

**CITY OF SELAH**

**COMPREHENSIVE  
WATER PLAN**

**Prepared by**



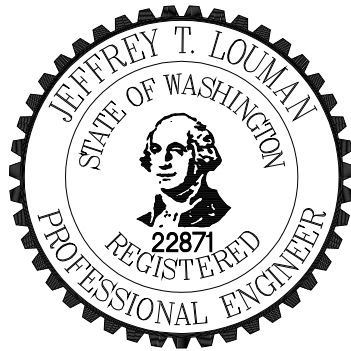
**Huibregtse, Louman Associates, Inc.**  
CIVIL ENGINEERING • LAND SURVEYING • PLANNING

**PROJECT NO. 06040**

**SEPTEMBER 2008**

# CITY OF SELAH

# *COMPREHENSIVE WATER PLAN*



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**INTRODUCTION**

**AND**

**EXECUTIVE SUMMARY**

## **INTRODUCTION**

The City of Selah is located in the upper Yakima Valley, within the northern part of Yakima County. The City lies along Interstate 82, approximately 3 miles north of the City of Yakima, and 36 miles south of the City of Ellensburg, in a dry, sunny area consisting of cultivated lands and sage-covered foothills. Incorporated in 1919, Selah lies against the west foothills of the valley, with over two-thirds of the City varying from 1,100 to 1,200 feet in elevation above mean sea level. Selah's economy depends largely on the agricultural industry; two fruit warehouses and two fruit juice companies provide the majority of employment within the City.

Selah recognizes the need to improve and expand its water system if it is to meet the demands of the system users and to keep pace with other growth-oriented improvements in this vital Yakima County community. Huijbregtse, Louman Associates, Inc., was authorized by the City of Selah to prepare this Comprehensive Water Plan, which represents the culmination of planning and data collection efforts.

## **PLANNING REQUIREMENTS**

Water systems with 1,000 or more services are required to have a water system plan approved by the Washington State Department of Health (DOH) pursuant to the Washington Administrative Code WAC 246-290-100 and WAC 246-291-140.

In order to assist water utilities in preparing their plans, the Department of Health has written a planning handbook which identifies the information needed to develop a "well-conceived and clearly-stated" water system plan. The planning handbook is organized into ten major chapters, with each chapter representing a basic water system plan component. The ten chapters are:

1. Description of Water System
2. Basic Planning Data and Water Demand Forecasting
3. System Analysis
4. Conservation Program, Water Right Analysis, System Reliability and Interties
5. Source Water Protection
6. Operation and Maintenance Program
7. Distribution Facilities Design and Construction Standards
8. Improvement Program
9. Financial Program
10. Miscellaneous Documents

Each chapter is divided into several sections to address specific topics in detail. The City of Selah 2007 Comprehensive Water Plan has been prepared in the format of the Department of Health's Planning Handbook dated April 1997.

## **OBJECTIVE**

The principal goal of water system planning is to make efficient use of available resources. This is accomplished by making decisions about water system capital improvements and operations which are in accordance with overall system policies and directions expressed in a utility's water system plan.

An equally important reason for developing a water system plan is to assure orderly growth of the system while maintaining reliable delivery of high quality water. The plan is intended to guide water utility actions in a manner consistent with other activities taking place in the community.

The water system plan is intended to look ahead at least twenty years. Development of a definite improvement schedule and financial program is required for the first six-year period, while the planning approach for the second period may be more conceptual. To continually provide adequate guidance to decision makers, the plan requires updating every six years.

Once adopted by the City of Selah and approved by the Department of Health (DOH), the Comprehensive Water Plan is considered by DOH "to be a commitment to implement the actions identified in the improvement schedule." Future water system decisions shall be in accordance with the Comprehensive Water Plan.

**PROJECTED WATER DEMANDS**

To plan for Selah's future water needs, the following items were examined:

Basic Planning Data (Chapter 2): Land use, future service area boundaries, and population growth are used to evaluate demands on the Selah water system. The City's current service population is 6,943, and the ten-year future service population is projected to be 9,005 in the year 2017. Selah's current number of single-family residential water services is 1,958, and the number of single family residential services is projected to increase to 2,735 in the year 2017.

Current Water Demands (Chapter 2): Selah's greatest year of water consumption was 2001, when an average of 2,357,651 gallons of water per day was used. The maximum month water consumption was experienced in July, 2004, when the average daily use for the month was 3,262,535 gallons. Maximum day consumption was estimated to be 3,820,250 gallons, and peak hour consumption was estimated to be 5,306 GPM.

Projected Water Demands (Chapter 2): Selah's 10-year water demand forecast for the year 2017, and the City's current source capacity and water rights are shown below:

	<u>Projected Year 2017 Demand</u>	<u>Current Source Capacity</u>	<u>Current Water Rights</u>
Services	3,085	-----	-----
Annual	1,259.580 MG	2,785.680 MG	1,550.945 MG
Peak Day	5.908 MG	7.632 MG	7.920 MG
Peak Hour	8,326 GPM	5,300 GPM	5,500 GPM

**SUMMARY OF SYSTEM DEFICIENCIES AND RECOMMENDED IMPROVEMENTS**

The following is a list of major water system deficiencies and recommended improvements which have been identified in the existing water system. A more detailed description of these deficiencies and recommended improvements can be found in Chapter 8 of this Plan.

**WATER RIGHTS**

Deficiency - The City's source well pumping capacity is currently restricted by their instantaneous water right ( $Q_i$ ) of 5,500 GPM from all source wells. Increasing the instantaneous water right ( $Q_i$ ) in the future would reduce the amount of equalizing storage needed to serve projected future demand, effectively reducing the need for additional storage capacity following the 20-year planning period. The annual water right ( $Q_a$ ) of 1,550.945 MG/year (4,760 acre-feet/year) will not be exceeded within the 20-year planning period, but additional water rights may be needed in the future to prevent restrictions in the City's projected growth.

