

**CITY OF KENMORE, WASHINGTON**

**AGENDA BILL SUMMARY**

<b>AGENDA TITLE</b>			<b>MEETING DATE</b>
Approval of final Tributary 0057 Sediment Study report and recommended improvements to Tributary 0057			June 21 <sup>st</sup> , 2010
<b>DEPARTMENT</b>	<b>DIRECTOR</b>	<b>MEETING ATTENDEES</b>	<b>PHONE</b>
Engineering	Ron Loewen	Ron Loewen, Staff Kent Vaughan, Staff Barry Baker, G&O	(425) 398-8900
<b>COST OF PROPOSAL:</b> Previous Cost: Staff Time: 120 hours Contracted: \$153,000 Implementation Costs: Contracted: \$ 20,000 Alternative 10: \$558,000 Total Costs: <b>\$731,000</b>		<b>ACCOUNT NUMBER:</b> <b>41 00 7087 Sammamish River Basin Study</b>	
<b>AMOUNT BUDGETED:</b> 2011-2012 CIP Budget: \$500,000 (from 2008 Surface Water Management Plan)  2009-2010 0057 Sediment Study: \$250,000  Total Project Budget: <b>\$750,000</b>		<b>NAME AND FUND #:</b> <b>Surface Water Management Fund</b>	
<b>ATTACHMENT(S) TO AGENDA PACKET ITEM:</b>			
<ul style="list-style-type: none"> <li>• Final Tributary 0057 Sediment Study</li> <li>• Agenda Bill dated April 26<sup>th</sup>, 2010</li> <li>• Agenda Bill dated October 26<sup>th</sup>, 2009</li> </ul>			
<b>SUMMARY STATEMENT:</b>			
<p><u>Background:</u> In April 2009, City Council approved the 2009 / 2010 On-Call Surface Water and NPDES Support Services Contract (09-C776) with Gray &amp; Osborne Inc. to study the flooding and sediment issues associated with Tributary 0057 (Study Budget: \$191,133). The Tributary 0057 Drainage Basin is generally bounded by 72nd Avenue NE to the west, NE 148th Street to the south, 83rd Avenue NE to the east, and the Sammamish River to the north. The study was initiated because of difficulties in maintaining the existing sediment vault in NE 170<sup>th</sup> Street and the potential impacts that can result when sediment overloads the vault. The focus of the study was to investigate the sediment problems in the drainage basin, develop capital improvement project alternatives to properly manage the sediment load, and prevent future flooding of NE 170th Street / Simonds Road NE and private developments such as Wildcliffe Shores. The Tributary 0057 Sediment Study was identified in the 5-year Surface Water CIP program that was adopted as part of the 2008 Surface Water Management Plan. The adopted CIP plan reserves \$750,000 to complete this study and design and construct capital improvement projects that result from this study (\$250,000 in 2010 and \$250,000 in 2011 and \$250,000 in 2012).</p> <p>On October 26<sup>th</sup>, 2009, City Staff and Gray &amp; Osborne presented the initial field report findings to City Council, which included locations of the major sedimentation sources, deposition areas, and stream channel conditions within the drainage basin.</p>			

On November 5<sup>th</sup>, 2009, City Staff and Gray & Osborne held the first of two open house meetings to discuss initial field observations with the public. Citizens were encouraged to provide comments, suggest issues that should be addressed in the study, and share local knowledge of this stream and drainage basin.

On April 19<sup>th</sup>, 2010, City Staff and Gray & Osborne presented the draft report to City Council.

On May 11<sup>th</sup>, 2010, City Staff and Gray & Osborne held the second of two open house meetings to present the draft report to the public.

Final Report: Based on input from the most recent City Council and public open house meetings, City Staff and Gray & Osborne made minor alterations to the draft report. The most notable change to the report was the renaming of the four alternatives under consideration to remain consistent with their project area designations, for clarity purposes.

