

BRIGHTWATER PROJECT OVERSIGHT REPORT FOR QUARTER ENDING MARCH 31, 2009

CURRENT RISK RATING ▼ Attention is needed to address the schedule delay, increased cost, and issues and risks described below.



PROJECT DESCRIPTION

The Brightwater wastewater treatment system is being constructed to meet the capacity needs outlined in the Regional Wastewater Services Plan. The system includes a new treatment plant located just north of State Route (SR) 522 and east of SR 9 with 36 million gallons per day initial capacity. The plant includes membrane bioreactor secondary treatment systems, Class B biosolids and reclaimed water production, and odor control and disinfection systems. A conveyance system comprised of four large diameter tunnels totalling some 14 miles in length connects the plant to a marine outfall in Puget Sound. Also included are diversion structures to direct flow from existing sewers into the new system, an influent pump station, a reclaimed water system, and odor control facilities. The Wastewater Treatment Division (WTD) is the project manager. Construction is by multiple contracts using GC/CM, Design-Bid-Build, and Design-Build delivery methods. The project is currently in the construction phase. R.W. Beck is the Oversight Monitoring Consultant (OMC). Their quarterly report and review of WTD's 2009 cost update is attached.

PROJECT STATUS ● = No Current Concerns ▼ = Attention Needed ◆ = Corrective Action Needed

● **Scope**

There have been no changes to the original approved scope of the project as described above.

▼ **Schedule**

<u>Milestone</u>	<u>Approved Schedule</u>	<u>Current Forecast</u>	<u>Comment</u>
Treatment Plant substantial completion	Jan. 2011	2/21/11	On Schedule
Conveyance System hydraulic completion	Jan. 2011	6/15/11	191-day delay
Accept wastewater for treatment	Mar. 2011	mid Sept. 2011	191-day delay

▼ **Budget (1):** Cost updates show estimated costs at completion exceeding the baseline budget.

Project	Adopted 2004 Baseline		WTD 2009 Cost Update		OMC 2009 Estimate		LTD Expenses	LTD %
	3% Inflation	5% Inflation	Low (2)	High	Low	High	Thru Feb. 09	Expended
Conveyance	1,021	1,106	921	955	929	967	545	59%
Treatment Plant	640	684	879	890	892	907	495	56%
Total	\$1,660	\$1,790	\$1,800	\$1,844	\$1,821	\$1,874	\$1,040	58%

(1) All costs are shown in \$ millions.

(2) This represents WTD's opinion of most probable outcome and is the amount used for the LTD % calculation.

▼ **Issues and Risks:** Strategies are in place but may not be adequate to address the following:

- Unforeseen conditions during remaining tunnel mining
- Schedule delays associated with Central Tunnel mining
- Multiple contractor coordination at Influent Pump Station and Treatment Plant sites
- Delays in Treatment Plant startup caused by Conveyance System delays.

For detailed information regarding this project, see the following report

King County Auditor's Office – Cheryle Broom, County Auditor

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Capital Projects Oversight Program – Tina Rogers, Manager

The Capital Projects Oversight Program (CPO) was established within the Auditor's Office by the Metropolitan King County Council through Ordinance 16725 in 2007. Its goal is to promote the delivery of capital projects in accordance with the council approved scope, schedule, and budget; and, to provide timely and accurate capital project reporting.

CPO oversight reports are available on the Auditor's Web site (www.kingcounty.gov/operations/auditor/reports) under the year of publication. Copies of reports can also be requested by mail at 516 Third Avenue, Rm. W-1033, Seattle, WA 98104, or by phone at 206-296-1655.

**ALTERNATIVE FORMATS AVAILABLE UPON REQUEST
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INTRODUCTION

Attached is the eighth quarterly *Brightwater Project Construction Phase Oversight Monitoring Consultant Report* prepared by R.W. Beck, the Oversight Monitoring Consultant (OMC), which is prepared and issued under the Council-mandated Capital Projects Oversight (CPO) Program in the King County Auditor's Office. It is hereby transmitted to the King County Council Government Accountability and Oversight Committee to provide timely information on the status of the scope, schedule, budget, and risk for the Brightwater project. Oversight is conducted through monthly meetings led by the OMC with the project team members from Wastewater Treatment Division (WTD), and representatives from Office of Management and Budget (OMB), the Auditor's Office, and Council staff. Information has also been obtained through monthly project reports, site visits, and direct contact with WTD staff and project consultants.

The attached OMC report covers the quarter ending March 2009. Appendix A provides a detailed review of WTD's *Brightwater Cost Update, Current Conditions and Trends, January 2009* (2009 Trend Report). The OMC's 2009 Trend Report review comments on the reasonableness of the WTD cost update of \$1,800 to \$1,844 million and offers a revised OMC cost estimate of \$1,821 to \$1,874 million. The OMC revised their 2008 estimate of \$1,843 to \$1,849 million, which was \$41 to \$47 million higher than the WTD 2008 trend report estimate of \$1,802 million.

This transmittal of the OMC quarterly report conforms to the newly created CPO program report format to provide a high-level summary of the current project status on the cover page.

PROJECT STATUS UPDATE

Scope

No scope changes have been made to the Treatment Plant or Conveyance System to date. As described in the attached report, the \$148.7 million mitigation budget represents a firm total cost commitment. In the event that there are actual cost savings or cost overruns in any of the mitigation projects or activities, the scope of uncompleted projects will need to be adjusted. No significant scope changes in mitigation are anticipated at this time.

Schedule

The concerns about conveyance schedule delays continue since the OMC's previous quarterly report. WTD's most recent schedule information shows a 191-day delay in the overall critical path, which is an increase of two days from the previous quarterly report transmittal. Wastewater treatment is now projected to commence in mid September, 2011.

The delays in the schedule critical path continue to be from delays in mining on the eastern segment of the Central Tunnel Contract known as BT-2. Oversight efforts will continue to be focused on WTD's mitigation strategies to address this delay in the primary critical path and on efforts to quantify the risks and mitigate the impacts of schedule delay.

Budget

Updated cost estimates and actual life to date project costs are being reported against a baseline budget approved in 2004 with inflation rates at 3% and 5%.

The executive transmitted WTD's 2009 Trend Report to the council on May 4. It contains an updated cost estimate for the project in a range between \$1,800 and \$1,844 million compared to the 2008 Trend Report estimate of \$1,802 million. \$41 million of the \$44 million range represents a potential exemption from sales tax on the portions of project costs associated with the production of biosolids and reclaimed water for resale. This is discussed in detail in the OMC report.

The OMC has also provided an updated cost estimate. It ranges from \$1,821 to \$1,874. This estimate compares to their 2008 estimate of \$1,843 to \$1,849.

Through February, the lifetime project expenditures total \$1,040 million dollars or approximately 58% of the low end of WTD's 2009 estimate, which represents WTD's opinion of the most probable outcome for project costs.

Issues and Risks

The current risks for the project are listed on the cover page of this transmittal and discussed in greater detail in the attached OMC report. The identified major risks have not changed since the last quarterly report, and concern over the potential cost and schedule impacts resulting from these risks has heightened since the last quarter. A focus of oversight continues to be on how well WTD is managing these risks through assessment, planning, and mitigation activities.

RECOMMENDATIONS

The OMC report documents WTD's ongoing efforts to address previous recommendations made to better manage cost and schedule risks on the project. A past recommendation identified specific areas where particular attention should be directed in developing the 2009 cost update. WTD conducted additional analysis and revised their estimates to address many of the OMC's recommendations, resulting in an improvement in confidence in the estimate in several cost categories.

There are two new recommendations made by the OMC at this time:

1. In order to continue to be aggressive in controlling project costs, WTD should make strategic investments to enhance efforts to address cost and schedule risks. These investments should include earlier use of available staff and consultant resources, to ensure WTD's risk assessments are more comprehensive, more quantitative, and completed earlier. This will enhance WTD's ability to:
 - a) Be proactive in anticipating and managing special project issues, such as large cost change items.
 - b) Deal with multiple abnormal simultaneous events.
2. To successfully improve WTD's risk management efforts, WTD should designate a WTD staff member with "ownership" of these efforts. This ownership should include the responsibility to ensure these efforts are developed, documented, and updated as necessary.

ACKNOWLEDGEMENTS

We appreciate the collaborative efforts of WTD and OMB in providing for effective oversight of the Brightwater Treatment System consistent with council intent. Oversight is being conducted and this report was prepared by a team from the King County Auditor's Office, including Susan Baugh, Cheryle Broom, and Tina Rogers. The attached report was prepared by R.W. Beck who is under contract with the auditor's office to provide oversight monitoring consulting services.

A presentation of this quarterly report is scheduled for the King County Council Government Oversight and Accountability Committee on May 19. In addition a presentation on the OMC's review of WTD's 2009 Trend Report is scheduled for the King County Council Budget and Fiscal Management Committee, also on May 19. Should you have questions or comments on the report, please contact Tina Rogers, the Capital Projects Oversight Manager, or Cheryle Broom, County Auditor.

DISTRIBUTION

King County Council Government Accountability and Oversight Committee

cc: Metropolitan King County Councilmembers

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ATTACHMENT

Brightwater Project Construction Phase Oversight Monitoring Consultant Report (Quarter Ending March 31, 2009), R.W.Beck

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Brightwater Project Construction Phase
Oversight Monitoring Consultant Report
(Quarter Ending March 31, 2009)

King County
Brightwater Project Oversight Services
Contract No. P43024

Final as of May 15, 2009



In association with:



Brightwater Project Construction Phase
Oversight Monitoring Consultant Report
(Quarter Ending March 31, 2009)

King County
Brightwater Project Oversight Services
Contract No. P43024

Final as of May 15, 2009



In association with:



Brightwater Project Construction Phase Oversight Monitoring Consultant Report Quarter Ending March 31, 2009

Final as of May 15, 2009

Table of Contents

Executive Summary	ES-1
Overall Program Costs	ES-1
Schedule	ES-2
Risks	ES-3
Progress on Previous OMC Recommendations	ES-3
New OMC Recommendations	ES-4
Brightwater Quarterly Report.....	1
Background.....	1
Analysis and Findings.....	2
Overall Management Issues	8
Follow-Up on Previous OMC Recommendations	9
Findings and New Recommendations	10

List of Tables

ES-1. Estimated Project Costs (nominal \$million).....	ES-1
1. Comparison of WTD Trend Estimates (nominal \$million)	2
2. OMC Project Cost Estimates (nominal \$million)	3
3. BT-2 Mining Production.....	7
4. BT-3 Mining Production.....	7

This report has been prepared for the use of the client for the specific purposes identified in the report. The conclusions, observations and recommendations contained herein attributed to R. W. Beck, Inc. (R. W. Beck) constitute the opinions of R. W. Beck. To the extent that statements, information and opinions provided by the client or others have been used in the preparation of this report, R. W. Beck has relied upon the same to be accurate, and for which no assurances are intended and no representations or warranties are made. R. W. Beck makes no certification and gives no assurances except as explicitly set forth in this report.

