UTILITIES ELEMENT

GOAL

Facilitate the development and maintenance of all utilities at the appropriate levels of service to accommodate the growth that is anticipated in the City of Renton.

Summary: The Utilities Element guides future utility service within the greater Renton area. It helps ensure that adequate utilities will be available to both existing and new development. It also ensures that utility improvements will be used to help implement the Comprehensive Plan and will be phased according to community priorities. The Utilities Element indicates how utility improvements can be used to maintain equitable levels of service, guarantee public health and safety, and serve new development in a timely manner. In addition, the Utilities Element defines how to minimize the detrimental impacts of utility improvements on surrounding development as well as the community as a whole. The Utilities Elements looks to promote efficiency in the provision or improvement of service wherever appropriate and feasible. In addition, it asks that the costs of improvements should be distributed in an equitable manner. Beyond the City's existing boundaries, the Utilities Element fosters coordination with regional and adjacent utility systems. It also guides the provision of services to areas outside of the City, but within the City's planning area especially in cases of annexation.

The City of Renton provides water, wastewater, and storm water utility services for citizens residing within the city limits and by agreement with other purveyors for some areas located outside of the City's boundaries. Renton contracts with a private hauler for collection of solid waste and residential recycling. Other utility services that affect the City include: cable television, conventional telephone, fiber optic cable systems, cellular telephone service, natural gas, petroleum products, and electricity. *(See the Annexation Section of the Land Use Element, the Stormwater Section of the Environmental Element and the Capital Facilities Element for additional policies related to the Utilities Element.)*

General Policies

Discussion: *The following general policies are designed to ensure that utility services are safely and efficiently provided, and are constructed in an environmentally sound manner that reasonably mitigates impacts on adjacent land uses. The policies also emphasize cooperation and coordination with other agencies, jurisdictions, and purveyors to create and maintain utilities.*

Objective U-A: Provide an adequate level of public utilities in response to and consistent with land use, protection of the environment, and annexation goals and policies.

Policy U-1. Utility facilities and services should be consistent with the growth and development concepts directed by the Comprehensive Plan.

Policy U-2. Promote the collocation of new public and private utility distribution lines with planned or pre-existing systems (both above and below ground) in joint trenches and/or right-of-ways where environmentally, technically, economically, and legally feasible.

Policy U-3. Process permits and approvals for utilities and facilities in a fair and timely manner and in accord with development regulations that encourage predictability.

Policy U-4. Strive to protect the health and safety of Renton citizens from recognized harmful effects of utility generated environmental hazards.

Policy U-5. Encourage the appropriate siting, construction, operation, and decommissioning of all utility systems in a manner that reasonably minimizes impacts on adjacent land uses.

Policy U-6. Where appropriate, encourage conservation in coordination with other utilities and jurisdictions.

Policy U-7. Continue to encourage the coordination of non-emergency utility trenching activities and street repair to reduce impacts on mobility, aesthetics, noise, and other disruptions.

Policy U-8. Continue to coordinate the construction and replacement of City-managed utilities with other public and private infrastructure. in order to minimize construction related disruptions and contain costs.

Policy U-9. Where appropriate, work cooperatively with other jurisdictions to ensure that reliable and cost-effective utilities are available to meet increasing demands resulting from local and regional growth.

Policy U-10. Where appropriate require reasonable landscape screening of site-specific aboveground utility facilities in order to diminish visual impacts.

Policy U-11. Identify utility capacity needed to accommodate growth prior to annexation. Do not annex areas where adequate utility capacity cannot be provided.

City-Managed Utilities

Discussion: *The following general policies are designed to ensure that utility services are provided concurrently with new development. The policies are designed to prevent unplanned, disorderly land development, which can demand costly infrastructure upgrades and expensive temporary solutions. Annexation policies related to utility provision are intended to create a strong connection between land use and infrastructure implementation programs. City utility facilities expansion is intended to further the long-term development goals of the City rather than to promote extension of the utility system of a separate entity.*

Objective U-B: Provide and maintain safe, reliable and adequate utility facilities and services for the City's current and future service area to meet peak-anticipated demands of the City in an efficient, economic, and environmentally responsible manner.

Policy U-12. Approval of development should be conditioned on utility systems with capacity to serve the development, without decreasing locally established levels of service being in place or with a financial commitment to provide service within a specified time frame.

Policy U-13. Coordinate the extension of utility services with expected growth and development.

Policy U-14. Apply level of service standards consistently throughout the service area for city-owned or managed utilities. If necessary, this level-of-service standard may be phased-in over time.

Policy U-15. Preference should be given to capital facility improvements that will support the development and redevelopment of the Downtown, mixed-use centers, the Urban Center, and other high growth areas concurrent with anticipated growth.

Policy U-16. Encourage the use of water and energy conservation technologies throughout the City.

Policy U-17. Timely and orderly extension of City provided utility services (water, sanitary sewer, surface water, solid waste) should be provided within the City's existing and future service areas to meet public health and safety requirements.

Policy U-18. Water, sewer, and storm water facilities and services should be in place prior to occupancy of development projects.

Policy U-19. Implementation and coordination programs for the improvement, phasing and financing of water, sewer, and storm water infrastructure should be developed consistent with the Land Use Element of the Comprehensive Plan.

Policy U-20. All development should be required to pay an equitable share of construction costs for improvements to utility systems for water, sanitary sewer, and storm water necessitated by that development. When utility improvements will provide a general public benefit, the City may contribute funds for the construction of improvements to utility systems to support the public interest.

Policy U-21. Upon annexation, if there is a threat to health and safety, the City may require upgrading of the deficient infrastructure as a condition of the annexation.

Policy U-22. The City shall not be responsible for funding the immediate upgrading of utility systems located in annexed areas. At such time that the existing infrastructure is replaced, upgraded or extended, the new infrastructure must conform to City of Renton standards.

Policy U-23. When an annexation encompasses property served by a utility district, and that district continues to provide service, that district will be required to execute a franchise agreement with the City in order to operate within the City.

Policy U-24. The owners of all properties, located in unincorporated portions of the Renton Planning Area and outside of municipal service areas, should agree to develop in accordance with specified City development standards, if granted City utilities. Exceptions would be allowed in the cases of threats to public health and safety.

Policy U-24.1. The owners of all properties located in unincorporated King County that are within Renton's Potential Annexation Area (PAA) that receive City water services should be required to sign a covenant to annex.

Policy U-25. Pursue future annexation of all lands that have recorded covenants to annex or that receive City water and sewer service using the 60% Assessed Valuation method of direct petition or other methods that allow for the enforcement of covenants not to oppose future annexation.

Policy U-26. In the event of a threat to public health and safety, the City utilities may use utility resources to prevent or mitigate such threats.

Non-City Managed Utilities

Discussion: *The following policies are designed to ensure Renton is aware of proposed non-city managed utility facility upgrades and that utility purveyors are fully aware of the City's needs.*

Objective U-C: Ensure non-City managed utilities provide service commensurate with required state-mandated public service obligations and established safety and welfare standards.

Policy U-27. Coordinate data exchange with utility planners for use with the City of Renton's geographic information system.

Policy U-28. Upon renewal, all franchise agreements should be reviewed for compliance with the City of Renton Comprehensive Plan and the State of Washington Growth Management Act.

Policy U-29. New telecommunications and electric utility distribution lines should be installed underground within the City where practical in accordance with rules, regulations, and tariffs applicable to the serving utility.

Policy U-30. New or reconstructed structures, towers, and transmission lines should be designed to minimize aesthetic impacts appropriate to their surroundings whenever practical.

Policy U-31. Coordinate periodic updating of the utility element and relevant implementing development regulations with adjacent jurisdictions and purveyors.

Policy U-32. Encourage the exchange of information relevant to public and private planning processes.

Policy U-33. Recognize and continue to allow existing utility facilities that may have regional significance within the City, consistent with the goals and policies of the City of Renton Comprehensive Plan.

Policy U-34. Ensure that development regulations are consistent with and do not otherwise impair the fulfillment of the serving utilities' public service obligations.

Water Supply

Background

The Renton Water Utility is operated as a self-supporting enterprise utility under the direction of the Mayor and City Council. Operations are guided by policies of the *City of Renton Comprehensive Water System Plan*, 1998. (Update scheduled for adoption in 2005.)

City of Renton Utility Service Area

The City of Renton's Water Utility System provides service to an area approximately 16 square miles in size, and to more than 14,700 customer accounts (Figure 2-1). In addition, the City supplies water on a wholesale basis to the Bryn Mawr/Lakeridge Water District through a single metered connection. Boundaries of the water service area are defined by the City and approved by King County. The City's service area boundaries are not necessarily the same as the corporate boundaries of the City. Agreements between Renton and adjacent purveyors allow Renton to serve some areas outside of the city limits and provide for other districts to serve limited areas within Renton's corporate limit.

Existing City Water Supply Facilities Within City Limits

Current active and primary water supply sources include five wells drawing water from the Cedar Valley aquifer, three wells from the Maplewood aquifer and one artesian spring. The wells provide eighty-six percent (86%) of the City's water production. In addition, the City maintains seven metered backup water supply interties with Seattle Public Utilities, one emergency intertie with the City of Kent and one emergency intertie with the City of Tukwila.

Water treatment consists of chlorination, fluoridation, and corrosion control.

As a result of Renton's topography, Renton's service area encompasses twelve hydraulically distinct pressure zones. A system of booster pump stations and pressure reducing stations allow water transfer between zones. Currently there are eight reservoirs in the City's water supply system, strategically located to provide adequate equalizing and fire flow storage. Pressure reducing valves are used to supply lower pressure zones from higher-pressure zones that contain water reservoirs.

Capacity of Existing Facilities

City’s active wells and Springbrook Springs currently provide 11,900 gallons per minute (gpm) or 17.14 million gallons per day (mgd). The back up Maplewood wells and emergency well can deliver an additional 7,000 gpm or 10.08 mgd. Together, active, standby, and emergency wells provide 18,900 gpm or 27.22 mgd. Emergency interties with neighboring cities and water districts can provide 12,000 gpm or 17.28 mgd.

The Washington State Department of Health has established guidelines for estimating the amount of supply necessary for adequate water supply. Based on composite growth forecasts, the City has sufficient on-line supply capacity to meet demands through at least 2020.

Forecasted Conditions - City of Renton

City of Renton Future Water Utility Service Needs

The following forecasts are based on Puget Sound Regional Council projections, which have been allocated by the City of Renton, based on local assumptions. Expected increases in population will result in a total of 61,694 persons (or 26,940 households) living within the current city limits by the year 2010; and, 77,752 persons (or

29,128 households) in the annexation area. The total forecast population of Renton's Planning Area is expected to be 139,446 persons (or 60,893 households) by 2010.