Ten potential project areas were identified in the report with the potential to provide sediment management. City staff and Gray & Osborne ranked each project area based on the criteria below:

- Maintenance Frequency Cost
- Environmental Benefit
- Effort to Permit / Permit Requirements
- Design Effort/Technical Complexity
- Project Capital Costs
- Sediment Management Benefit

A point score (from 1 to 5) was assigned to each of the criteria above, with 1 being more expensive or of least benefit and 5 being of least cost or highest benefit. The four highest scoring project areas were further evaluated as project alternatives and are described below:

- **Alternative 10** – Removes the existing sediment vault in NE 170<sup>th</sup> Street and existing pipe running north from the vault and constructs a combination of 60 lineal feet of box culvert (8' x 8') across NE 170<sup>th</sup> Street and 200 linear feet of open channel (11 feet wide) lined with ecology blocks thru the private property to the north from the north end of the box culvert to Tract C of Wildcliffe Shores Condominiums. A natural sediment trap would be constructed at the north end of the channel in Tract C of Wildcliffe Shores Condominiums. The project cost estimate is \$558,000 (20 points).
- **Alternative 9** – Removes the existing sediment vault in NE 170<sup>th</sup> Street and existing pipe running north from the vault and constructs approximately 260 linear feet of box culvert (8' x 8') across NE 170<sup>th</sup> Street and thru the existing 20-foot drainage easement to Tract C of Wildcliffe Shores Condominiums. A natural sediment trap would be constructed at the north end of the box culvert in Tract C of Wildcliffe Shores Condominiums. The project cost estimate is \$649,000 (19 points).
- **Alternative 8** – Removes and replaces the existing sediment vault (~50 cubic yards of storage volume, CY) in NE 170<sup>th</sup> Street with an enlarged sediment vault (~200 cubic yards of storage volume) to trap the anticipated sediment load from the project area. With more volume to store sediment, the existing sediment accumulation occurring at the upstream end of the vault should cease, and the potential for flooding would be considerably reduced provided routine maintenance continues. The project cost estimate is approximately \$797,000 (18 points).

- **Alternative 5** – Constructs a new sediment vault at the downstream point of the existing culvert under NE 163<sup>rd</sup> Street. This vault could be sized to hold a volume of 61 cubic yards in the available project limits and placed along Tributary-1 (west branch of Tributary 0057) where the majority of sediment loads originate. The existing sediment trap would remain in NE 170<sup>th</sup> Street and would function in its existing condition. The project cost estimate is \$520,000 (18 points).


Based on the project ranking and positive feedback received from the public and stakeholder's Wildcliffe Shores and the Washington State Department of Fish and Wildlife, City Staff and Gray & Osborne recommend **Alternative 10** for implementation. Alternative 10 (box culvert + open channel option) provides the most environmental benefit, is fish passable, and would result in a tree-lined open channel design to provide a more natural setting. Alternative 10 would also enhance the downstream wetland area, reduce long-term operation and maintenance costs (relative to the existing sediment vault), and prevent future flooding of NE 170<sup>th</sup> Street / Simonds Road NE and Wildcliffe Shores Condominiums by relocating the main channel to the east (where the existing storm water overflow conveyance system is located).

If City Council approves the Final Tributary 0057 Sediment Study report (and recommended Alternative 10) for implementation, City Staff will negotiate a new task order and amend the City's on-call contract with Gray & Osborne, Inc. to complete the final plans, specifications, and estimate (PS&E) of the Alternative 10 Tributary 0057 improvements and construction management services for the project. City Staff would return to City Council in late July 2010 for authorization to execute the contract amendment.

**CONSISTENT WITH OR COMPARISON TO PAST COUNCIL POLICIES, ORDINANCES, DIRECTION:**  
**Consistent with the City's 2009-2010 Budget, adopted 2008 Surface Water Management Plan and 2009-2010 On-call Surface Water and NPDES Support Services Contract with Gray & Osborne, Inc.**

**RECOMMENDED CITY COUNCIL ACTION/SUGGESTED MOTION:**

Approve the Final Tributary 0057 Sediment Study report and recommended Alternative 10 for implementation, and authorize the City Manager to complete the final plans, specifications, and estimate (PS&E) and obtain required easements.

<b>REVIEWED BY FINANCE DIRECTOR:</b>	<b>REVIEWED BY CITY ATTORNEY:</b>	<b>APPROVED BY CITY MANAGER:</b> 
<b>TODAY'S DATE:</b> June 10 <sup>th</sup> , 2010	<b>REVISION DATE(S):</b>	<b>FILE NAME &amp; PATH (HYPERLINK):</b> S:\0135 0057 Sedimentation Study\Council\100602-0057 Agenda Bill-rev.doc



