) Project in conjunction with the ASR Project. The proposed ERT Project will utilize energy generated during the Aquifer Storage part of ASR, when the water flows down the well column, by utilizing regenerative drives and a micro-turbine. Water, the driving force, will travel down the well column, turning the well bowls and motor. The system will utilize braking technology to slow the speed of the bowls with the motor acting as the brake. This type of technology, referred to as regenerative drive technology, is commonly used in hybrid cars. The City will install a variable frequency drive (VFD) and regenerative drive which will allow us to capture the energy produced by the braking motion and convert it to electricity. In addition to the regenerative drives at the three wells, Well # 5 will also utilize a micro-turbine. Projections for the ERT Project at 5 wells are 1,242,037 kWh produced annually.
- The City of Pendleton water system is 100% metered.

- The City has been in the process of replacing older meters with touch-read meters. In 2011, the City contracted to have a meter study done by an independent party. The goal was to address the age and accuracy of the older meters in the system. They looked at 12 of the oldest meters in the system (dating to 1982 and 1983) and compared them with newer meters through bench tests. Interestingly, the results showed no noticeable loss in performance for the older meters. Based on this information, City decided to dedicate limited funds to a new mesh wireless meter-reading system instead of continuing to replace the older meters with touch-read meters. City plans to have the older meters replaced and the new mesh wireless meter-reading system in operation by 2014 if funding can be secured.
- The meters in the new mesh wireless system will be tested and replaced based on the manufacturer's recommended schedule. Having accurate meter readings is an advantage for the City, so, of course, City will continue to test meters for accuracy.
- City bills customers monthly. A copy of the current water and wastewater (sewer) rates is included as Attachment C.
- City complies with water measurement and reporting standards in OAR Chapter 690, Division 85. City currently probes wells manually on a quarterly basis in addition to trending well levels via the SCADA system.

Table 6 shows the rest of the City's water conservation programs and benchmarks. It includes information about water reuse in the City.

690-086-0160 Municipal Water Curtailment Element

1. <u>Description of the type, frequency and magnitude of supply deficiencies within the past 10 years and current capacity limitation.</u>

   The last time the City requested voluntary curtailment, i.e. the first stage of curtailment, from all our customers was in 2002.

   Major maintenance issues are the main reason we have to utilize our water shortage plan. If the City has a major maintenance issue, we first request voluntary curtailment from the City Parks and the Pendleton School District. For example, there was one instance when the motor for one of our two main production wells failed in the summer. We requested that the City Parks Department stop irrigating the parks, and they complied. The restrictions were in effect for approximately one week.

2. <u>A list of three or more stages of alert for potential shortage or water service difficulties.</u>

   City Ordinance No. 3514, Attachment B, which has been provided to OWRD in past WMCPs, is an ordinance establishing regulations for the allocation of water

resources to be effective whenever the Pendleton City Council finds there is a water shortage emergency. It lists several levels of curtailment should the City suffer a water shortage and provides penalties for violation thereof.

Initially, the City would cut back watering of City facilities, such as parks, would request voluntary cooperation from the school district and other large water users, and would advise customers (via the media and monthly bills) of the water situation and projected deficiencies and request voluntary curtailment (Section 9). If the demands and requirements of water consumers could still not be satisfied and water levels fell to below 90% of system capacity, the City would impose the First Level of Curtailment (Section 11) which would prohibit nonessential residential, commercial, institutional, or industrial uses. If the water shortage still continued and water levels continued to fall to below 90% of system capacity, the City could impose the Second Level of Curtailment (Section 12) which includes further restrictions and daily usage allotments, including prohibiting new private wells (which is non-enforceable according to OWRD) and enforcing daily usage allotments.

3. A description of pre-determined levels of severity of shortage or water service difficulties.

   Refer again to Ordinance No. 3514 and Section 2, above. Voluntary Water Use Curtailment (Section 9) would occur if demands were at or above 90% of system capacity. If customer demands could still not be satisfied "without depleting the water supply of the City to the extent that there would be insufficient water for human consumption, sanitation, and fire protection," the City Council could impose First and Second Levels of Curtailment as deemed necessary.

4. A list of specific standby water use curtailment actions for each stage of alert.

   Refer again to Ordinance No. 3514, Sections 9, 11, and 12 for specific actions and Section 2, above.

690-86-170 Municipal Water Supply Element

1. Delineation of the current and future service areas.

   According to the City Planner, the 2011 periodic review process did not demonstrate justification for expanding the City's existing urban growth boundary (UGB) at this time. Our future service area is still the existing UGB and the industrial reserve near the airport, as shown in Figure 2.

   City chose to use the 1997 ***Pendleton Urban Fringe land Use Study***, Phase II, by the Benkendorf Associates Corporation for population projections. This study

was formally adopted by City Ordinance Number 3612 on September 21, 1999. It delineated three options for projected population growth: 1) a low range of 0.88% growth per year (Demand Option A); 2) a high range of 1.6% growth per year (Demand Option B); and 3) the historic growth rate of 1.4% growth per year (Demand Option C). A more recent, 20-year projection by Winterbrook Planning was used for the 2011 periodic review process, and it utilized the "safe harbor" population projection method and calculated an annual growth rate of 1.05% (Safe Harbor). All these population projections are shown on Figure 4, Pendleton Population Projections.

These population projections vary widely for the year 2100, but twenty years from now (2032) they are not that diverse, ranging from 20,159 to 23,269.

The City will begin working on a revised Water System Master Plan in late 2012/early 2013.

2. Estimated schedule to exercise each water right and water permit.

Figure 5, Pendleton Water Right Projections, shows the estimated water demand through 2100 and the City's water rights. These values are based on a peak daily demand of 12.0 MGD and assume water demand increases at the same rate as the population grows. (NOTE: Peak demand in 2009 was approximately 11.0 MGD.) Under Demand Option C, the historic growth rate of 1.4%, the City's currently certificated water rights (26.42 cfs) should accommodate the City's needs through about 2065. At that time, the City would need to perfect Permit G-2463 (20 cfs, priority date 1962) and, eventually, Permit G-3443 (8.7 cfs, priority date 1966). Under Demand Option C, the City would not fully exercise all its water rights until sometime after 2100. However, the City plans to incrementally perfect Permits G-2463 and G-3443 to provide redundancy within the system as soon as it is feasible to do so. A critical issue is the OWRD requirement of developing water rights in 25% increments. It is incredible that municipalities cannot partially perfect water rights based on actual incremental development of permits.

3. Estimate of the water supplier's water demand projections for 10 and 20 years.

   Figure 6, Summer Water Demand Projections, shows the estimated summer demand projections through 2100.These are based on the peak daily usage of 12.0 MGD and assumes water demand increases at the same rate as the population grows. These projections also do not take into account the City's Aquifer Storage and Recovery (ASR) program. The ASR program allows the City to rely on surface water for much of its usage and not utilize the surface water rights for five to seven months of the year.

4. Comparison of the projected water needs and the sources of water currently available.

Figures 5 and 6 clearly show the City's projected water needs and the sources of water currently available under the peak summer demand scenario. As noted earlier, this does not take into account the City's ASR program. The City was able to store 500 MG of water in the underground aquifer during 2011, and projections are that we will store 700 MG this year. This water is available to meet summer demand needs. The City's ASR program is clearly our best means of addressing future water needs.

5. Expansion or initial diversion of water allocated under existing permits.

The City needs to begin development of water allocated under Permit G-2410 and Permit G-3225 within the next five to ten years. This will allow the City to build redundancy into its water system, which is especially important if the City is to develop a contingency plan to provide adequate water supplies during the summer months or times of drought. One of the main concerns is the loss of one of more of the wells due to equipment failure or other problems.

Figure 7, Current Capacity with Summer Use Scenarios & Loss of 2 Major Wells, demonstrates the need for further development to provide system redundancy. The current total system capacity, i.e. the total amount of water the wells are able to produce at this time, is 20.93 cfs. The current average peak usage, which is the average of peak days from 2005 to 2011, is 15.13 cfs (9.782 MGD). The various peak usage growth projections, based on the same population growth projections used in Figures 4 – 6, are shown in Figure 7. Notice that the City would be able to provide adequate supplies through 2017 if one major production well is lost. However, if two production wells are lost, the City would not be able to provide adequate water even currently, and if two of the major projection wells are lost, the current water supply would be totally inadequate. The latter, loss of two major production wells, is the scenario the City is basing its contingency planning on; i.e., the City plans to incrementally develop Permits G-2410 and G-3225 over the next 5 – 20 years to provide system redundancy.

In addition, if the surface water supply is lost for any length of time, which could occur due to equipment failure or problems at the Water Treatment Plant (WTP), an additional 2.5 cfs summer flow would be lost. Loss of the WTP during the winter months could also cause additional concerns about adequate supplies.

Therefore, the City needs to begin incrementally developing Permits G-2410 and G-3225.

(a) The City will continue to implement water conservation measures identified under OAR 690-086-0150. We estimate that all the conservation measures could reduce demand by approximately 10%. However, conservation measures alone will not be adequate to meet the City's projected needs.
(b) Due to the long distances between municipalities in eastern Oregon, interconnections with other municipal systems are not cost effective. The City

and the Confederated tribes of the Umatilla Indian Reservation (CTUIR) have discussed a possible interconnection, but there are a number of political hurdles that would have to be met to make that possible, and there is no indication at this time that either the City or CTUIR are ready to enter into an agreement.

(c) At this time, there are no additional water conservation measures that would provide water at a cost that is equal to or lower than the cost of incrementally developing Permits G-2410 and G-3225 to provide adequate redundancy for the City's water system.

6. Quantification of the maximum rate and monthly volume of water to be diverted.

Table 7, Water Requirements to Allow for System Redundancy (2013—2033), shows the daily maximum water needed to provide adequate system redundancy under the different population growth projections. Currently, the City needs to develop an additional 2.79 cfs daily (86.5 cfs monthly) to provide adequate system redundancy. By 2021, the City will need between 4 and 5.5 cfs daily (124 and 155 cfs monthly), and by 2033, the City will need between 5.5 and 8.5 cfs daily (180 and 264 cfs monthly).

In order to meet this need, the City plans to incrementally develop and perfect Permits G-2410 and G-3225. Partial perfection of these permits will be based on OWRD's incremental perfection requirements. Initially, the City plans to upgrade the pumping equipment in Mission Well # 7 (Permit G-3225) and develop it to its full capacity of 2.0 cfs. Mission Well # 7 provides a daily average of 0.74 cfs during the summer; the daily maximum it has produced in the last five years was 0.93 cfs. Improving this well will add approximately 1 – 1.25 cfs capacity.

Next, City plans to add Hospital Well #4 as an additional point of appropriation to Permit G-2410. The well was recently reconditioned and is currently capable of pumping 2.67 cfs, but the water right only allows 1.47 cfs. With these two additions, the City will still fall short of its redundancy needs.

There are several other options open for meeting the redundancy demand. City will consider developing Well #11 (Permit G-3225) which currently serves only the City's Wastewater Treatment Plant and two other residential customers. Well #11 could be reconditioned and added to the City's well field. This would also allow partial perfection of Permit G-3225. City will also consider adding the current Aquifer Storage & Recovery (ASR) wells to Permit G-2410 as additional points of appropriation and re-conditioning these wells to allow them to pump more water. These options will be more fully considered during the Water System Master Planning process, which is currently scheduled for 2013.

7. Description of mitigation actions taken to comply with legal requirements.

   The City will continue to comply with all legal requirements under the Endangered Species Act (ESA) and Clean Water Act (CWA) by maintaining the screens at the Umatilla River Intake to meet Oregon Department of Fish and Wildlife and US Fish and Wildlife standards. City will continue to work diligently with the Oregon Health Authority—Drinking Water Program to ensure compliance with all Safety Drinking Water Act (SDWA) requirements.

