**CITY OF KIRKLAND**
**Department of Public Works**
**123 Fifth Avenue, Kirkland, WA 98033 425.587.3800**
**www.kirklandwa.gov**

**MEMORANDUM**

**To:** Kurt Triplett, City Manager

**From:** Tuan Phan, P.E., Project Engineer
Dave Snider, P.E., Capital Projects Manager
Kathy Brown, Public Works Director

**Date:** June 4, 2015

**Subject:** 98TH AVENUE NE BRIDGE SEISMIC RETROFIT – AWARD CONTRACT

## RECOMMENDATION:

Staff recommends that the City Council take the following actions:

- Award the construction contract for the Forbes Creek Bridge Seismic Retrofit Project to Razz Construction of Bellingham, WA, in the amount of $530,204.90,
- Approve the proposed limited duration night-time detour plan, and
- Authorize the use of $25,000 in Street Improvement Reserve funds to pay for the non-grant eligible costs for the replanting and establishment of vegetation disturbed by construction.

## BACKGROUND DISCUSSION:

Constructed in 1974, the 240 foot long 98th Avenue NE Bridge at Forbes Creek is a continuous 4-span reinforced concrete slab bridge located on 98th Avenue NE in the Juanita Bay Park (Attachment A). A seismic vulnerability analysis completed for this bridge in 1995, and again in 2014, indicated that the center bridge pier supports could fail under a severe seismic event,

**98th Ave NE Bridge at Forbes Creek**

resulting in the collapse of all or part of the bridge. The bridge is a critical link in a major north/south Kirkland corridor and this retrofit will substantially decrease the probability of structural collapse in the event of seismic activity.

The Project provides seismic retrofit measures including the installation of Elastomeric Bearings and Steel Pipe Shear-keys at one of the main support piers, and installation of additional Steel Pipe Shear-keys at the two end bridge abutments. The retrofit includes a Carbon Fiber Reinforced Polymer (CFRP) application to the underside of the bridge deck at two piers to increase the strength of the upper deck. These retrofit measures are consistent with the FHWA Seismic Retrofit Manual for Highway Structures, are professionally accepted as providing additional strength and/or displacement capacity, and serve as a viable alternative to complete bridge replacement. All of this work provides a reasonable alternative to full replacement of the bridge at significant cost savings.

**Bridge Piers & Underside Deck**

The Project is primarily funded through the federal Highway Bridge Program (HBP) through the Bridge Replacement Advisory Committee (BRAC), which is administered by the Washington State Department of Transportation (WSDOT) Local Programs Division. The HBP provides funding for replacement and rehabilitation of deficient bridges and large preventative maintenance projects throughout the United States.

With an original Engineer's Estimate of $618,000 for construction, the Project was advertised on May 7 and bids were opened on May 28, 2015. A total of six (6) bids were received with Razz Construction being the lowest responsive bidder, as shown below:

| Contractor | Amount |
|---|---|
| **Razz Construction** | **$530,204.90** |
| Massana Construction | $584,989.00 |
| *Engineer's Estimate* | *$618,000.00* |
| Stellar J | $652,387.00 |
| CA Carey | $687,104.00 |
| McClure & Sons | $735,850.00 |
| Road Construction NW | $835,220.00 |

Once bids were opened, staff completed the required City and federally funded project requirements to determine bidder responsiveness; Local Programs concurrence has been received and federal authorization to proceed with an award has been secured. Additionally, all state and local certifications were found to be satisfactory with no adverse impact to Razz Construction's low and responsive bid status. Razz Construction is properly licensed and bonded for the work to be performed.

**PROPOSED TRAFFIC DETOUR**
The 98th Avenue NE/Forbes Creek Bridge will remain open during construction for most of the Project's duration. The principal work activities will take place underneath the bridge deck without road closures, leaving the structure available for pedestrians, bicycles and emergency vehicle access. Some of the planned activities will however require closing the bridge to traffic. The closures will take place over a two to four night period prompting the proposed detour route. The night work activities include bridge pier and foundation modifications and the addition of the Shear-keys at the two bridge abutments. The bridge work will require more typical traffic control (traffic cones/drums and traffic flaggers) on 98th Avenue NE at certain intervals during other work sequences, both above and below the bridge during the daytime.