The total projected maximum day demand by 2010 of about 19.9 mgd is anticipated and provided for in the adopted and approved 1998 Renton Comprehensive Water System Plan. The completion of the Maplewood wells, booster pump station and water treatment facility in 1998 should produce adequate quantities of water to accommodate projected growth, provided the City's existing supply is not lost through contamination or some other unforeseen event.

City of Renton Future Source of Supply

Water demand will continue to increase as the City's population grows. In response, the City has rehabilitated one emergency well in the Cedar Valley aquifer and developed three others on the Maplewood aquifer. If no other supply sources are developed, the additional supply from the three wells will adequately meet demands until at least 2020,

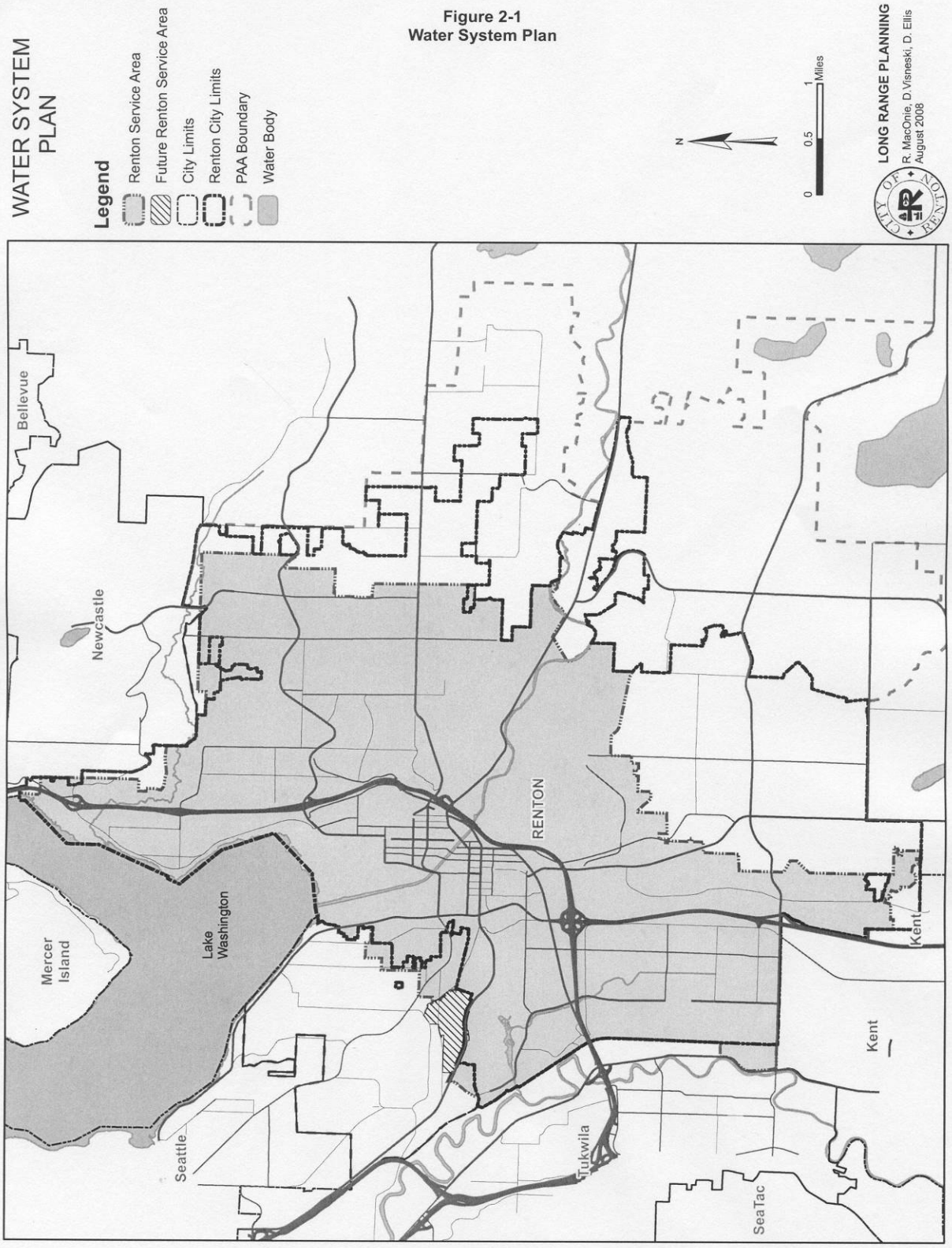


Figure 2-1
Water System Plan

***Discussion**: Groundwater is Renton's primary source of drinking water. Nearly all of the City's water supply comes from the shallow Cedar Valley Aquifer and from Springbrook Springs. Development of groundwater supply has been successful in that it has provided substantial volumes of very high quality water. It is assumed that the potential for increased withdrawal rates is possible and that the aquifer is the City's best source of long-term water supply.*

The Cedar Valley aquifer is shallow and is covered by permeable material. Therefore, potential contamination problems exist from industrial, commercial, and residential development in the aquifer recharge area and from the transportation of contaminants through the aquifer area. Groundwater contamination would directly and immediately affect all Renton water customers. The Renton City Council has ranked aquifer protection as its number one priority, and it is the single most important issue in providing a reliable water supply to the service area.

The City must assure that water supplies will be adequate to serve future growth. This can be accomplished through prudent use of current sources, the acquisition of new sources, and water reuse programs.

In Renton, thousands of gallons a day of high quality drinking water are currently expended in applications for which reclaimed water is a possible substitute. The cost of treating effluent for reuse is generally less than acquiring and developing potable water supply for non-potable uses. Using reclaimed water also improves the quality of water bodies by reducing the amount of effluent discharged into them from wastewater treatment plants. Renton is integrating a reuse program into its water resource management program.

The maximum level of sustainable draw from the City's groundwater system is not currently known. Therefore, it would not be prudent to commit Renton's potable water resources to supplying future growth in areas outside of Renton's present city limits when other service options are available. Obligating the City to provide unincorporated areas with water might impede annexations. This policy direction is not intended to preclude provision to neighboring areas prompted by emergency conditions.

These policies will help the City ensure that adequate water supply is available to serve all portions of the municipal service area at adopted standards.

Objective U-D: Provide, protect, and maintain a consistent, ample, and safe water supply for the City and future service areas.

Policy U-35. Protect water resources to assure continued long-term, high quality groundwater and artesian spring water supplies.

Policy U-36. Ensure that there is an adequate supply of high quality potable water to meet current and future water needs.

Policy U-37. The intensity and type of development should be limited in the Aquifer Protection Area to those types of development that do not create adverse impacts on the aquifer.

Policy U-38. Designate and protect areas of aquifer recharge within the City's Potential Annexation Area boundary.

Policy U-39. Water supply sources (i.e. wells, and Springbrook Springs) should be protected from uses and activities that have been determined to be hazardous to these sources.

Policy U-40. Continue to promote the efficient and responsible use of water through conservation and public education programs.

Policy U-41. New alternative source supplies of potable water should be developed through wells or other sources.

Policy U-42. The City's Water Utility will strive to meet maximum day demand during a reasonable "worst case" supply system failure.

Policy U-43. Coordinate with the regional wastewater purveyor to develop programs to substitute reclaimed wastewater for potable water in landscape watering, heating and cooling buildings, and other safe uses, whenever practical.

Policy U-44. The availability of adequate fire flow should be assured prior to the issuance of commercial or industrial building permits or the approval of residential subdivisions.

Policy U-45. Allow extensions of water service without annexation, to areas outside of the city limits: 1) when such areas are within the City's water service area, or 2) when no other reasonable service is available **AND** it is determined by the City and/or State Department of Health that a public health emergency exists or is imminent.

Policy U-46. Renton Water Utility will serve areas annexed to the City that do not have existing municipal supply.

Policy U-47. Renton will not supply water to areas annexed with other existing municipal water suppliers and water districts.

Policy U-48. Renton will use water service boundaries, established by agreement as a result of regional coordinated water system plans and agreements with neighboring cities and water districts.

Policy U-49. Renton will follow state guidelines in assuming portions of adjacent water systems as a result of annexation.

Policy U-50. Continue to actively participate in regional supply forums in order to reduce the cost of service and improve reliability, quantity and water quality.

Policy U-51. Pursue the elimination of all supply from the Seattle Cedar River Transmission Pipelines, and supply all customers within the Water System's service area from the City's supply sources. However, the Seattle supply meters will remain operational to provide emergency supply if it is necessary.

Policy U-52. Areas annexed with existing municipal water supply should be responsible for the costs of utility system improvements needed to raise the level of service to City standards. These upgrades may be phased over time if necessary.

Policy U-53. The City may defer compliance with Renton Water Standards in the case of temporary or emergency water service.

Policy U-54. Utilize water conservation and reuse programs to ensure adequate water supply to meet the essential needs of the community.

Wastewater System

Discussion: *Septic systems are not appropriate means of providing wastewater service in urban or aquifer protection areas. Therefore, these policies support the provision of primary wastewater service through an*

extensive sanitary sewer system throughout the municipal service area. This system is intended to serve both new and existing development in a manner consistent with planned land uses and at an appropriate level of service. Service by the sanitary sewer system should be in place at the time of development.

Existing Conditions

The Renton Wastewater Utility is operated as a self-supporting enterprise utility under the direction of the Mayor and City Council. Operations are guided by policies of the City of Renton Long-Range Wastewater Management Plan (current version adopted October, 1999).

City of Renton Utility Service Area

Renton's sanitary sewer service is provided by the City's Wastewater Utility. Portions of Renton are served by adjacent water and sewer districts, under interlocal agreements. Boundaries separating the City's sewer service area from adjacent districts have been agreed upon by the purveyors and the City. It has been Renton's policy to allow these districts to continue to serve areas after annexation by Renton until assumption of service to these areas is logical, in accordance with state law, and in the City's interest. Figure 3-1 shows existing service areas for Renton and adjacent districts.

The City of Renton Wastewater Utility serves approximately 13,800 customers (residential and business) which includes approximately ninety-five percent (95%) of the City's population and eighty-five (85%) percent of the City's land area. The remaining five percent (5%) of the population currently uses private, on-site, wastewater disposal systems.

General Description of Existing City Wastewater Facilities

The City of Renton is divided into seven major wastewater collection basins, each of which consists of one or more sub-basins. For the most part, these collection basins and sub-basins follow the natural drainage patterns of the Renton service area. Where the collection basins do not follow the natural drainage patterns, it is typically due to lack of downstream facilities and the need to pump from a given point into an adjacent drainage basin.

Renton's sanitary sewer system consists of about 184 miles of gravity sewers, 23 lift stations with associated force mains, and approximately 3,400 manholes. Wastewater is discharged to regional facilities (King County) at over 70 locations within the City's service area. The sewage is then conveyed to King County’s South Plant at Renton. Currently, King County's wastewater treatment consists of primary treatment, secondary treatment, and bio-solids processing.