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Brightwater Project Construction Phase Oversight Monitoring Consultant Report Quarter Ending March 31, 2009

Final as of May 15, 2009

Executive Summary

This Executive Summary presents highlights of the Oversight Monitoring Consultant's (OMC's) quarterly briefing on the Brightwater Project. This report is based on the most current information available as of early May 2009, which includes cost and schedule information through March 31, 2009, and the Brightwater Cost Update, Current Conditions and Trends, January 2009 (*2009 Trend Report*), published by the King County Wastewater Treatment Division (WTD) on May 4, 2009.

OVERALL PROGRAM COSTS

The *2009 Trend Report* contains WTD's updated estimate of the total Brightwater Project cost, indicating a project cost of \$1,800 million representing the most probable outcome based on current assumptions and known uncertainties. WTD's estimate assumes receipt of a \$41 million sales tax exemption for materials and equipment related to the production and sale of reclaimed water and biosolids (M&E exemption). WTD also reports a potential scenario with an estimated cost of \$1,844 million where the M&E exemption is not received and where non-construction costs are slightly higher to address major construction issues.

Appendix A of this report is a detailed OMC review of the *2009 Trend Report*, and this review is summarized in Table ES-1. Our current estimate is a range of \$1,821 million to \$1,874 million. The range in the current OMC estimate is primarily because (1) of uncertainty regarding the receipt of the M&E exemption, and (2) a range of recommended project contingencies to address remaining risks and uncertainties.

Table ES-1. Estimated Project Costs (nominal \$million)

	WTD 2004 Baseline		WTD 2008 Trend		WTD 2009 Trend	OMC Estimate Based on Review of 2008 Trend	OMC Estimate Based on Review of 2009 Trend
	3% Infl.	5% Infl.					
Conveyance	\$1,021 -	\$1,106	\$927	\$921 - \$955		\$942 - \$944	\$929 - \$967
Treatment Plant	\$640 -	\$684	\$875	\$879 - \$890		\$901 - \$905	\$892 - \$907
Total	\$1,660 -	\$1,790	\$1,802	\$1,800 - \$1,844		\$1,843 - \$1,849	\$1,821 - \$1,874

Note: Totals may not add up due to rounding to nearest \$1 million.

The OMC's current estimate is between \$21 million and \$74 million higher than WTD's \$1,800 million estimate. The primary reasons for this difference are (1) the OMC's belief

that it is appropriate, for budgeting purposes, to consider the possibility that the M&E exemption will not be approved, and (2) the OMC's continued belief that WTD's project contingencies are low.

WTD's total cost estimate is virtually unchanged from its *2008 Trend Report* estimate because the reduced costs from the M&E exemption are offset by higher costs elsewhere (including a revised estimate of future construction management costs). The current OMC estimate is higher than the OMC's previous estimate. This is primarily because of WTD's revised estimate of construction management costs and because of the OMC's assessment of potential cost impacts of continued schedule delays. WTD's estimate remains of similar magnitude to the 2004 Baseline Budget under the 5 percent annual inflation scenario, and between 8 and 11 percent higher than the 2004 Baseline Budget under the 3 percent annual inflation scenario.

SCHEDULE

The most recent available schedule information, as of March 31, 2009, shows the estimated hydraulic completion date for the project as June 15, 2011, and that the treatment system will start accepting wastewater for treatment in mid-September 2011. These dates represent a 191-day delay in the overall critical path (compared with the contractor's original baseline schedule), which is 2 days longer than the 189-day delay reported as of January 31, 2009. Events during April 2009 have likely increased the delay beyond 191 days, but the specific amount is not yet available from WTD.

The overall critical path continues to run through the BT-2 mining, Influent Structure construction at the Influent Pump Station (IPS) site, clean water testing, and startup.

Progress at the treatment plant remains on schedule. As of March 31, 2009, key substantial completion milestones for the liquids and solids contracts are in mid-February 2011. These dates are mostly unchanged from the OMC's previous quarterly report, with changes primarily limited to granting weather-related construction delays. Substantial completion of the Treatment Plant is approximately 16 weeks ahead of the conveyance system substantial completion, indicating the increasing risk of schedule divergence between the conveyance system and the treatment plant. WTD's startup planning will attempt to address this risk to the extent possible.

Additional developments since the OMC's previous quarterly report include the initiation of pipe installation inside the East Tunnel, continued construction work at the IPS by the IPS contractor, and continued progress at or ahead of schedule on the West Tunnel and at the treatment plant site.

RISKS

Looking forward, major cost and schedule risk issues include:

Conveyance:

- BT-3 mining is entering a long stretch of clay, which is perceived to be a less favorable soil condition for the type of tunnel boring machine being used.
- BT-3 mining is about to enter the area where it is expected to pass below an aquifer that supplies water to the Lake Forest Park Water District.
- BT-4 is nearing the portion of the mining with high water pressure, which is considered a more difficult mining environment.
- Coordination at the Influent Structure site between the Central Tunnel and IPS Contractors may become more challenging.
- Other unforeseen tunneling conditions and delay risks, particularly with the Central Tunnel, since mining is still expected to continue for another year.

Treatment Plant:

- Coordination and integration of work under three different prime contractors at the Treatment Plant site now that East Tunnel pipe installation has begun.
- Delays in Treatment Plant startup caused by Conveyance delays. WTD's ongoing work on startup planning should help manage and mitigate some of the risk of schedule divergence between the Treatment Plant and Conveyance system.

PROGRESS ON PREVIOUS OMC RECOMMENDATIONS

Outstanding OMC recommendations are related to the preparation of cost estimates in WTD's *2009 Trend Report*, WTD's ongoing efforts to manage the impacts of potential delays, and provisions for sharing change order information.

The OMC recommended that WTD consider a number of factors, such as non-construction costs, in the development of the *2009 Trend Report*. WTD did so in developing construction and non-construction costs. However, WTD's project contingency budgeting in its *2009 Trend Report* is not, in the OMC's opinion, based on anticipated cost risk and probability of occurrence. WTD has continued to aggressively work to address Central Tunnel schedule delays, and the OMC offers new recommendations described below. The OMC has not yet followed up on the recommendation regarding change order documentation, and expects to do so in May or June 2009.

NEW OMC RECOMMENDATIONS

The OMC offers two new recommendations.

1. In order to continue to be aggressive in controlling project costs, WTD should make strategic investments to enhance efforts to address cost and schedule risks. These investments should include earlier use of available staff and consultant resources, to ensure WTD's risk assessments are more comprehensive, more quantitative, and completed earlier. This will enhance WTD's ability to:
 - a) Be proactive in anticipating and managing special project issues, such as large cost change items.
 - b) Deal with multiple abnormal simultaneous events.
2. To successfully improve WTD's risk management efforts, WTD should designate a WTD staff member with "ownership" of these efforts. This ownership should include the responsibility to ensure these efforts are developed, documented and updated, as necessary.

Brightwater Quarterly Report

BACKGROUND

This report is a briefing on the Brightwater Project provided by the Project's Oversight Monitoring Consultant (OMC). This report is based on the most current information available as of early May 2009, which includes: construction cost information through March 2009; non-construction cost information through February 2009; tunnel mining progress through April 18, 2009; certain schedule information for the remainder of the project through March 2009; and remaining schedule information through February 2009.

The OMC's previous quarterly report was dated April 8, 2009, and covered the period through December 31, 2008. This quarterly report is being prepared relatively soon after the previous quarterly report, to be concurrent with the OMC review of WTD's *2009 Trend Report*. This quarterly report was completed without the benefit of all comprehensive cost and schedule data through March 31, 2009. Waiting to include the final March data would have delayed this report by approximately two to four weeks. The Auditor's office directed this expedited report to provide the council with more comprehensive information prior to their consideration of the Executive's proposed 2010 sewer rates.

Conveyance

- Work on the Marine Outfall contract is substantially complete.
- Mining for the West Tunnel (BT-4) continues to be on or slightly ahead of plan. As of April 18, 2009, approximately 40 percent of the mining is complete. In approximately one month, the tunnel boring machine (TBM) is expected to encounter high water pressures, which is expected to be the most challenging portion of the mining under this contract.
- The westbound Central Tunnel BT-3 mining remains behind plan. However, mining progress has improved substantially over the past few months. Mining production during 2009 to date has approximately equaled plan. As of April 18, 2009, approximately 47 percent of the mining is complete. BT-3 is no longer the primary critical path, but remains a secondary critical path. In April 2009, 24-hour-per-day, 7-day-per-week tunneling was initiated to improve mining production rates.
- The eastbound Central Tunnel BT-2 mining was stopped from mid-December 2008 to mid-March 2009. BT-2 mining is now the primary program critical path. After replacement of the TBM cutter heads and other major TBM maintenance, mining resumed in mid-March of 2009, with 24-hour-per-day, 7-day-per-week

operation to improve production. As of April 18, 2009, approximately 61 percent of the mining is complete.

- The East Tunnel contractor is continuing the installation of piping from the conveyance portal (Portal 46) located at the treatment plant site.
- Kiewit Pacific Company, the IPS contractor, has initiated construction on the IPS.

Treatment Plant

- Hoffman (liquids GC/CM contract) continues to perform concrete placement work on the headworks, grit removal system, primary treatment, and foundations for the aeration tanks and membranes. Work on pipe encasements and concrete coatings is beginning as well as backfilling work throughout the site. In addition, ductwork and cable tray installation has begun in the primary gallery area. Pipe installation and painting continued in the headworks, grit and primaries areas. Subcontractor bidding was initiated for the Environmental Education and Community Center in March 2009.
- Work by Kiewit Pacific (solids contract) continues, including concrete work on the digesters, solids storage tank, and energy gallery, energy building walls, and foundations for the truck load out area. Pipe installation in the solids building continues. Cable tray and pipe supports are being installed in the solids building gallery and HVAC duct is being installed in the energy gallery.

