CITY OF KIRKLAND
123 Fifth Avenue, Kirkland, WA 98033 425.587.3000
www.ci.kirkland.wa.us

MEMORANDUM

To: David Ramsay, City Manager

From: Daryl Grigsby, Public Works Director
Ray Steiger, P.E., Capital Projects Manager

Date: September 6, 2007

Subject: 2007 COMPREHENSIVE WATER PLAN UPDATE PUBLIC HEARING

RECOMMENDATION:

It is recommended that City Council conduct a public hearing on the City's 2007 Comprehensive Water Plan Update (Plan); pending the outcome of the hearing, it is further recommended that Council pass the attached resolution approving the Plan.

BACKGROUND AND DISCUSSION:

The City owns and operates a public water system within its corporate boundaries. Water system data is on file at the Washington State Department of Health (DOH), and, as per WAC 246-290-100, the City is required to update the Plan at least every six years. The current update to the Plan was approved by the DOH on August 9, 2007, and, as part of the overall approval process, at their regular meeting of September 4, 2007, Council set September 18th as the date for a public hearing on the updated Plan.

The Plan presents a description of the existing water system and service area, forecasts future water demands, identifies policies and design criteria for water system operations and improvements, presents the results of water system analyses, outlines the operations and maintenance program, identifies a schedule of improvements and addresses a financial plan to accomplish the improvements. The Plan also contains several ancillary elements which include a water conservation plan, cross-connection control plan and water quality monitoring plan (Attachment A – Table of Contents). Some of the Plan highlights are as follows:

- The City provides water service to approximately 11,400 customer accounts throughout its water service area with a service area population of approximately 35,000 people.
- The City provides water service to primarily residential customers, which make up approximately 82 percent of all customer accounts and use approximately 51 percent of all water supplied.
- The City also operates several joint-use facilities that provide supply to areas of the City of Redmond and the City of Bellevue.
- The City uses approximately 1.5 billion gallons of water per year (approximately 4 million gallons per day).
- From 1996 to 2004 water demand per person was decreased from 118 gallons per day to 111 gpd (approx 6%).
- From 1996 to 2004 unaccounted –for water (leaks, etc) was 5.7%; the industry average ranges from 15-20%.
- The City's existing reservoirs and the Tolt supply stations have adequate capacity for the next 20-years.
- System investments over the next ten years are estimated at $26M; the current 2008 – 2013 CIP represents the first six years of the capital plan developed in the Plan.

A complete copy of the (approximately 350 page) Plan is available in the Council Study for review. The next Comprehensive Water System Plan Update will be presented to the Washington State Department of Health in 2013.

Attachments: A Plan Table of contents
B Plan Executive Summary
C Adoption Resolution

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Attachment A

City of Kirkland
Comprehensive Water System Plan
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Executive Summary

PURPOSE OF THE PLAN

The City of Kirkland (City) water system is a major infrastructure, much of which is invisible to the people who receive water from it. The water system requires qualified personnel to manage, operate and maintain it and an ongoing capital improvement program to replace old components to meet Federal and State mandates and customer expectations. The primary purpose of the City of Kirkland Comprehensive Water System Plan (Plan) is to identify and schedule water system improvements that correct existing system deficiencies and provide a safe and reliable supply of water for current and future customers. This Plan complies with Washington State Department of Health (DOH) regulations under *WAC 246-290-100*, which requires water purveyors to update their water system plans every six years.

CHANGES SINCE THE LAST PLAN UPDATE

The City's last comprehensive water system plan was approved by DOH in 1998. Many changes have occurred since the last update that affect water system planning and have influenced the preparation of this Plan for the City.

- The Washington State Department of Health published updated drinking water regulations in April of 1999. The revisions address lead and copper monitoring, wellhead protection and cross-connection control, all of which affect the City of Kirkland.
- Puget Sound's wild Chinook Salmon and Bull Trout were listed as a threatened species under the Endangered Species Act (ESA) in 1999.
- In response to the events of September 11, 2001, the United States Congress passed the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (H.R. 3448), which became effective June 12, 2002. This act requires all public water systems serving a population of over 3,300 persons to prepare a water system Vulnerability Assessment Plan and update or prepare an Emergency Response Plan.
- The 2003 Municipal Water Law (HB1338), which became effective September 9, 2003, identifies additional elements related to water rights, system capacity, service area consistency and conservation that are required in all water system plans.
- More discussion of joint facility operation elements of the system based on input by joint facility stake holders (joint board).

