



## City of Bellevue Sewer Lake Line Condition Assessment, Phase 1—Lake Washington Project Summary

### **Short Summary**

In November 2011, the City of Bellevue began a condition assessment of the sanitary sewer lake line along Lake Washington that serves lakefront homes and adjacent sewer basins in Bellevue, Yarrow Point, Hunts Point, Medina, Beaux Arts, and a portion of unincorporated King County. The sewer lake line system provides service to both lakefront properties and upstream sewer service areas. This condition assessment will be part of a larger study and long-term management plan coordinated with the City's Comprehensive Wastewater Plan.

### **Introduction**

The City of Bellevue owns, operates, and maintains about 13 miles of sewer pipeline located near the Lake Washington shoreline from Yarrow Point south to the Renton City limits. Most of these pipelines were constructed in the 1950s and 1960s, and some may be nearing the end of their useful life. This is a low pressure pipe system in which pump stations along the shoreline help move the sewage to various points where it is pumped up and away from the lake and conveyed ultimately to King County's Renton wastewater treatment plant.

These pipelines are buried either within the lakebed or just onshore. With years of development along the lake, many segments have become difficult to access and maintain. Pipe failures and blockages can result in sewage releases into the lake, possibly impacting shoreline habitat and forcing beach closures, or causing sewer backups into homes. Most of the lake line sewer system is made of cast iron (CI) pipe, with a sizeable amount being asbestos cement (AC) pipe. Isolated portions of the system have been replaced with ductile iron (DI) and polyvinyl chloride (PVC) pipe, which are expected to last for many more years.

### **Purpose of Condition Assessment**

The purpose of the condition assessment of the sewer lake line in Lake Washington is to determine more accurately the location of the buried sewer pipe and its physical condition.

This assessment is part of a larger overall study and will be eventually followed by an evaluation of various potential alternatives, which may include replacement or rehabilitation of segments of pipeline and improvements focused on increasing the ease of maintenance of the system. A similar but smaller scale pipeline condition assessment completed in 2008 led to the recommendation to replace a segment of AC pipe in Meydenbauer Bay between Meydenbauer Beach Park and the Grange pump station near the Bellevue Marina. That project is soon to be in final design and permitting.

A similar study will be done later for the lake line sewer system within Lake Sammamish.

### **What will the assessment involve?**

Early work in the Study involved reviewing available data and conducting site reconnaissance along the shoreline by boat. This work was completed in early 2011.

This next phase involves field work including surveying the lake line via boat and portions of the line via shore access where necessary. This will also include gathering pipe samples, performing laboratory analyses, and evaluating them to determine the structural condition of the pipe. Pipe samples will be removed from certain locations along the lake line as part of a separate City project to cover portions of the sewer lake line that have become exposed by wave erosion over time. This work is planned to begin in early 2012. At a later time, more extensive pipe samples will be obtained by digging up small portions of pipe in water and on land and evaluating them. However, these particular locations are unknown at this time.

- **Any planned digging up of pipe sections will be preceded by proper notifications to and discussions with affected property owners prior to any work being done.**

This phase of work will also involve crews accessing the lake line system at key access points (e.g. manholes and pipe cleanouts) either from shore or via boats in order to visually inspect the pipe including camera inspection or other sensors inserted inside the pipes.

In the last phase of the Study we will evaluate alternatives for replacement, rehabilitation, operation and maintenance enhancements. Consideration will be given to risk of failures, system capacity, environmental impacts, regulatory requirements, community input, operability/maintainability, and cost, as well as other factors. This phase of the project is expected to begin in a couple of years.

The Study is intended to be a management plan for the lake line sewer system and to become part of the City's Comprehensive Wastewater Plan. Some construction projects stemming from the Study may take place within a few years, but most are generally not expected to be needed until many years from now.

### **Communication**

The City of Bellevue Utilities has provided advance notice by means of postcard mailers of the pending sewer lake line condition assessment to lake shore residents and to staff at the cities and towns in which the assessment work will take place. Where more involved sewer system access on particular properties is needed for the condition assessment phase, targeted property owner communication and coordination will take place prior to any work being done. As the work progresses, Utilities will continue to provide further updates.

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