   Because the City's Aquifer Storage and Recovery (ASR) Program is an important component of our water conservation strategy, the City will continue to meet OWRD, DEQ and OHA—DWP requirements under Limited License #006.

   City will continue to promote water conservation measures and to maintain equipment in the water system so that there is no need for the additional water herein requested. However, City must plan for all possible scenarios.

8. Acquisition of new water rights.

   Acquisition of new water rights for the next 20 years will not be necessary.

690-086-0130 Approval Criteria for Access to Water under an Extended Permit

7. The Final Order Incorporating Settlement Agreement Extension of Time for Permit Number G-2410, "extends the time to complete construction to October 1, 2076, and the time to fully apply water to beneficial use to October 1, 2076." It further states, "Diversion of water beyond 2.56 cfs under Permit G-2410 shall only be authorized upon issuance of a final order approving a Water Management and Conservation Plan under OAR Chapter 690, Division 86."

   The Final Order did not place further restrictions on diversion of water under G-2410. Therefore, City requests the final order approving the WMCP contain language that allows the City to develop Permit G-2410 as it deems necessary.

   The Final Order Incorporating Settlement Agreement Extension of Time for Permit Number G-3225, "extends the time to complete construction to October 1, 2076, and the time to fully apply water to beneficial use to October 1, 2076." It further states, "Diversion of water beyond 1.07 cfs under Permit G-3225 shall only be authorized upon issuance of a final order approving a Water Management and Conservation Plan under OAR Chapter 690, Division 86."

   The Final Order did not place further restrictions on diversion of water under G-3225. Therefore, City requests the final order approving the

WMCP contain language that allows the City to develop Permit G-3225 as it deems necessary.

(a) The City's schedule for development of conservation measures is described in 690-0186-0150 and Table 6. We estimate that all the conservation measures could reduce demand by approximately 10%. However, conservation measures alone will not be adequate to meet the City's projected needs.
(b) Increased development of the City's Aquifer Storage and Recovery (ASR) system and increased use from the already developed wells are the City's most feasible means of providing adequate water supplies for the next 20 years.
(c) Mitigation issues are discussed in 690-086-0170 (7).

CITY OF PENDLETON

WATER MANAGEMENT & CONSERVATION PLAN

2012

The following items are included in this WMCP:

ATTACHMENT A	Comments from Affected Local Governments
ATTACHMENT B	City Ordinance No. 3514
ATTACHMENT C	City 2012 Water and Sewer Rates
TABLE 1	Annual Water Usage 2005-2011
TABLE 2	City of Pendleton Water Rights
TABLE 3	Average & Maximum Diversions Under Each Water Right
TABLE 4	Classification of Water Customers
TABLE 5	Water Loss
TABLE 6	Water Conservation Measures & Benchmarks
TABLE 7	Water Requirements to Allow for System Redundancy
FIGURE 1	City of Pendleton Water System
FIGURE 2	City of Pendleton Zoning Map
FIGURE 3	City of Pendleton Water Distribution System
FIGURE 4	Pendleton Population Projections
FIGURE 5	Pendleton Water Right Projections
FIGURE 6	Summer Water Demand Projections
FIGURE 7	Current Capacity with Summer Use Scenarios & Loss of 2 Major Wells

ATTACHMENT A

COMMENTS FROM AFFECTED LOCAL GOVERNMENTS

The draft Water Management and Conservation Plan (WMCP) was made available to the following affected local governments: City of Pendleton Planning Department, Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Planning Department, CTUIR Water Resources Program, and Umatilla County Planning Department.

City Planner Evan MacKenzie stated that he had no comments on the WMCP. Jim Beard, Planning Manager at CTUIR, did not send comments or respond to attempts to contact him. Aaron Skirvin, Director of Water Resources for CTUIR, responded that he had no formal comments but appreciated the opportunity to review the document. Tamra Mabbot, Umatilla County Planner, sent comments, which are included.

CITY OF PENDLETON

Public Works Department
500 S.W. Dorion Avenue
Pendleton, Oregon 97801-2090
Telephone (541) 966-0202
FAX (541) 966-0251
TDD Phone (541) 966-0230

April 26, 2012

City of Pendleton Planning Dept
ATTN: Evan MacKenzie, Planner
500 SW Dorion Ave.
Pendleton, OR 97801

Enclosed please find a copy of the City of Pendleton ***Draft Water Management and Conservation Plan, 2012***. This document was prepared in compliance with OAR 691 Division 86, Water Management and Conservation Plans. We would appreciate your review and comments relating to consistency with the City's comprehensive land use plan. [OAR 690-086-0100(8)]

At the end of the 30-day comment period, we will send a final copy of the WMCP, which will include any comments received, to Oregon Water Resources Department for their review.

This letter initiates a 30-day comment period. However, we would appreciate it if you could provide comments as soon as possible after receiving this draft document. Please address all comments to me at Karen.King@ci.pendleton.or.us or at Pendleton Public Works, ATTN: Karen King, 500 SW Dorion Ave., Pendleton, OR 97801. If you have any questions, feel free to contact me at 541-966-0249.

Sincerely,

Karen King
Regulatory Specialist

enc

c: Bob Patterson, Public Works Director
Tamra Mabbott, Umatilla County Planner
Jim Beard, CTUIR Planning Manager
Aaron Skirvin, Water Resources Dept.

CITY OF PENDLETON

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Pendleton, Oregon 97801-2090
Telephone (541) 966-0202
FAX (541) 966-0251
TDD Phone (541) 966-0230

April 26, 2012

CTUIR Water Resources Dept.
ATTN: Jim Beard, Planning Manager
46411 Timíne Way
Pendleton, OR 97801

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Sincerely,

Karen King
Regulatory Specialist

enc

c: Bob Patterson, Public Works Director
Evan MacKenzie, City of Pendleton Planner
Tamra Mabbott, Umatilla County Planner
Aaron Skirvin, Water Resources Dept.

CITY OF PENDLETON

Public Works Department
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FAX (541) 966-0251
TDD Phone (541) 966-0230

April 26, 2012

CTUIR Water Resources Dept.
ATTN: Aaron Skirvin
46411 Timíne Way
Pendleton, OR 97801

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At the end of the 30-day comment period, we will send a final copy of the WMCP, which will include any comments received, to Oregon Water Resources Department for their review.

This letter initiates a 30-day comment period. However, we would appreciate it if you could provide comments as soon as possible after receiving this draft document. Please address all comments to me at Karen.King@ci.pendleton.or.us or at Pendleton Public Works, ATTN: Karen King, 500 SW Dorion Ave., Pendleton, OR 97801. If you have any questions, feel free to contact me at 541-966-0249.

Sincerely,

Karen King

Karen King
Regulatory Specialist

enc

c: Bob Patterson, Public Works Director
Evan MacKenzie, City of Pendleton Planner
Tamra Mabbott, Umatilla County Planner
Jim Beard, CTUIR Planning Manager

CITY OF PENDLETON

Public Works Department
500 S.W. Dorion Avenue
Pendleton, Oregon 97801-2090
Telephone (541) 966-0202
FAX (541) 966-0251
TDD Phone (541) 966-0230

April 26, 2012

Umatilla County Planning Dept
ATTN: Tamra Mabbott, Planner
216 SE 4th St.
Pendleton, OR 97801

Enclosed please find a copy of the City of Pendleton ***Draft Water Management and Conservation Plan, 2012***. This document was prepared in compliance with OAR 691 Division 86, Water Management and Conservation Plans. We would appreciate your review and comments relating to consistency with the County's comprehensive land use plan. [OAR 690-086-0100(8)]

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This letter initiates a 30-day comment period. However, we would appreciate it if you could provide comments as soon as possible after receiving this draft document. Please address all comments to me at Karen.King@ci.pendleton.or.us or at Pendleton Public Works, ATTN: Karen King, 500 SW Dorion Ave., Pendleton, OR 97801. If you have any questions, feel free to contact me at 541-966-0249.

Sincerely,

Karen King
Regulatory Specialist

enc

c: Bob Patterson, Public Works Director
Evan MacKenzie, City of Pendleton Planner
Jim Beard, CTUIR Planning Manager
Aaron Skirvin, CTUIR Water Resources Dept.

Umatilla County

Department of Land Use Planning

Website: www.umatillacounty.net/planning • Email: planning@umatillacounty.net

LAND USE PLANNING, ZONING AND PERMITTING

CODE ENFORCEMENT

SOLID WASTE COMMITTEE

SMOKE MANAGEMENT

GIS AND MAPPING

RURAL ADDRESSING

May 30, 2012

Karen King
Regulatory Specialist
City of Pendleton
500 SW Dorion Avenue
Pendleton, OR 97801

RE: Draft Water Management and Conservation Plan, 2012

Dear Karen:

Thank you for forwarding the City of Pendleton Draft Water Management and Conservation Plan (WMCP). City staff has done an excellent job with the plan and also with the varied and comprehensive water management program activities. The City has been a leader in managing its water supply, coordinating water supply planning with land use development and encouraging water conservation.

The WMCP appears to be consistent with the County Comprehensive Plan and our City-County Joint Management Agreement.

Thank you for the opportunity to comment. Again, the City's efforts are commendable.

Cordially,

Tamra J. Mabbott
Planning Director

216 S.E. 4th Street • Pendleton, OR 97801 • Ph: 541-278-6252 • Fax: 541-278-5480

ATTACHMENT B

ORDINANCE № 3514

AN ORDINANCE ESTABLISHING REGULATIONS FOR THE ALLOCATION OF WATER RESOURCES TO BE EFFECTIVE WHENEVER THE PENDLETON CITY COUNCIL FINDS THERE IS A WATER SHORTAGE EMERGENCY; AND PROVIDING PENALTIES FOR VIOLATIONS THEREOF. (As amended by Ordinance No. 3669, passed June 4, 2002.)

WHEREAS, the City of Pendleton is a water supplier, licensed by the Oregon State Health Division, Drinking Water Section; and

WHEREAS, the City desires to preserve the capability of the existing water sources to continue to meet the water demands of all customers of the City's water utility; and

WHEREAS, the City desires to increase the amount of water available from the present water sources for future growth of customers; and

WHEREAS, the City's Water Department (by metering of all permanent system users and the implementation of a permanent audit system accounting for un-metered water -- e.g. water tanks on street flushers/fire trucks, estimates of fire usage, hydrant flushing, etc.) can account for a minimum of ninety (90%) percent of all water produced; and

WHEREAS, the City has installed a Supervisory, Control and Data Acquisition (SCADA) remote telemetry system for all elements of the City's water system; and

WHEREAS, the City's primary goal is to increase the amount of water available from existing water sources for future growth, through the implementation and encouragement of conservation measures, and thereby avoid the need for developing significant quantities of additional water sources that may require extensive treatment to meet the standards of the Federal Safe Drinking Water Act; and

WHEREAS, the City's secondary goal is to provide water for continued growth for all types of customers. The City Council has determined that it is timely and prudent to implement the policies herein that will result in a more efficient use of current water supplies; and

WHEREAS, it is the City Council's goal that the implementation of this Water Conservation Plan will result in a ten (10%) percent reduction in the total annual water demand and summer peak demands (as corrected for factors impacting demand e.g. population changes, weather, fire demands, etc.). Achieving this goal would, in effect, increase the capacity of the water system; and

WHEREAS, the potential for a drought, which may be coupled with other contributory factors, could further reduce the amount of available water; thus, the City Council enacts this Ordinance to: (1) adopt a Water Conservation Plan; (2) encourage water conservation; (3) provide for voluntary rationing during periods of mild water shortages; and (4) require the curtailment of the use of water during more severe water shortages as defined herein; and

WHEREAS, after the adoption of this Ordinance, the City Council will continue to review the progress of this Water Conservation Plan and direct the City Manager to implement necessary changes; and

WHEREAS, water rates will be evaluated as a part of the 1995 Water Master Plan and periodically thereafter; and

WHEREAS, certified businesses in the Pendleton Enterprise Zone that have a contract with the City with a special water rate structure, as authorized by State Administrative Rules, shall have those rates honored as specified in the agreement with the City.