Capacity of Existing City Wastewater Facilities

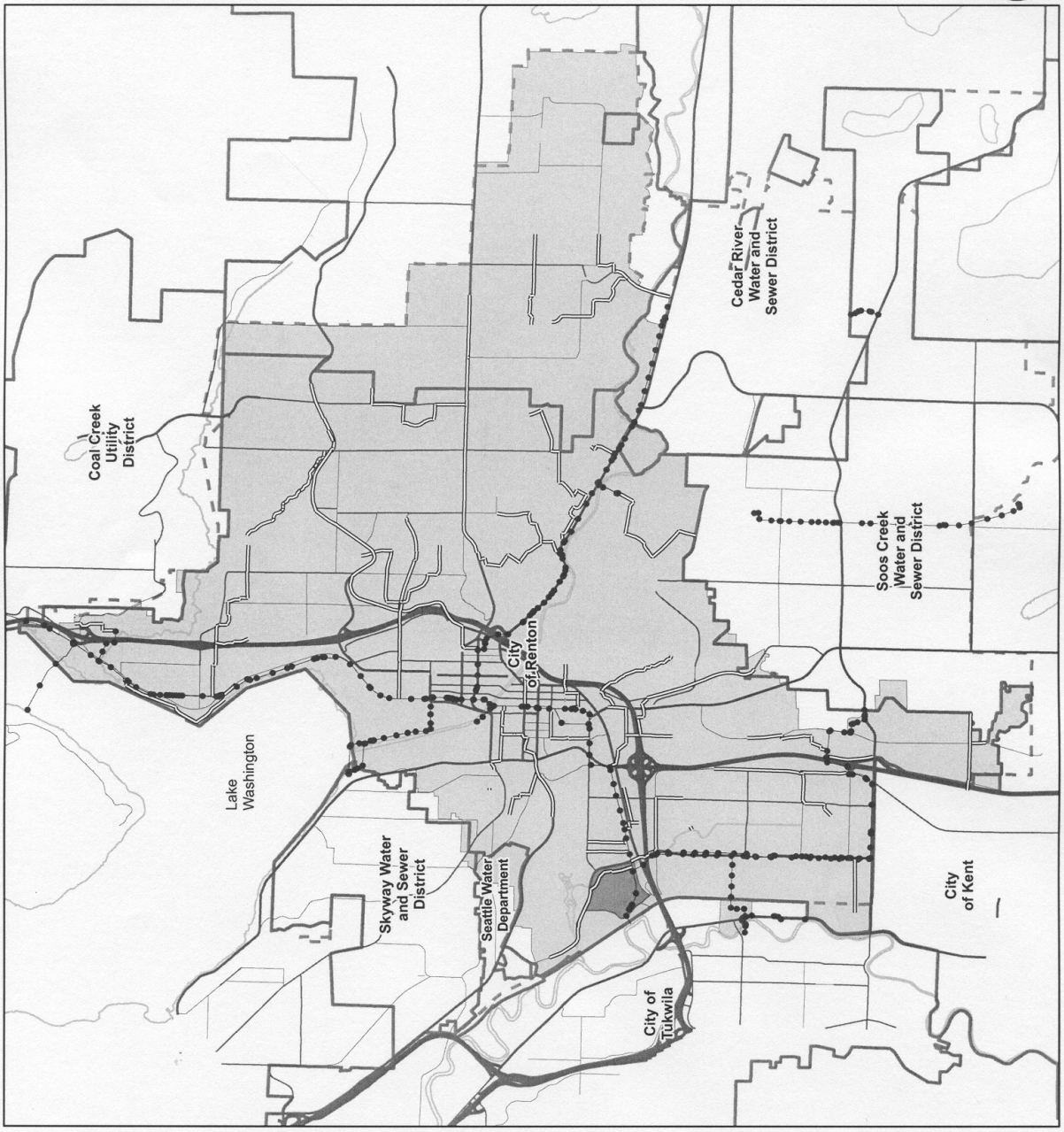
Computer hydraulic modeling of the City's system has revealed that facilities in several basins are near capacity. These areas are addressed in the Long-Range Wastewater Management Plan and the Six-Year Wastewater Capital Improvement Program.

In addition, there is a capacity issue related to King County’s handling of flows. During peak flows, King County will use its interceptors for storage of wastewater and for controlling flows in the South Treatment Plant in Renton. This results in wastewater backing up into King County interceptors. King County reserves the right to allow wastewater to back up in its interceptors to an elevation of 25 feet. Although King County has never reached this extreme, King County's storage of wastewater in its interceptors has caused Renton's sewers to surcharge (back up) in low-lying areas through manhole covers and back up side sewer connections into homes and businesses.

Reliability of Existing City Wastewater Facilities

Problems associated with the City's gravity sewer system include the age of the system, improper construction or settlement, penetration by tree roots, and grease buildup.

The 23 lift stations operated by the City pose a different kind of reliability problem. Unlike gravity sewers, lift stations are subject to power and mechanical failures, and thus are less reliable. They also require higher maintenance and operation costs and cause increased adverse impacts on downstream facilities. Some lift stations are in need of replacement because of age and deterioration. Other stations are in good shape, however, they lack some of the safety or reliability features required under current codes.


SANITARY SEWER SERVICE AREA AND ADJACENT DISTRICT BOUNDARIES
Legend
Metro Trunk Lines
City of Renton Interceptors
Metro's East Division Reclamation Plant
Adjacent District Boundaries
PAA Boundary
City of Renton Sanitary Sewer Service Area
Figure 3-1
Sanitary Sewer Collection Basins
N
0
0.5
1
Miles
Note: For graphic presentation only Facilites are not to scale.
LONG RANGE PLANNING
R. MacOnie, D.Visneski, D. Ellis
August 2008
CITY OF RENTON
Coal Creek Utility District
Lake Washington
Skyway Water and Sewer District
Seattle Water Department
City of Renton
City of Tukwila
Cedar River Water and Sewer District
Soos Creek Water and Sewer District
City of Kent

Forecasted Conditions

Future Capacity of Facilities

The wastewater collection system currently has no capacity restraints. However, continued development within the Lake Washington East Basin will require that additional capacity be provided by means of the Sunset Interceptor. These improvements are currently scheduled in the Wastewater Six-year Capital Improvement Program. The most significant amount of increased flow is anticipated to occur in the East Cedar River Basin. Sufficient capacity exists within this basin to accommodate this anticipated growth due to the construction of the East Renton Interceptor in the mid-1990s.

Significant additional growth will also continue to occur within the West Cedar River, Black River, and Lake Washington West Basins. The current modeling of the system shows sufficient capacity to accommodate this growth as well. The utility is currently developing a new hydraulic model to update its modeling to fit recently completed flow analysis performed system wide as part of King County's Regional Inflow and Infiltration Study, scheduled for completion in early 2005. This update to the program will help the utility to better understand what, if any, additional capacity restraints may exist within its system.

The City of Renton has several agreements with adjacent utilities that allow joint use of facilities within the City. Adjacent utility systems' comprehensive plans predict the future capacity they will need when they convey wastewater through Renton. However, adjustments to the City's interceptors may need to be made as these systems further clarify their needs. While these agreements restrict the volume of wastewater discharged to the joint use facilities, if wastewater flows from adjacent upstream utilities exceed the agreed upon flows, then capacity problems could occur.

Reduction of inflow and infiltration in Renton's collection system will help to make additional capacity available for anticipated growth and development. This will also reduce King County's need to make expensive additions or improvements to increase the capacity of their treatment and conveyance facilities.

King County's adopted wastewater plan, based on Puget Sound Regional Council population and employment projections, includes system improvements necessary to meet service levels in the area served by the regional wastewater conveyance system and treatment plant in Renton.

Future System Reliability - City of Renton

If proper attention is paid to the on-going inspection, maintenance, rehabilitation, and replacement of City mains, the reliability of Renton's sewer system is expected to remain at an adequate level.

A significant portion of the City's wastewater collection and conveyance system is over fifty years old. The materials used for sewers at the time these were installed are expected to have a useful life of approximately fifty years. Some of these mains are in an elevated need of repair and are ranked high in priority in Renton's 20-year Capital Improvement Program (CIP). The old mains are continually being inspected to determine which ones will need to be replaced during the second half of the 20-year CIP. Not all the fifty-plus year old mains are in the 20-year CIP. Continual evaluation of these facilities may indicate the need to re-prioritize CIP projects and dictate the advancement of some programs to ensure the integrity of the system. The 2005 update of the Wastewater Long-Range Management Plan will further evaluate the priority of replacements.

Proposed sewer projects are ranked according to a prioritization process based on defined needs. The ranking system, at this time, includes categories that give points for improving substandard or deteriorating facilities, increasing the efficiency of the system, and protecting the environment.

Objective U-E: Provide and maintain a sanitary sewer collection system that is consistent with the public health and water quality objectives of the State of Washington and the City of Renton.

Policy U-55. Ensure and encourage the use of the sanitary sewer system within urban areas in a manner consistent with land use and environmental protection goals and policies.

Policy U-56. All new developments should be required to connect to the sanitary sewer system, except low-density single-family residential development located away from environmentally sensitive areas, outside of Aquifer Protection Areas, and having adequate soils to support on-site septic systems.

Policy U-57. Sewer connections should be provided in presently unsewered areas if the areas, by remaining unsewered, pose a health hazard to the aquifer, or if other groundwater contamination occurs.

Policy U-58. Adequate sewer service capacity should be assured prior to the approval of any new development application (e.g. short plat, long plat, multifamily, commercial, and industrial development).

Policy U-59. Sewer service should be expanded so that the current levels of service are maintained through build-out of the adopted land use classifications.

Policy U-60. Excess sewer capacity alone should not be sufficient grounds for challenging the existing zoning for an area.

Policy U-61. Coordinate with the regional wastewater agency and adjacent jurisdictions in the planning and maintenance of regional wastewater systems in and near the City.

Policy U-62. Development should be conditioned on the orderly and timely provision of sanitary sewers.

Policy U-63. Coordinate with the regional wastewater agency and adjacent jurisdictions to ensure that wastewater lines passing through Renton are operated in a safe manner at all times.

Policy U-64. The City of Renton will follow state guidelines that define a City's ability to assume facilities in annexation areas.

Policy U-65. Areas annexed without existing municipal sanitary sewer service will be served by Renton unless a service agreement exists or is negotiated with a neighboring utility.

Policy U-66. Areas annexed with existing sanitary sewer service must meet the City's sanitary sewer service objectives. Upgrading to City standards of sanitary sewer facilities within all or portions of newly annexed areas will be required if there is a threat to public health and safety. If improvements are necessary, they may be accomplished by developer installation or LID as a condition of the annexation.

Policy U-67. All property owners in unincorporated King County and Renton's PAA, who are granted City sanitary sewer services, should be required to sign a covenant to annex.

Policy U-68. In areas where annexation is logical, extensions of service may be contingent upon request for annexation. (See Annexation policies in the Land Use Element.)

