



CITY OF KIRKLAND

Department of Public Works

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www.ci.kirkland.wa.us

MEMORANDUM

To: David Ramsay, City Manager

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

Date: May 8, 2008

Subject: LAKE WASHINGTON BOULEVARD SANITARY SEWER SMOKE TESTING

RECOMMENDATION:

It is recommended that the City Council authorize the use of \$13,000 from the water/sewer operating reserve to fund smoke testing of the Lake Washington Boulevard sanitary sewer basin upstream of the Yarrow Bay lift station.

BACKGROUND DISCUSSION:

The Kirkland sanitary sewer basin upstream of the King County DNR owned and operated Yarrow Bay lift station contains approximately 115 acres of residential property (Attachment A). During the December 13, 2006 wind and rain event, significant volumes of inflow and infiltration appear to have entered this drainage system, when power to the King County lift station failed, there was discharge into Lake Washington and a backup of the system into a private residence at 4555 Lake Washington Boulevard. Damage to the private property was estimated to be approximately \$500,000, and a claim was filed against the City and King County. The claim was ultimately denied as this event was beyond the control of either Agency.

In December of 2007 approximately one week after the resident was able to move back to their home, a second rain event occurred with no power outage associated with it; again the system backed up into the 4555 property and also discharged into Lake Washington.

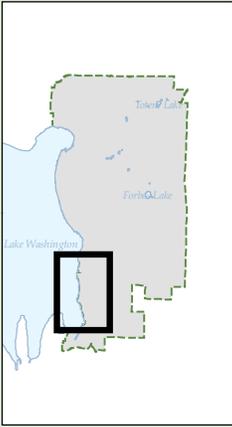
At the time this property, a "stacked" three condominium structure, was built in the mid 1980's the internal plumbing system was constructed in such a manner that all of the sanitary system was built as a combined system and entered the public sewer system through one side sewer. The lowest unit of the three, the only damaged property during these rain events, would today be required to have a backflow prevention system and not be connected to the upper unit system. A number of alternatives have been explored by the property owner; all appear to be economically unfeasible and insuring the properties may be in jeopardy.

The public sanitary system upstream of this property appears to be conveying inflow and infiltration (I&I) of a large volume during storm events. Overflows into Lake Washington and into private property should be addressed. I & I enters a sanitary systems from various sources, and historically 50% of the I & I has been shown to come from private properties (Attachment B). In order to ascertain where I & I is entering a system, a combination of field observations, smoke testing and video examination are utilized. With the smoke testing that is proposed to be performed by a private contractor, staff is attempting to identify any likely sources of private storm systems being tied into the sanitary system. At the same time this smoke testing will be looking for obvious breaks or damage to the public sewer system. Results of the smoke testing will be investigated further with the City's video equipment and if necessary, repairs can be identified in the upcoming CIP process.

Staff is recommending that the smoke testing be funded with funds from the water/sewer reserve fund (Attachment C).

Attachments (3)