ANALYSIS AND FINDINGS

Cost

WTD Has Provided an Updated Project Cost Estimate

Appendix A to this report contains a detailed review of WTD's 2009 *Trend Report*. Table 1 summarizes the 2009 *Trend Report* cost estimate for the Brightwater Project, and compares it with the 2004 Baseline Budget, the 2007 trend estimate, and the 2008 trend estimate.

Table 1. Comparison of WTD Trend Estimates (nominal \$million)

	WTD 2004 Baseline		WTD Trend Estimates ⁽¹⁾			
	3% Infl	5% Infl	2007	2008	2009 Low ⁽²⁾	2009 High
Conveyance	\$1,021	\$1,106	\$928	\$927	\$921	\$955
Treatment Plant	\$640	\$684	\$840	\$875	\$879	\$890
Total	\$1,660	\$1,790	\$1,767	\$1,802	\$1,800	\$1,844

(1) Totals may not add up due to rounding to nearest \$1 million.

(2) WTD's 2009 Trend Report identifies the project cost to be \$1,799.9 million (low range). The OMC review rounds total project costs to the nearest \$1 million, and recognizes this differs from WTD's truncation of the low range project cost to \$1,799 million.

WTD states that its 2009 low estimate represents the most probable outcome based on current assumptions and known uncertainties. WTD's 2009 high estimate is based on not receiving the M&E exemption (described below) and includes an additional \$3 million of non-construction costs to address potential major project issues.

WTD's low estimate is virtually unchanged from its estimate in its *2008 Trend Report* because the reduced costs from the M&E tax exemption are offset by higher costs elsewhere. Primarily, these higher costs result from higher projected construction management costs. WTD revised its projected construction management costs based on a review of actual 2008 costs..

WTD's Most Probable Outcome Includes a \$41 Million Sales Tax Exemption

WTD is seeking a sales tax exemption from the Washington State Department of Revenue related to the production and conveyance of biosolids and reclaimed water from the Brightwater Project. In its *2009 Trend Report*, WTD cites Revised Code of Washington Section 82.08.02565 as providing an exemption from state sales tax for machinery and equipment related to the production and sale of a product. In this report, this tax exemption is referred to as the M&E exemption. A \$38 million M&E exemption for reclaimed water is included in the *2009 Trend Report*, as is a \$3 million M&E exemption for biosolids. WTD's most probable outcome, as stated in its *2009 Trend Report*, assumes receipt of this M&E exemption.

WTD reports that initial rulings by the Department of Revenue and an administrative law judge denied WTD's position, and as a result, the County is preparing to take legal action on this matter. WTD anticipates that the results of its legal action may not be known until 2010.

The OMC is not tasked to assess County legal opinions and strategies, and has not provided any independent review of whether the \$41 million amount cited by WTD is appropriate.

OMC Continues to Believe Project Costs Will Be Higher than Projected by WTD

Table 2 summarizes the OMC's most recent projection of project costs, along with comparisons with OMC projections made in 2007 and 2008. A detailed assessment is included in Appendix A.

Table 2. OMC Project Cost Estimates (nominal \$million)

	2007	2008	2009
Conveyance	\$946 - \$952	\$942 - \$944	\$929 - \$967
Treatment Plant	\$882 - \$911	\$901 - \$905	\$892 - \$907
Total	\$1,827 - \$1,862	\$1,843 - \$1,849	\$1,821 - \$1,874

Note: Totals may not add up due to rounding to nearest \$1 million.

The current OMC estimate is a range of \$1,821 million to \$1,874 million. OMC's current estimate is between \$21 million and \$74 million higher than WTD's estimated most probable outcome.

The primary reasons for this difference are that (1) the OMC believes it is appropriate, for budgeting purposes, to consider the possibility that the M&E exemption will not be approved (or will be available but at some amount less than WTD's estimate), and (2) the OMC continues to believe that WTD's project contingencies are low.

WTD's project contingencies are \$2 million for Treatment Plant, and an additional \$2 million for Conveyance. These project contingencies must cover cost risk associated with the non-construction aspects of the projects, and any remaining construction cost risk beyond what is covered by the Construction Contingency. The OMC believes project contingencies for the Treatment Plant and Conveyance should each be between \$10 million and \$16 million.

WTD's *2009 Trend Report* is based on the schedule as of December 31, 2008, which estimated hydraulic completion on May 17, 2011. Since then, there has been additional schedule delay, and as of March 31, 2009, the projected hydraulic completion date is June 15, 2011. Further schedule delays are possible. In addition, a number of smaller cost risks still exist.

The current OMC estimate has the advantage of using data through March 31, 2009, which differs from the December 31, 2008 date used to establish WTD's cost estimate in the 2009 Trend Report. However, OMC does not think that developments during the first quarter of 2009 have materially affected our conclusions, recommendations, or cost estimate.

Buyout Savings Have Not Changed Substantially Since the Previous Quarterly Report

Buyout Savings are part of the GC/CM contract for the Treatment Plant liquid stream, and they represent the cumulative difference between the negotiated Maximum Allowable Construction Cost (MACC) and the actual bids awarded to subcontractors. WTD's GC/CM contract with Hoffman includes provisions for reducing the contract value (via a deductive change order) based on the amount of accumulated Buyout Savings, and specifies the circumstances under which Buyout Savings can be used by Hoffman.

As of March 31, 2009, cumulative Buyout Savings were approximately \$24.9 million. This is about \$0.1 million less than the value reported in the OMC's previous quarterly report (as of January 31, 2009) due to use of Buyout Savings as allowed by the GC/CM contract.

Remaining Subcontractor Buyout Results Will Not Change the Overall Project Cost

In the first and second quarters of 2009, the remainder of the subcontractor buyout will occur, for the Environmental Education and Community Center (EECC) and for certain landscaping work at the Treatment Plant site. This remaining work is considered

mitigation construction, which WTD accounts for separately from the wastewater treatment portion of Brightwater Project construction. WTD has indicated that the total cost for all mitigation activities has been fixed so increased savings here will not affect the total project cost. Any Buyout Savings associated with EECC and landscaping mitigation work will be spent on mitigation, allowing WTD to either offset mitigation cost increases elsewhere or increase the scope of mitigation activities elsewhere.

Change Order Status

The most recent claim and change order data is from WTD's March 31, 2009, construction reports, and is as follows:

- Conveyance construction progress is approximately 59 percent, measured as percent of contract value earned by construction contractors, while executed Conveyance change orders are approximately 21 percent of WTD's conveyance construction contingency. Including pending (costs negotiated but not executed) and estimates of potential (costs not yet negotiated) change orders could increase this to a maximum of about 67 percent.

The cost of potential change orders, as a percent of construction contingency, has increased since the previous quarterly report because several large potential change items have recently been identified, particularly from the Central and East Tunnel contractors. WTD is evaluating these change items.

- Treatment Plant construction progress is approximately 40 percent, measured as percent of contract value earned by construction contractors, while executed Treatment Plant change orders are approximately 11 percent of WTD's construction contingency. Including pending and estimates of potential change orders could increase this up to a maximum of about 19 percent.

The cost of potential change orders, as a percent of construction contingency, has increased since the previous quarterly report primarily because WTD has decreased the Treatment Plant construction contingency in its *2009 Trend Report*.

Executed Conveyance and Treatment Plant change orders are still of a reasonable magnitude compared with construction progress to date. The previous OMC quarterly report noted a trend of increasing number and dollar amount of change items compared with construction progress to date. This trend continues, particularly for Conveyance.

As stated in the previous OMC quarterly reports, a significant amount of the tunneling remains to be completed, and thus WTD's exposure cannot yet be fully known. In general, change order activity to date (measured as percent of construction contingency used) continues to support the OMC's opinion that WTD's construction contingencies are generally reasonable with the following conditions:

- As stated in Appendix A, the OMC disagrees with WTD's decision to reduce its Treatment Plant construction contingency in the *2009 Trend Report*.

- As stated in the previous OMC quarterly report, the possibility exists, and is increasing, that WTD's construction contingencies will be insufficient. This is due to continued schedule delays.

Schedule

Estimated Project Completion is Now 191 Days Behind Plan Due to Continued Difficulties with BT-2 Mining

Delays at the Central Tunnel have increased since the previous OMC quarterly report. The program critical path remains the construction of the BT-2 tunnel, through the IPS contractor's work at the Influent Structure, through clean water testing, to startup.

The overall project delay is now 191 days compared with the contractor's original baseline schedule, which is two days more than reported in the previous OMC quarterly report. Specific developments in the critical path schedule since the previous quarterly report include:

- Central Tunnel contractor's incorporation of 24-hour/7-day mining at BT-2. This has accelerated the contractor's planned construction schedule.
- Continued BT-2 mining below plan. This has delayed the contractor's progress compared with the planned construction schedule.
- Change in critical path activity sequencing. Previously, a five-day post test report was planned to occur after the completion of the 90-day clean water testing. Now, this post test report is scheduled to be completed during the last five days of the 90-day clean water testing period.

BT-2 mining during the first three weeks of April 2009 continued to be behind plan, indicating that the overall program critical path schedule may have slipped beyond the 191-day delay reported by WTD as of March 31, 2009.

It is Too Early to Tell the Effect of BT-2 Extended Shutdown and Mining 7 Days Per Week

BT-2 was shut down between mid-December 2008 and mid-March 2009. Also occurring during this time was the contractor's switch to 24-hour-per-day/7-day-per-week mining. Table 3 compares BT-2 mining production before and after this shutdown. From this table, it is not possible to identify the effects of the shutdown and the increased production time. The OMC will continue to monitor this on an ongoing basis.

Table 3. BT-2 Mining Production

Time Period	Average Mining Production, Feet Per Week ⁽¹⁾	Time Period Covered in Table
Aug 2008	145	Five Weeks Ending 8/30
Sept 2008	95	Four Weeks Ending 9/27
Oct 2008	87	Five Weeks Ending 11/1
Nov 2008	222	Four Weeks Ending 11/29
Dec 2008	98	Three Weeks Ending 12/20
After Shutdown: Mar-Apr 2009	99	Five Weeks Ending 4/18

(1) Tunneling data is reported weekly.