NOW, THEREFORE, THE CITY OF PENDLETON ORDAINS AS FOLLOWS:

SECTION 1. DEFINITIONS. As used in this Ordinance, the following terms shall have the meaning given herein:
"City" The City of Pendleton, Oregon.
"City Manager" The City Manager of the City of Pendleton or the manager's designee.
"Customer" Any person using water supplied by the City.
"Person" Any person, firm, entity, partnership, association, corporation, company, or organization of any kind.
"Water" Water from the City, unless expressly provided otherwise or required by contract.

SECTION 2. APPLICATION. The provisions of this Ordinance apply to all customers using water provided by the City.

SECTION 3. EDUCATION AND INFORMATION. The City will inform the public of ways to conserve water and why conservation is important by:

A. Distribution of educational materials to all customers once per year until the City determines there is no longer a need to do so.

B. Submittal of conservation articles to the local newspaper and the local radio stations at times corresponding to the distribution mentioned above and more often if conditions warrant.

C. Providing new customers with conservation information when they apply for initial water service. The City will maintain a supply of printed materials available through private and public sources.

D. Encourage existing water users to replace their inefficient plumbing fixtures with new, low flow fixtures or to use retrofit kits. The typical retrofit kits will consist of; toilet tank insert(s), low-flow showerhead(s), faucet flow restrictor(s), toilet leak detection dye tablet(s) and an information guide. Information on other types of retrofits and other related conservation tips will be provided to water customers.

SECTION 4. METERING. The Water Department will continue the policy of metering all water service connections (customers, parks, public owned buildings, temporary construction, etc.) and production. The City will continue to test all meters which appear to have abnormal water usage.

SECTION 5. WATER CONSERVATION DURING SUMMER IRRIGATION. The public information program will include suggestions on landscaping and irrigation procedures which will reduce water use. The City will investigate and may promulgate subdivision and development regulations which would encourage developers to plant only low water using plants and grasses. Printed information on lawn irrigation, application rates, and types of drought resistant plants compatible with the area climate will be pursued.

SECTION 6. LEAK DETECTION AND REPAIR. The City will start a water audit and leak detection and repair program whenever the unaccounted for water exceeds ten (10%) percent of the water used by the system. The City will:

A. Check customer meters and plumbing which have high usage;

B. Monitor the water distribution system to identify leaks;

C. Monitor water system supply master meter(s) to identify abnormal conditions that could indicate a leakage or erroneous recordings;

D. Institute a program to field check sections of the water distribution system by testing customer meters and listening for leaks during low-use periods; and

E. Make needed repairs.

SECTION 7. PROMOTION OF CONSERVATION. This Water Conservation Program will be promoted by:

A. City staff will encourage builders to install plumbing fixtures that are water efficient, and the efficient use of water saving landscaping when they apply for a new water service.

B. Reviewing the conservation effect of the current water rate structure. If after review of water usage, it is deemed necessary, a new rate structure will be adopted which will encourage replacement of old inefficient plumbing fixtures and support more efficient lawn and garden watering.

C. Develop policy and implement measures to control and/or eliminate all free water accounts. Pendleton presently provides water free of charge to various non-profit organizations and agencies amounting to approximately 100 million gallons annually. Free water accounts presently have little or no incentive to conserve water.

SECTION 8. WHOLESALE CUSTOMERS. The City currently has no wholesale customers. If the City sells water to another water supplier in the future, the supply agreement will require that supplier to adopt a similar water conservation plan.

SECTION 9. VOLUNTARY WATER USE CURTAILMENT. Prior to enforcing a mandatory curtailment of water consumption during a water shortage the City shall:

A. On a finding that there are factors and circumstances present that will result in water demands exceeding the capacity of the City's water sources (ninety [90%] percent of system capacity or above normal lowering of the water levels in wells), the City shall:

(1) Advise customers of the current water situation, and projected deficiencies of the current system to meet demands without a voluntary reduction in the amount of water consumed, and

(2) Identify the percentage of voluntary reduction that is required to avoid a shortfall in the capability of the existing source(s) to avoid the need to implement the mandatory cutbacks provided by this Ordinance.

(3) Communicate the need for voluntary reduction through:

a. Monthly utility billings,

b. Local media -- newspapers, radio, television, and

c. Printed materials posted in public places.

Included in the above announcements will be suggestions on how to accomplish the voluntary reductions.

If the voluntary reduction program is successful, the City will continue with the above steps until the voluntary reductions are no longer necessary.

B. If the voluntary reduction program is unsuccessful, the City Manager will implement the appropriate curtailment sections of this Ordinance.

SECTION 10. WATER CURTAILMENT PURPOSE AND INTENT. Whenever the City Council finds:

A. That a water shortage emergency condition prevails in the area served by the City, or

B. That the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the City to the extent that there would be insufficient water for human consumption, sanitation, and fire protection; the City Council shall, by motion, impose a First Level of Curtailment or a Second Level of Curtailment as provided by this Ordinance.

SECTION 11. FIRST LEVEL OF CURTAILMENT.

A. Nonessential Residential Uses. During a first level of curtailment the following uses of water for residential purposes are prohibited:

(1) The use of water to wash all types of motorized vehicles (for land, air, and water) except at commercial fixed washing facilities existing prior to the enactment of this Ordinance or those that recycle or reuse the water.

(2) The use of water to wash down all types of permanent (horizontal or vertical) exterior hard surfaced areas.

(3) The use of water to fill, refill or add to any indoor or outdoor private swimming pool or jacuzzi pool except for neighborhood fire control (when deemed necessary by the City Manager), except where the pools have recycling water systems and evaporative covers, or where the use of the pool is required by a medical doctor's prescription.

(4) The additional use of water in a fountain or pond for aesthetic or scenic purposes.

B. Nonessential Commercial, Institutional or Industrial Use. During a first level of curtailment the following commercial or industrial water uses are prohibited:

(1) The use of water to serve a customer in a restaurant unless requested by the customer.

(2) The use of water for scenic and recreational ponds and lakes.

(3) The use of water from hydrants for construction purposes, fire drills, or any purpose other than fire fighting.

(4) The use of irrigation water for schools, parks, cemeteries, recreation areas, golf courses, community food gardens, residential gardens, and similar recreation or memorial type facilities in excess of seventy-five (75%) percent of the normal historical amount consumed.

(5) The use of domestic water for schools, nursery facilities, restaurants, shopping centers, gasoline service stations, health and swim clubs, and all other commercial uses in excess of ninety (90%) percent of the normal historical amount consumed.

(6) The use of water for manufacturing, food processing, cooling or cleaning of equipment in excess of ninety (90%) percent of the normal historical amount consumed.

(7) The use of water for agricultural irrigation in excess of seventy-five (75%) percent of the normal historical amount consumed.

(8) The use of water for dust control.

C. Gutter Flooding. No person or customer shall cause or permit water to run to waste in any gutter or drain.

D. Discontinuance of Service. The City may, after one warning by certified mail or in person, disconnect the water service of any person when the City Manager determines that the person has failed to comply with any provisions of this Ordinance. Disconnected service shall be restored only upon:

(1) Payment of the turn off and on charge, as specified by the City's general rate structure, and any other costs incurred by the City in the discontinuance and restoration of the service; and

(2) The giving of suitable assurances to the City that the action causing the discontinuance will not be repeated.

In addition to the foregoing, the City may, prior to restoration of service, install a flow-restrictive device on the customer's service.

E. Variances. The City Manager may grant temporary variances for prospective uses of water otherwise prohibited after determining that due to unusual circumstances that failure to grant such variance would cause an emergency condition affecting health, welfare, sanitation, or fire protection of the applicant or the public.

F. Appeal. The City Manager's action to discontinue service or apply conditions regarding the restoration of service may be appealed to the City Council. If the aggrieved person files notice with the City Manager within five days of notice of the action or the proposed action, the action will be stayed pending a decision on the appeal.

No such variance shall be retroactive or otherwise justify any violation of this Ordinance occurring prior to issuance of the temporary variance.

SECTION 12. SECOND LEVEL OF CURTAILMENT. In addition to the restrictions in Section 11, the following curtailments may be enforced during a second level of curtailment:

A. New Private Domestic Wells prohibited. No person, in time of water shortage emergency or otherwise, may drill, commission, or otherwise put into service a domestic water supply well.

B. 1 or 2 residential units - Daily usage allotment:

(1) one permanent resident	80 gallons
(2) two permanent residents	110 gallons
(3) three permanent residents	140 gallons
(4) each additional permanent resident	30 gallons

C. Multi-residential units (three or more units) - Daily usage allotment for each unit shall be 130 gallons per day.

Each customer in whose name water is supplied to a residence, or residences or apartments or other dwelling units, shall upon request of the City Manager advise the City, under penalty of perjury, of the number of permanent residents using water supplied to the residence, residences, apartments, or other dwelling units.

If the customer fails to advise the City Manager, each residence, apartment or dwelling unit shall be permitted the water allocation herein provided for one permanent resident.

D. Other Nonessential Uses. All other uses of water not expressly set forth in this Ordinance in excess of seventy-five (75%) percent of the normal historical amount consumed.

E. Determination of Amount of Prior Water Consumption. The normal historical amount of water consumed shall be determined by the City utilizing historical records of the same time periods. Where no such records exist, the amount shall be the average use of similar existing services as determined by the City from its records. (Section 12, as amended by Ordinance No. 3669, passed June 4, 2002.)

SECTION 13. PENALTIES. Violations of any provision of this Ordinance may be punished by fines not to exceed:

First violation	$ 100.00
Second violation within 6-month period	$ 250.00
Third and subsequent violations in three years	$ 500.00

Offenses under this Section shall be tried in the Municipal Court as a violation and not as a crime.

SECTION 14. ORDINANCE CONTROLLING. The provisions of this Ordinance shall prevail and control in the event of any inconsistency between this Ordinance and any other rules or regulations of the City.

SECTION 15. SEVERABILITY CLAUSE. The invalidity or illegality of any provision of this Ordinance shall not affect the remainder of this Ordinance.

PASSED and approved January 3, 1995.