**CITY OF KENMORE, WASHINGTON**

**AGENDA BILL SUMMARY**

<b>AGENDA TITLE</b>		<b>MEETING DATE</b>	
Presentation and Discussion of Draft Tributary 0057 Sediment Study		April 26 <sup>th</sup> , 2010	
<b>DEPARTMENT</b>	<b>DIRECTOR</b>	<b>MEETING ATTENDEES</b>	<b>PHONE</b>
Engineering	Ron Loewen	Ron Loewen, Staff Kent Vaughan, Staff Barry Baker, G&O	(425) 398-8900
<b>COST OF PROPOSAL:</b> Projected 2011-2012 costs associated with implementation of recommended Capital Improvement Project (CIP) Alternative A: \$558,000.		<b>ACCOUNT NUMBER:</b> <b>41 00 7087 Sammamish River Basin Study</b> <b>41 00 5001 Regular Salary &amp; Wages</b>	
<b>AMOUNT BUDGETED:</b> <b>2011-2012 CIP Budget: \$500,000</b>  <b>2009-2010 0057 Sediment Study: \$250,000</b> Consultant Budget: \$191,133, (\$135,800 expended to date, ~71% of Consultant Budget) <b>Staff Salary &amp; Wages: \$19,000</b> <b>Contingency: \$39,867</b>  <b>Total Project Budget: \$750,000</b>		<b>NAME AND FUND #:</b> <b>Surface Water Management Fund</b>	
<b>ATTACHMENT(S) TO AGENDA PACKET ITEM:</b>  Draft Tributary 0057 Sediment Study			
<b>SUMMARY STATEMENT:</b>  <u>Background:</u> In April 2009, City Council approved the 2009 / 2010 On-Call Surface Water and NPDES Support Services Contract (09-C776) with Gray & Osborne Inc. to study the flooding and sediment issues associated with Tributary 0057 (Study Budget: \$191,133). The Tributary 0057 Drainage Basin is generally bounded by 72nd Avenue NE to the west, NE 148th Street to the south, 83rd Avenue NE to the east, and the Sammamish River to the north. The study was initiated because of difficulties in maintaining the existing sediment vault in NE 1700 <sup>th</sup> Street and the potential impacts when sediment overloads the vault. Therefore the focus of the study was to investigate the sediment problems in the drainage basin, develop capital improvement project alternatives to properly manage the sediment load, and prevent future flooding of NE 170th Street / Simonds Road and private developments such as Wildcliffe Shores that occurred in December 2007. The Tributary 0057 Sediment Study was identified in the 5-year Surface Water CIP program that was adopted as part of the 2008 Surface Water Management Plan. The adopted CIP plan reserves \$750,000 to design and construct capital improvement projects resulting from the initial Tributary 0057 Sediment Study (\$250,000 in 2010 and \$250,000 in 2011 and \$250,000 in 2012).  On October 26 <sup>th</sup> , 2009, City Staff and Gray & Osborne presented the initial field report findings to City Council, including locations of the major sedimentation sources, deposition areas, and stream channel conditions within the drainage basin. On November 5 <sup>th</sup> , 2009, City Staff and Gray & Osborne hosted the first of two open house meetings to discuss initial field observations with the public. Citizens were encouraged to provide suggest issues that should be addressed in the study			

and share local knowledge of this stream and drainage basin.

Discussion: In the last five months, Gray & Osborne have identified potential project areas for sediment management in the drainage basin and developed potential capital improvement project alternatives with planning cost estimates.

Ten project areas were identified in the drainage basin with the potential to provide sediment management. To evaluate the project areas, City staff and Gray & Osborne devised a ranking methodology. The methodology addresses issues raised during the public meetings, sediment evaluation, and field investigations. A point score from 1 to 5 was assigned to each category with 1 being more expensive or of least benefit and 5 being of least cost or highest benefit. The categories are:

- Maintenance Frequency Cost
- Environmental Benefit
- Effort to Permit / Permit Requirements
- Design Effort/Technical Complexity
- Project Capital Costs
- Sediment Management Benefit

Each project area was evaluated and ranked based on a points system (maximum 30 points). The four highest scoring project areas were further evaluated as project alternatives and are described below:

