



CITY OF KIRKLAND

Department of Public Works

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www.kirklandwa.gov

MEMORANDUM

To: Kurt Triplett, City Manager

From: Dave Snider, P.E., Capital Projects Manager
Ray Steiger, P.E., Public Works Director

Date: July 5, 2012

Subject: NE 85TH ST WATERMAIN REPLACEMENT – AUTHORIZE FUNDING

RECOMMENDATION:

It is recommended that City Council approves funding for the NE 85th Street Watermain Replacement Project.

BACKGROUND DISCUSSION:

A combination of work efforts on two on-going but separate Public Works projects has led staff to conclude that significant savings in overall construction timing and of costs can be realized by funding CWA 0140, the NE 85th Street watermain replacement project, at this time and commencing with preparation of construction/bid documents. Work efforts on the 2012 Comprehensive Water System Plan Update (WSP) and the NE 85th Street corridor improvements have brought this opportunity to light. The watermain project is currently an unfunded CIP project; approval of funds will be reflected in the 2013 – 2018 CIP with a starting year of 2012.

The WSP is an undertaking that staff and a private consultant must undertake every six years. The previous WSP was adopted by City Council and approved by the King County Department of Health in 2007 making the next required update due in 2013. With information gathering, research, system modeling updates, the regulatory review processes, and other WSP specific requirements, it takes up to 18-months to complete the WSP. Work efforts on the current WSP began in January of this year.

As work efforts began on the WSP, staff and the City's consultant, RH2 Engineering, reviewed preliminary updated water modeling results and the list of water system capital improvements planned for the next 20-years. During that review, it became clear that by a modification of various capital improvements now (and at today's costs) the results will:

- save up to \$1.5 million over the next 10 to 12 years (Table 1);
- eliminate future water system upgrades in the NE 85th Street corridor; and
- provide Kirkland water customers with a safe and reliable water distribution system for domestic and fire suppression needs for the next 25+ years.

The NE 85th Street corridor improvements are a multi-phase project that includes the on-going undergrounding of a significant portion of the overhead utilities, the provision of continuous sidewalks and pedestrian improvements on both sides of NE 85th Street and along 124th Avenue between NE 80th and NE 90th Streets, the addition of traffic signal upgrades and additional capacity improvements at key intersections, and storm water quality improvements (Attachment A). In addition, in order to provide sufficient fire flow protection for growth, watermain improvements would eventually be required along the corridor.

Water system background

There is an existing 16-inch diameter steel lined, reinforced, concrete transmission main within NE 85th Street from 114th Avenue NE to 132nd Avenue NE. This transmission main supplies two City master meters with water from Supply Station 2 which is located at the southeast corner of NE 85th Street and 132nd Avenue NE. Approximately 25 to 30 percent of the entire Kirkland water system demand is transported through the existing NE 85th Street transmission main. The main is over 50 years old and has experienced a few costly and highly visible emergency repairs over the past 10 years.

At the time of the previous WSP, adopted in 2007, because of the anticipated construction schedule of the NE 85th Street corridor improvements, direction was given to plan for the replacement of the NE 85th Street water main capacity outside of the NE 85th Street corridor in order to avoid a second disruption to this heavily traveled roadway. In 2007, it was anticipated that the NE 85th corridor improvements would be under construction shortly, and installing a new watermain along the corridor after the roadway was reconstructed was not a practical option; the watermain improvements in NE 85th Street were envisioned to be undertaken beyond 2025.

In addition, since hydraulic modeling of the water system indicated that an alternative route along NE 80th Street was a viable option to provide sufficient system capacity, the decision was made to pursue the NE 80th Street option. Since that time, however, the NE 85th Street corridor improvements, with scope modifications including the addition of the utility conversion component, prolonged challenges with the right-of-way acquisition, and its multiple construction elements, remains under construction. As a result of these delays in getting to construction, there is an opportunity to replace the existing 16-inch watermain with a new 24-inch watermain concurrent with the NE 85th Street corridor improvements with no significant extension to the overall schedule. This would eliminate the need to go into NE 85th Street at a future date as was envisioned in the 2007 WSP, and reduce the redundancies that were being considered in NE 80th Street thereby lowering the overall costs.

