ES Executive Summary

ES.1 Growth

The City of Redmond (City) continues to be a leading employment center in the Pacific Northwest with companies such as Microsoft, AT&T, and Nintendo. Since the 1990s employment has more than doubled within the City and in the next 20 years it is expected to increase by more than 40 percent.

Residential growth has also increased significantly at more than 18 percent in the past 10 years. In the next 20 years this trend is expected to continue with some of the highest sectors of growth expected from multifamily residential; especially in areas of mixed-use development and redevelopment such as in the Downtown core, Overlake, and Marymoor Village.

These high levels of growth will continue to drive the need for expansion of the City's wastewater service and upgrades to its existing system.

ES.2 Capital Improvement Program and Development Projects

The improvement and development projects are grouped into three primary areas:

- Capital Improvement Program
- Developer Extensions/Development Projects
- Septic-to-Sewer Projects

Chapter 6 provides a summary of all projects. Chapter 4 and Appendix F provide more detailed information about the specific projects.

ES.2.1 Capital Improvement Program

Implementation of the Capital Improvement Program (CIP) projects will be determined based on a number of factors, including an increase in flows and/or necessary rehabilitation of aging infrastructure. Timing of projects may also depend on coordination with other utility projects, such as transportation or stormwater improvements.

There are twelve (12) CIP projects identified in this General Wastewater Plan Update (Plan). Five of these projects (replacement and/or upgrades to Lift Stations Nos. 5, 6, 12, 13, and 15) are currently underway. It is anticipated the LS-12, LS-13, and LS-15 projects will be completed in the next 2-3 years. The remaining two stations (LS-5 and LS-6) will be completed in the next 3-5 years. Several of the projects included in the CIP are dependent on flow monitoring to confirm the need for the project. If possible, this flow monitoring should begin as soon as possible. Prioritization of projects beyond 2022 will be identified based on flow monitoring and the criteria mentioned above.

ES.2.2 Developer Extensions/Development Projects

More than 110 developer projects are identified at this time. These projects will also be driven by the rate and location of growth and development. These projects are expected to be funded primarily through developer contributions.

ES.2.3 Septic-to-Sewer Projects

The remaining type of project included in this planning document are the Septic-to-Sewer projects, that connect those homes on septic systems to the wastewater collection system. In 1998, the City implemented a pilot program (Neighborhood Sewer Replacement Program) but did not receive the necessary funding or interest on the part of homeowners to connect to the City's collection system. It is recognized that at some time in the future, it will be necessary for these homeowners to connect to the City's collection system. Each year, the City Council and the Directors team will determine if there is sufficient interest in implementing some or all of the Septic-to-Sewer projects.

ES.3 Other Recommendations

In addition to the capital improvement projects, this Plan contains a number of recommendations for the City's wastewater program. The following recommendations are not capital projects but are actions that the utility should consider.

ES.3.1 Recommended Operation and Maintenance Improvements

There are several recommended improvements included in Chapter 5, including those that the City plans to implement.

ES.3.2 Wastewater Flows and Modeling Recommendations

It is recommended that the City continue to update and maintain the City's wastewater flows and system models. These model projections and system data are contained within the City's model of the wastewater collection system.

ES.4 Funding Growth

The estimated cost of the twelve (12) CIP projects identified in this Plan equals $43.3 million. The near-term projects (Lift Stations Nos. 5, 6, 12, 13, and 15) account for $27.3 million of this total. All of these projects are included in the budgeting process and the City has sufficient resources to fund the planned CIP. Several of the planned CIP projects will be completed beyond the near-term projects. Implementation of many of these projects will depend on the rate of growth in specific areas.

Developer extensions will primarily be funded by developers and developer contributions. Funding for the Septic-to-Sewer Projects has not yet been determined but may include a combination of City and homeowner funding.

In addition to the CIP, developer, and Septic-to-Sewer Projects, are projects completed by the operation and maintenance (O&M) department and funded through the O&M annual budget.

ES.5 Planning and Analysis Tools

An important element in the preparation of this Plan, was the creation of the City's wastewater collection system hydrologic/hydraulic model. A City-wide model representing all of the City's wastewater basins was developed to be used as a planning tool. The model developed in conjunction with this Plan provides several important features.

ES.5.1 Industry-Accepted Modeling Platform

The wastewater collection system modeling software, MIKE URBAN, is an industry-accepted platform that will be regularly updated and maintained and provide City staff with ongoing technical support. It simulates both dry and wet weather conditions by modeling both the sanitary flows as well as inflow and infiltration.

ES.5.2 Compatibility with King County Data

One of the reasons that the MIKE URBAN software was selected by the City, was that King County uses this program for regional wastewater modeling. This provides an advantage to the City in that it can easily use the King County data that has been developed as part of the regional data development and modeling.

ES.5.3 GIS Compatibility

The wastewater collection system model and the dry weather flow database were developed using the City's GIS data, as well as other data sources. The City intends to continue to develop its GIS data over time, and to use these GIS sources for future updates to the model and the dry weather flow database.

ES.5.4 Identification of Potential Deficiencies and a More Efficient Use of Staff Time

An advantage to having this wastewater collections system model is that City staff can more easily identify potential deficiencies within the collection system.

For example, during this planning process, use of this model identified several areas where there were potential issues. Maintenance and Operations staff field verified and checked for potential capacity issues at these specific locations; in some cases, confirming problem areas. Other areas that are still questionable should be more closely monitored over time, by conducting flow monitoring in targeted areas.

ES.5.5 What-If Scenarios for Planned Improvements

The model will also provide the City staff with tools for sizing planned improvements where deficiencies exist or where new growth is planned.

ES.5.6 Improved Reliability and Accuracy of Data Sources

The process of creating the dry weather flow database and the wastewater collection system model resulted in a detailed effort to identify missing and incorrect information. Following verification against field data, as-builts, and other data sources now provides City staff with much more reliable information.