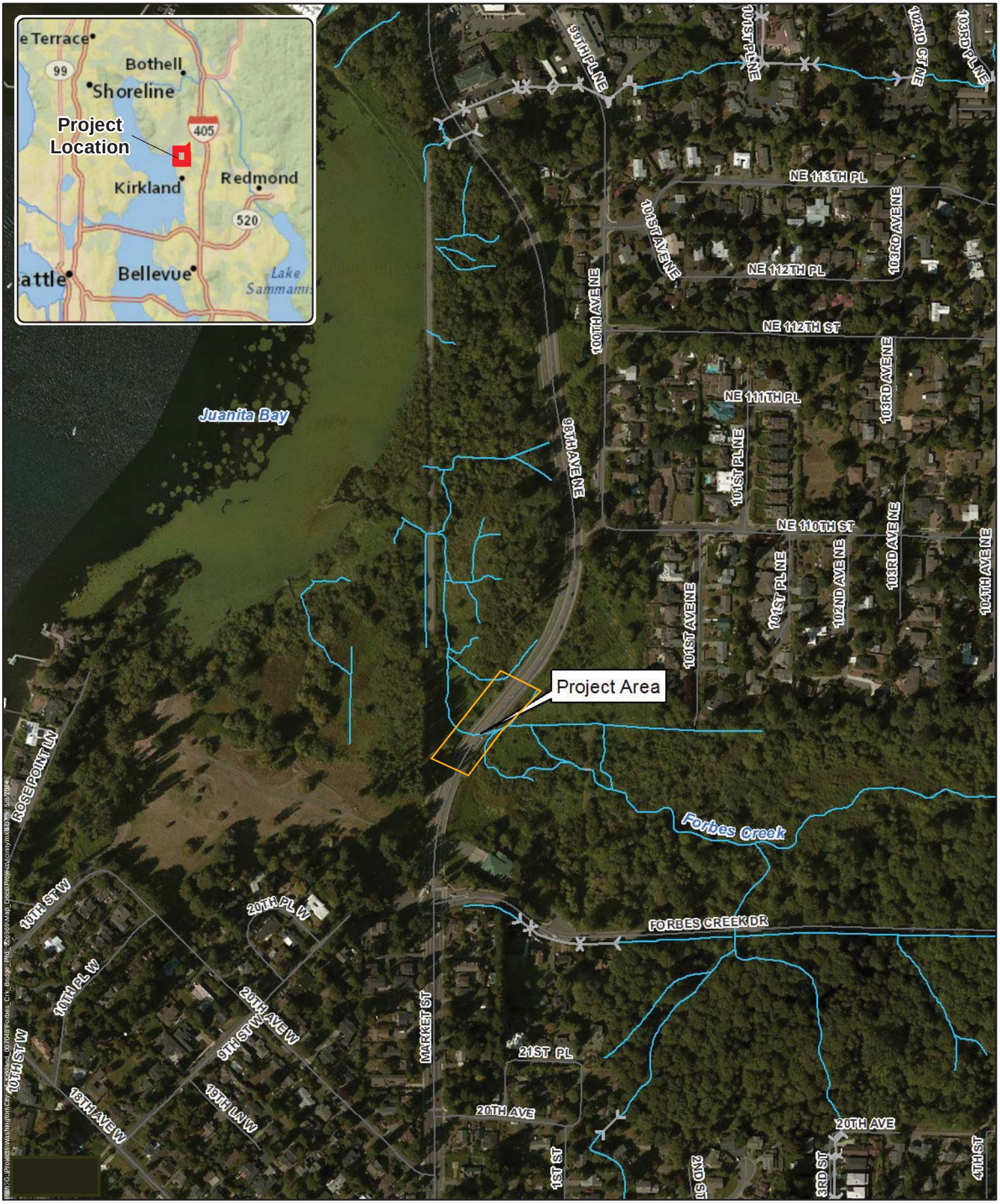
The proposed detour route is identified in the Project plans and moves vehicular traffic off of 98th Avenue NE to NE 116th Street then to 120th Avenue NE, NE 112th Street, 116th Avenue NE and then Forbes Creek Drive/NE 106th Street for southbound traffic, with the reverse for northbound traffic (Attachment B). The proposed traffic detour would be in effect between the hours of 8:00 p.m. to 5:00 a.m. and staff will closely coordinate with Police and Fire, as well as the Special Events Coordinator to select nighttime closures to avoid conflicts with any special events this summer.