- **Alternative A** – Removes the existing sediment vault in NE 170<sup>th</sup> Street and existing pipe running north from the vault and constructs a combination of 60 lineal feet of box culvert (8' x 8') across NE 170<sup>th</sup> Street and 200 linear feet of open channel (11 feet wide) lined with ecology blocks thru the private property to the north from the north end of the box culvert to Tract C of Wildcliffe Shores Condominiums. A natural sediment trap would be constructed at the north end of the channel in Tract C of Wildcliffe Shores Condominiums. The project cost estimate is \$558,000 (20 points).
- **Alternative B** – Removes the existing sediment vault in NE 170<sup>th</sup> Street and existing pipe running north from the vault and constructs approximately 260 linear feet of box culvert (8' x 8') across NE 170<sup>th</sup> Street and thru the existing 20-foot drainage easement to Tract C of Wildcliffe Shores Condominiums. A natural sediment trap would be constructed at the north end of the box culvert in Tract C of Wildcliffe Shores Condominiums. The project cost estimate is \$649,000 (19 points).
- **Alternative C** – Removes and replaces the existing sediment vault (~50 cubic yards of storage volume, CY) in NE 170<sup>th</sup> Street with an enlarged sediment vault (~200 cubic yards of storage volume) to trap the anticipated sediment load from the project area. With more volume to store sediment, the existing sediment accumulation occurring at the upstream end of the vault should cease, and the potential for flooding would be considerably reduced provided routine maintenance continues. The project cost estimate is approximately \$797,000 (18 points).
- **Alternative D** – Constructs a new sediment vault at the downstream point of the existing culvert under NE 163<sup>rd</sup> Street. This vault could be sized to hold a volume of 61 cubic yards in the available project limits and placed along Tributary-1 (west branch of Tributary 0057) where the majority of sediment loads originate. The existing sediment trap would remain in

NE 170<sup>th</sup> Street and would function in its existing condition. The project cost estimate is \$520,000 (18 points).

Based on the project ranking analysis and the positive feedback received from both project stakeholder's Wildcliffe Shores and the Washington State Department of Fish and Wildlife, City Staff and Gray & Osborne recommend Alternative A. Alternative A (box culvert + open channel option) provides the most environmental benefit, being fish passable with an open channel design lined with trees to provide a more natural setting. Alternative A would also enhance the downstream wetland area, reduce long-term operation and maintenance costs (relative to the existing sediment vault), and prevent future flooding of NE 170<sup>th</sup> Street / Simonds Road NE and Wildcliffe Shores Condominiums.

Next Steps: At the April 19<sup>th</sup>, 2010 City Council Meeting, Gray & Osborne will present the Draft Report findings, and the preferred Capital Improvement Project Alternative for Council consideration and comment. City Staff will schedule a second open house meeting in early May to receive public comment on the Draft Tributary 0057 Sediment Report. Based on input from both meetings, City Staff and Gray & Osborne will incorporate any necessary changes to the Draft Report and return to City Council with a formal recommendation in June 2010 for final approval.

**CONSISTENT WITH OR COMPARISON TO PAST COUNCIL POLICIES, ORDINANCES, DIRECTION:**

**Consistent with the City's adopted 2008 Surface Water Management Plan and 2009-2010 On-call Surface Water and NPDES Support Services Contract with Gray & Osborne, Inc.**

**RECOMMENDED CITY COUNCIL ACTION/SUGGESTED MOTION:**

This is a presentation to receive input from City Council on the Draft Tributary 0057 Sediment Study and recommended project alternative. City Staff will be hosting a second open house meeting in early May to receive public comment on the Draft Report. No action is required.

**REVIEWED BY FINANCE DIRECTOR:**

**REVIEWED BY CITY ATTORNEY:**

**APPROVED BY CITY MANAGER:**

**TODAY'S DATE:**  
April 9, 2010

**REVISION DATE(S):**

**FILE NAME & PATH (HYPERLINK):**  
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Study\Council\100308-0057 Agenda  
Bill\_040910.doc