Improvement - As discussed in Chapter 1 of this Plan, the City currently requires the developer of any proposed new development which will exceed the City's current water right capacity to transfer any water right it may hold to the City prior to approval of the new development. Selah's 2000 Comprehensive Water Plan describes the need for the City to control large industrial water use and explore the potential of transferring existing water rights owned by those industries to the City. Industrial water consumption is still the highest among all user categories, and the City will need to closely monitor projected future demands.

## SUPPLY

Deficiency - In order to maximize the City's current instantaneous water right and to improve source reliability, a new source well (Well No. 8) and Zone 3 booster pump station will be constructed in 2008. Adding an additional source of supply will maximize the City's instantaneous withdrawal capacity and provide an additional measure of reliability to the system. The new Zone 3 booster pump station will improve supply reliability to the upper pressure zones and increase the total pumping capacity to Zone 2 and Zone 3 to meet the projected peak hour demand.

Improvement - The City plans to construct a new source well (Well No. 8) at the existing Well No. 3 and 4 site and a Zone 3 booster pump station at the Well No. 6 site. This improvement will allow the city to maximize its instantaneous water right, reduce the reservoir storage needed, and improve supply reliability to the upper pressure zones. This improvement also includes the construction of a new 12-inch transmission main to the Zone 3 distribution system.

Deficiency - The Palm Park booster pump station was identified as a recommended system improvement in the 2000 Comprehensive Water Plan. This booster pump station still needs to be rehabilitated to make it a more reliable source of supply to the upper pressure zones. Currently, the Palm Park booster pump is only used continuously at peak times of the year (summer months) when demand is high.

Improvement - The Palm Park booster pump station was built in 1967 and is in need of mechanical and electrical upgrades. The booster pump station is currently used as a supplemental pumping supply to Zone 3 during peak demand periods. Rehabilitation of this pump station is necessary to improve source reliability to Zone 3 and serviceability of this booster pump station.

## STORAGE

Deficiency - The City of Selah will not exceed its current storage capacity until the year 2027. With the addition of the proposed Zone 5 reservoir to serve the upper zones of the North Hill area, the City's total storage capacity will be increased by 317,000 gallons, as discussed in this Chapter 3 of this Plan. With the added storage facility, and by nesting fire suppression and standby storage, the City will not exceed its storage capacity within the 20-year planning period.

Improvement - The proposed Zone 5 booster pump station and reservoir will be constructed in 2008 with private developer funds. This improvement will increase the City's total storage capacity and enhance fire protection to current Zone 4 homes in the Goodlander Heights development.

Deficiency - The existing North Reservoirs and Goodlander Reservoir are in need of repair to replace corroding ladders, overflow pipes, inlet pipes, and access hatches. The North Reservoirs were constructed in 1938, and are showing signs of age, such as minor cracking.

Improvement - The corroding ladders, overflow pipes, inlet pipes, and access hatches of the existing North Reservoirs and Goodlander Reservoir will be repaired or replaced, and the North Reservoirs will be cleaned and coated, reducing any possible leakage and improving water quality in the existing reservoirs.

## FIRE PROTECTION

Deficiency - The hydraulic analysis of the existing system revealed a few locations which are deficient in adequate fire flow capacity, partially due to lack of looping in the distribution system.

Improvement - The City has completed most of the distribution system improvements identified in its 2000 Comprehensive Water Plan, but remaining fire flow capacity deficiencies need to be improved to meet the system requirements. Most of the required looping will take place as future

development occurs. The Goodlander Heights booster pump station will be taken out of service when the new Zone 5 reservoir and booster pump station are constructed. The new reservoir will improve flow to homes in this existing development.

## DISTRIBUTION

Deficiency - Some 4-inch and 6-inch diameter wrapped steel water mains still remain in the City's distribution system. The condition of most of these water mains is not completely known, but they have been identified and prioritized by the City based upon their condition, size, and the overall system improvement they will provide.

Improvement - The existing wrapped steel water mains identified by the City are undersized, and replacing them will improve fire flow to these areas of the distribution system, as well as reduce any possible distribution system leakage.

## TELEMETRY

Deficiency - Selah's telemetry control system was installed in 2001 and is controlled by a master PLC, which is located at the City's public works office. The HMI computer is the City's connection to the master PLC for making operational adjustments to the water system. The HMI computer has reached its recommended lifetime and is in need of replacement.

Improvement - The City's HMI computer and software will be upgraded in 2008 to avoid loss of communication between the City and its control system due to computer failure.

## **PROPOSED WATER SYSTEM FINANCIAL PROGRAM**

Recommended system improvements are scheduled for completion in annual increments for the next six years, as shown on Table 8-1. Scheduling of the remaining improvements beyond this six-year period should be reviewed yearly as priorities and City growth patterns change and progress. Major recommended improvements for future years (2014 through 2027) have been estimated, but have not been scheduled at this time. The estimated improvement costs are provided in Table 8-1, as well as the total projected yearly cost.

In order to fund the recommended water system improvements discussed in this Plan, a proposed financial program has been developed and is provided in Table 9-6 (Water System Operating Fund) and Table 9-7 (Water System Reserve Fund). The proposed financial program incorporates projected operations, improvements, and loan costs for the next six-year period. Projected revenues and expenditures of the water system include growth factors and inflation rates, in addition to the recommended rate increases, to account for estimated growth within the City, as discussed in Chapter 9 of this Plan.

An annual review of the water system's financial program is conducted during the City's budget preparation process. The program will also be reviewed and revised, as needed, during the Comprehensive Water Plan update in 2013. This will allow modifications to the rate increases, should financial conditions change.