The Project documents require the contractor to maintain safe travel for vehicles, bicycles and pedestrians throughout the work areas at all times and the Old Market Street Bridge Trail will remain open during the entire construction phase.

**Funding**
The Project funding is a combination of $1,400,000 in HBP funding and $15,000 in City funding, for a total of $1,415,000. As a result of the physical construction activities, existing planted areas will be disturbed and the Project has a plant re-establishment requirement that is not grant reimbursable. The impacted planted area had been previously restored with native plant species by the Green Kirkland Partnership in collaboration with the City's Parks Department. As part of the National Environmental Policy Act (NEPA) permit concurrence process, the Project is required to restore the planted area to its pre-construction condition. The NEPA permit stipulates that the new planting be monitored and maintained to ensure survival for up to 5 years after the project's completion. A $25,000 budget increase is needed to pay for the initial re-planting and establishment, and staff recommends the use of Street Improvement Reserves to fund this work element (Attachments C & D).

**Conclusion**
With a City Council award of the construction contract at the June 16 meeting, construction will begin in July. In advance of the start of construction, staff will begin an intensified public outreach process by notifying adjacent property owners with a direct mailing describing the upcoming work (Attachment E). Project information, including a regularly updated construction schedule, will also be posted at the Project location on the City's Capital Improvement Project web site.

Attachment A – Project Vicinity Map
Attachment B – Construction Detour Map
Attachment C – Project Budget Report
Attachment D – Fiscal Note
Attachment E – Project Informational Poster




**Legend**

- Stream
- Culvert
- Street

0 125 250 500 Feet

## Project Vicinity Map

## Forbes Creek Bridge Seismic Retrofit

ATTACHMENT B

CALL BEFORE YOU DIG: 1-800-424-5555

DETOUR NOTES:

1. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN FEET.
2. SIGNS SHALL BE MOUNTED AT A MINIMUM HEIGHT OF 7 FEET; MEASURED FROM THE BOTTOM OF THE SIGN TO THE NEAR EDGE OF PAVEMENT.
3. SIGNS SHALL BE PLACED SO EDGE OF SIGN IS 2 TO 6 FEET FROM THE EDGE OF THE PAVEMENT OR AS DIRECTED BY THE ENGINEER.
4. EACH SIGN SHALL BE MOUNTED ON ITS OWN 4" X 4" WOOD POST. POST EMBEDMENT SHALL BE A MINIMUM OF 30 INCHES.
5. ALL SIGN FACE AND BARRICADE FACE MATERIAL SHALL CONSIST OF HIGH INTENSITY PRISMATIC SHEETING OR APPROVED EQUAL.
6. TEN DAYS PRIOR TO THE CLOSURE OF 98TH AVE NE, THE CONTRACTOR SHALL FURNISH AND INSTALL ADVANCE CLOSURE SIGNS AS SHOWN ON THE PLAN. ALL SIGNS ARE TO BE TURNED, COVERED, OR BAGGED UNTIL NEEDED. ADDITIONALLY, ANY TIME WORK IS SUSPENDED, SIGNS THAT ARE NOT ACCURATE TO ACTUAL SITE CONDITIONS MUST BE TURNED, COVERED, OR BAGGED.
7. NO ROAD CLOSURES WILL BE ALLOWED UNTIL THE SIGNING PLACEMENT AND INSTALLATION HAS BEEN INSPECTED AND REVIEWED BY THE ENGINEER.
8. PEDESTRIANS AND BICYCLISTS ACCESS ACROSS BRIDGE TO BE MAINTAINED AT ALL TIMES BY CONTRACTOR.
9. NO WORK ALLOWED ON 98TH AVE NE SOUTH BOUND APPROACH BETWEEN 6:00 AM AND 9:00 AM. WORK BELOW THE BRIDGE AND ADJACENT TO THE ROADWAY IS ALLOWED.
10. NO WORK ALLOWED ON 98TH AVE NE NORTH BOUND APPROACH BETWEEN 3:00 PM AND 7:00 PM. WORK BELOW THE BRIDGE AND ADJACENT TO THE ROADWAY IS ALLOWED.