ATTACHMENT C

CITY OF PENDLETON OREGON

2012 Water and Sewer Rates

Water Rates

Water Base Rates	In City	Out of City	Wholesale
Residential			
Single Family Dwelling Unit	$16.50	$24.70	$18.15
Duplex, per Dwelling Unit	12.60	18.90	13.85
Multiple-Family (3 or more), per unit	9.50	14.30	10.45
Motels, per unit	6.25	9.35	6.85
Recreation Vehicle Spaces, per space	4.20	6.30	4.65
Commercial, industrial, etc.			
1" or less meter	20.50	30.75	22.55
1 1/2"	36.65	55.00	40.35
2"	57.75	86.60	63.50
3"	104.15	156.25	114.55
4"	189.70	284.60	208.70
6"	269.45	404.20	296.40
8"	510.20	765.30	561.25
10" or greater	751.00	1,126.55	826.15
Fire Service (per diameter inch)	7.75		

Water Volumetric Rates	In City	Out of City	Wholesale
Usage			
First 19 units:	$1.05	$1.55	$1.15
20 units to 149 units:	1.15	1.70	1.25
150 units or more:	1.20	1.85	1.30

Water Service Fees	
Service	
Meter Removal/Shut-off fee	$35.95
Reinstallation charge	29.95
Overtime fee	41.90
Doorhanger fee	11.95

Temporary and Installation Rates

Temporary Water Service	
	In City
Service	
7 days or less (500 cu. ft. of water)	$35.95
Fire hydrant connection (15 days)	221.60
Fire hydrant connection (30 days)	431.20
Location of fire hydrant service changed	59.90
Installation charges and deposits:	
Metered service (deposit)	83.85
Fire hydrant connection	
Installation fee	83.85
Minimum water charge (15 days)	221.60
Refundable equipment deposit	598.90

Service Connections: Installation Charges				
	In City		**Out of City**	
	No Pavement	With Sidewalk No Pavement	With Pavement	With Sidewalk and Pavement
Service Size				
3/4"	940.25	1,419.45	1,718.90	2,198.00
1"	1,048.10	1,527.20	1,826.70	2,305.80
1 1/2"	1,527.20	2,006.35	2,305.80	2,784.95
2"	2,102.20	2,581.30	2,880.80	3,359.90
Over 2"				
Cross Connection (Underground sprinklers)	56.40			

Sewer Rates

Sewer Base Rates	In City	Out of City
Residential (single family dwelling)	$29.05	$43.60
Transient (Hotels, rooming houses, etc)		
1st Unit	29.05	43.60
Each and every unit	14.95	22.30
Commercial (Light)		
Minimum charge (1,100 cubic feet)	29.05	43.60
Per additional 100 cubic feet	1.60	2.50
Commercial (Heavy)		
Flow (per 100 cubic feet)	0.85	1.40
B.O.D. (per lb.)	0.75	1.20
Suspended solids (per lb.)	0.85	1.40
RV Spaces (Each unit)	7.40	11.10
Wholesale		
Base Rate	32.00	
Usage	1.75	
Hotel	16.40	
RV Space	8.15	

Sewer Services	In City
Service	
Septic Waste	
First 500 gallons	$53.90
Each additional 500 gallons	53.90
Lab Fees	
B.O.D. (per sample)	34.70
E.Coli (per sample)	28.90
Total Coliform (per sample)	28.90
Suspended Solids (per sample)	17.35
Digester (per sample)	23.10
Total Solids (per sample)	5.80
Ammonia Nitrogen	23.10

TABLE 1 City of Pendleton
ANNUAL WATER USAGE

WATER YEAR	TOTAL USAGE (MG)	GROUND WATER	SURFACE WATER	PEAK MONTH	USAGE PEAK MONTH (MG)	PEAK DAY MG	PEAK DAY DATE
2005	1,407.644	46.14%	53.86%	August	233.334	9.874	7/25/2005
2006	1,534.790	15.07%	84.93%	August	263.930	10.087	8/4/2006
2007	1,644.436	32.10%	67.90%	July	246.873	9.943	7/7/2007
2008	1,584.288	12.05%	87.95%	July	263.352	9.587	8/9/2008
2009	1,612.940	24.23%	75.77%	July	278.321	10.995	7/23/2009
2010	1,356.711	6.13%	93.87%	July	243.329	9.758	7/22/2010
2011	1,321.115	2.93%	97.07%	July	222.899	8.228	8/25/2011
TOTAL	**10,461.924**				**1,752.04**		
AVERAGE	**1,494.561**	**20.19%**	**79.81%**		**250.291**	**9.782**	

TABLE 2 — CITY OF PENDLETON WATER RIGHTS

Certificated Water Rights

Source	Application No.	Cert. No.	Permit No.	Transfer No.	Rate (cfs)	Priority Date	Description/ Source	Location	Comments	Pump	Max. Pump Rate to System	Max. Annual Quantity Allowed	Historic Max. Rate Instantaneous: Native GW	Historic Max. Rate Instantaneous: ASR
SURFACE WATER	Decree (D-2604)	85849	Decree (D-2604)	T-8640	2.0	November 11, 1885	Uma. R.	Uma. R. Intake			898 gpm (1.29 MGD)	472 MG	898 gpm (1.29 MGD)	N/A
	Decree (D-2582)	85846	Decree (D-2582)	T-8721	0.5	1890	Uma. R.	Uma. R. Intake			224.4 gpm (0.32 MGD)	118 MG	224.4 gpm (0.32 MGD)	N/A
	S-1069	86028	458	T-8704	7.2	November 12, 1910	N. Fork Umatilla R.	Uma. R. Intake			3231 gpm (4.65 MGD)	1699 MG	3231 gpm (4.65 MGD)	N/A
	S-1100	85850	S 472	T-8761	3.8 total	April 22, 1929	Springs near Thorn Hollow	Uma. R. Intake 73400 Mytinger Lane	See (1) below		1705 gpm (2.46 MGD)	897 MG	1705 gpm (2.46 MGD)	N/A
	S-2310	85851	S 1197	T-8761			Shaplish Springs		See (2) below					
	S-12679	85853	S 9007	T-8761			Three Simons Springs	T-8761 transferred the POD to the mainstem Umatilla R.	See (3) below					
	S-12678	85852	S 9006	T-8761			Long Hair Spring & Squaw Creek Spring		See (4) below					
			ORS 538.450		All Waters	March 8, 1941	Umatilla River	Uma. R. Intake 73400 Mytinger Lane	POD allowed at surface water intake as per SB 869		1514 gpm (2.18 MGD) See (7) below	Max. TBD by OWRD & MOA w/ CTUIR	5139 gpm (7.4 MGD) See (7) below	N/A
		MAXIMUM	**SURFACE**		**23.3 cfs**									
GROUNDWATER	U-158	20838	U 152		3.1	February 23, 1944	Well # 1	Byers Well @ 112 SE 18th		250 hp	1250 gpm (1.80 MGD)	944 MG	1796 gpm (2.59 MGD)	1250 gpm (1.80 MGD)
	G-2386	46096	G 2204		0.9	July 16, 1962								
	G-629	20840	U 579		2.51	September 16, 1953	Well # 2	Round-Up Well @ 1105 SW Court Ave.		450 hp	1950 gpm (2.81 MGD)	1324 MG	2519 gpm (3.63 MGD)	N/A
	G-2385	46094	G 2203		3.1	July 16, 1962								
	U-455	20839	U 418		1.11	December 31, 1951	Well # 3	SW 21st St. Well @ 708 SW 21st St.		100 hp	490 gpm (0.71 MGD)	309 MG	588 gpm (0.84 MGD)	N/A
	G-2384	46095	G 2202		0.2	July 16, 1962								
	U-755	86482	U 670	T-5604	1.47	October 18, 1954	Well # 4	Hospital Well @ 2420 Westgate		250 hp	660 gpm (0.95 MGD)	347 MG	660 gpm (0.95 MGD)	N/A
	G-1273	29147	G 1160		5.3	October 3, 1958	Well # 5	Stillman Well @ 27 SE 5th		400 hp	1900 gpm (2.74 MGD)	1250 MG	2380 gpm (3.43 MGD)	2800 gpm (4.03 MGD)
	G-11326	82840	G-10508		3.01	December 5, 1984	Well # 8	Prison Well @ 2580 NW Westgate Dr.		200 hp	1000 gpm (1.44 MGD)	1069 MG	2034 gpm (2.93 MGD)	N/A
	G-7338	86483	G 6773	T-5605	1.52	April 16, 1976								
	G-532	85847	G-465	T-8434	1.7 cfs total	March 5, 1957	Well # 14	5400 Rieth Rd	See (5) below	100 hp	540 gpm (0.78 MGD)	401 MG	763 gpm (1.10 MGD)	540 gpm (0.78 MGD)
	G-3241	85848	G-3044	T-8434		September 27, 1965			See (6) below					

NOTE: The type of beneficial use for all of the City's water rights is municipal.

(1) Certificate No. 85850: Source: Springs near Thorn Hollow, a tributary of the Umatilla River. The amount of water to which the right is entitled shall not exceed 3.8 cfs. This right, in combination with Certificates 85851, 85852 & 85853, is limited to a total diversion of not to exceed 3.8 cfs.

(2) Certificate No. 85851: Source: Shaplish Springs, a tributary of the Umatilla River. The amount of water to which the right is entitled shall not exceed 3.0 cfs. This right, in combination with Certificates 85850, 85852 & 85853, is limited to a total diversion of not to exceed 3.8 cfs.

(3) Certificate No. 85852: Source: Long Hair Spring & Squaw Creek Spring, tributaries of the Umatilla River. The amount of water to which the right is entitled shall not exceed 2.0 cfs. This right, in combination with Certificates 85850, 85851 & 85853, is limited to a total diversion of not to exceed 3.8 cfs.

(4) Certificate No. 85853: Source: Three Simons Springs, tributaries of the Umatilla River. The amount of water to which the right is entitled shall not exceed 2.7 cfs. This right, in combination with Certificates 85850, 85851 & 85852, is limited to a total diversion of not to exceed 3.8 cfs.

(5) Certificate No. 85847: The amount of water to which the right is entitled shall not exceed 1.21 cfs. This right, in combination with Certificate 85848, is limited to a total diversion of not to exceed 1.7 cfs, and shall be further limited to a diversion of not to exceed 607.2 acre feet for year round use.

(6) Certificate No. 85848: The amount of water to which the right is entitled shall not exceed 1.33 cfs. This right, in combination with Certificate 85847, is limited to a total diversion of not to exceed 1.7 cfs, and shall be further limited to a diversion of not to exceed 607.2 acre feet for year round use.

(7) Legislative Right ORS 538.450: This right was exercised exclusively while waiting for transfers for the other surface water rights; hence the historic instantaneous rate of 5139 gpm (7.4 MGD). More recently, maximum withdrawal under this right was 1514 gpm (2.18 MGD).

TABLE 2 cont. CITY OF PENDLETON WATER RIGHTS

Water Right Permits not currently certificated

Source	Application No.	Cert. No.	Permit No.	Transfer No.	Rate (cfs)	Priority Date	Description/ Source	Location	Comments	Pump	Max. Pump Rate to Dist. System	Max. Annual Quantity Allowed	Historic Max. Rate Instantaneous Normal Ops	Historic Max. Rate Instantaneous Flow Test
GROUNDWATER	G-2463	N/A	G-2410	T-8159	6.7	October 10, 1962	Well # 6	Sherwood Well	Extension of Time to Develop granted; have until October 1, 2076		undeveloped	4719 MG	NA	
					6.7		Well # 9	South Hill Well			undeveloped			
					6.7		Well # 10	Crispin Well			undeveloped			
					6.7		Well # 12	McCormack Well			undeveloped			
					(Total not to exceed 20 cfs)		Well # 14	5400 Rieth Rd.	POA added to G 2410					
	G-3443	N/A	G-3225		2.0	April 4, 1966	Well # 7	Mission Well @ 73740 Reservoir Ln	Extension of Time to Develop granted; have until October 1, 2076	60 hp	475 gpm (0.68 MGD)	472 MG	898 gpm (1.29 MGD)	
					6.7	April 4, 1966	Well # 11	McKay Creek Well @ 4255 SW 28th Dr		5 hp	28 gpm (0.04 MGD)	1581 MG	3007 gpm (4.33 MGD)	500 gpm (0.72 MGD)

NOTE: The type of beneficial use for all of the City's water rights is municipal.