BT-3 is Still Behind Schedule But 2009 Mining Production Has Improved

The westbound BT-3 tunnel remains a secondary critical path, but recent tunneling progress has been approximately equal to plan. The weekly average production rates are shown in Table 4, which shows improving production throughout 2009.

Table 4. BT-3 Mining Production

Month	Average Mining Production, Feet Per Week ⁽¹⁾	Time Period Covered in Table
Aug 2008	212	Five Weeks Ending 8/30
Sept 2008	100	Four Weeks Ending 9/27
Oct 2008	107	Five Weeks Ending 11/1
Nov 2008	141	Four Weeks Ending 11/29
Dec 2008	199	Four Weeks Ending 12/27
Jan 2009	269	Five Weeks Ending 1/31
Feb 2009	271	Four Weeks Ending 2/28
Mar 2009	256	Four Weeks Ending 3/28
Apr 2009 (1 st Half)	252	Three Weeks Ending 4/18

(1) Tunneling data is reported weekly.

BT-3 mining is part of a secondary critical path that includes BT-3 mining, BT-3 piping installation, North Kenmore Portal piping and site restoration, clean water testing, and startup. As of March 31, 2009, the overall secondary critical path delay is well off the Program critical path delay.

OVERALL MANAGEMENT ISSUES

Major Risk Issues

Major cost and schedule risk issues continue to evolve as construction progresses. Looking forward, major risk issues include:

Conveyance:

- BT-3 mining is entering a long stretch of clay, which is perceived to be a less favorable soil condition for the type of tunnel boring machine being used.
- BT-3 mining is about to enter the area where it is expected to pass below an aquifer that supplies water to the Lake Forest Park Water District.
- BT-4 is nearing the portion of the mining with high water pressure, which is considered a more difficult mining environment.
- Coordination at the Influent Structure site between the Central Tunnel and IPS contractors may become more challenging.
- Other unforeseen tunneling conditions and delay risks, particularly with the Central Tunnel, since mining is still expected to continue for another year.

Treatment Plant:

- Coordination and integration of work under three different prime contractors at the Treatment Plant site now that the East Tunnel pipe installation has begun..
- Delays in Treatment Plant startup caused by Conveyance delays. WTD's ongoing work on startup planning should help manage and mitigate some of the risk of schedule divergence between the Treatment Plant and Conveyance.

Risk Management Update

In previous quarterly reports, the OMC has discussed WTD's risk management procedures and offered recommendations regarding risk management and contingency planning. Recommendations have been made to address specific issues and also to have more general applicability. In this quarterly report, the OMC offers additional observations based on the outcome of the oversight work in recent months.

WTD has established procedures for addressing issues that arise during construction. These procedures relate to processing of change items, review and execution of change orders, and dispute resolution. Many of these procedures are established by the terms of the various construction contracts.

To date, there have been events that have delayed, or have the potential to substantially delay the project and/or add a significant amount of cost. Most of these

circumstances cannot be specifically anticipated before they occur, and use of predictive mitigation strategies which are documented in a risk register often do not provide adequate detail to develop a meaningful response to a specific issue in advance.

Instead, as these issues arise, WTD makes efforts to mitigate risks, and develops mitigation plans on a case-by-case basis. The OMC has observed that the bulk of WTD's mitigation planning is developed when the following have occurred: (1) WTD has received contractor-developed information regarding cost and schedule; and (2) some of the "moving parts" (that inevitably exist on complex projects) have been resolved.

WTD has available resources that it can use to address major construction issues in a very flexible manner. These resources are predominately additional consultant services. The OMC would characterize WTD's method of addressing construction issues as somewhat reactive, in that the bulk of the work is done after receipt of cost and schedule information from the contractor. WTD's method of addressing construction issues is relatively common in the industry and the OMC's opinion is that this approach is acceptable for smaller issues.

For major issues, the OMC believes that WTD can reduce risk and potentially reduce change order costs by adopting a more proactive approach. This approach could include developing risk mitigation plans that are more quantitative than those the OMC has seen to date, and developing them earlier. The OMC acknowledges that this earlier development of contingency plans would be somewhat speculative and would likely require revision as events unfold. This approach requires dedication of additional resources earlier, before cost and schedule documentation is received from the contractor.

System Startup Planning

In its previous quarterly report, the OMC provided a review of WTD's draft Startup Implementation Plan. Because of the short time between the previous quarterly report and this current quarterly report, the OMC has not completed any follow-up work related to the oversight of startup planning activities.

FOLLOW-UP ON PREVIOUS OMC RECOMMENDATIONS

The previous OMC quarterly reports have included recommendations to help WTD better manage cost and schedule risks on the Brightwater Project. The following discussions report on the status of recommendations from the last OMC quarterly report and on any ongoing issues from previous reports.

- **WTD should continue to update and refine its mitigation plans and strategies to manage the impacts of potential delays. Per existing communication protocols, this information should be shared with the OMC as early as possible and promptly thereafter whenever updated.** WTD and the OMC have met several times to discuss how WTD addresses issues that are

causing delays. WTD has also shared some specific strategies for addressing certain issues, subject to existing communication protocols. The OMC's observations shown in the above risk management discussion are largely based on the outcome of these meetings.

- **In its upcoming 2009 Trend Report, we recommend that WTD pay particular attention to budgeting contingencies in light of: (1) actual 2008 costs for consultants and staff; (2) ability to actually ramp down staffing and consultant efforts at the end of job; (3) the potential for delay of individual contracts and the overall project; (4) actual status of buyout savings; and (5) other major potential risks such as the potential for the Treatment Plant to be ready for clean-water testing and ultimately for treating wastewater before Conveyance is completed. To the extent possible, major specific risks should be quantified in terms of costs and probabilities of occurrence and evaluated to inform the proposed project contingencies. This work should be completed early enough to allow for a review from the OMC and to inform the cost projections in the WTD's upcoming 2009 Trend Report.** In its 2009 Trend Report, WTD considered these factors when estimating construction and non-construction costs. However, WTD's project contingency budgeting in its 2009 Trend Report is not, in the OMC's opinion, based on anticipated cost risk and probability of occurrence, and the reductions in construction and project contingencies from the 2008 Trend Report have not been adequately justified or validated. As noted in Appendix A and earlier in this report, the OMC believes that WTD's project contingencies are low.
- **WTD should make additional change order documentation available to the OMC per existing communication protocols. Documentation should show how change orders and issues likely to become change orders are categorized and should compare the contractor's original requested change order amount versus negotiated amount once change orders are executed.** There have been preliminary discussions among the OMC, the Auditor's Office, and WTD about how to address this recommendation. Because of the short six-week interval between the previous quarterly report and this current quarterly report, the OMC change order discussion in this report has not benefited from any improved documentation.

FINDINGS AND NEW RECOMMENDATIONS

Based on the evaluations included in this quarterly report, the OMC makes the following new recommendations:

1. In order to continue to be aggressive in controlling project costs, WTD should make strategic investments to enhance efforts to address cost and schedule risks. These investments should include earlier use of available staff and consultant resources, to ensure WTD's risk assessments are more

comprehensive, more quantitative, and completed earlier. This will enhance WTD's ability to:

- a) Be proactive in anticipating and managing special project issues, such as large cost change items.
 - b) Deal with multiple abnormal simultaneous events.
2. To successfully improve WTD's risk management efforts, WTD should designate a WTD staff member with ownership of these efforts. This ownership should include the responsibility to ensure these efforts are developed, documented and updated, as necessary.

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Appendix A.
Brightwater Project Construction Phase
Oversight Monitoring Consultant
Review of Brightwater Cost Update –
Current Conditions and Trends,
January 2009

King County
Brightwater Project Oversight Services
Contract No. P43024

Final as of May 15, 2009



In association with:



Appendix A.
Brightwater Project Construction Phase
Oversight Monitoring Consultant
Review of Brightwater Cost Update –
Current Conditions and Trends,
January 2009

King County
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Appendix A.
 Brightwater Project Construction Phase
 Oversight Monitoring Consultant Review of
 Brightwater Cost Update – Current Conditions and Trends, January 2009

Final as of May 15, 2009

Table of Contents

Introduction and Background.....	A-1
Baseline Budget	A-2
2008 Trend Report	A-2
2009 Trend Report Cost Categories.....	A-2
Conveyance.....	A-4
Cost Comparison.....	A-4
Conveyance Construction Contracts	A-6
Conveyance Mitigation Construction	A-7
Conveyance Construction Contingency	A-7
Sales Tax.....	A-8
Other Construction Costs	A-8
Engineering, Planning, and Management Services.....	A-9
Permitting and Other Agency Support.....	A-10
Right-of-Way.....	A-11
King County Staff and Misc. Services and Materials	A-11
Conclusions – Conveyance Costs	A-12
Treatment Plant.....	A-12
Cost Comparison.....	A-12
Treatment Plant Construction Contracts	A-14
Treatment Plant Mitigation Construction	A-15
Treatment Plant Construction Contingency	A-15
Sales Tax.....	A-16
Other Construction Costs	A-17
Engineering, Planning, and Management Services.....	A-17
Permitting and Other Agency Support.....	A-18
Right-of-Way.....	A-18
King County staff and Misc. Services and Materials	A-19
Credits and Revenues	A-19
Conclusions – Treatment Plant Costs	A-19



Project ContingencyA-20

Potential M&E ExemptionA-21

Revised OMC Cost Estimate.....A-22

List of Tables

Table A-1 Comparison of Baseline Budget with *2008 and 2009 Trend Reports* –
 Conveyance A-5

Table A-2 Comparison of Baseline Budget with *2008 and 2009 Trend Reports* –
 Treatment Plant..... A-13

Table A-3 Comparison of Project Cost Estimates (nominal \$M)..... A-22

This report has been prepared for the use of the client for the specific purposes identified in the report. The conclusions, observations and recommendations contained herein attributed to R. W. Beck, Inc. (R. W. Beck) constitute the opinions of R. W. Beck. To the extent that statements, information and opinions provided by the client or others have been used in the preparation of this report, R. W. Beck has relied upon the same to be accurate, and for which no assurances are intended and no representations or warranties are made. R. W. Beck makes no certification and gives no assurances except as explicitly set forth in this report.