Analysis

As a result of the on-going and future work planned for the NE 85th Street corridor, staff had the WSP consultant analyze water system alternatives associated with the existing 16-inch transmission main. Staff was interested in determining whether the projects identified in the 2007 WSP were still the best options given that the NE 85th Street corridor improvements were not yet completed. An updated hydraulic analysis was performed to identify the required supply needs to customers and included detailed fire flow projections for the NE 85th Street commercial area.

Upon review of the water system modeling, one alternative became the preferred option for providing the best overall value to the City. With full consideration being given to overall project timing, community impacts, and short versus long-term funding needs, the preferred alternative is to replace the existing 50-year old 16-inch concrete water main in NE 85th Street

between 114th Avenue NE and 132nd Avenue NE with a 24-inch ductile iron watermain at this time (Alternative 4).

Table 1: Cost Summary

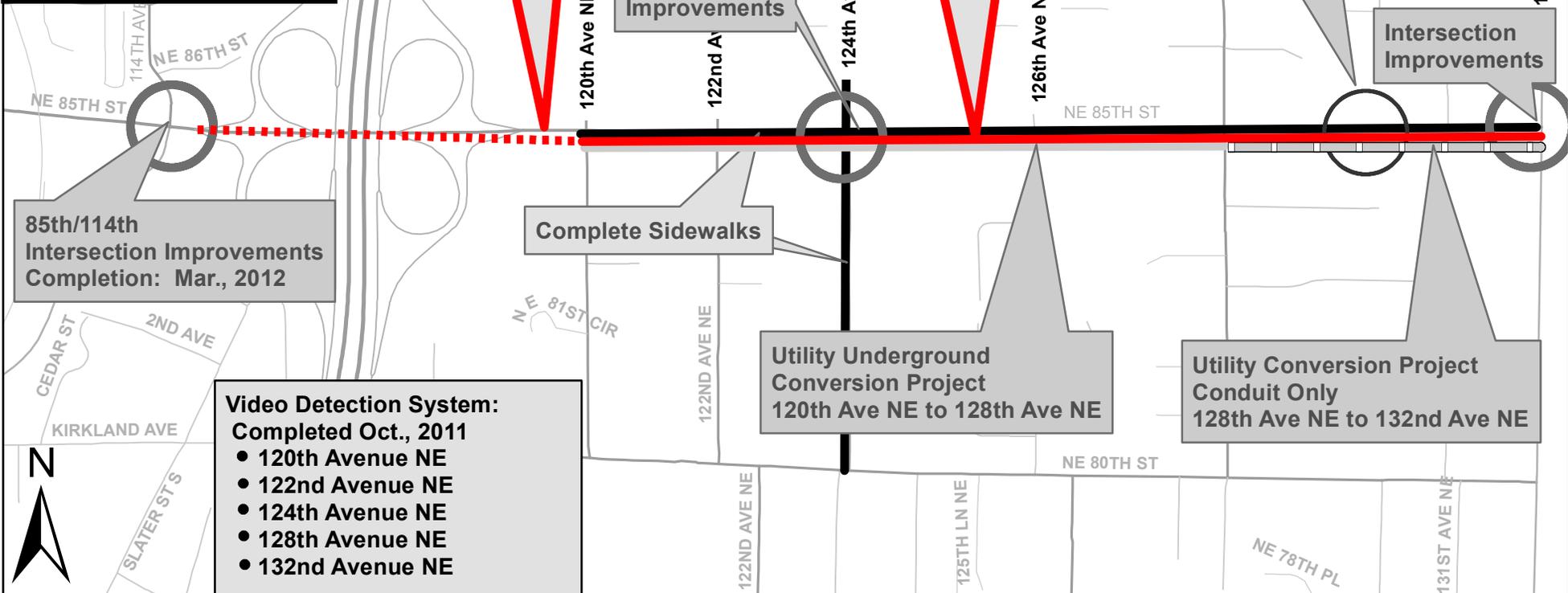
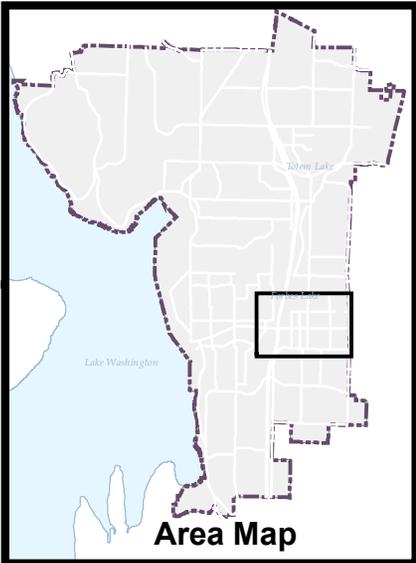
	Current improvement costs (NE 85 th Street costs)	Required Future improvement costs (NE 80 th Street costs)	Estimated total improvement cost
Alternative 1	\$ 1,675,000	\$ 2,455,000	\$ 4,130,000
Alternative 2	\$ 2,588,000	\$ 1,831,000	\$ 4,419,000
Alternative 3	\$ 2,992,000	\$ 1,047,000	\$ 4,039,000
Alternative 4	\$ 3,039,000	\$ 0	\$ 3,039,000