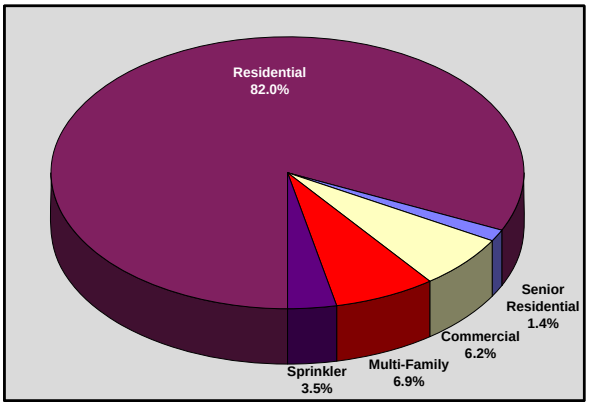
SUMMARY OF KEY ELEMENTS

The Plan presents a description of the existing water system and service area, forecast of future water demands, policies and design criteria for water system operation and improvements, water

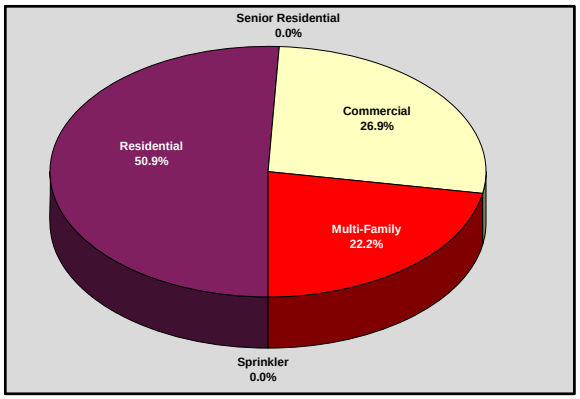
system analyses, the operations and maintenance program, a schedule of improvements and a financial plan to accomplish the improvements. The Plan also includes several ancillary elements, which include a water conservation plan, cross-connection control plan and water quality monitoring plan. A summary of the key issues related to these elements is provided in the following sections.

Water Service Area

The City provides water service to approximately 11,414 customer accounts throughout its water service area for a population of approximately 35,024 people in 2004. The water service area boundary is not expected to change and is the same as the planning area boundary for the purpose of this Plan. The City provides water service to primarily residential customers, which make up approximately 82 percent of all customer accounts and use approximately 51 percent of all water supplied.