Lakeview Sub-Area Sewer Pipe Size



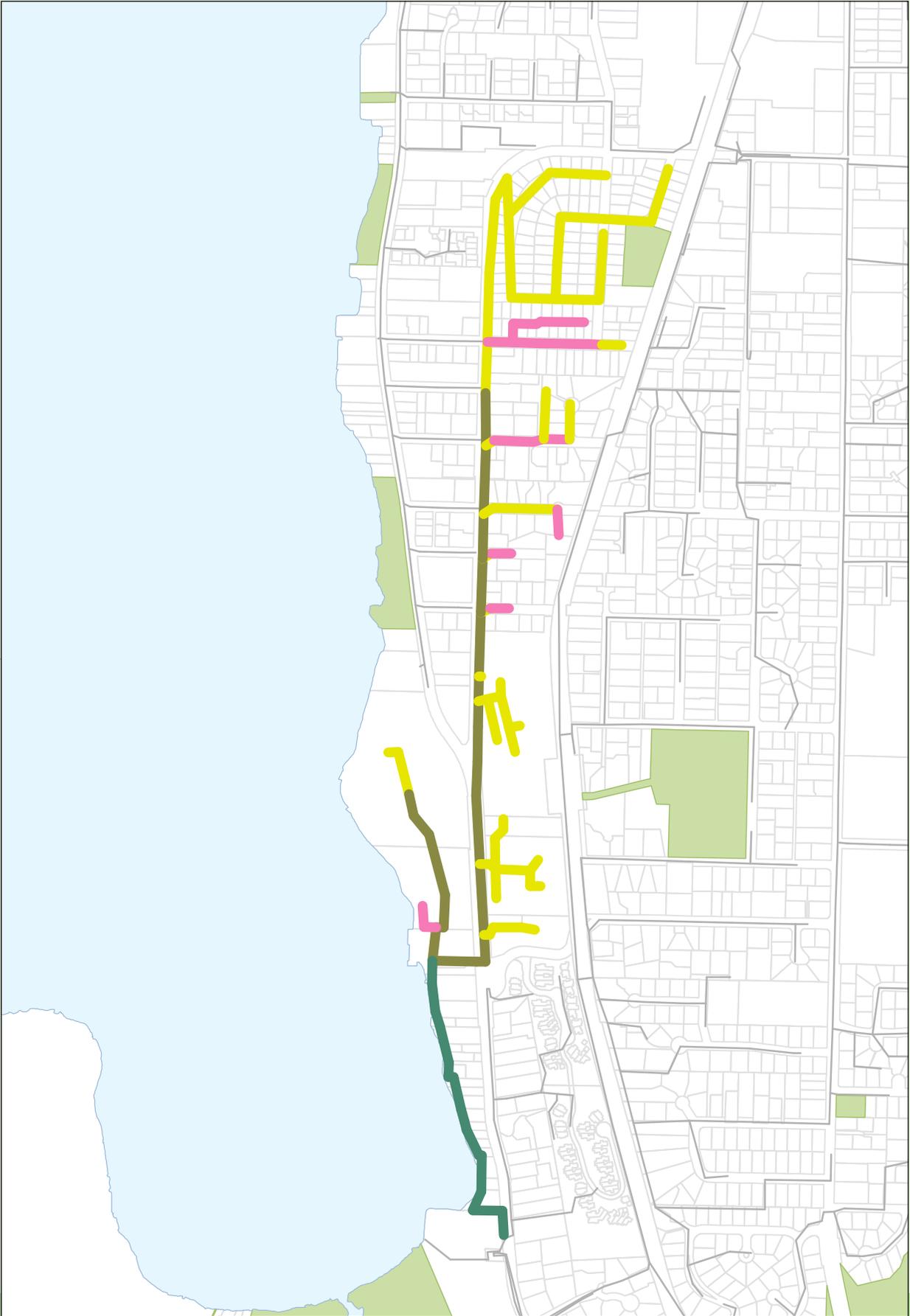
Vicinity Map



Map Legend

- Old Pipes
- Pipes
- Pipes
- Pipes
- Pipe Size**
- 6
- 8
- 12
- 18
- Pipes
- Lakes
- Parks
- Tax Parcels