Policy U-69. Allow the extension of sanitary sewer services within the City's Potential Annexation Area according to such criteria as the City may require. Sanitary sewer services will not be established within another sewer service district, which provides sanitary sewer service except by agreement with that sewer service district.

Policy U-70. The City may assume existing portions of adjacent sanitary sewer systems, at the discretion of the City Council, when such assumptions promote the logical and efficient development of the City's sanitary sewer system area.

Policy U-71. The City Council will consider annexations without assumptions of existing sanitary sewer facilities under conditions defined in the Long Range Wastewater Management Plan.

Policy U-72. Actively promote all residents within the City to connect to public sewer.

Policy U-73. Private sewage disposal systems will be allowed within the City limits, subject to city, county, and state regulations and when public sewers are not available.

Surface Water

Discussion: *Natural hydrologic systems play an integral role in effective surface water management. Engineering techniques can control much of the storm water through detention and retention systems. However, the cumulative effects of storm water can only be managed by a combination of engineering and preservation of natural systems.*

Surface water can dissolve and transport toxins from the human environment as well as carrying eroded materials. Renton's municipal water supply, as well as downstream water bodies, must be protected from water-borne contaminates through prudent management practices.

Existing Conditions

Renton's Surface Water Utility was organized to meet specific ordinances, regulations and to ensure that planned facilities meet defined engineering standards. The Utility is operated as a self-supporting utility under the direction of the Mayor and City Council.

Utility Service Area

The Utility's service area currently includes all lands within the City boundaries, more than 17.2 square miles. However, surface flows from the urban area within the Potential Annexation Area (PAA) and the rural area also affect the natural and constructed surface water management systems. This potential annexation area is currently serviced by King County. As areas within the PAA are annexed into the City, Renton will assume responsibility to provide surface water management services within the annexed areas.

General Location of Facilities

The existing surface and storm water facilities follow natural drainage patterns wherein surface water is collected and detained to reduce peak runoff rates, to provide water quality improvement, and for infiltration. Alternatively, it is conveyed through pipes to numerous surface water bodies. These surface water bodies include several creeks and rivers, and Lake Washington.

The major topographic elements of the service area include several major drainage areas or basins within the city limits (see Figure 4-1). The northern-most basin is the May Creek Basin, which begins northeast of the city limits and flows to Lake Washington. The Cedar River Basin runs through the heart of downtown Renton. This basin extends far beyond the city boundaries. Thus, hydrologic events and urban growth beyond the city limits may have a significant impact upon the surface drainage system, particularly near downtown and the outfall into Lake Washington. The facilities within the city limits for these basins include storm sewers, detention facilities, open channels, and other protective works.

The Black River Basin, also know as the Eastside Green River Watershed (ESGRW), is a major basin in the southwestern portion of the City. The basin encompasses approximately 24 square miles that includes areas of Kent, Tukwila, and King County. Thus, coordination with other agencies in this area is essential. The City of Renton makes up less than one third of the total basin area. The facilities within the city limits for this basin include the Black River Pump Station, Springbrook Creek (P-1 channel), storm sewers, detention facilities, open channels, and other protective works.

The remaining basins within the city limits include the West Hill Basin, which drains to Lake Washington, the Lower Empire Sub-basin in the Duwamish Basin, which drains to the Green/Duwamish River and the Soos Creek Basin. The Soos Creek Basin is primarily outside of the city limits.

Basin plans for the Black River Basin, the Maplewood Sub-basin, the Cedar River Basin (with King County), and the May Creek Basin (with King County) have been completed and actions identified in these plans are being implemented.

Existing Capacity of Facilities

The existing surface water drainage system is meeting capacity requirements under normal conditions. However, in some areas of the City, the system has become inadequate to serve present needs during large, infrequent storm events.

Of particular concern are inadequate facilities located within several basins. These basins are each affected by upstream development activities that have occurred in their respective watersheds, creating downstream capacity deficiencies.

Currently there are no special efforts for floodway protection outside of the development review process and emergency responses during flooding. The City is studying frequently flooded areas including the Cedar River, North Renton, and the Black River Basin.

Problems in the Black River Basin include widespread flooding or surface water ponding in the valley during severe rainfall events and the loss of outlet culvert capacity from the Panther Creek Wetlands. Existing and future surface water quality issues, loss of wetland habitat and fishery passage problems are additional concerns, with the continued development of the upstream portion of the watershed within Renton's Urban Growth Area and areas within the Cities of Kent and Tukwila.

SURFACE WATER
DRAINAGE BASINS
Legend
Major Basin Boundary
Sub -Basin Boundary
PAA Boundary
Figure 4-1
Surface Water Drainage Basins
N
0
0.5
1
Miles
Note: For graphic presentation only
Facilities are not to scale.
LONG RANGE PLANNING
R. MacOnie, D.Visneski, D. Ellis
August 2008
May Creek
Honey Creek
Maplewood
Gypsy
Lower May Creek
May Creek
East Kennydale
South Kennydale
West Kennydale
Lake Washington East
North Renton
Mt. Olivet
Lower Cedar River
Tiffany
Soos Creek
Soos Creek
Lake Washington
Cedar Outfall
West Hill
Lake Washington West
South Renton
Rolling Hills
Panther Creek
Black River
Springbrook
Black River
Valley
Lower Empire
Duamish

Other areas within the City with surface water problems include much of the Downtown and Rolling Hills vicinities. Storm drain facilities in areas along SW 7th Street, near the Renton Center, and Renton Village are over capacity during severe storm events causing flooding of facilities that are undersized for current flows from their tributary uplands.

North of Downtown, both the Gypsy Creek and the North Renton Basins experience flooding caused, in part, by inadequately sized pipes, ditches and detention facilities. Flooding in the Gypsy Creek Basin is associated with facilities located near an interchange of I-405. Flooding in the lower portion of North Renton is largely caused by the system not being able to convey drainage from the Highlands neighborhood.

Existing Reliability

To a large extent, the reliability of the storm drainage system depends on three factors. In areas where growth has occurred, or will occur, the facilities must be designed to control the flows that are discharged from new development to pre-developed conditions (detention), and conveyance systems that are sized to convey the increased storm water runoff due to future land use conditions. Additionally the facilities require regular maintenance to prevent debris and blockage, that impair the system's ability to function properly, and routine observation to ensure they operate as designed during high flows. Thus, reliability is a function of proper sizing of storm water conveyance systems and flow control systems, along with the need for routine maintenance and replacement of these storm water management systems.

City facilities in the lower reaches of several watersheds no longer meet the capacity requirements and, in some instances, may not have been maintained on a regular basis. Thus, they may not be considered reliable. As part of the Surface Water Utility System Plan, a Capital Improvement Program (CIP) has been developed to solve drainage problems and improve reliability. The Surface Water Utility System Plan also identifies maintenance and operation programs that are funded by the Utility to maintain public storm systems and address surface water management problems in the City. The Surface Water Utility has identified needed improvements through the basin plans. The current Surface Water Utility Six-year CIP is provided in the City Capital Improvement Program document.

Surface Water Quality and Quantity Best Management Practices to be Implemented to Mitigate Future Land Use Impacts

The City adopts surface water management design standards that require the implementation of storm water quantity and quality Best Management Practices (BMPs) and controls as part of the approval of a project to mitigate the project's storm and surface water impacts during and after construction. These standards include erosion and sedimentation BMPs during construction, flow control, water quality treatment, and conveyance system sizing standards to manage the quantity and quality of storm water runoff from projects. The City has adopted the 1990 King County Surface Water Design Manual as the design standard that projects must comply with to mitigate impacts to surface water. However, as a condition of Environmental Review under the State Environmental Policy Act (SEPA), projects are conditioned to comply with the standards in the 1998 King County Surface Water Design Manual in certain parts of the City. The Washington State Department of Ecology Stormwater Management Manual for Western Washington (August 2001) also provides design standards and BMPs to mitigate impacts to surface water from new and redevelopment projects.

The City of Renton is a Phase 2 community under the Clean Water Act National Pollution Discharge Elimination System (NPDES) Program for Municipal Separate Storm Sewer Systems. The NPDES program is intended to protect water quality from non-point source pollution from stormwater runoff. City will be required to obtain a NPDES Phase 2 stormwater permit from Ecology for its Municipal Separate Storm Sewer Systems in 2005, once Ecology completes development of the permit. The NPDES Phase 2 stormwater program requires the implementation of the following six minimum control measures:

1. Public Education and Outreach on Stormwater Impacts
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management in New Development and Redevelopment
6. Pollution Prevention/Good Housekeeping for Municipal Operations

The Surface Water Utility currently implements these six minimum control measures to some degree. It is expected that the NPDES Phase 2 stormwater permit will require some expansion of these programs and the adoption of new design standards for construction projects that are equivalent to the standards in the Ecology 2001 Stormwater Management Manual for Western Washington.

The City has adopted wetland, stream buffer, steep slope, and flood hazard critical area ordinances, shoreline regulations and other development regulations that also protect surface water systems. The listing of Chinook salmon as threatened under the Endangered Species Act will require additional stormwater controls and strengthening of Critical Area Ordinances, updates to development regulations, and land use changes that will further reduce future land use impacts on streams, rivers, lakes, and wetlands in the City.

The City currently operates a storm system maintenance program that includes cleaning catch basins, pipes and other facilities, along with a street vacuum sweeping program. The maintenance programs remove sediment and pollutants from City-owned and operated storm systems and streets, which reduces flooding and non-point source pollution from being discharged into water bodies in the City.

Forecasted Conditions

Future Utility Service Area

The Utility's Service Area could enlarge substantially to approximately 35 square miles if the City of Renton annexes all areas within the Urban Growth Area. The areas that may be annexed are currently served by King County facilities. The City, upon annexation, would assume these facilities, their upkeep, and maintenance.

General Location of Future Facilities

The Renton surface and storm water system currently operates much like the gravity-based sewer system, although the destination is surface water bodies, rather than wastewater treatment plants. Storm and surface water facilities will generally remain in their current locations, although the individual sections may be replaced to convey higher flows.

For new development, surface water facilities are usually constructed on a site-by-site basis, rather than on a comprehensive or system-wide basis. Storm water pipes and detention facilities will be constructed on-site during each construction project, and the off-site release rates should be limited to rates no greater than pre-development levels, per the King County Surface Water Design Manual. Most existing and new storm conveyance systems are constructed in public or private streets.

Although peak flows are required to be regulated to pre-development levels, total volumes of flow will increase due to the increase in impervious area. New development may create negative downstream impacts although the development had complied with storm water controls and requirements due to the increase in runoff volume. The total volume of runoff will increase in all areas of new development, which may increase erosion and sedimentation and decrease surface water quality.

The unincorporated urban area has existing storm water conveyance systems that are planned and administered by King County. The County land use plans for these areas are similar to the Renton plan. Since the King County facilities are designed with the same standards as City facilities, they function the same as City facilities.