Under each alternative there are two required components for overall system improvement needs: a watermain in NE 85th Street and one in NE 80th Street. Based on current analysis, Alternative 1 (the currently existing plan) does not meet all future fire flow requirements in NE 85th Street despite a \$1.7 million investment in watermain improvements – Alternative 1 does not provide for a complete long-term water system improvement. Alternative 2 and 3 have lower initial improvement costs (compared to Alternative 4), but still require future system enhancements, leading to higher overall costs and future construction needs within NE 85th Street. Alternative 4, staff’s recommendation, provides for current and future fire flow needs and system capacity needs for many years.

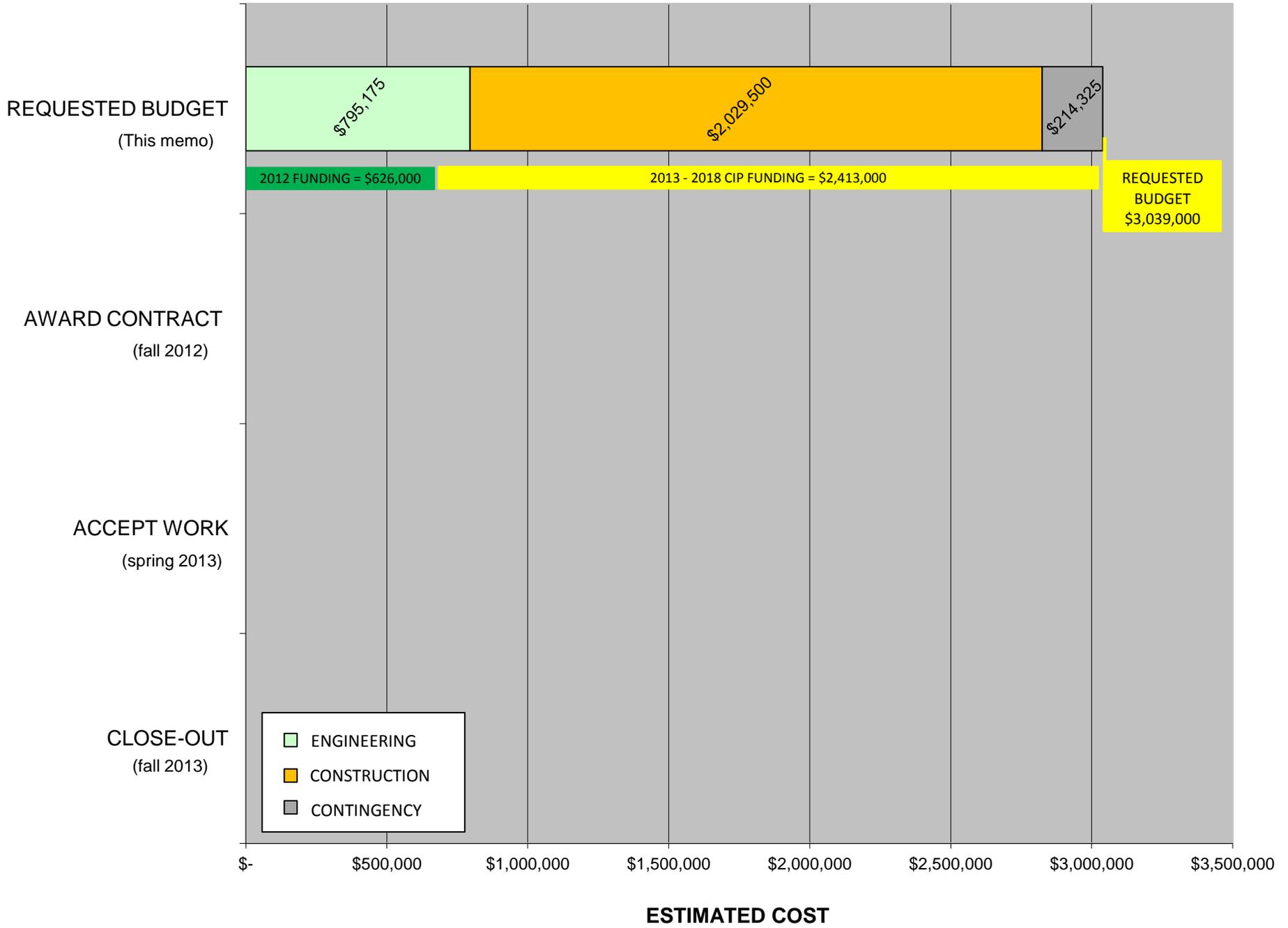
In order to best take advantage of the cost savings that would be realized by construction of this option concurrent with the City’s on-going NE 85th Street corridor improvements, it is recommended that the watermain replacement be added as an additional component of the NE 85th Street corridor improvements. Construction will begin later this year. Also, in order to maintain the existing schedule and in light of the nature of the watermain work, it is also recommended that the construction of the watermain be bid to be *constructed at night*. This will allow construction impacts to the surrounding businesses be minimized. Traffic control costs will also be lower due to the reduced volumes at night along NE 85th Street. Night-time construction has been suggested by the business community from the beginning of construction of the utility conversion phase however with the required coordination of the various telecom utilities, it has not been feasible – watermain construction would be feasible.