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Appendix A.
Brightwater Project Construction Phase
Oversight Monitoring Consultant Review of
Brightwater Cost Update – Current Conditions and Trends, January 2009

Final as of May 15, 2009

Introduction and Background

This report is the Oversight Monitoring Consultant's (OMC's) review of cost information presented in Wastewater Treatment Division's (WTD's) report titled *Brightwater Cost Update, Current Conditions and Trends, January 2009 (2009 Trend Report)*. In completing this review, the OMC focused on the following key questions:

- Are WTD's construction contingencies reasonable given progress to date and the amount of construction work remaining?
- Are WTD's project contingencies reasonable given the remaining areas of cost risk for non-construction-related activities?
- Are WTD's construction and non-construction cost estimates reasonable?
- How does the cost in the *2009 Trend Report* compare with the *2008 Trend Report* and the Baseline Budget? What are the most significant changes?

WTD reports a total project cost of \$1,800 million¹ which includes a potential sales tax exemption. WTD states that this estimate is the "most probable outcome based on current assumptions and known uncertainties."

The OMC review considered the *2009 Trend Report's* projections for Conveyance and the Treatment Plant separately, and this review was based on WTD's cost data *without* receipt of this sales tax exemption. Discussion of the potential sales tax exemption follows the review of WTD's Conveyance and Treatment Plant cost estimate.

WTD's *2009 Trend Report* is based on available information through December 31, 2008. This OMC review incorporates more recent available information; specifically, cost and schedule information through March 31, 2009.

¹ WTD's *2009 Trend Report* identifies the project cost to be \$1,799.9 million (low range). The OMC review rounds total project costs to the nearest \$1 million, and recognizes this differs from WTD's truncation of the low range project cost to \$1,799 million.

BASELINE BUDGET

WTD's Baseline Budget was developed at an overall design stage of approximately 25 to 30 percent, although certain components were at a lesser stage of design. The Baseline Budget was presented in two different forms:

- **2004 Constant Dollar Baseline (\$2004 Baseline).** In every year, annual expenditures were assumed to be priced as if they were occurring in 2004. This way of presenting engineering estimates for capital project construction is standard in the industry (i.e., estimates are prepared based on quantities and unit prices that are current at the time the estimates are prepared). However, actual construction bids include the contractor's allowance for escalation (roughly approximated by expected escalation to the midpoint of construction), and certain other costs (e.g., staffing) are not typically reported in constant year dollars. As a result, the overall Brightwater Project Baseline Budget in \$2004 (or any estimate presented in constant year dollars) is *not* directly comparable to actual expenditures that will be incurred over time.
- **Nominal Dollar Baseline** (referred to as "2004 Baseline with Inflation" in WTD reports). To arrive at a baseline that more closely approximates what actual expected costs will be in the years incurred, WTD escalated its estimated cash flow in constant \$2004 using inflation rates of 3 percent and 5 percent per year. The adopted Baseline Budget (nominal \$) was set based on a 3 percent escalation rate, and corresponds to what WTD thought actual expenditures would total over time assuming 3 percent inflation.

2008 TREND REPORT

WTD's *Brightwater Cost Update, Current Conditions, and Trends*, January 2008 (*2008 Trend Report*) contained revised cost estimates at a point when all major construction components of the project had been contracted, but the majority of the construction work had not been completed. WTD presented its estimate of actual expenditures for the entire project over time, based on actual lifetime to date costs plus an estimate of remaining costs.

2009 TREND REPORT COST CATEGORIES

WTD's *2009 Trend Report* contains separate estimates for Conveyance and the Treatment Plant. Tables 8 and 9 in the body of the report contain the cost estimates. Appendices B and C provide additional detail, where the costs are further disaggregated into several categories that are consistent with WTD's budgeting and monthly cost reporting documents, as follows:

- **Construction Costs.** This represents the direct cost of constructing the facilities and includes the following cost categories: *Construction Contracts*,

Judgments/Claims, Owner Controlled Insurance, Construction Contingency (further divided into Brightwater Project and Mitigation), Sales Tax (further divided into Brightwater Project and Mitigation), Owner Furnished Equipment and Materials, Outside Agency Implementation/Construction, and Other Capital Charges. Some notes regarding sub-categories within *Construction Costs* are below:

- **Construction Contracts.** This is one of two subcategories of *Implementation/Construction Contracts*, and it represents the expected value of construction work (except for that associated with mitigation) at the time of contract execution, plus the value of executed change orders through December 31, 2008. Several of the construction contracts included costs for both Brightwater facilities and non-Brightwater work (including certain reclaimed water facilities). The costs of non-Brightwater facilities are not included in the trend report and are instead contained in separate WTD project budgets..
- **Construction Mitigation Contracts.** The other subcategory of *Implementation/Construction Contracts* represents the cost of mitigation directly tied to facility construction. Examples include construction of the North Mitigation Area and construction of the Environmental Education and Community Center.

The majority of WTD's calculations incorporate the receipt of a \$41 million sales tax exemption from the Washington State Department of Revenue related to the materials and equipment used in the production and sale of reclaimed water and biosolids (M&E exemption). WTD states that they believe the receipt of the M&E exemption is the "most probable outcome based on current assumptions and known uncertainties." Table 1 of WTD's *2009 Trend Report* presents costs in a range, where the low range includes receipt of the M&E exemption and the high range does not. This OMC review first presents cost data without the potential M&E exemption, followed by a discussion of the M&E exemption.

- **Non-Construction.** This represents all of the supporting costs associated with development of the Brightwater Project. Major cost categories included: *Engineering Services, Planning and Management Services; Permitting and Other Agency Support; Rights-of-Way; Miscellaneous Services and Materials; and Staff Labor.*
- **Project Contingency.** This contingency is a separate budget category intended to cover non-construction risks, such as increases in engineering or construction management costs.

- **Credits and Revenues.** This cost category contains revenues that accrue to the Brightwater Project.

Conveyance

COST COMPARISON

Table A-1 compares Conveyance costs from the Baseline Budget, the *2008 Trend Report*, and WTD's updated estimate in the *2009 Trend Report*. Cost categories reflect those provided in the *2009 Trend Report*. WTD's total Conveyance cost, without the potential M&E exemption, increased from \$926.9 million in the *2008 Trend Report* to \$952.9 million in the *2009 Trend Report*. Nearly 80 percent of this increase is attributable to revised projections of engineering and construction management costs. Conveyance costs remain lower than projected in the 2004 Baseline Budget. Additional discussion of specific cost items is included in the sections that follow Table A-1.

**Table A-1
Comparison of Baseline Budget with 2008 and 2009 Trend Reports –
Conveyance**

Conveyance Project Cost Categories	Baseline Budget ⁽¹⁾ (\$Nominal, 3% Inflation)	Baseline Budget ⁽¹⁾ (\$Nominal, 5% Inflation)	2008 Trend Report ⁽¹⁾ (\$Nominal)	2009 Trend Report (\$Nominal)
Construction Costs (without M&E Exemption)				
Construction Contracts	\$580.4M	\$630.5M	\$570.4M	\$580.9M
Construction Mitigation Contracts	\$4.8M	\$5.2M	\$3.3M	\$2.8M
Judgments/Claims	\$0.0M	\$0.0M	\$0.0M	\$0.9M
Owner Controlled Insurance ⁽⁴⁾	\$0.0M	\$0.0M	\$17.1M	\$17.0M
Construction Contingency	\$61.9M	\$70.2M	\$68.6M	\$64.0M
Sales Tax (w/o Exemption) ⁽²⁾	\$57.5M	\$62.8M	\$57.2M	\$57.8M
Owner Furnished Equipment and Mats	\$0.1M	\$0.1M	\$0.7M	\$1.0M
Outside Agency Implementation/Const.	\$0.0M	\$0.0M	\$6.0M	\$5.2M
Other Capital Charges	\$0.0M	\$0.0M	\$0.2M	\$0.2M
Construction Costs Subtotal	\$704.8M	\$768.7M	\$723.5M	\$729.9M
Non-Construction				
Engineering Services	\$87.3M	\$91.3M	\$76.8M	\$78.4M
Planning and Management Services	\$60.5M	\$63.3M	\$53.8M	\$73.6M
Permitting and Other Agency Support	\$22.1M	\$22.8M	\$10.9M	\$1.2M
Right-of-Way	\$21.2M	\$21.5M	\$19.0M	\$30.8M
Miscellaneous Services and Materials	\$4.8M	\$5.0M	\$5.5M	\$4.9M
Staff Labor	\$30.4M	\$31.8M	\$31.2M	\$32.0M
Non-Construction Subtotal	\$226.3M	\$235.6M	\$197.2M	\$221.0M
Project Contingency	\$89.5M	\$101.1M	\$6.2M	\$2.0M
CONVEYANCE TOTAL⁽³⁾ (w/o M&E Exemption)	\$1,020.6M	\$1,105.5M	\$926.9M	\$952.9M
M&E Exemption for Reclaimed Water and Biosolids	N/A	N/A	N/A	(\$31.7M)
CONVEYANCE TOTAL⁽³⁾ (with M&E Exemption)	\$1,020.6M	\$1,105.5M	\$926.9M	\$921.2M

Notes:

1. Cost categories are consistent with the 2008 Trend Report and 2009 Trend Report appendices and differ from the cost categories in the Baseline Budget.
2. WTD is pursuing an M&E exemption for costs related to the manufacture of reclaimed water.
3. Totals may not add up due to rounding. Equals the total of conveyance costs in Table 9 of the 2009 Trend Report, and is based on data in Appendix C of the 2009 Trend Report.
4. In the Baseline Budget, insurance costs are included under construction contracts.

WTD's *2009 Trend Report* is based on cost and schedule information through December 31, 2008. On December 31, 2008, the projected date for hydraulic completion of the Conveyance System (part of the Brightwater Project critical path) was May 17, 2011. Since December 31, 2008, there has been additional schedule slippage, with a projected Conveyance hydraulic completion date of June 15, 2011 as of March 31, 2009.

