# SECTION IV

# SECTION IV – CONSERVATION AND SOURCE OF SUPPLY ANALYSIS

## WATER CONSERVATION PROGRAM

The objective of the conservation program is to promote maximum efficiency in utilization of water resources. Specific conservation goals and objectives for the City are primarily related to reducing unaccounted for water (UFW) and reducing water production, which will reduce operational cost.

## REQUIRED CONSERVATION MEASURES

The Washington legislature passed the Water Use Efficiency Act of 1989 (43.20.230 RCW), which directed the Department of Health (DOH) to develop procedures and guidelines relating to water use efficiency. In response, the Department of Ecology (Ecology), the Washington Water Utilities Council, and DOH jointly published a document titled Conservation Planning Requirements (1994). In 2003, the Municipal Water Supply – Efficiency Requirements Act (Municipal Water Law) was passed and added new requirements to RCW 70.119A. The Municipal Water Law directed DOH to develop the Water Use Efficiency Rule (WUE Rule), which became effective January 22, 2007. The WUE Rule is outlined in WAC 246-290 and the Water Use Efficiency Guidebook (DOH Publication #331-375. The Water Use Efficiency Guidebook replaces the 1994 Conservation Planning Requirements. The WUE Rule requires that water efficiency measures must be implemented or evaluated. WAC 246-290-810 identifies the minimum number of water use efficiency measures that must be evaluated based on system size.

Education: All public water systems are required to implement a public education program to educate users on the aspect of water conservation. The basic public education program is most often accomplished by distribution of DOH/DOE water conservation materials. The City provides conservation information through direct mail along with the Consumer Confidence Reports (CCRs) in June of each year.

Data Collection: Water systems are required to collect water use data in order to evaluate the water usage and the effectiveness of the conservation programs. Table IV-1 identifies the minimum level of data collection based on the DOH requirements and guidelines.

Table IV-1 Data Collection Requirements

| Type of Data | Collection Frequency | Current Compliance Status |
|---|---|---|
| Source of Supply | Daily Readings, Monthly/annual reporting. | YES |
| Emergency Intertie | Monthly Total | N/A |
| Wholesale Purchased | Monthly Total | N/A |
| Wholesale Sold | Monthly Total | N/A |
| Peak Day/Month | Peak Day and Month Totals | YES |
| Unaccounted for Water | Annual Total | YES |
| Non Revenue Water | Annual Total | YES |
| Single Family Meters | Monthly Totals | YES * |
| Multi-Family Meters | Monthly Totals | YES * |
| Commercial/Other | Monthly Totals | YES * |
| Agricultural | Monthly Totals | N/A |
| Population Served | Annual Total | YES |

* Bi-monthly data is collected for these parameters, which is acceptable to DOH.

The City collects data for all of the applicable categories including non-revenue water. Non-revenue water includes water from hydrant flushing, overflows, known leaks and non-metered services.

Demand Forecasting: Demand forecasting guidelines require an evaluation of the current water use with projections for future water use over the next six and twenty year planning periods. This forecasting has been completed in Section II.

## RECOMMENDED CONSERVATION MEASURES

The Water Use Efficiency Guidebook identifies conservation measures that are not specifically required, but are recommended for implementation. Measures discussed in the guidance are leak detection, conservation rate structures, service meter installation or replacement, pipe replacement programs, landscape management, low flow devices, etc.

Current maximum daily water demand for the City is estimated at 248 gpd per the 2009-2012 average for Equivalent Residential User (ERU). This is 29% below the water system design MDD of 350 gpd/ERU (WAC 246-290-221(4)). The low customer demand is likely a result of the following factors:

1. Current rate policies which increase 7% annually and the charge for sewer service, which is based on metered water use. These rate increases have led to a decrease in outdoor irrigation use.
2. The overall economy in Woodland.

3. The increasing use of sandpoints in residential homes for outdoor water use. Because of increased water rates, more people are installing sandpoints to water their yards.

## TARGET SAVINGS

Each water system must identify a percent savings goal based on the measures chosen for implementation. The savings goal must be used in the water demand forecast in Section II. The 2006 WSP used an Average Daily Demand (ADD) per Equivalent Residential Unit (ERU) of 240 gallons per day (gpd). The ADD/ERU in this WSP is 185 gpd/ERU, representing a reduction of over 23% over the past six years. Because the ADD/ERU is so low, additional conservation measures are not expected to produce large savings. The City's goal is to reduce average day demands by 3 percent and unaccounted for water (UFW) to 5% over the twenty-year planning period. The primary methods to reduce average water demands are through public education and pricing incentives.

The City is also going to be implementing a meter replacement program over the next couple years, targeting larger older meters. This has the potential to reduce usage by encouraging large scale commercial and industrial users to reduce their water usage if the older meters were not accurately recording usage. Newer meters will also accurately measure flow, which reduces unaccounted for water.

Further savings should be realized through reduction of UFW. The primary method to reduce UFW is through leak detection. Additional measures to reduce unaccounted for water include better reporting of non-revenue water and additional service meter replacement as outlined in Section VI.

## DEMAND PROJECTIONS WITH CONSERVATION

Section II includes demand projections with targeted savings. However, the water system improvements in this WSP will be designed for demand without conservation since there is insufficient data to verify conservation program effectiveness.