TABLE 3 AVERAGE AND MAXIMUM DIVERSIONS UNDER EACH WATER RIGHT

	GROUNDWATER RIGHTS				AVERAGE MONTHLY DIVERSIONS (MG)							MAX ANNUAL	YEAR MAX
	Cert. No.	Permit No.	Rate (cfs)		2005	2006	2007	2008	2009	2010	2011	DIVERSION (MG)	ANNUAL
CERTIFICATED	20838	U 152	3.1	Well # 1	16.08	18.48	21.52	14.11	19.84	15.58	14.7	258.209	2007
	46096	G 2204	0.9										
	20840	U 579	2.51	Well # 2	12.33	16.40	19.87	15.71	17.98	10.02	8.63	238.456	2007
	46094	G 2203	3.1										
	20839	U 418	1.11	Well # 3	0.24	2.03	2.50	1.16	1.78	1.13	1.87	30.046	2007
	46095	G 2202	0.2										
	86482	U 670	1.47	Well # 4	0.36	2.82	3.45	2.22	3.00	1.46	3.25	41.420	2007
	29147	G 1160	5.3	Well # 5	22.00	2.93	2.45	1.45	0.01	0	0	263.990	2005
	82840	G-10508	3.01	Well # 8	16.56	11.46	15.82	8.17	11.30	9.12	6.26	198.696	2005
	86483	G 6773	1.52										
	85847 85848	G-465 G-3044	1.7 cfs total	Well # 14	0	0	2.87	6.38	7.38	5.96	7.31	88.536	2009
PERMITS	G 2463	G 2410	6.7	Well # 6	0	0	0	0	0	0	0	0	0
			6.7	Well # 9	0	0	0	0	0	0	0	0	0
			6.7	Well # 10	0	0	0	0	0	0	0	0	0
			6.7	Well # 12	0	0	0	0	0	0	0	0	0
			(Total not to exceed 20 cfs)	Well # 14									
	G 3443	G 3225	2.0	Well # 7	6.16	6.22	8.04	6.19	5.03	6.87	5.66	96.472	2007
			6.7	Well # 11	0	0	0	0	0	0	0	0	0
ALL SURFACE WATER RIGHTS Rights are exercised in order of priority date					76.24	108.63	93.05	116.11	101.84	106.13	106.87	1,393.33	2008

TABLE 3 (cont) AVERAGE AND MAXIMUM DIVERSIONS UNDER EACH WATER RIGHT

	GROUNDWATER RIGHTS				AVERAGE DAILY DIVERSIONS (MG)						
	Cert. No.	Permit No.	Rate (cfs)		2005	2006	2007	2008	2009	2010	2011
CERTIFICATED	20838	U 152	3.1	Well # 1	0.529	0.607	0.707	0.464	0.652	0.512	0.483
	46096	G 2204	0.9								
	20840	U 579	2.51	Well # 2	0.405	0.539	0.653	0.517	0.591	0.329	0.284
	46094	G 2203	3.1								
	20839	U 418	1.11	Well # 3	0.008	0.067	0.082	0.038	0.059	0.037	0.062
	46095	G 2202	0.2								
	86482	U 670	1.47	Well # 4	0.012	0.093	0.113	0.073	0.099	0.048	0.107
	29147	G 1160	5.3	Well # 5	0.723	0.096	0.081	0.048	< 0.001	< 0.001	< 0.001
	82840	G-10508	3.01	Well # 8	0.544	0.377	0.520	0.268	0.372	0.300	0.206
	86483	G 6773	1.52								
	85847 85848	G-465 G-3044	1.7 cfs total	Well # 14	0	0	0.094	0.210	0.243	0.196	0.240
PERMITS	G 2463	G 2410	6.7	Well # 6	0	0	0	0	0	0	0
			6.7	Well # 9	0	0	0	0	0	0	0
			6.7	Well # 10	0	0	0	0	0	0	0
			6.7	Well # 12	0	0	0	0	0	0	0
			(Total not to exceed 20 cfs)	Well # 14							
	G 3443	G 3225	2.0	Well # 7	0.203	0.204	0.264	0.204	0.165	0.226	0.186
			6.7	Well # 11	0	0	0	0	0	0	0
ALL SURFACE WATER RIGHTS Rights are exercised in order of priority date					2.507	3.571	3.059	3.817	3.348	3.489	3.514

TABLE 4 CLASSIFICATION OF WATER CUSTOMERS

	WY 2002		WY 2007		WY 2008		WY 2009		WY 2010		WY 2011	
Category	# Meters	% Usage	# Meters	% Usage	# Meters	% Usage	# Meters	% Usage	# Meters	% Usage	# Meters	% Usage
Commercial	662	32.95%	668	32.21%	642	34.21%	657	31.61%	662	34.06%	649	31.55%
City Meters	65	6.97%	71	12.26%	85	10.13%	85	12.76%	92	7.76%	92	11.78%
Residential	4693	50.21%	4758	44.50%	4614	46.95%	4780	47.05%	4815	46.67%	4823	47.20%
Multi-Family	159	8.21%	154	6.37%	149	6.81%	148	6.89%	151	9.72%	148	7.50%
Motel/Hotel	14	1.66%	16	4.66%	16	1.90%	17	1.69%	17	1.78%	19	1.96%
Other					2	<0.01%	2	<0.01%	2	0.01%	2	0.01%
TOTAL	5593	100.00%	5667	100.00%	5508	100.00%	5689	100.00%	5739	100.00%	5733	100.00%

NOTE: Commercial includes Compound Meters

TABLE 5 WATER LOSS

WY 2002	WY 2003	WY 2004	WY 2005	WY 2006	WY 2007
9.44%	9.78%	7.94%	8.24%	4.33%	4.49%

AVERAGE
7.37%

WY 2008	WY 2009	WY 2010	WY 2011
5.78%	5.52%	2.63%	5.08%

AVERAGE
4.75%

TABLE 6: WATER CONSERVATION MEASURES & BENCHMARKS

Benchmark	Progress Report	5-YR Benchmark
Annual Water Audit Continue annual audit; improve methodology	City has continued the annual water audit and made significant improvements in methodology for estimating un-metered water. • Water Dept. has coordinated with the Fire Dept. for flushing and flow testing to reduce water use and to improve estimates of un-metered water use. • SCADA system has been refined to look at reservoir levels and better track usage. This has allowed better knowledge of peak usage, which used to be estimated at 13 MGD but now is known to be 11 MGD. • Utilized SCADA system to determine how much water is used for a fire, which then improves estimates of un-metered water use during large fires. • Is in the process of installing fill stations for construction contractors to insure all water use by contractors is metered and backflow protection is in place. • Improved record-keeping for all known leaks. Still must make assumptions on flow and length of time of leak. • Tracked flushing at wells during start up; recorded length of time and flow rate. Allows accurate estimate of water used for flushing. This has been tied to the City's SCADA system. • Measured amount of pre-lube water at wells. Reduced usage of pre-lube water from constant running to running only when the well is operating. • Upgraded pumping equipment at booster stations throughout the system which has dramatically decreased the leakage at booster stations; no longer need to estimate leakage at these locations.	• City will continue the annual water audit and continue to make improvements in the methodology for estimating un-metered water. • Complete installation of fill stations for construction contractors at 6 locations.
Customer Meters Replace all in system	• The City of Pendleton water system is currently 100% metered. • The City has been in the process of replacing older meters with touch-read meters. The City has replaced 72.4% of all meters in the system with touch-read meters. • In 2011, the City contracted to have a meter study done by	• **New Benchmark is to replace all meter registers and upgrade the meter reading system to a mesh wireless system.** This system will replace the manual read and touch read system. All water meters will

	an independent party. The goal was to address the age and accuracy of the older meters in the system. They looked at 12 of the oldest meters in the system (dating to 1982 and 1983) and compared them with newer meters through bench tests. Interestingly, the results showed no noticeable loss in performance for the older meters. Based on this information, City decided to dedicate limited funds to a new mesh wireless meter reading system instead of continuing to replace the older meters with touch-read meters.	be able to be read from City Hall. Leakage will be detectable by parameters set for each meter customer type, allowing the City to notify customers when leakage occurs based on alarms set in the automated system. System will allow for better customer service, and once it is paid for, it will save money. Goal is to replace all older meters and have the touch-read system in place by 2014 if funding can be secured. • All new meters will be tested for accuracy based on manufacturer's recommended schedule. Having accurate meter readings is an advantage for the City, so, of course, City will continue to test meters for accuracy.
Source Meters Replace ½ of all in system	• There are 9 source meters in the system; 8 at wells and 1 at the Water Treatment Plant. All source meters have been replaced. The new meters all have an accuracy of +/- 1.5%. This has greatly improved the quality of our source water metering.	
Public Education Continue existing; add mailings every 2 yrs; radio & newspaper campaigns	• City continues the existing programs, which include: a webpage on the City's website entitled "Water Efficiency Facts & Tips;" monthly Water Saver Tips on water bills; and annual water conservation kit give-aways. The City's annual Consumer Confidence Report (Water Quality Report) discusses water conservation and encourages interested parties to visit the City's website. • City has provided many tours of the Water Treatment Plant (WTP) and the Aquifer Storage Recovery (ASR) system to local service and civic groups, middle school students, the community in general, and many other municipalities who	• Continue existing public education programs. • Assess feasibility of mailing brochures with water conservation information to customers.

Table 6: Water Conservation Measures & Benchmarks

	are interested in membrane filtration and ASR. These are good forums to discuss water issues, including water conservation, with the community and with other cities to learn what works and what doesn't. • City staff have presented programs at local schools and annually at Salmon Walk on water conservation and water pollution prevention. • Although City has not initiated a radio or newspaper campaign directly related to water conservation, the Public Works Director is a guest on the radio monthly and discusses pertinent issues related to public works. City has chosen to utilize limited funds to tighten leaks in the system rather than spend additional funds on a radio or newspaper campaign at this time.	• City will assess the efficacy of radio and newspaper ad campaigns in the future.
Technical & Financial Assistance Assess feasibility of developing a program	• City flags all water accounts that have high usage, and the customer is notified. Upon request, City provides technical assistance with leak problems. • Public Works Dept. began working with Parks Dept. in 2008 to install a computerized irrigation system. The system allows the Parks Dept. to control the sprinkler system at the parks from a computer or I-Pad. The system reduces waste by: a) allowing the Parks to turn off irrigation systems quickly when it is raining; b) alerting the Parks to leaks in the system; and c) giving Parks better control of the amount of water applied to each individual Park. Currently, 17 parks are on the system. Initial cost was approximately $14,000 plus an additional $3000 for each park that is on the system. • City has approached several of the motels and hotels in the area about water conservation. Most of the larger facilities already have water conservation measures in place. Based on this information, City assessed the feasibility of developing a program and determined that limited funds would be better spent tightening leaks in the system and replacing meters.	• City will continue to flag high usage accounts. • There are 11 additional parks that need to be added to the computerized irrigation system. The cost is approximately $3000 for each park that is added to the system. Given budget constraints, the 5-year goal is to add 5 more parks to the system.

Table 6: Water Conservation Measures & Benchmarks

Supplier-Financed Retrofitting & Replacement Provide Conservation Kits; consider supplier-financed retrofitting or replacement programs	• City continues to provide an annual water conservation kit. Kits are advertised for free on the monthly water bills. Kits vary each year, but have included: a soil moisture probe; water-saver hose nozzles; and a rain/watering gage with information booklet. In 2011, we distributed water-saver shower heads both at City Hall and at the weekly Farmer's Market. We will continue with the water-saver shower heads in 2012. • City has assessed the feasibility of supplier-financed retrofitting or replacement programs. At this time, City has determined that limited funds would be better spent tightening leaks in the system and replacing meters.	• Continue to provide an annual water conservation give-away.
Water Rate Structure	• Water rate increases have proven to be the most effective water conservation method. • City implemented annual water rate increases beginning in 2005 based on the Portland Consumer Price Index, not to exceed 3.5%. City already had an increasing block structure for water rates, and the annual rate increases apply at all levels of the block structure. • City staff continues to convey to City Council that water rates need to be raised 18% to implement a full 75-yr replacement program. However, City Council has chosen not to increase rates further at this time.	• Continue annual rate increases. • City to begin Water System Master Plan revisions in 2012/2013. Included will be a review of current water rates and staffing levels.
Water Reuse, Recycling & Non-Potable Water Use	• City's webpage "Water Efficiency Facts & Tips" has tips on water reuse, recycling, and non-potable water use. Brochures on Xeriscape and Water Reuse and Recycling are available at City Hall and City Shops. • Water from the settling ponds at the Water Treatment Plant (WTP) is used for irrigation of adjacent agriculture fields. This land application averages approximately 950,000 gallons per year. • Chlorinated effluent at the Wastewater Treatment Plant (WWTP) is used for a number of applications including: cleaning screens; foam control and cleaning of the Aeration Basin; foam control at scum boxes; make-up water for chlorination; washing clarifiers; and irrigation of lawn areas.	• Continue to promote use of the information on the City's webpage to residential customers.