Future Capacity of Facilities

Many of the existing facilities within the city limits will require modifications to increase capacity to provide adequate conveyance capacity and flow control (detention). All facilities would be sized to provide flow control and water quality treatment in accordance with the adopted city surface water design standards. Stormwater conveyance systems are required to convey storm flows from the twenty-five year or greater design storm event. New development is required to detain flows on-site in accordance with the adopted surface water design standards and to discharge the post construction runoff at rates no greater than pre-developed runoff rates.

Basin plans will be prepared to determine need for and sizes of new regional drainage facilities. Several basin plans have been prepared and the City is also participating in regional salmon conservation planning within Water Resource Inventory Areas (WRIA) 8 and 9. As the City annexes new areas within unincorporated King County additional basin/sub-basin planning will be needed. In addition, the Surface Water Utility System Plan will be updated and will comprehensively define resources, standards, and programs needed to effectively manage storm and surface water runoff in the City and potential annexation areas.

The anticipated increase in impervious surface in all areas will increase surface runoff and require new facilities at development sites. In addition, new development, particularly infill development, may increase surface flows beyond existing facility capacity, requiring the enlargement of facilities downstream of the development. City standards require that new development mitigate for impacts to surface water by releasing runoff from the site at a rate no greater than the pre-developed runoff rate. Also, if downstream problems exist, new development is required to perform offsite analysis to ensure that the downstream problem is not made worse by the development.

Surface Water Quality Requirements in Aquifer Protection Area Zone 1, Zone 1 Modified, and 2

Development projects located in either Zone 1, Zone 1 Modified, or Zone 2 of the Aquifer Protection Area (APA) are required to pass additional City review to ensure the projects do not produce water quantity and/or quality impacts that may affect the aquifer, which is used for the City's potable water supply. Areas of particular concern include areas subject to vehicular traffic or the storage of chemicals.

The adopted Land Use Element of the Comprehensive Plan proposes areas for development of more intensive land uses by the year 2022. This includes substantial development and redevelopment of the Downtown. Portions of this area are within Zone 1 of Renton's APA. Zone 1 requirements include closed detention facilities including wet vaults on site, and pipe conveyance systems that meet pipeline specifications to prevent infiltration of storm water from these systems.

APA Zone 2 and Zone 1 Modified requirements affect much of the northern and eastern portions of Renton. These requirements are not as stringent as Zone 1 requirements and generally require lining of conveyance system and water quality facilities to protect groundwater in areas with relatively porous soil. The APA regulations may increase the potential surface and storm flows generated from both zones, especially in Zone 1, since infiltration systems are not allowed. The increase in runoff may require existing facilities to be enlarged to meet the increased capacity need**.**

Objective U-F: Provide and maintain surface water management systems to minimize impacts on natural systems and to protect the public, property, surface water bodies, fish habitat, and groundwater from changes in the quantity and quality of storm water runoff due to land use changes.

Policy U-74. Design storm drainage systems to minimize potential erosion and sedimentation problems, and to preserve natural drainage systems including rivers, streams, flood plains, lakes, ponds, and wetlands.

Policy U-75. Encourage the retention of natural vegetation along lakes, ponds, rivers, and streams, where appropriate, in order to help preserve water quality, protect fishery resources, and control erosion and runoff.

Policy U-76. Filling, culverting, and piping of natural watercourses that are classified as streams shall not be allowed, except as needed for a public works project. In the case where a public works project requires the filling, culverting, or piping of a natural watercourse, if no other option is available, then such projects should follow specific design standards to minimize impacts to the natural watercourse. Such standards should prevent flooding and the degradation of water quality, aquatic habitat, and the effectiveness of the local natural drainage system. This would include providing mitigation to replace the lost functions provided by the natural watercourse that is filled, culverted, or piped by the public works project.

Policy U-77. Promote and support public education and involvement programs that address surface water quality and other surface water management issues.

Policy U-78. Encourage the safe and appropriate use of detention and retention ponds, biofiltration swales, clean roof run-off, and groundwater recharge technologies to reduce the volume of surface water run-off, to recharge aquifers, and to support base flows in streams for aquatic resources.

Policy U-79. Work towards protecting surface water resources and groundwater resources from pollutants entering via the storm drainage system.

Policy U-80. Implement stormwater standards that adequately control flow (quantity) and quality of stormwater runoff from new and redevelopment projects to protect public health and safety, prevent property damage, prevent erosion, and protect surface water quality, groundwater quality, and fish habitat.

Policy U-81. Coordinate with adjacent cities, counties, and state and federal agencies in the development and implementation of the Clean Water Act's National Pollution Eliminating System Phase 2 Permit for Municipal Separate Storm Sewer Systems.

Policy U-82. Existing natural drainage, watercourses, ravines, and other similar land features should be protected from the adverse effects of erosion from increased storm water runoff.

Policy U-83. Storm and surface water management programs should be coordinated with adjacent local and regional jurisdictions.

Solid Waste

Discussion: *These policies support the provision of adequate and safe waste handling and disposal facilities. In addition, these policies support active recycling efforts aimed at extending the life cycle of these facilities*

Existing Conditions

Utility Service Area

Solid waste collection within the city limits is mandated by state and city code and only the City's contractor may provide such service. The City sets rates for solid waste collection, and bills all customers directly for these services. The City contracts with Waste Management-Rainier for all solid waste collection within the city limits.

State law also gives Renton the authority to contract for collection of residential recyclables and yard waste. Curbside collection of recyclables is available to all single-family and duplex residents of the City, and onsite collection is available to all multi-family and duplex residents fourplex and above). Yard waste collection is available to all single-family and duplex residents with the exception of mobile home park residents. Yard waste collection may be available to multi-family and mobile home residents for an additional fee. Waste Management, Inc. provides collection containers for all of these programs. The recycling and yard waste collection programs are voluntary. The City contracts with Waste Management, Inc. for these services.

Coordination with Other Solid Waste Purveyors

Through an interlocal agreement with King County, the County's disposal system handles all solid waste generated within city limits, except solid waste diverted by waste reduction or recycling activities. King County regulates the types of waste accepted at its facilities as well as the disposal rates. Renton's interlocal agreement with King County also authorizes the County to prepare the Comprehensive Solid Waste Management Plan and to include the City in the Plan. The County achieved its 1995 goal of fifty percent (50%) waste reduction and recycling under the Plan.

Renton works cooperatively with other jurisdictions in the region to implement the Local Hazardous Waste Management Plan (LHWMP). Participants in the LHWMP include thirty-eight (38) suburban cities, the City of Seattle, King County Solid Waste Division, King County Water and Land Division, and the Department of Public Health, Seattle-King County. The LHWMP provides a regional program to manage hazardous waste generated in small quantities by households and businesses in King County. To provide funding for the LHWMP, the City of Renton and all other solid waste and sewer service providers in King County, collect hazardous waste fees from customers through utility bills.

Regional Solid Waste Purveyors within the City Limits

The King County Solid Waste Division owns and operates the Renton Transfer Station in the 3000 block of NE 4th Street in the Renton Highlands neighborhood. Local waste haulers and residents of unincorporated King County who haul their own waste use this facility. City residents also use this facility for disposal of large and bulky items.

Due to state legislation and Washington Utilities and Trade Commission (WUTC) regulations, the City does not have the authority to contract exclusively for collection of recyclable materials generated by businesses. However, a number of private companies do collect recyclables from businesses in Renton.

Location and Capacity of Existing Solid Waste Facilities

There are three existing solid waste facilities within the City's Planning Area: a King County Transfer Station, the Cedar Hills Landfill, and the Black River Construction, Demolition, and Land Clearing Transfer Station (CDL). King County's Renton Transfer Station is located in the Renton Highlands. A majority of the solid waste generated in Renton is transported there by the City's contractor, Waste Management, Inc. A majority of the vehicles that utilize the Transfer Station are garbage trucks from waste hauling companies.

Regional Disposal's Black River Transfer and Recycling Center (a Rabanco facility), located at 501 Monster Road SW, opened in late 1993. Under a contract with King County, this facility accepts construction, demolition, and land clearing waste. The facility received 89,300 tons of CDL material in 1999. There is no data on the amount of CDL processed at construction sites and hauled directly to a processor. Therefore, it is difficult to determine the amount of CDL waste being diverted from the facility.

The City of Renton recognizes that the Mt. Olivet Landfill (closed 1991) was not closed in accordance with State of Washington closure standards. Areas of deficiency include excessively steep slopes, lack of adequate capping, possible negative environmental consequences, failure to obtain an approved closure plan, and other related deficiencies. The City continues to monitor groundwater quality in the vicinity of the landfill to assure that potential contaminants do not enter the City's drinking water aquifer. If contamination is detected, the City has contingency measures to address this problem, such as selective operation of the City's eight wells and groundwater pumping to remove contaminants. Identified areas of contamination would be monitored until the contaminants are removed.

King County's Cedar Hills Landfill, owned and operated by the King County Solid Waste Division, and located southeast of Renton, will continue to receive all solid waste generated in the City of Renton. This facility's remaining permitted capacity is approximately 12.5 million tons (as of January 2000). At the current level of fifty percent (50%) waste reduction and recycling, Cedar Hills will be able to accept solid waste until 2012.

Recyclables collected from single family, duplex, and multi-family residents in the City are taken to Waste Management, Inc.'s Cascade Recycling Center in Woodinville, WA.

Yard waste for single-family and duplex residents in the City is currently taken to Cedar Grove Recycling in Maple Valley. Their yearly capacity is 195,000 tons of organic material. Currently, the facility handles approximately 172,000 tons annually. Cedar Grove is permitted by the Seattle-King County Health Department to have 250,000 cubic yards of organic material onsite.

The City's residential yard waste collection program has diverted increasing amounts of the residential waste stream every year, successfully diverting over 30% in 2001, and more than seven percent (7%) of the City's total waste stream annually since it began in 1989. Yard waste makes up only 0.9 percent of the remaining residential waste stream; therefore any increase in diversion would be minimal.

Food waste makes up almost thirty-five percent (35%) of the residential waste stream after recyclables and yard wastes are diverted. The Solid Waste Utility implemented a pilot food waste composting program in 1994 and 1995 to assess the feasibility of diverting this material from Renton's residential waste stream. Worm compost bins were delivered to approximately 200 residents and weekly measurements were made on their waste practices. This led to a period of several years in which residents could obtain a worm bin from the city for the purpose of residential food waste composting.

Reliability of Existing Solid Waste Services and Facilities

The services of the City's solid waste and recycling collection contractor, Waste Management, Inc., have been very reliable since the inception of the program in 1989. The number of missed collections has remained consistently low. Contingency plans for collection are provided in the solid waste contract in the event of extreme weather conditions. Interruption of service due to a contract dispute is not likely because the City has completed negotiations of a new contract with Waste Management, Inc. The new contract terminates at the end of 2005, but has the potential to be extended with two 2-year extension options.