DETOUR LEGEND:

- POST MOUNTED SIGN
- TYPE III BARRICADE
- PEDESTRIAN & VEHICLE DETOUR ROUTE
- WORK ZONE
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN

| PCMS | | |
|---|---|---|
| 1 | 2 | 3 |
| 98TH AVE NE CLOSED AHEAD | 8:00 PM TO 5:00 AM | MONTH/DAY TO MONTH/DAY |
| 2.0 SEC | 2.0 SEC | 2.0 SEC |

98th Avenue NE to remain open for pedestrians, bicycles, and Emergency vehicles.

DETOUR PLAN
SCALE: NTS

BLACK/WHITE (6"C, 3/4" BORDER)

SPECIAL SIGN 1 DETAIL

SIGN QUANTITIES

| SIGN | QUANTITY |
|---|---|
| M4-9R MOD | 4 |
| M4-9L MOD | 4 |
| M4-9L | 4 |
| M4-9R | 4 |
| M4-10L | 1 |
| M4-10R | 1 |
| W20-1 | 2 |
| W20-2 | 3 |
| W20-3 MOD | 2 |
| SPECIAL 1 | 2 |

| FILE | ENGR. | REVIEW | SCALE | DATE |
|---|---|---|---|---|
| 12 FCB-DETR-01 | | | AS SHOWN | 3/23/2015 |

| NO. | REVISION | BY | REVIEW | DATE |
|---|---|---|---|---|

CITY OF KIRKLAND
PUBLIC WORKS DEPARTMENT
123 FIFTH AVENUE - KIRKLAND, WA 98033-6189 - (206)828-1243

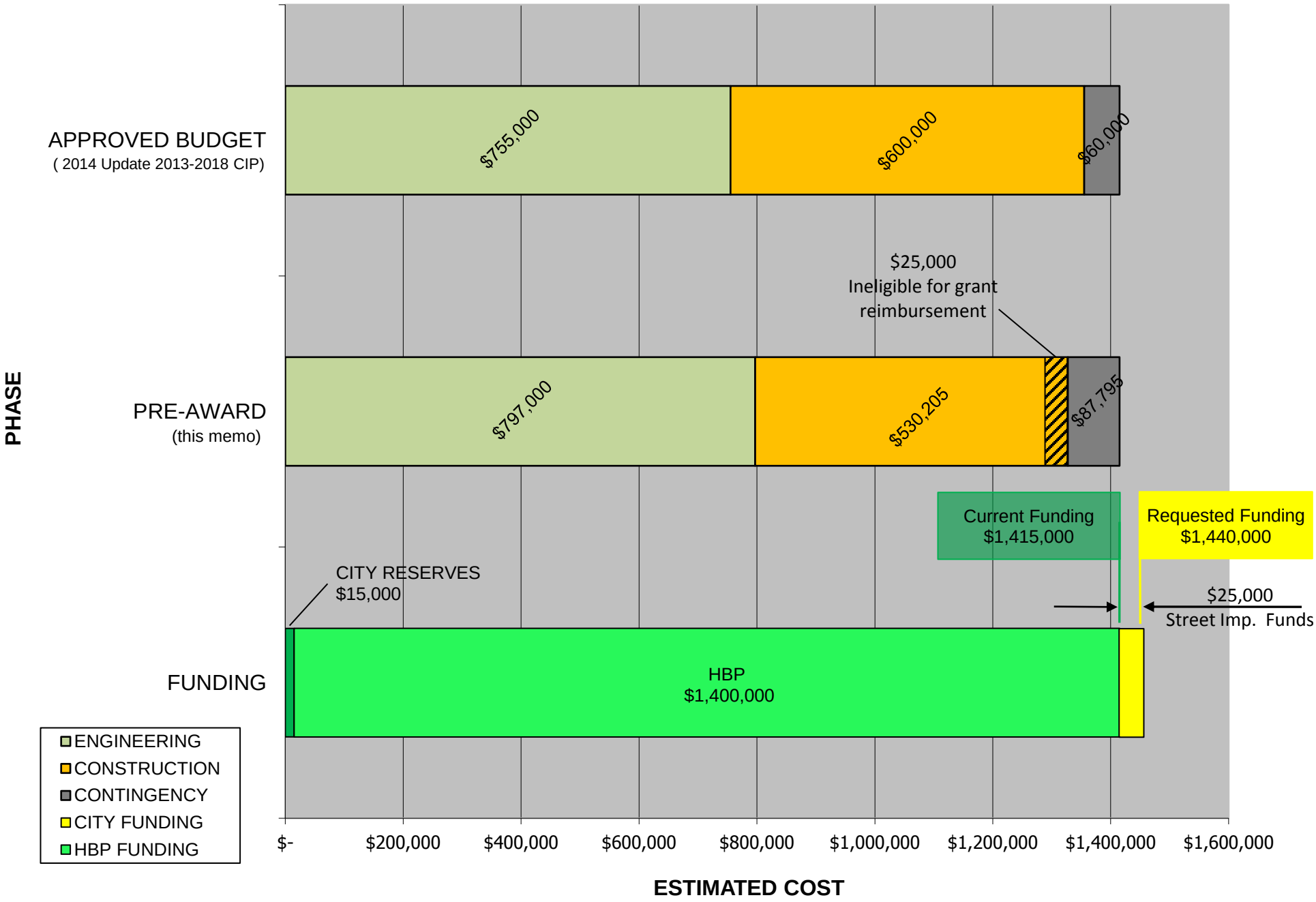
FORBES CREEK BRIDGE SEISMIC RETROFIT
CST 0055
DETOUR PLAN

SHEET 12 / 19

**98TH AVENUE NE BRIDGE SEISMIC RETROFIT (CST - 0055)**

**PROJECT BUDGET REPORT**

**Attachment C**



ATTACHMENT D

# FISCAL NOTE

*CITY OF KIRKLAND*

**Source of Request**

Kathy Brown, Public Works Director

**Description of Request**

Funding of $25,000 from the Street Improvement Reserve for grant-ineligible costs for the Forbes Creek Bridge Seismic Retrofit Project (CST 0055) as described in the attached memo.