CONVEYANCE CONSTRUCTION CONTRACTS

Changes Since 2008 Trend Report

Nearly all of the Conveyance projects are under contract for construction, representing over 99 percent of the Conveyance construction contract costs. The cost reported in the *2009 Trend Report* is \$10.5 million higher than the *2008 Trend Report*, primarily because of the following:

- **Executed Change Orders During 2008.** As change orders are executed, WTD included the cost of executed change orders as construction costs and correspondingly reduced the Construction Contingency. Executed change orders during 2008 totaled approximately \$8.2 million.
- **Cost Reclassification.** One of the ancillary construction contracts, referred to as the North Creek Facilities, contains both Brightwater Project components and reclaimed water facilities. Construction of these facilities is nearly complete, and as construction progressed, the actual cost of reclaimed water facilities could be determined. The actual cost of reclaimed water facilities was lower than the previous trend estimate, and the Brightwater portion of the total cost is consequently higher than the previous trend estimate. This reclassification of costs (approximately \$1.3 million) does not change the overall contract costs—it only appropriately allocates the correct cost to Brightwater.

OMC 2009 Review

As of December 31, 2008, approximately 55 percent of these costs have been paid. The OMC thinks that WTD's construction costs in the *2009 Trend Report* are reasonable and generally reflect the status of the construction contracts as of December 31, 2008. WTD's Marine Outfall costs do not fully capture all change orders, but the cost difference is small. The primary reason Conveyance construction costs will change in the future is the inclusion of change orders executed after December 31, 2008. There is little other cost risk, as only two small projects remain to be bid. Combined, the estimated cost to complete these two projects is less than \$3 million.

CONVEYANCE MITIGATION CONSTRUCTION

Changes Since 2008 Trend Report

Conveyance mitigation construction activities are limited to small portions of certain construction contracts that are properly characterized as mitigation activities. The dollar amount is reduced from approximately \$3.3 million in the *2008 Trend Report* to approximately \$2.8 million in the *2009 Trend Report*. This change primarily reflects a more accurate estimate of actual mitigation costs associated with the West Tunnel contract as the construction work is completed.

WTD has stated that the total Brightwater Project mitigation costs are established and are not subject to adjustment. Mitigation cost decreases will be used to offset mitigation cost increases elsewhere and/or will be offset by mitigation scope increases elsewhere.

OMC 2009 Review

WTD provided a reasonable explanation of the changes in Conveyance mitigation construction costs. As of December 31, 2008, approximately 67 percent of the Conveyance mitigation construction costs have been paid.

CONVEYANCE CONSTRUCTION CONTINGENCY

Changes Since 2008 Trend Report

As part of the 2007 Trend Report, WTD estimated construction contingencies separately for each construction contract, based on a percentage of the construction contract value. In general, WTD has maintained these percentages, with some case-by-case adjustments as project conditions change. Currently, these Construction Contingency percentages range from 10 percent of construction for the East Tunnel to 15 percent of construction for the Influent Pump Station and Central Tunnel contracts, reflecting WTD's estimation of the level of risk for each contract.

As construction proceeds, the cost of executed change orders is subtracted from the Construction Contingency and included in the Construction Contracts cost category. As a result, WTD's Construction Contingency reported in its Trend Reports will decrease over time, and it may be thought of as the *remaining* Construction Contingency.

Overall, the Conveyance Construction Contingency has been reduced from approximately \$68.6 million in the *2008 Trend Report* to approximately \$64.0 million in the *2009 Trend Report*. WTD's significant adjustments to its Conveyance Construction Contingency are as follows:

- Removal of the \$0.8 million remaining Construction Contingency for the North Creek Facilities and the Hollywood Facility Improvements, since these projects

are either substantially complete or close to substantially complete and no significant changes orders are pending.

- Transfer of \$4.2 million from the Project Contingency to the Construction Contingency.

OMC 2009 Review

In 2007, the OMC gave an opinion that the Conveyance construction contingencies, on a percentage basis, reasonably reflected the expected level of risk on the individual contracts. The OMC agrees that further increasing the Conveyance construction contingency by \$4.2 million is reasonable. Based on a review of project developments to date (including requested change orders where issues have been identified but final costs have not yet been negotiated), the OMC thinks that WTD's Conveyance Construction Contingency estimates continue to be reasonable.

SALES TAX

Changes Since 2008 Trend Report

Total Conveyance sales tax (excluding the potential M&E exemption described below) increased from approximately \$57.2 million in the *2008 Trend Report* to approximately \$57.8 million in the *2009 Trend Report*. This increase is primarily due to applicable sales tax on change orders that were executed in 2008; the April 1, 2009, increase in the sales tax rate associated with Sound Transit; and sales tax on portions of the various projects that were reclassified from reclaimed water to the Brightwater Project. As change orders are executed, the value of the sales tax is removed from the Construction Contingency and added to the Sales Tax cost category.

OMC 2009 Review

The OMC thinks that WTD's sales tax projections (excluding consideration of the potential M&E exemption) are reasonable. As of December 31, 2008, 49 percent of WTD's projected sales taxes have been paid.

OTHER CONSTRUCTION COSTS

Included in this section are the following cost categories: Judgments/Claims, Owner Controlled Insurance, Owner Furnished Equipment and Materials, Outside Agency Implementation, and Other Capital Charges.

Changes Since 2008 Trend Report

The estimated cost of these items, collectively, is approximately \$24.4 million in the *2009 Trend Report*, representing an increase of \$0.4 million from the *2008 Trend Report*. The cost increase is due to increased estimated costs of judgments and

third-party claims and a projected increase in owner-furnished instrumentation and control equipment. These increases are partially offset by a projected decrease in the cost of utility relocation construction projects.

OMC 2009 Review

The OMC thinks that WTD's projections of these costs are generally reasonable. As of December 31, 2008, 74 percent of the costs in these categories have already been paid and the overall amount of cost risk is small compared with the overall project cost. Any future cost increases in these items would need to be covered by the Project Contingency, since WTD has not established any Construction Contingency for these items.

ENGINEERING, PLANNING, AND MANAGEMENT SERVICES

Changes Since 2008 Trend Report

Although reported separately by WTD, Engineering Services and Planning and Management Services are combined for this analysis because combined, they represent the professional services required during design, construction, and startup.

Conveyance Engineering, Planning, and Management Services costs in the 2009 Trend Report are approximately \$21.4 million higher than the 2008 Trend Report. To arrive at its 2009 estimate, WTD prepared an estimate of remaining Engineering, Planning, and Management costs for each professional service contract. WTD's current estimates reflect actual expenditures in 2008, and are based on WTD's construction and startup schedule as of December 31, 2008. The most significant change is:

- Increased Conveyance construction management costs. Expenses for 2008 were approximately twice the amount projected by WTD in its *2008 Trend Report*. WTD used the actual 2008 expense to revise its total project cost. For the entire project, the *2009 Trend Report* estimate of \$53.5 million is approximately \$18.9 million higher than the estimate in the *2008 Trend Report*. This is the largest single expenditure change between the *2008* and *2009 Trend Reports* for the entirety of the Brightwater Project.

Other smaller changes are increased costs for geotechnical support, added design costs associated with the Ballinger-Kenmore odor control facilities, reduced design and construction management costs associated with the Marine Outfall, increased engineering services during construction associated with the Influent Pump Station, and an increase in the estimated costs of dispute resolution and project oversight.

OMC 2009 Review

WTD's Engineering Services cost category primarily covers engineering costs during predesign and design phases, and includes the geotechnical work completed prior to

construction. WTD's *2009 Trend Report* estimate of \$78.6 million is approximately 13 percent of the construction contract value, which is within generally accepted industry expectations. As of December 31, 2008, 93 percent of Conveyance Engineering Services costs have been paid.

A major component of WTD's Planning and Management cost category is construction management. WTD's *2009 Trend Report* estimate of \$53.5 million is approximately 9 percent of the construction contract value. Even with the projected increase in construction management costs, this is within generally accepted industry expectations. Approximately 43 percent of Conveyance construction management costs have been paid.

The OMC acknowledges WTD's revision of projected construction management costs, and believes that investment in construction management services can potentially reduce construction costs, help meet contract schedule obligations, and reduce risk. The OMC believes that WTD's revised Engineering, Planning, and Management Services costs, even after the adjustments made in the *2009 Trend Report*, are likely to be low. This reflects what the OMC believes are continued underestimated end-of-job costs; schedule delays that have occurred since December 31, 2008; the risk that future schedule delays may occur; and the increasing number of significant issues that have additional potential construction cost risk and schedule risk. All of these factors will place additional resource needs on WTD staff and consultants.

The OMC does not make any specific estimate of Engineering, Planning, and Management Services costs that differ from WTD's *2009 Trend Report*. Instead, the OMC recognizes that any increase in Engineering, Planning, and Management Services costs above that projected by WTD would be covered by the Project Contingency. The OMC's comments regarding the adequacy of WTD's Conveyance Project Contingency are described near the end of this document.

PERMITTING AND OTHER AGENCY SUPPORT

Changes Since 2008 Trend Report

The *2009 Trend Report* estimate of \$1.2 million is substantially less than the *2008 Trend Report* estimate of \$6.1 million. The primary reason for this is the reclassification of certain payments to local agencies associated with mitigation from the Permitting and Other Agency Support cost category to the Right-of-Way cost category.

OMC 2009 Review

The OMC believes that WTD's cost projections are reasonable and that there is little cost risk associated with this cost category. Over 80 percent of these costs have

already been paid, and the dollar amount of these costs is small compared with the overall project cost.

RIGHT-OF-WAY

Changes Since 2008 Trend Report

2009 Trend Report estimate of \$30.8 million is nearly \$7.0 million higher than the *2008 Trend Report*. The primary reasons for this are (1) the reclassification of certain payments to local agencies associated with mitigation from the Permitting and Other Agency Support cost category to the Right-of-Way cost category and (2) an increase in the cost of mitigation required to offset the potential impact of the sole-source aquifer used by the Lake Forest Park Water District, per the terms of an agreement between WTD and the District reached in 2008. As stated elsewhere, WTD intends to offset increases in mitigation costs in any one area with reductions in mitigation costs or scope in other areas.

OMC 2009 Review

Over 80 percent of right-of-way costs have been spent and the majority of the remaining cost uncertainty is associated with mitigation efforts. Any non-mitigation costs that exceed that projected by WTD would be covered from the Project Contingency.