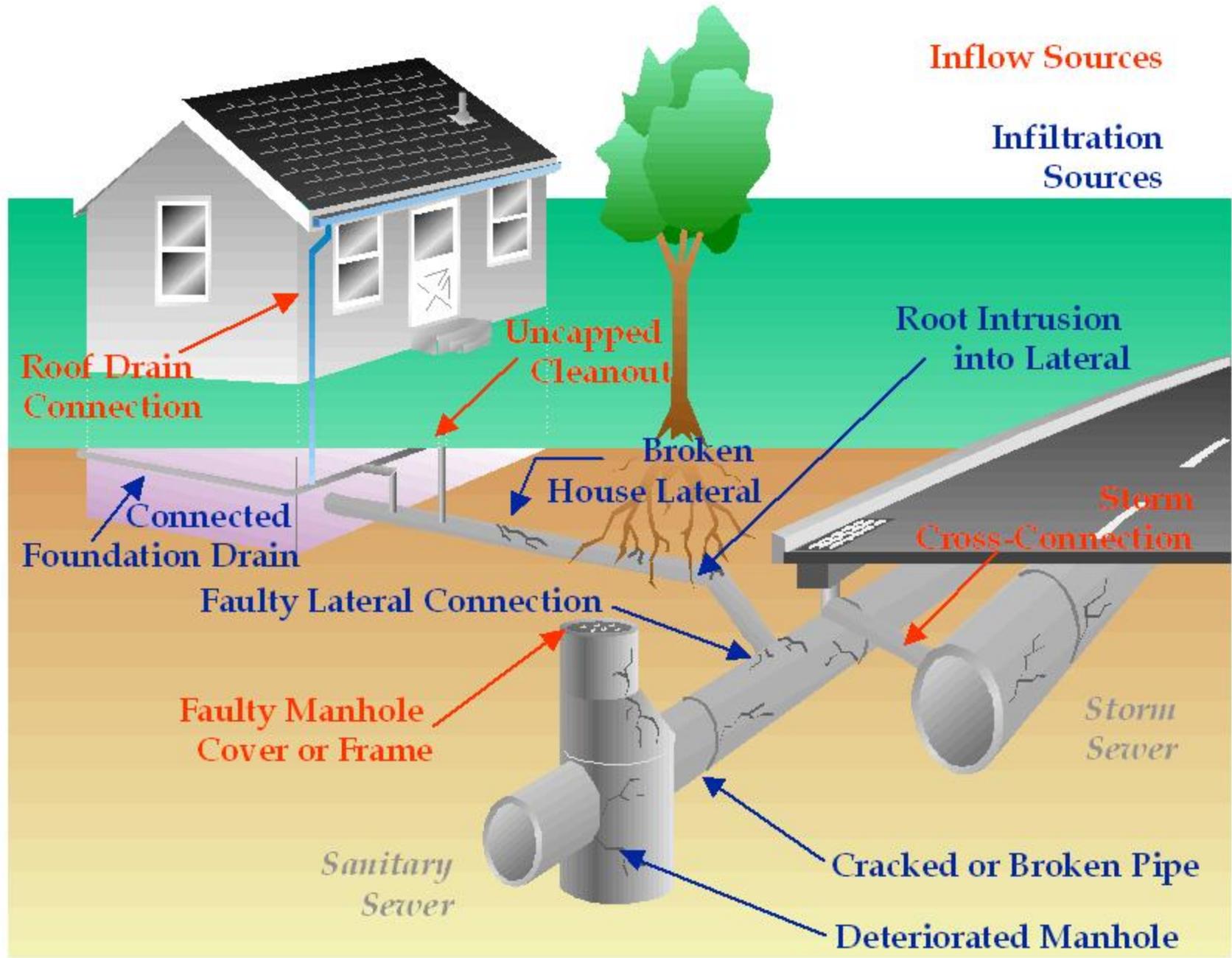
Pipe Size	Total Length
6	2204.61
8	8590.05
12	4676.2
18	1858.75



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Inflow Sources

Infiltration Sources



FISCAL NOTE

CITY OF KIRKLAND

Source of Request							
Daryl Grigsby, Public Works Director							
Description of Request							
Request funding of \$13,000 from the Water/Sewer Operating Reserve for smoke testing of the Lake Washington Boulevard sanitary sewer basin that is upstream of the Yarrow Bay lift station. Several storm events have caused the sewer basin in this area to backup and discharge into Lake Washington and a private residence. Smoke testing will be one of several tools used to help identify why inflow and infiltration (I & I) seem to be entering the sewer system. Once testing is complete, further investigation can be done with the City video equipment and repairs, if necessary, can be identified for the upcoming CIP process.							
Legality/City Policy Basis							
Fiscal Impact							
One-time use of \$13,000 of the Water/Sewer Operating Reserve. The reserve is able to fully fund this request.							
Recommended Funding Source(s)							
Reserve	Description	2008 Est End Balance	Prior Auth. 2007-08 Uses	Prior Auth. 2007-08 Additions	Amount This Request	Revised 2008 End Balance	2008 Target
	Water/Sewer Operating Reserve	1,511,245	39,106	0	13,000	1,459,139	1,511,245
	2007-08 Prior Authorized Uses of this reserve include \$39,106 as partial funding of emergency repairs on the NE 85th watermain.						
Revenue/Exp Savings							
Other Source							
Other Information							

Prepared By	Sandi Hines, Financial Planning Manager	Date	May 9, 2008
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