2004 Water Connections



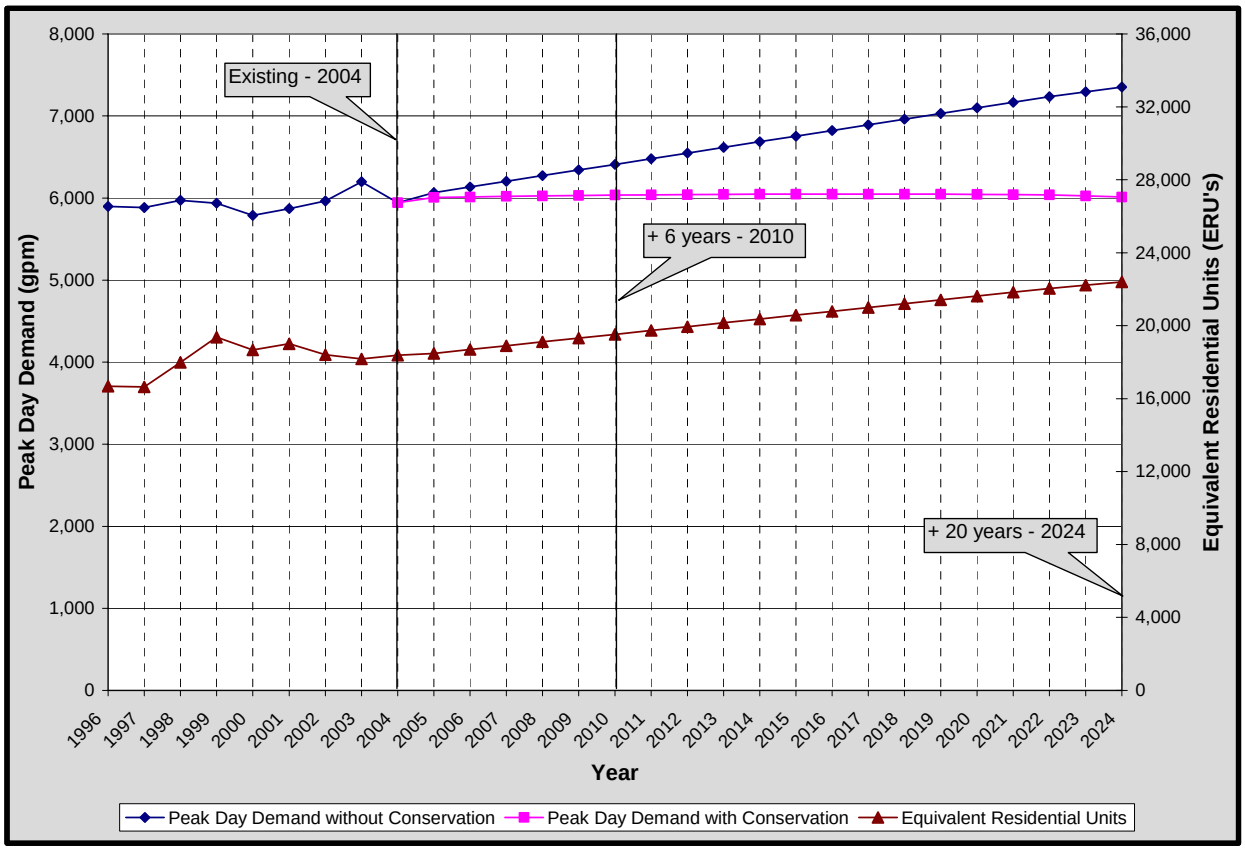
2004 Water Consumption

The City also operates several joint-use facilities that provide supply to areas of the City of Redmond (Redmond) and the City of Bellevue (Bellevue). All three cities are proportionally responsible for the cost of maintaining and operating the joint use facilities. This arrangement was agreed to during the Rose Hill Water District assumption in 1994. Under the assumption agreement, the City became a wholesaler of water to both Redmond and Bellevue. The areas of Bellevue and Redmond supplied by the joint-use facilities are all within the area served previously by the Rose Hill Water District. Under the agreement, the City is only required to supply a rate of supply proportional to each City's percent ownership in each joint-use supply facility as described in the assumption.

Past Water Usage and Conservation

Total system-wide water usage has increased approximately 1 percent from 1996 to 2004, primarily due to additional customers added to the system. During this same time period, the average amount of water demand per person has decreased from approximately 118 gallons per day in 1996 to approximately 111 gallons per day in 2004. This trend of decreasing water demand on a per capita basis is likely the result of water conservation practices and an increase in the number of homes with water-efficient plumbing. The City's average per capita demand of 113 gallons per day from 1996

through 2004 and average demand per equivalent residential unit (ERU) of 214 gallons per day are slightly less than the average for the Puget Sound area. The City's average amount of unaccounted-for water from 1996 to 2004 was 5.7 percent, which is below the industry average of 15 to 20 percent. The City's Water Conservation Plan identifies a water use reduction goal of 1 percent per year through the year 2024, which is consistent with the Cascade Water Alliance's (Cascade) regional water conservation goal.



Past and Future Water Demands and ERU's

Future Water Demands and Water Supply

Overall water demand within the City's system is estimated to increase by up to 8 percent within the next 6 years and by up to 24 percent within the next 20 years, depending on future water use reductions due to the City's conservation program and the rate at which growth actually occurs in the system. The City currently anticipates using its 3 existing Tolt Pipeline connections to meet the demand requirements of the system through the 20-year planning period. The capacity of these facilities is adequate to meet the projected demands for this period. However, Cascade may choose to provide water to the City through alternative sources. If alternative sources are utilized, Cascade will construct supply facilities capable of meeting the City's needs.

Water Source and Quality

The City of Kirkland is a Cascade member. The Interlocal Contract between the City and Cascade states that Cascade will provide a full supply commitment to the City for current and future water supply needs. Cascade shall provide for the necessary water system expansions and extensions to the meet the needs of additional water customers of Cascade members, if the growth is consistent with applicable growth management plans.

In December 2003, Cascade signed a 50-year declining block agreement with the City of Seattle (Seattle). Kirkland relinquished its individual contract with Seattle in favor of a contract between Cascade and Seattle. The agreement requires Seattle to provide water to Cascade through December 31, 2053 in decreasing amounts. It is the intent of Cascade to procure other sources of water as time progresses to meet the demands of its members. Water will continue to be provided to the City from the existing supply stations.