Table 6: Water Conservation Measures & Benchmarks

	In fact, treated effluent is used everywhere water is needed at the WWTP that doesn't have to be potable water. The re-use averages 110 gpm continuously, with higher peak usage.	
Other: **Includes developing a small, demonstration Xeriscape**	• Public Works staff have discussed a Xeriscape Project with Parks Dept. staff and are working on incorporating it at the City Shops. The grass lawn at that facility has been removed, and a Xeriscape landscape will be installed in 2012. • Water Department has donated books to Pendleton Public Library on Xeriscape to insure the information is accessible to the public. • The Water Treatment Plant (WTP) was designed to conserve energy by using siphons instead of pumps to move the water from the membrane basins to the finished water reservoir. • The WTP process uses over 99.8% of the water that is withdrawn from the Umatilla River for treatment by recycling the water in the settling ponds back through the plant. The slurry at the bottom of the settling ponds (about 2 MG per year) is applied to agricultural land adjacent to the WTP. Some water is lost due to evaporation from the settling ponds. • City is in the process of adding regenerative drive units to the Aquifer Storage & Recovery (ASR) wells. These units will generate electricity when water is being injected into the wells. The electricity generated will be added to the grid. • City added solar panels to the roof of the WTP to provide power and further conserve energy, and City has also added solar panels on a ground array at the Wastewater Treatment Plant. City has a residential solar program that provides no-interest loans to residents who want to install solar panels. This reduces electrical use which was previously derived from coal and hydropower resources.	• Continue to work with Parks Dept. on demonstration Xeriscape projects. • Add 2 more wells to the existing 3 ASR wells, each with the regenerative drive system. • Request Drinking Water Source Protection Zone for Well #14 from OHA—Drinking Water Program

Table 6: Water Conservation Measures & Benchmarks

		(has been previously requested). All but Well #14 were assessed in 2005 Source Water Assessment Report completed by OHA—Drinking Water Program. • Coordinate efforts with Umatilla County and City of Pendleton Planning Departments to incorporate and codify Source Water Protection Overlay Zone for well supply. Purpose is to trigger review of any wells or potential sources of contamination that would impact the City's drinking water source.

TABLE 7 WATER REQUIREMENTS TO ALLOW FOR SYSTEM REDUNDANCY (2013--2033)

Note: Needs based on various growth options; all values in cfs

	Demand Option A (0.88%)	Demand Option B (1.54%)	Demand Option C (1.40%)	Safe Harbor Option (1.05%)	Loss of 2 Major Wells	Daily Max Necessary for Redundancy: Redundancy Option A	Redundancy Option B	Redundancy Option C	Redundancy Safe Harbor	Additional Water: G-2410	G-3225	Monthly Max Necessary for Redundancy: Redundancy Option A	Redundancy Option B	Redundancy Option C	Redundancy Safe Harbor
2012	15.13	15.13	15.13	15.13	12.34	2.79	2.79	2.79	2.79			86.49	86.49	86.49	86.49
2013	15.26	15.36	15.34	15.29	12.34	2.92	3.02	3.00	2.95		1.25*	90.62	93.71	93.06	91.41
2014	15.40	15.60	15.56	15.45	12.34	3.06	3.26	3.22	3.11	1.20 □		94.78	101.05	99.71	96.39
2015	15.53	15.84	15.77	15.61	12.34	3.19	3.50	3.43	3.27		1.12**	98.98	108.49	106.47	101.42
2016	15.67	16.08	16.00	15.78	12.34	3.33	3.74	3.66	3.44			103.22	116.06	113.31	106.50
2017	15.81	16.33	16.22	15.94	12.34	3.47	3.99	3.88	3.60			107.49	123.73	120.25	111.64
2018	15.95	16.58	16.45	16.11	12.34	3.61	4.24	4.11	3.77			111.81	131.53	127.29	116.83
2019	16.09	16.84	16.68	16.28	12.34	3.75	4.50	4.34	3.94			116.16	139.45	134.43	122.07
2020	16.23	17.10	16.91	16.45	12.34	3.89	4.76	4.57	4.11			120.54	147.49	141.67	127.37
2021	16.37	17.36	17.15	16.62	12.34	4.03	5.02	4.81	4.28		1.23 □ □	124.97	155.65	149.01	132.72
2022	16.52	17.63	17.39	16.80	12.34	4.18	5.29	5.05	4.46			129.44	163.94	156.45	138.13
2023	16.66	17.90	17.63	16.97	12.34	4.32	5.56	5.29	4.63			133.94	172.35	164.00	143.60
2024	16.81	18.18	17.88	17.15	12.34	4.47	5.84	5.54	4.81			138.49	180.90	171.65	149.12
2025	16.96	18.46	18.13	17.33	12.34	4.62	6.12	5.79	4.99			143.07	189.58	179.41	154.71
2026	17.10	18.74	18.38	17.51	12.34	4.76	6.40	6.04	5.17			147.70	198.39	187.27	160.35
2027	17.26	19.03	18.64	17.70	12.34	4.92	6.69	6.30	5.36			152.37	207.33	195.25	166.05
2028	17.41	19.32	18.90	17.88	12.34	5.07	6.98	6.56	5.54			157.07	216.42	203.34	171.81
2029	17.56	19.62	19.16	18.07	12.34	5.22	7.28	6.82	5.73			161.82	225.64	211.54	177.63
2030	17.71	19.92	19.43	18.26	12.34	5.37	7.58	7.09	5.92			166.61	235.01	219.86	183.51
2031	17.87	20.23	19.70	18.45	12.34	5.53	7.89	7.36	6.11			171.44	244.52	228.29	189.45
2032	18.03	20.54	19.98	18.65	12.34	5.69	8.20	7.64	6.31			176.32	254.17	236.84	195.46
2033	18.19	20.86	20.26	18.84	12.34	5.85	8.52	7.92	6.50	3.80***		181.24	263.98	245.51	201.53

* Additional water available by fully developing Mission Well #7 from current 0.75 cfs to 2.0 cfs. (Permit G-3225)

□ Additional water available by adding Hospital Well #4 to Permit G-2410, allowing that well to pump to full capacity.

** Additional water available by further developing WWTP Well # 11 (Permit G-3225); allows perfection of >25% of Permit G-3225.

□ □Goal to develop an additional 1.23 cfs from Permit G-3225 by 2021; allows perfection of 50% of Permit G-3225 and meets adequate system redundancy needs.

***Goal to develop an additional 3.80 cfs from Permit G-2410 by 2033; allows perfection of 25% of Permit G-2410 and meets adequate system redundancy needs.

NOTE: A critical issue is the OWRD requirement of developing water rights in 25% increments. It is incredible that municipalities cannot partially perfect water rights based on actual incremental development of permits.