At this time, the capacities of the Renton Transfer Station and the Cedar Hills Landfill are sufficient, and any regulatory issues are being addressed by the appropriate agency.

The capacity of the Cascade Recycling Center for processing recyclables and the capacity of Cedar Grove Recycling for composting yard wastes are both adequate to meet the City's needs.

Forecasted Conditions

Future Utility Service Areas

The City's Solid Waste Utility will continue to provide solid waste collection to all residents and businesses within the city limits. Curbside collection of recyclables and yard waste will continue to be available to all single-family and duplex residents in Renton. Multi-family residences continue to be eligible for on-site collection of recyclables. Yard waste collection will continue to be offered to mobile home parks and multi-family complexes for an additional fee.

When annexations take place, the franchise hauler in the annexed area has authority to collect solid waste for a period of up to seven (7) years. After seven years, the City's contractor may take over service in the annexed area. The City's contractor should be able to increase solid waste, recycling, and yard waste collection service to households and businesses as needed.

Since King County has planned for both incorporated and unincorporated areas in the County, disposal facilities are anticipated to be adequate should the City annex areas of unincorporated King County.

Location and Capacity of Future Facilities

Currently, King County plans to keep the Renton Transfer Station operational and to install a compactor by 2012, at a cost of $4,000,000. This date coincides with the projected closure of the Cedar Hills Landfill, and will enable the facility to prepare waste for transport to a new location. Transportation of noncompacted waste costs approximately 1.5 times more than the cost of hauling compacted waste. Therefore, the installation of the compactor should minimize any necessary rate increases caused by the greater distance between the transfer station and a new facility. King County's Final 2000 Comprehensive Solid Waste Management Plan suggests that a study be made of the possibility of privatization of the transfer system. The City of Renton is concerned that this may limit market competition in the private sector. The City is also concerned that ending public ownership of transfer facilities will limit the City's influence over rates and service levels.

King County's Cedar Hills Landfill is the last regional landfill located in the County. While the diversion rate by City residents has risen sharply in the past ten years (diverting 58.6 percent as of July 2001), the overall quantity of waste has also risen, and Cedar Hills is scheduled for closure in 2012. Under the 2000 King County Comprehensive Solid Waste Management Plan, the King County Solid Waste Division is exploring waste export possibilities. After the Cedar Hills closure, it is likely that solid waste will be exported outside the County.

Waste Management, Inc.'s Cascade Recycling Center will continue to receive Renton residents' recyclables as long as the City contracts with Waste Management, Inc. for collection. To increase their overall processing capacity, Waste Management Inc. has diverted paper generated in North King County and South Snohomish County from the Seattle plant to its Woodinville transfer station for processing. This change has allowed the Seattle plant to handle more recyclable material generated in South King County.

The amount of yard waste collected through the City's program is not expected to increase significantly. Therefore, capacity at the Cedar Grove composting facility in the County should be sufficient to meet future needs.

Coordination with Other Purveyors

The interlocal agreement between the City of Renton and King County, which designates the County's disposal system for the disposal of all solid waste generated within city limits, remains in effect through June 30, 2028. Either party may request review and/or renegotiation of the agreement every five years. It is anticipated that the City will coordinate with the County to negotiate a new interlocal agreement upon the expiration of the existing agreement.

Interlocal Agreements

Chapter 70.95 RCW requires the County to regularly update the Comprehensive Solid Waste Management Plan (the Plan). According to the provisions of the City's interlocal agreement with King County, this update will occur every three years The City will be included in future Plan updates, and representatives of the City will continue to be involved in the Plan update process.

The Local Hazardous Waste Management Plan (LHWMP), in which the City of Renton participates, follows a five-year update schedule as required by Chapter 70.105 RCW. The first update occurred in 1995. The City will continue to work cooperatively with other jurisdictions and agencies involved in the LHWMP to implement programs to manage hazardous wastes generated in small quantities from households and businesses in King County, including the collection of hazardous waste fees from City solid waste customers.

Reliability

Annexations to the City and the closure of the Cedar Hills Landfill are not expected to have a significant impact on the ability of the City's contractor to provide reliable solid waste, recycling and yard waste collection services. If changes within Waste Management, Inc. affect the ability of their company to provide services to City customers, the City has the ability to renegotiate the contract, or enter into a contract with another service provider.

Depending on regional regulations, the yard waste composting facility at Cedar Grove, may have problems handling significant increases in the amount of organic waste collected in the future. However, the City does not anticipate this to happen.

Objective: U-G: To provide a responsible, comprehensive waste management program that includes economic efficiency, environmental sensitivity, and responsiveness to the needs of the community. The City should pursue a reduction of the overall waste stream, recycling, and long-term waste handling and disposal solutions.

Policy U-84. Provide and maintain an adequate system of solid waste, recycling collection, disposal, and handling to meet existing and future needs.

Policy U-85. Coordinate with regional agencies in planning for the facilities and services necessary for solid waste collection and disposal, including the siting of regional transfer and waste handling facilities.

Policy U-86. Reduction of the waste stream should be supported and promoted for all residential, commercial, and industrial uses within the city (i.e. through programs and public education including recycling, composting, re-use, and energy recovery programs that meet environmental standards).

Policy U-87. Where economically feasible and legally acceptable, citywide collection of recyclable materials should be supported and promoted.

Policy U-88. The proper handling and disposal of solid waste should be required to protect public health and safety.

Policy U-89. Contamination of land, air, and water should be minimized or eliminated.

Policy U-90. Coordinate with agencies in the region on educational and other programs for the safe management and disposal of hazardous household wastes.

Policy U-91. Support products and practices that offer safe and effective alternatives to the use of potentially hazardous substances in order to reduce the total amount of hazardous waste.

Policy U-92. Actively support the creation of markets for products made with recycled materials.

Policy U-93. Actively support regionally coordinated efforts that promote producer responsibility and environmental stewardship.

Electrical System

Existing Conditions

Background

Three purveyors distribute electricity to and within the Renton Planning Area: Bonneville Power Administration (BPA), Seattle City Light (SCL), and Puget Sound Energy (PSE). BPA is the regional administrative entity of the U.S. Department of Energy. Seattle City Light is a publicly owned utility serving Seattle and environs. Puget Sound Energy is a private, investor-owned utility that provides electrical service to approximately 1 million customers in the Puget Sound region.

These three utilities are part of an integrated transmission grid that connects points of production and demand and permits inter-utility exchange of power across the region. To make this possible, the various elements of the individual systems were designed to function compatibly with the facilities of other network utilities. High capacity transmission lines also allow inter-regional and international power transfers to compensate for seasonal, region-wide variations in generation and demand.

BPA owns and operates most of the major transmission lines and substations located throughout the Pacific Northwest. The agency sells transmission services on the high capacity grid to customers throughout the region. Additionally, BPA markets electricity generated by federal hydroelectric projects and the Washington Public Power Supply System. Puget Sound energy, Seattle City Light, and other utilities purchase power and transmission services from BPA as local situations warrant.

Electricity is retailed to customers in the Renton Planning Area by Puget Sound Energy and, to a lesser extent, by Seattle City Light. For both utilities, the primary generation facilities are located outside their service areas. Puget Sound Energy supplements these sources with power generated and/or purchased within its greater service area. Each utility schedules electrical generation to meet anticipated local demand loads with excess production sold elsewhere on the power grid.

Existing Utility Service Area

Puget Sound Energy is the principal provider of electrical service within the Renton city limits, as well as most of the remainder of the Renton Planning Area. Electricity is provided to the Bryn Mawr and Skyway portions of the Renton Planning Area by SCL.

General Location of Facilities

Electrical facilities can generally be divided into generation, transmission, and distribution functions. Transmission lines are identified by voltages of 115 kilovolt (kV) and above, distribution facilities have less than 55,000 volts (55 kV), and a distribution substation transforms voltages of 115 kV or greater to feeder circuits at lower voltages of 12 or 34 kV. Within the Planning Area, BPA operates transmission facilities, Seattle City Light operates transmission and distribution facilities, and Puget Sound Energy engages in all three functions. Renton's geographic position offers a logical location for transmission routes. Five BPA transmission circuits follow the Rocky Reach-Maple Valley right-of-way, which enters the Planning Area from the east, just south of the Cedar River, and terminates at BPA's Maple Valley Substation. The lines, two 500 kV, one 345 kV, and two 230 kV, originate at BPA facilities north, south, and east of Renton.

As electrical service provider to most of the Planning Area, Puget Sound Energy builds, maintains and/or operates various facilities. These include high voltage transmission lines for bulk power transfers, substations for system monitoring and control and changing of voltage levels, and lower voltage feeder lines to carry the electricity to the consumers. The high capacity lines energized at 230 kV and 115 kV feed out from the Talbot Hill Station, which receives power from the adjacent BPA Maple Valley Station. From Talbot Hill these lines carry power to other transmission stations or to distribution substations where the voltage is stepped down for entry into the feeder system.

The portion of Renton's Planning Area currently served by Seattle City Light is small, containing only two minor distribution substations, Bryn Mawr and Skyway. Power is provided to these substations by Seattle's Creston distribution substation.

In addition, several Seattle City Light rights-of-way pass through the City and the Urban Growth Area. These circuits include:

- The Bothell-Renton Right-of-Way (ROW), with one of two SCL 230 kV lines currently in use and leased to Puget Sound Energy.
- The Renton-Creston ROW, with six 230 kV lines.
- The Cedar Falls ROW, with one 115 kV line.

Capacity/Reliability of Existing System

Puget Sound Energy and Seattle City Light are both capable of meeting the current electrical load in their respective service areas.

Puget Sound Energy operates eleven distribution substations in the Renton Planning Area with a total nameplate capacity of 284,400 kilowatts (kW). The residential/commercial peak load utilization factor for these substations is 87.5%. SCL's Creston substation is outside the Planning Area, but supplies power within it. Creston's capacity is 106,000 kW and has a utilization factor of 81%.

The utilization factor, or the load to capacity ratio, is normally maintained in the 75% to 85% range. Leaving excess capacity under normal conditions allows a reserve for periods of extraordinary load during extreme cold weather, and for system diversity.

The capacity of individual elements is not the sole consideration in evaluating an electrical system, however. Our dependence on electrical power is such that the overall grid and the constituent utilities must continue to furnish power even with the failure of individual components.

Electric service interruptions are most frequently a product of extraordinary circumstances. Either an unusual load has overtaxed an element of the system or it has been weakened or removed by some external condition or event. Any such occurrence could cut off an area from the grid and/or endanger other parts of the system by a sudden transfer of power from one conductor to another of insufficient capacity. To mitigate these threats to the system, redundant lines and facilities of adequate capacity are necessary. This diversity is programmed to meet reliability criteria, which assume a failure of one or two components of a system (single or double contingency) with no loss of customers or damage to equipment.