## CONSERVATION PROGRAM IMPLEMENTATION AND COST

The conservation program will be implemented through the operation program identified in Section VI and the Capital Improvement and Financial Programs presented in Section VIII and IX.

- Conservation education pamphlets will be distributed each year beginning in 2013 as part of the Consumer Confidence Reports (CCR's).
- Large meter replacement. The City has identified the location of older meters in the 2" – 4" size. Over 2012 and 2013 the City will replace the older 3" and 4" meters. The City has budgeted $17,000 in 2012 and $20,000 in 2013 for this program. In 2014 the City will start with replacement of 2" meters.
- Resolution 590, passed in November of 2010, legislates water rate increases of 7% per year until City Council passes a new resolution changing that. In addition sewer charges are based on the water meter usage and sewer rates are also increasing at 7% a year. The regular rate increases have resulted in a reduction of usage by customers. These annual increases will continue to encourage people to reduce water usage, especially in the summer months.

## WATER RIGHTS

The City has three water right certificates to withdraw water from a Ranney well located adjacent to the North Fork Lewis River as well as a certificate for surface water from the Lewis River. Table IV-2 identifies the current water right allocation for the Ranney well and the Lewis River surface water with notes regarding applicability of use. The total instantaneous withdrawal capacity is 2,800 gpm and a yearly maximum of 2,186 acre-feet per year as identified in the water right permit reports provided in Appendix D.

Table IV-2 Water Rights Summary for Ranney Well

| Certificate No. | Instantaneous (gpm) | Annual (acre-feet/year) | Comments |
|---|---|---|---|
| 6595 | 153 | - | Supplemental to Certificate 9985 |
| 9985 | 1,247 | 756 | Surface Water assigned to Ranney Well |
| G2-29241 | 1,400 | 1,430 | Issued in 2006 |
| Total | 2,800 | 2,186 | |

Table IV-3 identifies the minimum source requirement (MDD) and the annual quantity required for current and future conditions for the next 20 years at the projected growth rate.

Table IV-3 Water Right Requirements

| | Without Conservation | | With Conservation | |
|---|---|---|---|---|
| Year | MDD (gpm) | Annual (acre-feet/year) | MDD (gpm) | Annual (acre-feet/year) |
| Current – 2012 | 647 | 779 | 629 | 753 |
| 6-year – 2018 | 778 | 937 | 756 | 906 |
| 20 – Year - 2032 | 1,251 | 1,505 | 1,220 | 1,462 |

Water right appropriations for the City are adequate to serve the projected MDD and annual withdrawal demands. In 2001 the City submitted an additional application to increase water rights by 2,100 gpm (control number G2-29998) instantaneous. At this time this application has not been processed by DOE. Water Right Self-Assessment (WRSA) forms (Table 3 and Table 4) are included in Appendix D.

The City's original water right is surface water right 9985 from the Lewis River. All of the City's raw water is withdrawn from the Ranney Well. The surface water right is incorporated into the groundwater right issued as a supplement to the Ranney source and the water is currently being withdrawn at the Ranney.

## WATER SUPPLY RELIABILITY ANALYSIS

The purpose of the water system reliability analysis is to summarize efforts being undertaken to ensure an adequate quantity of water can be provided at all times. When water shortages or interruptions in service occur, public health can be threatened because system pressure may be reduced such that basic public health needs are not met or other back flow related problems occur. This analysis is divided into two sections, source reliability and water shortage response planning. In addition to developing a Water Shortage Response Plan (WSRP), the City is required to prepare an emergency response program to address contingencies for water system component failures. The emergency response planning is presented in Section VI.

## SOURCE RELIABILITY

As discussed in Section III, the City relies on the Ranney Well exclusively for source production. The City has recently secured a $973,000 PWTF Loan to improve the source capacity and install a generator at the Ranney Well. There is currently a receptacle for a generator at the Ranney Well. The Ranney Well has 3

pumps and 3 lateral collector pipes that can be operated individually if needed. The Ranney Well Project in 2013 – 2014 will add 2 – 3 new laterals to supply additional water supplies. The water treatment plant site includes three filter units, multiple pumps, and 1.78 million gallons of storage.

## WATER SHORTAGE RESPONSE PLANNING

The City is required to develop a WSRP that identifies actions to be taken during various levels of water shortage. Traditionally, WSRPs are developed to address mild and severe drought periods that affect source availability. Due to the significant amount of water resources in the lower Lewis River, drought conditions are not a significant concern. The summer of 2012 had a record long dry spell, and the level at the Ranney Well was lower than ever recorded but there was still enough water for the City. The City did implement some measures by stopping irrigation at parks, asking the schools to eliminate watering on non-athletic fields, and having WSDOT turn off their watering at I-5 Intersection 21. Additional measures were not needed. When the Ranney Well Project improvements are completed, the additional source water and the redundancy of 3 pumps, 5-6 laterals, and a dedicated generator will reduce the possibility of a water shortage over the 20-year planning period.

One possible scenario would be an extended power outage that is coupled with a fuel shortage. Another scenario is a large earthquake that disrupts the flow of water to the Ranney Well or damages the Ranney Well Structure. These scenarios would occur as part of a larger scale natural disaster and will be discussed in the emergency response and contingency planning in Section VI.