**CITY OF KENMORE, WASHINGTON**

**AGENDA BILL SUMMARY**

<b>AGENDA TITLE</b>			<b>MEETING DATE</b>
Council Briefing on the Status of Stream 0057 Sedimentation Study and Upcoming Public Meeting.			October 26 <sup>th</sup> , 2009
<b>DEPARTMENT</b>	<b>DIRECTOR</b>	<b>MEETING ATTENDEES</b>	<b>PHONE</b>
Engineering	Ron Loewen	Ron Loewen, Staff Kent Vaughan, Staff Barry Baker, G&O	(425) 398-8900
<b>COST OF PROPOSAL:</b> None		<b>ACCOUNT NUMBER:</b> 41 00 7087 Sammamish River Basin Study 41 00 5001 Regular Salary & Wages	
<b>AMOUNT BUDGETED:</b> <i>From 2009-2010 On-call Surface Water and NPDES Support Services Contract with Gray &amp; Osborne, Inc.:</i>  \$191,133 (Task Order #1: Tributary 057 Sedimentation Basin Study and Management Alternatives)  Expended to Date: \$47,783 (~19% of Budget)  Staff Salary & Wages: \$19,000		<b>NAME AND FUND #:</b> <b>Surface Water Management Fund</b>	
<b>ATTACHMENT(S) TO AGENDA PACKET ITEM:</b> <ul style="list-style-type: none"> <li>• Summary Field Report dated August 7, 2009;</li> <li>• GIS Basin Map.</li> </ul>			
<b>SUMMARY STATEMENT:</b>  <p><u>Background:</u> In late April 2009, City Council approved the 2009 / 2010 On-Call Surface Water and NPDES Support Services Contract with Gray &amp; Osborne Inc. to study the flooding and sedimentation issues associated with Tributary 0057 (\$191,133). The Tributary 0057 Sedimentation Study was identified in 5-year CIP program of the 2008 Surface Water Management Plan. The Tributary 0057 Basin is generally bounded by 72<sup>nd</sup> Avenue NE to the west, NE 148<sup>th</sup> Street to the south, 83<sup>rd</sup> Avenue NE to the east, and the Sammamish River to the north. The focus of the study is to investigate the sediment problems associated with the Tributary 0057 drainage basin and develop alternatives (capital improvements) to properly manage the sediment load to prevent future flooding.</p> <p><u>Discussion:</u> The following tasks in the Tributary 0057 Sedimentation Study scope of work have been accomplished to date by Gray &amp; Osborne, Inc. and its subconsultants:</p> <ul style="list-style-type: none"> <li>• Literature review;</li> <li>• Initial hydrologic (surface water runoff) modeling of the basin;</li> <li>• Field survey and initial sediment mapping and modeling (GIS map and field report summary attached);</li> <li>• Identification of potential sediment control alternatives through discussions with City Staff including:</li> </ul>			

- Source control of public and private runoff (ie. consider implementation of surface water runoff flow controls and sediment management requirements for each existing parcel / right-of-way within the basin);
- Design and construct a single sediment control structure (Capital Improvement Project) further downstream (replacing the existing sediment vault in NE 170<sup>th</sup> Street with a new culvert crossing) and / or allow the natural system to transport the sediment further downstream onto the Sammamish River floodplain;
- Design and construct multiple sediment control structures to replace (or supplement) the existing sediment vault in NE 170<sup>th</sup> Street (Capital Improvement Project) within existing public right-of-way and/or private areas (where feasible; easements would be required).

Gray & Osborne Inc. and City Staff are planning a public open house for late October or early November to present initial field report findings within the drainage basin and allow citizens to provide input on the study and/or share local knowledge of this stream and drainage basin.

During the public meeting, the attached materials will be presented. The “Summary Field Report” describes GeoEngineers Inc. (Gray & Osborne’s sub-consultant) observations on sediment sources and stream channel conditions. The “Active Processes” Figure provides a graphic illustration of the major sedimentation sources, deposition areas, and stream channel conditions. Nearly all sediment sources are on private property. The major problem with sediment deposition is that it clogs the existing sediment vault and stormwater system that crosses NE 170<sup>th</sup> Street, which contributed to the stream jumping its banks in December 2007, flooding NE 170<sup>th</sup> Street and Wildcliffe Shores.

After the public meeting, the “next steps” in the development of the 0057 Sedimentation Study will be to:

- Collect survey data for possible Capital Project Locations;
- Refine and develop Sediment Control Alternatives w/ cost estimates for structural control measures;
- Research regulatory requirements and permitting necessary to design and construct structural solutions;
- Produce a draft Sediment Study Report summarizing the findings of the study and recommendations to the City;
- Public Involvement/Council Briefings to present draft plan.

**CONSISTENT WITH OR COMPARISON TO PAST COUNCIL POLICIES, ORDINANCES, DIRECTION:**

**Consistent with the City’s adopted 2008 Surface Water Management Plan and 2009-2010 On-call Surface Water and NPDES Support Services Contract with Gray & Osborne, Inc.**

**RECOMMENDED CITY COUNCIL ACTION/SUGGESTED MOTION:**

No action is required. This is a briefing to advise the Council of the public meeting and the material to be presented.

**REVIEWED BY FINANCE DIRECTOR:**

**REVIEWED BY CITY ATTORNEY:**

**APPROVED BY CITY MANAGER:**

**TODAY’S DATE:**  
October 6<sup>th</sup>, 2009

**REVISION DATE(S):**

**FILE NAME & PATH (HYPERLINK):**  
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