FIGURE 1

City of Pendleton Water System

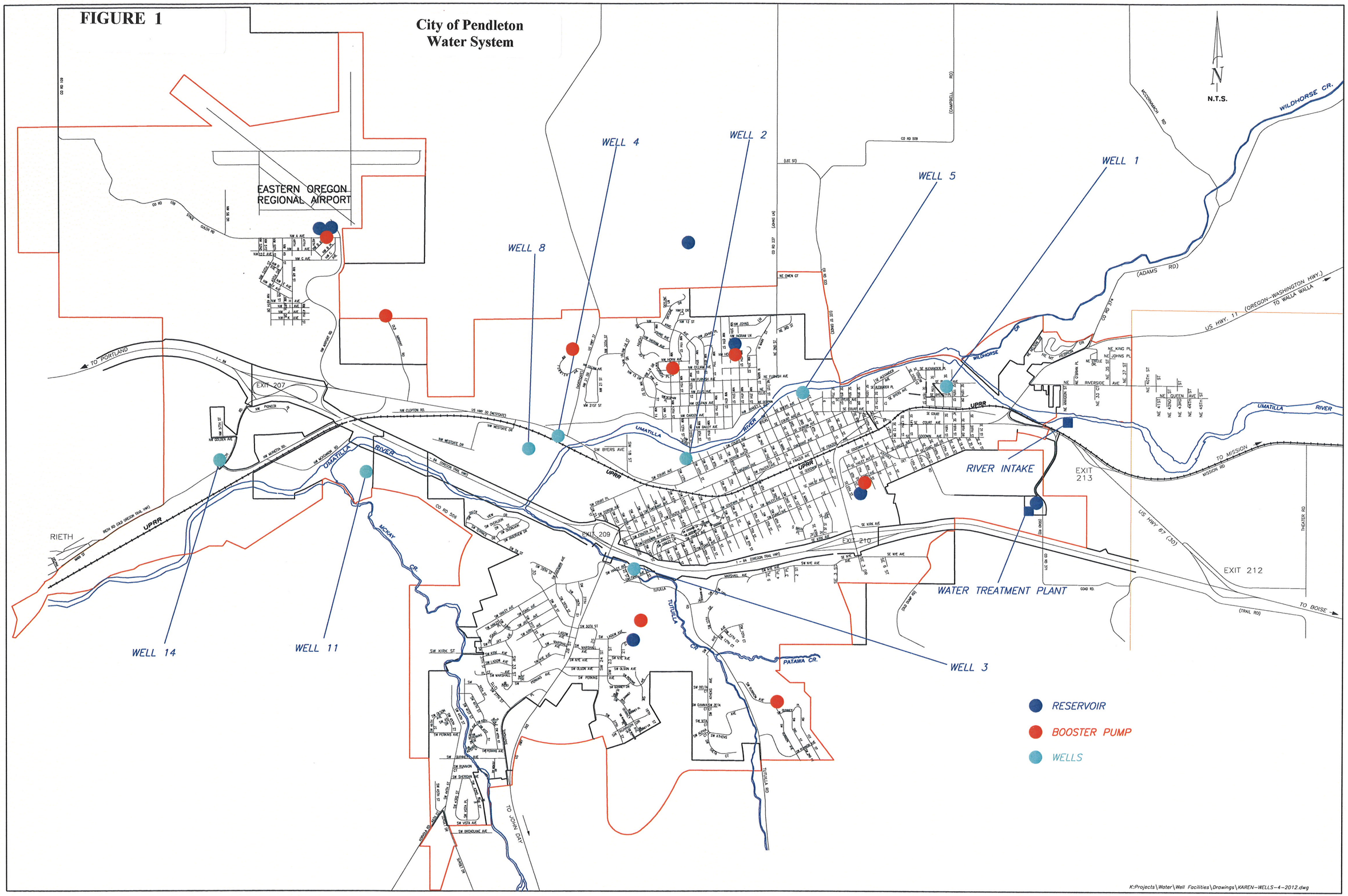

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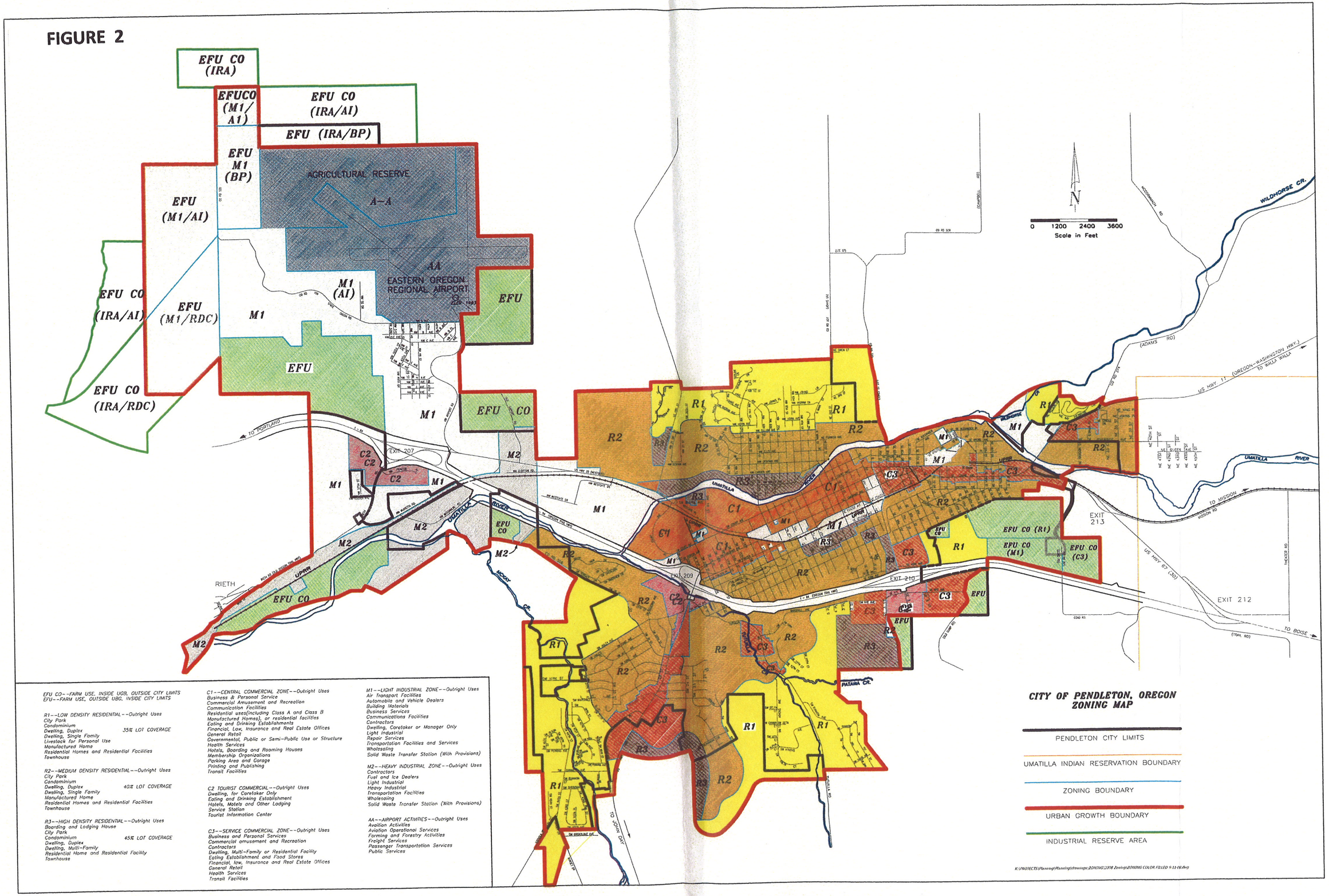
FIGURE 2



EFU CO--FARM USE, INSIDE UGB, OUTSIDE CITY LIMITS
EFU--FARM USE, OUTSIDE UBG, INSIDE CITY LIMITS

R1--LOW DENSITY RESIDENTIAL--Outright Uses
City Park
Condominium
Dwelling, Duplex — 35% LOT COVERAGE
Dwelling, Single Family
Livestock for Personal Use
Manufactured Home
Residential Homes and Residential Facilities
Townhouse

R2--MEDIUM DENSITY RESIDENTIAL--Outright Uses
City Park
Condominium
Dwelling, Duplex — 40% LOT COVERAGE
Dwelling, Single Family
Manufactured Home
Residential Homes and Residential Facilities
Townhouse

R3--HIGH DENSITY RESIDENTIAL--Outright Uses
Boarding and Lodging House
City Park
Condominium — 45% LOT COVERAGE
Dwelling, Duplex
Dwelling, Multi-Family
Residential Home and Residential Facility
Townhouse

C1--CENTRAL COMMERCIAL ZONE--Outright Uses
Business & Personal Service
Commercial Amusement and Recreation
Communication Facilities
Residential uses(including Class A and Class B Manufactured Homes), or residential facilities
Eating and Drinking Establishments
Financial, Law, Insurance and Real Estate Offices
General Retail
Governmental, Public or Semi-Public Use or Structure
Health Services
Hotels, Boarding and Rooming Houses
Membership Organizations
Parking Area and Garage
Printing and Publishing
Transit Facilities

C2 TOURIST COMMERCIAL--Outright Uses
Dwelling, for Caretaker Only
Eating and Drinking Establishment
Hotels, Motels and Other Lodging
Service Station
Tourist Information Center

C3--SERVICE COMMERCIAL ZONE--Outright Uses
Business and Personal Services
Commercial amusement and Recreation
Contractors
Dwelling, Multi-Family or Residential Facility
Eating Establishment and Food Stores
Financial, law, Insurance and Real Estate Offices
General Retail
Health Services
Transit Facilities

M1--LIGHT INDUSTRIAL ZONE--Outright Uses
Air Transport Facilities
Automobile and Vehicle Dealers
Building Materials
Business Services
Communications Facilities
Contractors
Dwelling, Caretaker or Manager Only
Light Industrial
Repair Services
Transportation Facilities and Services
Wholesaling
Solid Waste Transfer Station (With Provisions)

M2--HEAVY INDUSTRIAL ZONE--Outright Uses
Contractors
Fuel and Ice Dealers
Light Industrial
Heavy Industrial
Transportation Facilities
Wholesaling
Solid Waste Transfer Station (With Provisions)

AA--AIRPORT ACTIVITIES--Outright Uses
Aviation Activities
Aviation Operational Services
Farming and Forestry Activities
Freight Services
Passenger Transportation Services
Public Services

CITY OF PENDLETON, OREGON ZONING MAP

PENDLETON CITY LIMITS

UMATILLA INDIAN RESERVATION BOUNDARY

ZONING BOUNDARY

URBAN GROWTH BOUNDARY

INDUSTRIAL RESERVE AREA

K:\PROJECTS\Planning\Planning\drawings\ZONING\2008 Zoning\ZONING COLOR FILLED 9-11-08.dwg

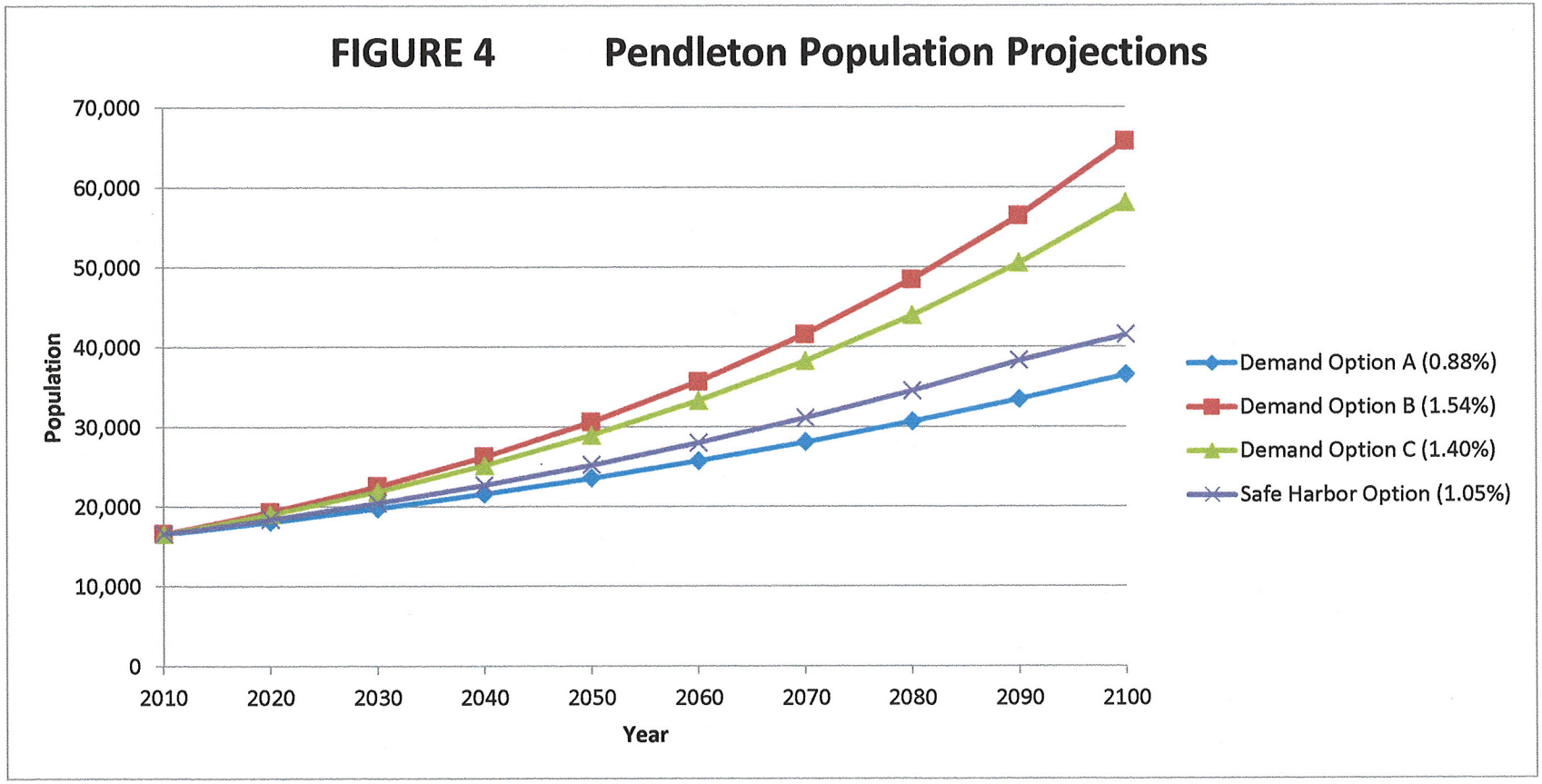


FIGURE 4 Pendleton Population Projections
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Population
2010
2020
2030
2040
2050
2060
2070
2080
2090
2100
Year
Demand Option A (0.88%)
Demand Option B (1.54%)
Demand Option C (1.40%)
Safe Harbor Option (1.05%)