Forecasted Conditions- Electrical

Forecasted increases in population would result in 135, 161 persons and 91, 874 jobs, within the Planning Area, by 2010. Based on these forecasts the Renton Planning Area will have an additional load of 147.3 MVA, excluding industrial load increases, at the extreme winter peak in 2010. Industrial load additions will comprise some part of the 82.3 MVA increase that Puget Sound Energy anticipates for Renton industrial consumers by 2020.

Future Capacity of Electrical Facilities

To assure system reliability and to provide the capacity necessary to accommodate the growth anticipated for the Renton Planning Area, SCL, BPA, and PSE have planned for upgrades and additions to their respective systems.

Puget Sound Energy has prepared a King County Draft GMA Electrical Facilities Plan. According to this plan, the utility has several system improvements in progress within the Renton Planning Area that are necessary to serve forecasted load growth for the next thirty years. Puget Sound Energy's plans for future transmission lines, facilities, and upgrades will increase system capacity and reliability. Also proposed is the Aqua substation. This substation may or may not be located within the City's Urban Growth Boundary, but in either case would likely serve residents both within and outside of the urban growth boundary.

Existing SCL 4 kV lines are being replaced with a new 26 kV network. The Bryn Mawr and Skyway substations will no longer be needed and will be taken off-line when this upgrade is complete. Additionally, SCL has indicated the possibility of adding two 230 kV transmission lines from BPA's Covington Substation to South Seattle on existing transmission line corridors to serve load growth within the next twenty years.

The BPA has plans to increase reliability by installing additional 500 kV circuits and 500 kV to 230 kV transformers. While these will benefit Renton, they are not within the Planning Area. The only project that BPA currently has planned for inside the Planning Area is a static VAR for the Maple Valley Station. This device senses increased load and signals the capacitors to release stored energy.

Conservation & Demand Management

Conservation is one means to reduce loads, existing or projected, on the electric system. This can delay the need for new or expanded generation and transmission facilities. System wide, Puget Sound Energy expects that conservation will yield an additional 296 average MW and 592 MW on system peak in the year 2010. Conservation programs are enacted on a utility-wide basis and regulated by the WUTC.

While conservation reduces overall electrical consumption, demand-side management influences when the demand will occur. Educating consumers to modify their consumption patterns, imposing a sliding rate structure for time-

of-day and for increment of energy used, or directly controlling energy use by certain customers**,** can all serve to spread the load throughout the day. Since electric utility systems are designed to accommodate peak loads, this method can delay the need for additional capacity.

Objective U-H: Promote the availability of safe, adequate, and efficient electrical service within the City and the remainder of its Planning Area, consistent with the utility's regulatory obligation to serve.

Policy U-94. The provision of electricity to the City's Planning Area should be coordinated with local and regional purveyors to ensure the availability of electricity to meet projected growth in population and employment.

Policy U-95. Encourage purveyors of electrical power to make facility improvements/additions within existing electric facility corridors where appropriate.

Natural Gas and Fuel Pipelines

Existing Conditions - Natural Gas

Background

Natural gas is a mixture of hydrocarbon and non-hydrocarbon gases extracted from porous rock formations below the earth's surface. The gas makes its way from the producing fields via the interstate pipeline at high-pressures, often over one thousand pounds per square inch (psi). Colorless and odorless as it comes off the interstate pipeline, a powerful odorant, typically mercaptan, is added for safety purposes to make leaks easier to detect. Through a series of reduction valves, the gas is delivered to homes at pressures of from 0.25 to 2 psi.

In recent decades, the residential popularity of natural gas has risen. Cleaner burning and less expensive than the alternatives, oil and electricity, it has become the fuel of choice in many households for cooking, drying clothes, and heating home and water.

Natural Gas Utility Service Area

Puget Sound Energy provides natural gas service to approximately 650,000 customers in the Puget Sound Region, including Renton and its Urban Growth Area.

General Location of Natural Gas Facilities

Puget Sound Energy operates under a franchise agreement with the City of Renton, which allows PSE to locate facilities within the public street right-of-ways.

The gas distribution system consists of a network of high-pressure mains and distribution lines that convey natural gas throughout the Planning Area. Natural gas is provided to PSE by the Northwest Pipeline Corporation, which operates a system extending from Canada to New Mexico. Two parallel Northwest Pipeline Corporation high-pressure mains enter the Planning Area south of Lake McDonald and terminate at the South Seattle Gate Station. PSE high-pressure mains then extend to smaller lines branching-off from the primary supply mains. Through a series of smaller lines and pressure regulators the gas is delivered to consumers. PSE also operates an underground propane storage facility.

Capacity of Natural Gas Facilities

Although PSE serves most of Renton and its Urban Growth Area, a portion of the Planning Area, west of the Renton Municipal Airport, and straddling SR-900 is currently not served by Puget Sound Energy. Provision of natural gas service to this area would only require extension of intermediate service lines.

The capacity of the system is primarily constrained by the volume of gas entering the PSE network from the Northwest Pipeline Corporation mains. Current capacity of the South Seattle Gate Station, the point of entry for natural gas to the area, is nine million standard cubic feet per hour (scfh). This can serve approximately 180,000 residential customers.

The minimum pressure at which gas can be delivered is fifteen pounds per square inch (15 psi). Methods for increasing supply to a particular area include replacement of the lines, looping, installing parallel lines, and inserting higher-pressure lines into greater diameter, but lower pressure mains.

A reserve of natural gas supply is maintained in order to respond to temporary shortfalls in the natural gas supply due to weather-driven higher demand or supply interruptions. A number of separate utilities share the facility, however, and hence it is not dedicated to the Renton Planning Area.

Natural Gas System Reliability

Since natural gas is chiefly used as a home heating fuel, demand rises as the outdoor temperature drops. The locally available gas supply and the capacity of PSE's delivery system may not always be sufficient to provide product to all customers during periods of exceptional demand. Therefore, PSE has several short term, load-balancing strategies. As stated previously, PSE operates a storage facility that provides a reserve of additional gas for times of shortfall. Also, some gas customers are served under an interruptible service contract. For those times when gas resources become limited, these connections can be temporarily dropped from the system. Residential customers are always granted first priority for available gas supply.

Another strategy to maintain system pressure is the looping of mains. Feeding product from both ends of a pipeline decreases the possibility of localized pressure drops and increases system reliability.

Forecasted Conditions

Puget Sound Energy predicts a growth rate of 41.2% in demand for this 20-year planning horizon. According to this assumption, demand for gas will average 1,227,562.6 cubic feet per hour for December 2010 within the Renton Planning Area. PSE has stated that they will be able to accommodate this increased demand. This will be accomplished through an upgrade of the South Seattle Gate Station to allow the entry of an additional two million scfh into the system, for a total capacity of eleven million scfh. The backfeed from Covington will add another three million scfh and, with the current peak hour feed of one million scfh from Issaquah, there will be sufficient supply capacity to serve the customer base anticipated for 2010.

Proposed New or Improved Facilities

There is one high pressure main proposed to meet the increased gas demand, which should result from the forecast growth. The ultimate placement of the line will be based on right-of-way permitting, environmental standards, coordination with other utilities, and existing infrastructure placement. PSE has a policy to expand the supply system to serve additional customers. Gas connections are initiated by customer requests.

Maximum capacity of the existing distribution system can be increased by the following methods: increasing distribution and supply pressures in existing lines, installing parallel mains, replacing existing with larger sized

mains, looping mains, and adding district regulators from supply mains to provide additional intermediate pressure gas sources.

Petroleum Fuel Pipelines

Existing Conditions

Utility Service Area

Olympic Pipeline Company is a joint-interest company that provides a variety of fuel oil products via a system of pipelines throughout the region. The stock is held by Atlantic Richfield Corporation (Arco), Shell, and Texaco oil companies. Olympic transports oil products from the Ferndale British Petroleum (BP) refinery, the Cherry Point Arco refinery, and the Anacortes Shell and Texaco refineries through Renton to Seattle, Sea-Tac International Airport, and points south to Portland, Oregon. Olympic's Renton facilities function as a regional distribution hub, as well as supplying the local market with petroleum products.

General Location of Fuel Product Pipelines and Other Facilities

The Olympic Pipeline Company's facilities in the Renton Planning Area include a system of pipes, varying from 12 to 20 inches in diameter, and a central monitoring station atLind Avenue SW. Petroleum products enter Renton via two pipes from the City's northern border, and then extend south and west to the Renton Station. From here, a 12-inch main heads north, eventually intercepting the City of Seattle Skagit Transmission Line right-of-way toward Seattle. Two parallel branches also extend westward to the Green River, at which point one line heads west to Sea-Tac Airport and one turns south to serve Tacoma and beyond. Renton Station is the monitoring and control center for the entire pipeline network. Here, also, oil products are transferred to trucks for distribution.

Capacity of Fuel Product Pipelines and Facilities

The Olympic Pipeline Company currently carries an average of approximately 270,000 barrels of product per day, varying according to the transported material. The absolute capacity of the system is over 350,000 barrels. As the primary supplier of petroleum products to Western Washington, Olympic states that system capacity is sufficient to meet current demand.Forecasted Conditions

Olympic, though not directly serving City of Renton, affirms that they can and will increase the capacity of the system to accommodate a demand commensurate with the expected population and land uses anticipated by 2020 in the Renton Planning Area. Aside from laying new pipelines, options for increasing capacity include introducing drag reducing agents to the petroleum products, increasing the horsepower of the pumps, and replacing individual sections of pipe where bottlenecks tend to occur.

Objective U-I: Promote the safe transport and delivery of natural gas and other fuels within the Planning Area.

Policy U-96. Coordinate with local and regional purveyors of natural gas for the siting of transmission lines, distribution lines, and other facilities within the Renton Planning Area.

Policy U-97. Support cost effective public programs aimed at energy conservation, efficiency, and supplementing of natural gas supplies through new technology.

Policy U-98. Allow for the extension of natural gas distribution lines to and within the city limits and Urban Growth Area, provided they are consistent with development envisioned in the Land Use Element of the Comprehensive Plan.

Policy U-99. Require that petroleum product pipelines are operated and maintained in such a manner that protects public safety, especially where those facilities are located in the Aquifer Protection Area.

Telecommunications

Telecommunications: Conventional Telephone, Fiber Optic Cable, Cellular Telephone, and Cable Television

Existing Conditions - Conventional (Wireline/landline) Telephone

Utility Service Area - Conventional Telephone

Service to Renton and its Planning Area is provided by Qwest Communications, Inc (formerly US West). Qwest is an investor-owned corporation, whose holdings include companies serving regional, national, and international markets, including telephone services to 25 million customers in 14 western states. The subsidiaries include directory publishing, cellular mobile communications and paging, personal communications networks, cable television, business communications systems sales and service, communications software, and financial services.