KING COUNTY STAFF AND MISC. SERVICES AND MATERIALS

Changes Since 2008 Trend Report

These cost categories represent non-construction costs internal to King County, and are not payments to contractors, consultants, or other local agencies. This includes Wastewater Treatment Division staff costs, as well non-WTD support from King County departments or divisions such as Surface Water Management, Water and Land Resources Division, Legal Services, and Central Services. Combined, the *2009 Trend Report* estimate is less than 1 percent higher than the *2008 Trend Report* estimate.

OMC 2009 Review

As of December 31, 2008, 76 percent of projected King County costs have been spent. The OMC believes that WTD has likely underestimated King County staffing costs, due to schedule delays that have occurred since December 31, 2008. The OMC's discussion of the Conveyance Project Contingency includes considerations of King County staffing costs.

CONCLUSIONS – CONVEYANCE COSTS

Overall, Brightwater Conveyance has tracked very closely with the Baseline Budget (excluding contingencies) and the *2008 Trend Report* estimates. Based on the OMC opinion stated below regarding the amount of the Conveyance Project Contingency, the OMC currently believes that the *2009 Trend Report* (not including the potential M&E exemption) understates Conveyance costs by between \$8 million and \$14 million. The OMC's estimate of Conveyance project costs in WTD's *2009 Trend Report* is between \$961 million and \$967 million, before consideration of the potential M&E exemption.

Treatment Plant

COST COMPARISON

Table A-2 compares the Baseline Budget, the *2008 Trend Report*, and WTD's updated estimate in the *2009 Trend Report*. WTD's total Treatment Plant cost, without the potential M&E exemption, increased from \$875.3 million in the *2008 Trend Report* to \$884.8 million in the *2009 Trend Report*. About half of this increase is due to changes in construction costs and about half is due to changes in non-construction costs. Treatment Plant costs remain higher than those projected in the 2004 Baseline Budget. Additional discussion of specific cost items is included in the sections that follow Table A-2.

Table A-2
Comparison of Baseline Budget with 2008 and 2009 Trend Reports –
Treatment Plant

Treatment Plant Project Cost Categories	Baseline Budget ⁽¹⁾ (\$Nominal, 3% Inflation)	Baseline Budget ⁽¹⁾ (\$Nominal, 5% Inflation)	2008 Trend Report ⁽¹⁾ (\$Nominal)	2009 Trend Report (\$Nominal)
Construction Costs (without M&E Exemption)				
Construction Contracts	\$296.5M	\$323.4M	\$409.3M	\$418.4M
Construction Mitigation Contracts	\$31.1M	\$33.0M	\$25.8M	\$26.5M
Judgments/Claims	\$0.0M	\$0.0M	\$0.0M	\$0.2M
Owner Controlled Insurance ⁽²⁾	\$0.0M	\$0.0M	\$9.4M	\$9.3M
Construction Contingency	\$31.6M	\$35.7M	\$33.1M	\$26.6M
Sales Tax (w/o exemption) ⁽³⁾	\$24.9M	\$27.2M	\$35.4M	\$35.9M
Owner Furnished Equipment and Mats	\$0.0M	\$0.0M	\$28.5M	\$28.9M
Outside Agency Implementation/Const.	\$0.0M	\$0.0M	\$6.8M	\$8.0M
Other Capital Charges	\$0.0M	\$0.0M	\$2.5M	\$2.5M
Construction Costs Subtotal	\$384.1M	\$419.4M	\$550.9M	\$556.2M
Non-Construction				
Engineering Services	\$50.3M	\$54.5M	\$76.5M	\$76.4M
Planning and Management Services	\$23.4M	\$24.1M	\$27.7M	\$30.3M
Permitting and Other Agency Support ⁽⁴⁾	\$24.7M	\$25.6M	\$84.3M	\$7.4M
Right-of-Way ⁽⁴⁾	\$103.3M	\$104.5M	\$105.3M	\$181.9M
Miscellaneous Services and Materials	\$4.7M	\$4.9M	\$4.7M	\$4.8M
Staff Labor	\$25.9M	\$27.3M	\$27.0M	\$29.1M
Non-Construction Subtotal	\$235.0M	\$240.9M	\$325.6M	\$329.9M
Project Contingency	\$31.2M	\$35.3M	\$2.0M	\$2.0M
Credits and Revenues	-\$10.8M	-\$11.3M	-\$3.2M	-\$3.2M
TREATMENT PLANT TOTAL⁽⁵⁾ (w/o M&E Exemption)	\$639.6M	\$684.4M	\$875.3M	\$884.8M
M&E Exemption for Reclaimed Water and Biosolids	N/A	N/A	N/A	(\$6.2M)
TREATMENT PLANT TOTAL⁽⁵⁾ (with M&E Exemption)	\$639.6M	\$684.4M	\$875.3M	\$878.6M

Notes:

1. Cost categories are consistent with the 2009 Trend Report appendices and differ from the cost categories in the Baseline Budget.
2. In the Baseline Budget, insurance costs are included under construction contracts.
3. WTD is pursuing an M&E exemption for costs related to the manufacture of reclaimed water and biosolids.
4. The 2009 Trend Report reclassifies over \$75 million in mitigation payments from the Permitting and Other Agency Support cost category to the Right-of-Way cost category.
5. Totals may not add up due to rounding.

As with Conveyance, WTD's *2009 Trend Report* is based on cost and schedule information through December 31, 2008. Since December 31, 2008, there has been conveyance schedule slippage which may not affect the Treatment Plant construction schedule, but could affect the Treatment Plant startup schedule. The OMC review that follows includes consideration of additional schedule slippage occurring since December 31, 2008.

TREATMENT PLANT CONSTRUCTION CONTRACTS

Changes Since 2008 Trend Report

Total construction contracts (excluding mitigation construction) have increased from the 2007 Trend Report estimate of \$409.3 million to \$418.4 million. This increase is primarily the result of the following factors:

- **Subcontractor Buyout Results.** Subcontractor buyout is a step in the General Contractor/Construction Manager (GC/CM) procurement process where construction work is competitively bid to subcontractors. To date, subcontractor buyout is nearing completion and the results have been favorable to WTD. Buyout Savings is the term used to describe the cumulative cost of the subcontractor bids compared with the maximum amount payable per the County's GC/CM contract with Hoffman. The County's contract with Hoffman also specifies when the Buyout Savings can be used by the contractor and the schedule for reducing the contract value (via a deductive change order) by the amount of accumulated Buyout Savings. In the *2009 Trend Report*, WTD assumes accumulated Buyout Savings will total \$22.6 million, which is \$5.6 million less than the approximately \$28.2 million assumption in WTD's *2008 Trend Report*. WTD made this change based on subcontractor buyout results during 2008 and based on the amount of Buyout Savings used during 2008.
- **Executed Change Orders During 2008.** WTD reports that change orders during 2008 totaled approximately \$3.3 million. This includes change orders paid from the owner's Treatment Plant Construction Contingency, allowable uses of the Maximum Allowable Construction Cost (MACC) contingency, and allowable uses of Buyout Savings. Executed change orders associated with the solids contract totaled less than \$0.1 million; the remainder were associated with the liquids GC/CM contract.

OMC 2009 Review

As of December 31, 2008, 37 percent of Construction Contracts costs have been paid. The OMC's opinion is WTD's construction costs in the *2009 Trend Report* are generally reasonable and accurately reflect the status of the construction contracts as of December 31, 2008. As with Conveyance, the primary reason these costs will

change in the future is the inclusion of change orders executed after December 31, 2008.

TREATMENT PLANT MITIGATION CONSTRUCTION

Changes Since 2008 Trend Report

Treatment Plant mitigation construction activities include the North Mitigation Area (NMA), the South Mitigation Area (SMA), and the Environmental Education and Community Center (EECC). NMA construction is complete, EECC construction has not yet begun, and the SMA construction is partially complete. This work is all being done through the GC/CM contract with Hoffman. The estimated construction cost increased from \$25.8 million in the *2008 Trend Report* to \$26.4 million in the *2009 Trend Report*. This change is due to the results of the MACC negotiated for the EECC and certain landscaping activities that constitute a part of the SMA work. WTD's *2009 Trend Report* estimate includes anticipation of Buyout Savings in line with historical averages for the rest of the Subcontractor Buyout process.

WTD has stated that the total Brightwater Project mitigation costs are established and are not subject to adjustment. Mitigation cost decreases (such as those included under Conveyance construction) will be used to offset mitigation cost increases elsewhere and/or will be offset by mitigation scope increases elsewhere.

OMC 2009 Review

As of December 31, 2008, 34 percent of Treatment Plant mitigation construction costs have been paid. OMC believes that WTD provided a reasonable explanation of the changes in Treatment Plant mitigation construction costs. There is some remaining cost risk for the EECC and landscaping work. However, any positive (or negative) deviations in cost from WTD's projections in the *2009 Trend Report* will be offset by scope reductions (or additions) in other mitigation activities.

TREATMENT PLANT CONSTRUCTION CONTINGENCY

Changes Since 2008 Trend Report

WTD made one change to the Liquids (contract with Hoffman) Construction Contingency and left the Solids (contract with Kiewit) Construction Contingency unchanged.

The Solids Construction Contingency remains at 7.5 percent of the construction contract value, unchanged from the *2008 Trend Report*. The Liquids Construction Contingency has been reduced from approximately \$18.8 million to approximately \$12.5 million, which is approximately 5.3 percent of the Liquids contract value after mitigation costs have been removed.

WTD reduced its Liquids Construction Contingency primarily to cover the increase in construction costs resulting from an approximately \$5.6 million change in Buyout Savings assumptions between the *2008* and *2009 Trend Reports*.

OMC 2009 Review

As of March 31, 2009, based on milestone-based payments to contractors, Liquids construction is approximately 40 percent complete and solids construction is approximately 23 percent complete.

As noted by WTD, a substantial amount of the site work has already been completed and change orders to date for both liquids and solids have been low. Additionally, a large portion of the concrete work is also completed.

The OMC, in its review of the *2008 Trend Report*, indicated that WTD's *2008 Trend Report* Construction Contingency was appropriate and that a Solids Construction Contingency in the 8 to 10 percent of construction contract amount was appropriate.