The City relies on the personnel and procedures of Seattle to provide a reliable and high quality supply of water to the City's system. Seattle is responsible for the quality of the water from the source to the City's three metered supply connections. The City is responsible for water quality within its water service area boundary. The City monitors water quality in its system but does not provide water treatment; all water treatment is provided by Seattle. In the past source water quality has been good but not without some problems related to Seattle's regional water system. Seattle recently completed construction of new water treatment plants that have increased the reliability and quality of the water supply.

Operations and Maintenance

The City's operations and maintenance organization is staffed by well-qualified, technically trained personnel. City staff regularly participates in safety and training programs to keep abreast of the latest changes in the water industry and to ensure smooth and safe operation of the water system. The current staff of supervisory and maintenance personnel have effectively operated and maintained the water system in the past. However, approximately one additional staff is necessary to fulfill the optimum preventive maintenance requirements of the water system. The City plans to add staff to properly maintain the system and to keep up with system growth as the budget allows.

The City has taken several steps to prepare for emergency situations. The Emergency Response Plan was prepared for the City in December 2004 and provides information to prepare and assist the City in responding to emergency events. The City has also conducted a vulnerability assessment of its water system in accordance with the requirements of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002. The City's Water Shortage Response Plan identifies procedures for managing water demand during a water supply emergency or shortage situation. Water system improvements completed by the City over the last several years and proposed improvements identified in this Plan will reduce the vulnerability of the water system during emergency situations.

Water System Evaluation

The existing water system was evaluated to determine its ability to meet the policies and design criteria of the City and those mandated by the Department of Health (DOH). The results of the evaluation are summarized below.

- The City's existing reservoirs and Tolt supply stations have adequate capacity for the next 20 years.
- All three of the City's Supply Stations should be upgraded for improved operability and ease of maintenance.
- The North Reservoir Booster Pump Station should be upgraded with larger pumps.
- The North Reservoir should be recoated (the City anticipates contracting this work to be completed in 2008). The South Reservoir is also scheduled for recoating.
- Master meters throughout the City's water system should be replaced with larger meters to decrease head loss.
- Several water mains need to be replaced with new water mains to increase fire flows and resolve deficiencies related to undesirable pipe material and aging water main.
- Telemetry, operation and control improvements are necessary to simplify the operation of the water system and optimize control of the facilities with reduced operation costs.
- The City will continue to implement measures identified in the Vulnerability Assessment.

Proposed Water System Improvements and Financing Plan

Improvements to the system are primarily necessary to resolve existing system deficiencies, but they will also improve operations and accommodate future water customers. Improvements identified for the first six years of the capital improvement program (2008 to 2013) are estimated to cost approximately $15,002,000 (in 2006 dollars), which results in an average expenditure of approximately $2,500,000 per year (in 2006 dollars). Improvements in the following six years (2013 to 2018) are estimated to cost approximately $12,189,000 (in 2006 dollars).

The financial analysis is intended to illustrate the feasibility of funding the operation, maintenance and capital improvements planned for the water system for the next six years. The first six years of capital improvements can be funded from existing capital reserves, capital facilities charge revenues, revenue bonds, wholesale cash payments and moderate rate increases. The rate increases will decline starting in approximately 2009, when they are expected to level off to match Consumer Price Index levels.

The City has established rates that are affordable to its customers and has earned a reputation for providing high-quality customer service and outstanding water quality. The City's proven financial strength will ensure that customers will continue to receive the same high-quality level of service they have come to expect.

Attachment C

RESOLUTION R-4668

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF KIRKLAND APPROVING THE KIRKLAND COMPREHENSIVE WATER SYSTEM PLAN.

WHEREAS, the Kirkland Department of Public Works has prepared and recommended the "Comprehensive Water System Plan", dated August 2007, for the City water service area; and

WHEREAS, the Comprehensive Water System Plan has been submitted to all neighboring agencies and cities for their review and comment for consistency with their respective plans;

WHEREAS, the Comprehensive Water System Plan was presented to the City Council by staff and a public hearing was held at a regular Council meeting for the project; and

Whereas, the Council has determined the Comprehensive Water System Plan should be adopted,

NOW, THEREFORE, be it resolved by the City Council of the City of Kirkland as follows:

Section 1. The Comprehensive Water System Plan dated August 2007 is hereby approved as the comprehensive water plan for the Kirkland area.

Section 2. The Comprehensive Water System Plan shall be formally adopted by appropriate amendment and incorporation in Chapter 15.48 of the Kirkland Municipal Code.

Passed by majority vote of the Kirkland City Council in open meeting this _____ day of _____, 2007.

Signed in authentication thereof this _____ day of _____, 2007.

_____
MAYOR

Attest:

_____
City Clerk