All cities within the State of Washington fall within a particular Local Access and Transport Area (LATA). These LATAs are telephone exchange areas that define the area in which Qwest is permitted to transport telecommunications traffic. There are 94 exchanges within Washington where Qwest provides dial tone and other local services to customers.

General Location of Conventional Telephone Facilities

Telephone service systems within Renton and its Planning Area include switching stations, trunk lines, and distribution lines. Switching stations, also called "Central Offices" (COs), switch calls within and between line exchange groupings. These groupings are addressed uniquely by an area code and the first three digits of a telephone number. Each line grouping can carry up to 10,000 numbers. Renton has 14 of these groupings.

Four main "feeder" cable routes generally extend from each CO, heading to the north, south, east, and west . Connected to these main feeder routes are branch feeder routes. The branch feeder routes connect with thousands of local loops that provide dial tone to every subscriber. These facilities may be aerial or buried, copper or fiber. Local loops can be used for voice or data transmission (such as facsimile machines or computer modems). A variety of technologies are utilized including electronics, digital transmission, fiber optics, and other means to provide multiple voice/data paths over a single wire. Methods of construction are determined by costs and local regulations.

Capacity of Conventional Telephone Facilities

Capacity of a CO is a function of the type of switch employed. Advances in technology and the use of digital transmission provide for increases in switch capacity to meet growth.

Reliability of the Conventional Telephone System

Telephone service is very reliable with the exception of extraordinary circumstances such as severe weather events or natural disasters. In many cases, the system may still be operational, but the volume of calls being placed to and from the affected area creates shortfalls in service. In Renton, the Inauguration Day windstorm of January

1993 resulted in some system outages. Generally, following a catastrophic event, public telephone systems would be restored before service to individuals and businesses.

Forecasted Conditions- Conventional Telephone

Forecasted Capacity of Conventional Telephone Facilities

Ample capacity exists in the Renton CO to accommodate growth projected in the Comprehensive Plan Land Use Element. Recent technological advancements have resulted in consolidation of equipment at the Renton CO. Several additional floors are available in the building housing the CO for future expansion of the system. Line facilities within the Planning Area would require some upgrading, but no new buildings would be needed to meet projected growth.

Regulations governing telecommunications require that the purveyor provide adequate telecommunication service on demand. Upgrading facilities and constructing new facilities accommodate growth. New technology is employed to enhance service, when available and practical. Enhancements necessary to maintain adequate capacity are determined through regular evaluation of the system.

Qwest has confirmed that they will be able to extend timely service to all current and new subscribers anticipated in the population forecasts for the Renton Planning Area.

Existing Conditions - Fiber Optic Telecommunication systems

Utility Service Area -Fiber Optic Telecommunications

The Starcom Service Corporation, a Washington corporation of the Canadian Starcom International Optics Corporation of Vancouver, B.C. plans to locate facilities within the City of Renton Planning Area. The system is a "carriers carrier" and is not intended to connect with individual users in the City of Renton. Services are to be leased to other telecommunications purveyors. The cable based telecommunications system will provide a telecommunication link between Vancouver B.C. and Seattle.

General Location of Existing Fiber Optic Telecommunications Facilities

As of this writing, no Starcom fiber optic facilities are in place in Renton. However, the company is currently engaged in the permitting required to bury cable within the 100 foot wide Burlington Northern Railroad right-of-way, about four feet below ground. The line generally follows the eastern shore of Lake Washington from the northern city limits to the Boeing facility, and then roughly parallels I-405 until it intersects with I-5.

Forecasted Conditions- Fiber Optic Telecommunications Systems

Forecasted Capacity of Fiber Optic Telecommunications Facilities

According to Starcom, the proposed fiber optic cable and latest technology regenerative equipment will provide capacity to meet growth envisioned in the City's Land Use Element of the Comprehensive Plan.

Existing Conditions - Cellular Telephone

Background - Cellular Telephone

Cellular system technology works on the principle of reusing radio frequencies. The same radio frequency can be reused as long as service areas do not overlap. In this way, shorter antennas can be used and located on top of existing structures, rather than constructing freestanding towers.

Siting of cellular facilities depends on how the system is configured. The cell sites must be designed so that channels can be reused, because the FCC allocates a limited number of channels to the cellular telephone industry. As cell sites were initially developed, a few large cells were established using hilltops or tall buildings to site transmission and receiving antennas. This allowed for maximum coverage of the large cell. Clusters of smaller cells have since replaced the larger configuration, diminishing the need for larger antennas. Thus, shorter antennas and poles provide coverage for the smaller cell sites. This division of cells will continue to occur as the demand for cellular service grows. Eventually, cell sites will be placed less than two miles apart with antennas situated on poles about 60-feet high, or the height of a four-story building.

Cell sites are located within the center of an area defined by a grid system. Topography and other built features can affect signal transmission, so the cell is configured to locate the cell site at an appropriate place to provide the best transmission/reception conditions. Sub-cells are sometimes created because natural features such as lakes, highways or inaccessible locations prevent siting within the necessary one-mile radius from the ideal grid point. Preferred cell site locations include: existing broadcast or communications towers, water towers, high rise buildings, vacant open land appropriately zoned that could be leased or purchased, and areas with low population densities to diminish aesthetic impacts.

When new antenna structures are required for the cell site, monopoles or lattice structures are often utilized. Monopoles generally range in height from 60 feet to 150 feet. The base of the monopole varies between 40 to 72 inches in diameter. Monopoles are generally more aesthetically acceptable, but changes in the system such as lowering of antennas are not possible without major changes. Lattice structures are either stabilized by guy wires or self-supported. Generally, the maximum height of a lattice structure is limited to between 200 and 250 feet. Guyed towers can be built to accommodate a greater height, but the guy wires can pose navigational problems to migrating birds and aircraft. In addition, the taller towers often are perceived to have more severe aesthetic impacts.

All structures require that a six to eight foot separation occur between antennas for signal reception. This is termed "system diversity" and is needed on the reception antennas in order to receive an optimal signal from the mobile telephone.

Utility Service Area - Cellular Telephone

Cellular telephone service is licensed by the FCC for operation in Metropolitan Service Areas (MSA) and Rural Service Areas (RSA). The FCC grants two licenses within each service area. One of those licenses is reserved for the local exchange telephone company (also referred to as the wireline carrier). Qwest Cellular (NewVector) holds the wireline licenses in the Tacoma, Seattle, Bellingham, and Spokane MSA. The non-wire line licenses in these areas, and also in the Yakima MSA is held by McCaw Cellular Communications (Cellular One). Recently, Cellular One merged with AT&T.

Existing Capacity of Cellular Telephone Facilities

Forecasting for cellular facilities is accomplished using a two-year horizon. Information regarding current and future predicted number of subscribers is considered by the purveyors to be proprietary, and no data was furnished in this regard. However, statewide customer counts total approximately 250,000, with the number

anticipated to increase to several million by the year 2010. It is predicted that by the period covering the years 2005 to 2010, approximately twenty percent (20%) of the population in Washington State will be served.

Reliability of Cellular Telephone Facilities

Cellular communications are considered to be more reliable than conventional telephone systems because they can continue to operate during electrical power outages. Each cell site is equipped with a back-up power supply, either a battery or generator, or combination of the two. Severe weather events or natural disaster conditions have validated the use of cellular telephones on numerous occasions throughout the country. When conventional telephone systems fail, or telephone lines are jammed, cellular calls have a better chance of being completed.

Forecasted Conditions- Cellular Telephone

Future Capacity of Cellular Telephone Facilities

As previously stated, forecasting for new cellular facilities uses a relatively narrow time frame of two years. Expansion is demand driven. Raising the density of transmission/reception equipment to accommodate additional subscribers, cell splitting, follows rather than precedes increases in local system load. Therefore, cellular companies must maintain a short response time and a tight planning horizon.

Existing Conditions - Cable Television

Background - Cable Television

Cable television or CATV (Community Antenna Television) originated with small-scale attempts to obtain a clear television signal in areas too remote or too obstructed to receive one via the airways. Dating from the 1940s, the early systems were constructed of surplus wiring and basic electronic hardware. Subsequent technological innovations in signal transmission have increased the number of available channels and permitted the emergence of new players in the television broadcast industry. The multiplicity of channels and the ability to direct the signal to specific addresses have opened up both niche and global markets to information and entertainment purveyors. In addition to the provisions of cable television services, advancements in technology have allowed the current purveyor to provide high speed access to Internet services with the provision of additional features expected as market demands dictate.

Utility Service Area - Cable Television

The current purveyor holds a cable television franchise to serve the City of Renton. The service area includes the entire incorporated area of the City, expanding with annexations. All residential neighborhoods within the City are currently served. Service is still unavailable in some commercial areas due to market conditions, which presently preclude line extension.

General Description and Location of Cable Television Facilities

The current purveyor's facilities supplying Renton with cable television service are composed of a receiver, a headend, a trunk system and a feeder system. The receiver and the headend, which amplifies, processes and combines signals for distribution by the cable network, are located north of Burien, Washington. The signal is then transmitted via low-power microwave to a site in Kent, Washington, where it enters the trunk system. Amplifiers placed at intervals along the cables maintain signal strength. The amplifiers also serve as junction points where the feeder system taps into the trunk cables. Service drops then provide the final connection from the feeder line to the subscriber.

Generally following street rights-of-way, the present network encompasses residential neighborhoods to the east, north, and south. The unserved portion of Renton generally includes the commercial and industrial areas located in the Green River Valley.

Capacity of Cable Television Facilities

A cable system is not subject to the same capacity constraints as other utilities. Providing and maintaining the capacity to serve is the contractual responsibility of the utility. According to the City's franchise agreement, the purveyor must make service available to all portions of the franchise area. In some circumstances, costs associated with a line extension may be borne by the service recipient.

The current purveyor offers various packages including as many as 130+ active analog and digital television channels plus nearly 40 digital music channels, and has the capacity to greatly increase those numbers as well as the other types of services that they may decide to offer in the future.

Forecasted Conditions - Cable TelevisionAccording to the provisions of the current purveyor's franchise agreement with the City, the company must continue to make cable service available upon request, when reasonable, for any property within the current or future city limits. Therefore, under the current terms of this franchise, the current purveyor would be required to provide cable service to projected growth within the City and the remainder of the Planning Area.

Objective U-J: Promote the timely and orderly expansion of all forms of telecommunications services within the City and the remainder of its Planning Area.

Policy U-100. Require that the siting and location of telecommunications facilities be accomplished in a manner that minimizes adverse impacts on the environment and adjacent land uses.

Policy U-101. Require that cellular communication structures and towers be sensitively sited and designed to diminish aesthetic impacts, and be collocated on existing structures and towers wherever possible and practical.

Policy U-102. Pursue the continued development of a wireless Internet communication grid throughout the City for the use and enjoyment of Renton residents, employees, and visitors.

Policy U-103. Encourage healthy competition among telecommunication systems for provision of current and future telecommunication services.