Staff requests City Council’s authorization to fund this project in order to immediately begin the Design of the replacement watermain. The funding needed for 2012 for engineering, permitting, and a start of construction is \$625,000, with funding available from the Utility Reserve (Attachment B & C). Funding for the remaining construction and contract administration phases will be identified and accounted for in the 2013-2018 CIP with an estimated total project cost of \$3,039,000.

Attachments (3)



**NE 85th St/132nd Ave WATERMAIN REPLACEMENT
CWA 0140
PROJECT BUDGET REPORT**



FISCAL NOTE

CITY OF KIRKLAND

Source of Request							
Ray Steiger, Public Work Director							
Description of Request							
Request for funding of \$626,000 to fund engineering and design in 2012 for the NE 85th Street Watermain Replacement project (CWA 140). Construction is expected to begin in 2013 and the balance of the funding will be included in the adoption of the 2013-18 CIP in December 2012. The total project cost is \$3,039,000.							
Legality/City Policy Basis							
Fiscal Impact							
One-time use of \$626,000 of the Water/Sewer Capital Reserve. The reserve is able to fully fund this request.							
Recommended Funding Source(s)							
Reserve	Description	2012 Est End Balance	Prior Auth. 2011-12 Uses	Prior Auth. 2011-12 Additions	Amount This Request	Revised 2012 End Balance	2012 Target
	Water/Sewer Capital Reserv	9,871,542	2,441,888	0	626,000	6,803,654	N/A
	2011-12 Prior Authorized Use of this reserve: \$100,000 for NE 116th Street Watermain Upgrades, \$272,000 for 120th Ave NE Watermain Replacement, \$39,500 for I-405 WSDOT Construction Agreement, and \$2,030,388 for Cross Kirkland Corridor Interfund Loan (which will be re-paid at within three years).						
Revenue/Exp Savings							
Other Source							
Other Information							
The Utility Construction Reserve accounts for capital contributions from utility rates and connections charges and is used to fund capital projects. Capital replacement cycles require that reserves accumulate to pay for future replacement of infrastructure to supplement the use of debt. The liability against this reserve occurs in future years as capital replacement needs peak.							
Prepared By	Neil Kruse, Senior Financial Analyst			Date	July 5, 2012		