**Legality/City Policy Basis**

**Fiscal Impact**

**One-time use of $25,000 from the Street Improvement Reserve.** This reserve is fully able to fund this request.

**Recommended Funding Source(s)**

***Reserve***

| Description | 2016 Est End Balance | Prior Auth. 2015-16 Uses | Prior Auth. 2015-16 Additions | Amount This Request | Revised 2015 End Balance | 2016 Target |
|---|---|---|---|---|---|---|
| Street Improvement | 95,958 | 0 | 0 | 25,000 | 70,958 | N/A |
| | | | | | | |

Street Improvement Reserve balance assumes use of $900,000 for the Street Light LED Conversion project in the upcoming 2015-2020 CIP.

***Revenue/Exp Savings***

***Other Source***

**Other Information**

| Prepared By | Neil Kruse, Senior Financial Analyst | Date | June 5, 2015 |
|---|---|---|---|

# FORBES CREEK

Fully Funded by WSDOT Bridge Replacement Advisory Committee / Federal Grant

# BRIDGE SEISMIC RETROFIT

## MAY - SEPT 2015



CITY OF KIRKLAND WASHINGTON

U.S. Department of Transportation Federal Highway Administration

WSDOT

HDR

## PROJECT PURPOSE

To substantially increase the bridge's resilience during earthquakes by providing new bearings at interior columns, strengthening of the bridge deck, and shear connectors at the bridge ends. This work serves as a viable alternative to total bridge replacement at a fraction of the cost.

## WHY RETROFIT?

- Improved Seismic Performance
- Minimal Traffic Impacts
- Highly Cost-Effective

ATTACHMENT D

## HAVE QUESTIONS ABOUT THE PROJECT?

kirklandwa.gov/forbescreekretrofit

Contact: Christian Knight
City of Kirkland

CKnight@kirklandwa.gov

425-587-3831