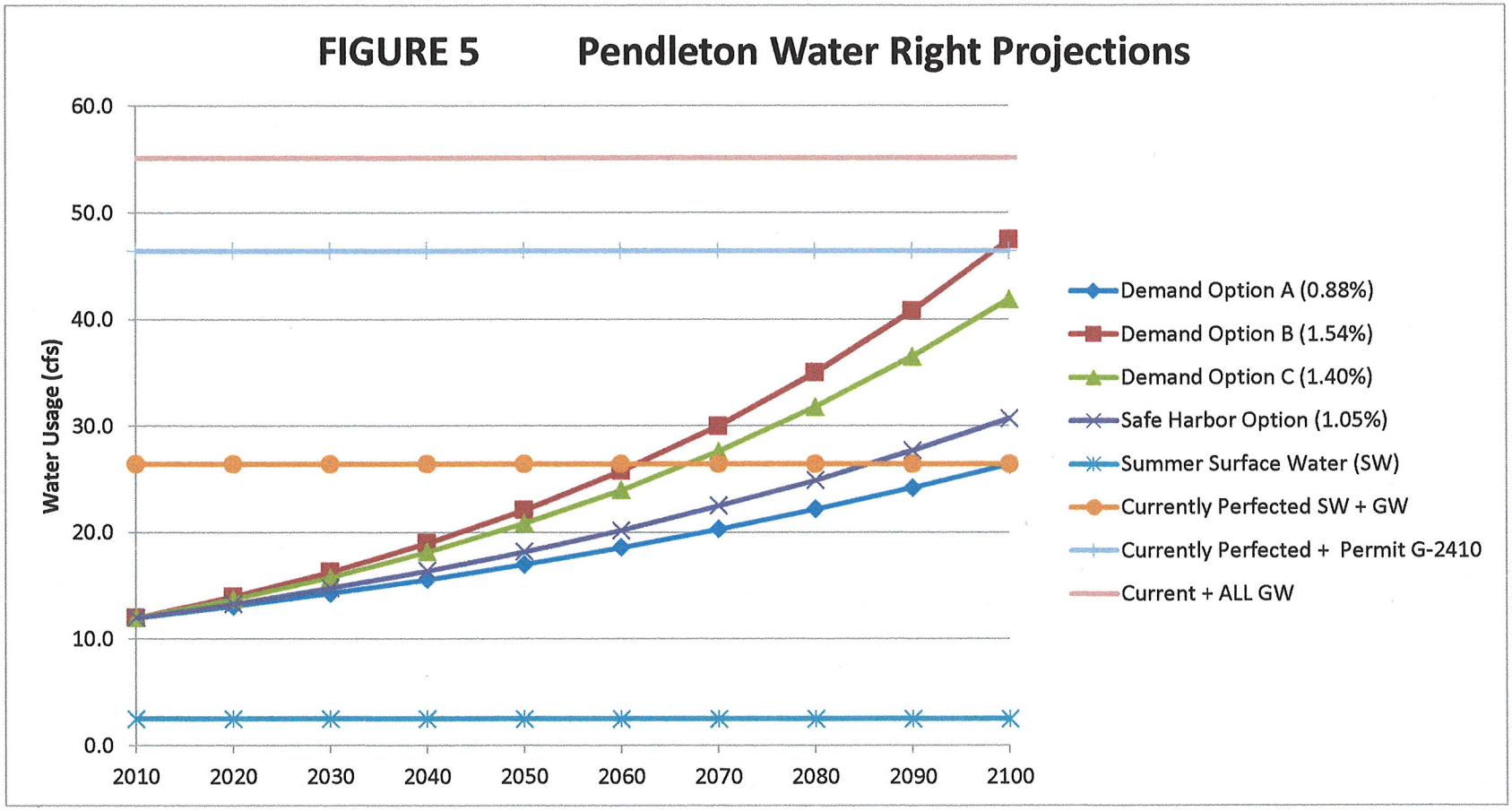


FIGURE 5 Pendleton Water Right Projections
Water Usage (cfs)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
2010
2020
2030
2040
2050
2060
2070
2080
2090
2100
Demand Option A (0.88%)
Demand Option B (1.54%)
Demand Option C (1.40%)
Safe Harbor Option (1.05%)
Summer Surface Water (SW)
Currently Perfected SW + GW
Currently Perfected + Permit G-2410
Current + ALL GW

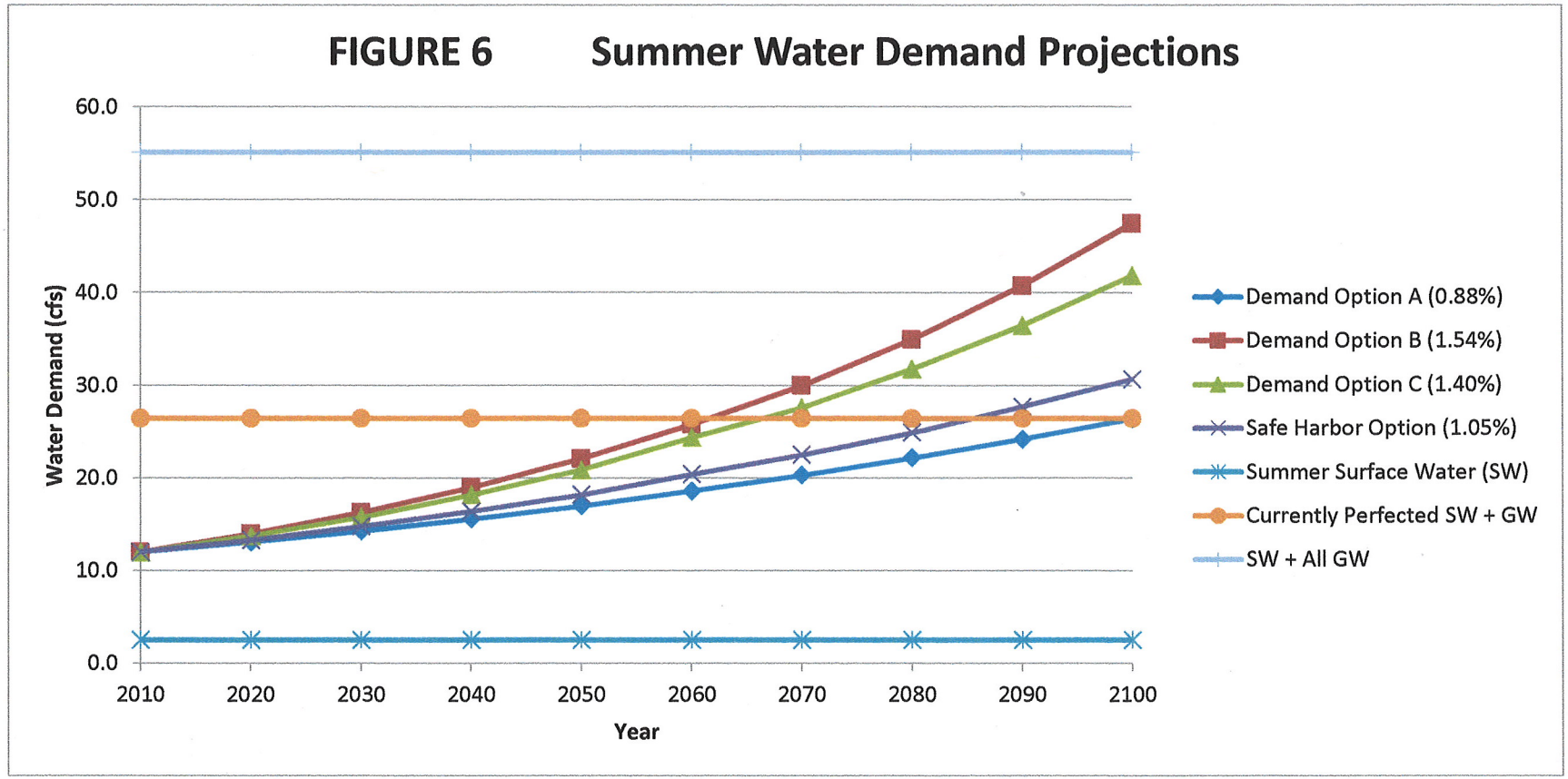


FIGURE 6 Summer Water Demand Projections
Water Demand (cfs)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
2010
2020
2030
2040
2050
2060
2070
2080
2090
2100
Year
Demand Option A (0.88%)
Demand Option B (1.54%)
Demand Option C (1.40%)
Safe Harbor Option (1.05%)
Summer Surface Water (SW)
Currently Perfected SW + GW
SW + All GW

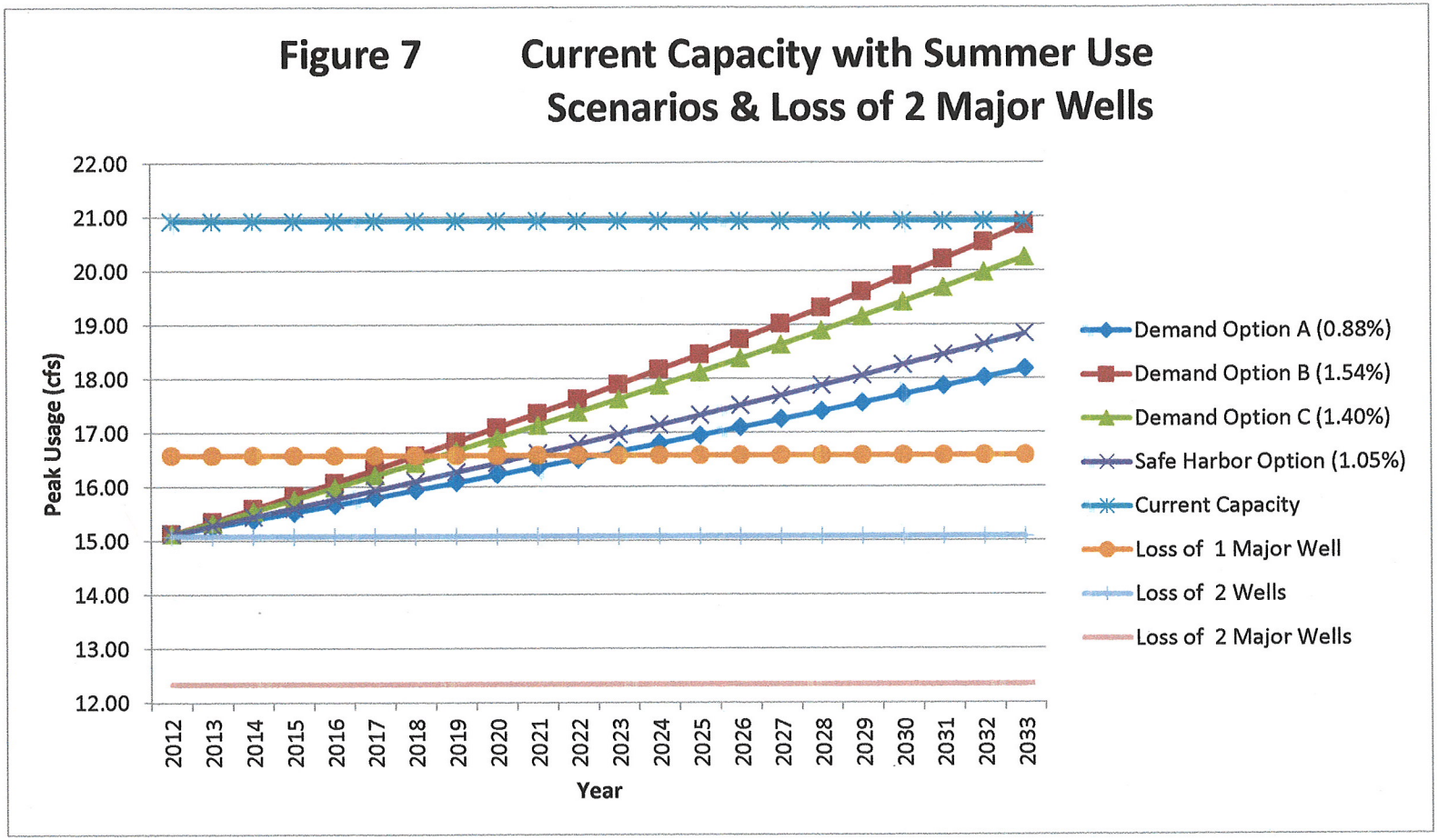


Figure 7
Current Capacity with Summer Use Scenarios & Loss of 2 Major Wells
Peak Usage (cfs)
22.00
21.00
20.00
19.00
18.00
17.00
16.00
15.00
14.00
13.00
12.00
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
Year
Demand Option A (0.88%)
Demand Option B (1.54%)
Demand Option C (1.40%)
Safe Harbor Option (1.05%)
Current Capacity
Loss of 1 Major Well
Loss of 2 Wells
Loss of 2 Major Wells