Based on the current project status, the OMC feels that some reduction in construction contingency (from the OMC recommendation in 2008) is appropriate. WTD's construction contingencies, however, were lower than OMC's in their respective 2008 reports. The OMC does not feel a reduction in WTD's Construction Contingency from the value in the *2008 Trend Report* is appropriate at this time. Therefore, the OMC feels that WTD's Treatment Plant Construction Contingency in the *2009 Trend Report* should be increased by \$5.6 million.

SALES TAX

Changes Since *2008 Trend Report*

Without consideration of the potential M&E exemption (discussed below), the Treatment Plant sales tax increased from the *2008 Trend Report* to the *2009 Trend Report*. This increase is primarily due to applicable sales tax on change orders that were executed in 2008 and other increased construction costs. The M&E exemption for biosolids was included in both the *2008* and *2009 Trend Reports*; the reclaimed water M&E exemption is only included in the *2009 Trend Report*.

OMC 2009 Review

The OMC thinks that WTD's sales tax projections (excluding consideration of the potential M&E exemption) are reasonable. Approximately 33 percent of Treatment Plant sales tax has been paid.

OTHER CONSTRUCTION COSTS

Included in this section are the following cost categories: Judgments/Claims, Owner Controlled Insurance, Owner Furnished Equipment and Materials, Outside Agency Implementation, and Other Capital Charges.

Changes Since 2008 Trend Report

The estimated cost of these items, collectively, is approximately \$48.9 million in the *2009 Trend Report*, representing an increase of \$1.6 million from the *2008 Trend Report*. The cost increase is due to increased estimated costs for utility relocations and the substation being built on the Treatment Plant site by Snohomish County PUD No. 1. Part of this substation cost increase is a reclassification of the engineering design costs from Engineering Services to the Outside Agency Implementation cost category.

OMC 2009 Review

The OMC thinks that WTD's projections of these costs are generally reasonable. Although only 31 percent of the costs in these categories has been paid, the overall amount of cost risk is small compared with the overall project cost. Any future cost increases in these items would need to be covered by the Project Contingency, since WTD has not established any Construction Contingency for these items.

ENGINEERING, PLANNING, AND MANAGEMENT SERVICES

Changes Since 2008 Trend Report

Similar to Conveyance, costs for Engineering Services and Planning and Management Services costs are combined for this analysis. The Treatment Plant Engineering, Planning, and Management Services cost of \$106.7 million in the *2009 Trend Report* is slightly higher than the \$104.2 million in the *2008 Trend Report*. To arrive at its *2009 Trend Report* estimate, WTD prepared an estimate of remaining Engineering Services costs through completion of the project. The reasons for this change appear to be primarily related to:

- An increase in the projected amount of construction management services based on WTD's reassessment of the amount of services required to complete the Treatment Plant.
- Increase in materials testing services, based on WTD's updated assessment of what is required to complete the job.

Engineering Design costs represent approximately 75 percent of the total Engineering, Planning, and Management costs. Engineering Design costs were virtually unchanged from the *2008 Trend Report* to the *2009 Trend Report*. Certain

cost reclassifications were made in the *2009 Trend Report* within the Engineering Design cost category to more accurately reflect actual costs.

OMC 2009 Review

As of December 31, 2008, 86 percent of the engineering costs have been paid, and 62 percent of the planning and management service costs have been paid. As with Conveyance, the OMC believes that Engineering, Planning, and Management Services costs will be higher than projected by WTD. This reflects the OMC's opinion that WTD likely underestimated the impact of schedule delays that have occurred since December 31, 2008. Similar to Conveyance, appropriate investment in construction management services can potentially reduce construction costs, help meet contract schedule obligations, and reduce risk. The OMC's discussion of the Project Contingency, found below, includes considerations related to Engineering, Planning, and Management Services costs.

PERMITTING AND OTHER AGENCY SUPPORT

Changes Since *2008 Trend Report*

2009 Trend Report estimate of \$7.5 million is substantially less than the *2008 Trend Report* estimate of \$9.9 million. The primary reason for this is a reclassification of certain expenses to the Right-of-Way cost category.

OMC 2009 Review

Approximately 59 percent of these costs have been paid. The OMC believes that there is little cost risk associated with this cost category and that the values shown by WTD are a reasonable projection.

RIGHT-OF-WAY

Changes Since *2008 Trend Report*

2009 Trend Report estimate of \$181.9 million is approximately \$2.2 million higher than the *2008 Trend Report* estimate. The primary reason for this increase is a reclassification of certain expenses from the Permitting and Other Agency Support cost category.

OMC 2009 Review

The OMC thinks that this is a reasonable projection of costs. Over 99 percent of these costs have already been paid, and the cost risk associated with this item is small. All remaining costs are associated with mitigation, and any increases (or decreases) in mitigation costs would be offset by mitigation cost/scope decreases (or increases) elsewhere.

KING COUNTY STAFF AND MISC. SERVICES AND MATERIALS

Changes Since 2008 Trend Report

These cost categories represent non-construction costs internal to King County, and are not payments to contractors, consultants, or other local agencies. This includes Wastewater Treatment Division staff costs, as well non-WTD support from King County departments or divisions such as Surface Water Management, Water and Land Resources Division, Legal Services, and Central Services. Combined, the *2009 Trend Report* estimate of \$29.1 million is approximately \$2.0 million higher than the *2008 Trend Report* estimate. The primary reasons for this increase are increased projected costs associated with King County Central Services, Brightwater Management, and non-WTD costs listed as other.

OMC 2009 Review

As of December 31, 2008, 72 percent of WTD's project costs have been spent. The OMC believes that WTD has likely underestimated King County staffing costs, due to schedule delays that have occurred since December 31, 2008. The OMC's discussion of the Treatment Plant Project Contingency includes considerations of King County staffing costs.

CREDITS AND REVENUES

Changes Since 2007 Trend Report

The Brightwater Project cost includes credits and revenues associated with the purchase and relocation of the Stockpot Soup Company. These credits and revenues are essentially unchanged from the estimate in the *2008 Trend Report*.

OMC 2008 Review

Over 95 percent of projected credits and revenues have been received. The OMC has made no adjustments to WTD's *2009 Trend Report* estimate of Credits and Revenues.

CONCLUSIONS – TREATMENT PLANT COSTS

Overall, changes in the Treatment Plant project cost from the *2008* to *2009 Trend Reports* are small compared with the overall project cost. The total estimated Treatment Plant cost increased from \$875.3 million in the *2008 Trend Report* to \$887.9 in the *2009 Trend Report* (excluding the potential M&E exemption). This increase is due to a variety of factors, including both construction and non-construction items discussed above.

The OMC's estimate of Treatment Plant project costs is between \$901 million and \$907 million (rounding to the nearest million), before consideration of the potential

M&E exemption. The OMC's estimate is based on the above discussion of Construction Contingency and the following discussion of Project Contingency.

Project Contingency

Changes Since 2008 Trend Report

WTD has reduced the Conveyance Project Contingency from \$6.2 million to \$2.0 million, and notes that the Project Contingency is intended to cover primarily design-related issues such as an unforeseen permit requirement.

The Treatment Plant Project Contingency of \$2.0 million is unchanged from the 2008 *Trend Report*. WTD notes the Project Contingency would cover changes in future non-construction costs and additional Construction Contingency, if needed.

OMC 2009 Review

In 2007, WTD's Conveyance and Treatment Plant Project Contingencies stood at \$18.2 million and \$4 million, respectively. At that time, the OMC concluded that WTD's \$18.2 million contingency was reasonable given risks associated with integration of the various construction contracts, the potential for extreme events during tunneling that would not be covered by the construction contingencies, and other risks associated with property acquisition and permitting. The OMC recommended a \$22 million Treatment Plant Project Contingency.

In 2008, WTD reduced the Conveyance Project Contingency to \$6.2 million and the Treatment Project Contingency to \$2 million. The OMC believed that this was not prudent, because many of the risk factors cited in 2007 were still present.

In 2009, WTD further reduced the Conveyance Project Contingency from \$6.2 million to \$2 million, with an accompanying increase in the Conveyance Construction Contingency. While the OMC agrees with WTD's statement that the Project Contingency is intended to cover design-related construction issues, the OMC also believes that it must also cover all non-construction cost risk throughout the duration of the project, regardless of its link (or lack thereof) to a design-related issue. The OMC believes WTD's \$2 million Project Contingency is low, given that the following events still have the potential to occur:

- Non-construction cost increases associated with schedule delays beyond that assumed by WTD in the preparation of the *2009 Trend Report* (Conveyance hydraulic completion on May 17, 2011).
- Non-construction costs associated with the potential for Treatment Plant hydraulic completion to be reached significantly before Conveyance hydraulic completion.

- Additional costs, beyond those projected in the *2009 Trend Report*, to address major construction issues that arise in the future.
- Additional costs for the remaining property acquisition beyond what is projected by WTD.
- Construction cost increases in the Other Construction Costs cost category, for which WTD has no construction contingency.
- Construction cost increases above the amount of the remaining Construction Contingency.

The OMC believes that some reduction in Project Contingency (from previous OMC recommendations) is appropriate. This is because WTD's *2009 Trend Report* estimate of Engineering, Planning, and Management costs better reflects the anticipated costs of completing the project. The OMC recommends a project-wide Project Contingency of between \$20 million and \$32 million.

WTD continues to develop and evaluate alternatives to address the risks cited above. These alternatives have varying impact on how any additional costs may be allocated to Conveyance or the Treatment Plant. As a result, the OMC is, for purposes of this Trend Report review, suggesting that the recommended Project Contingency be split equally between Conveyance and Treatment Plant.

Therefore, OMC recommends a Conveyance Project Contingency between \$10 million and \$16 million, which exceeds WTD's by \$8 million to \$14 million. Similarly, OMC recommends a Treatment Plant Project Contingency of between \$10 million and \$16 million.

Potential M&E Exemption

WTD is seeking a sales tax exemption from the Washington State Department of Revenue related to the production and conveyance of biosolids and reclaimed water from the Brightwater Project. In its *2009 Trend Report*, WTD cites Revised Code of Washington Section 82.08.02565 as providing an exemption from state sales tax for machinery and equipment related to the production and sale of a product. In this report, this tax exemption is referred to as the M&E exemption.

WTD estimates that the M&E exemption for biosolids and reclaimed water is approximately \$3.0 million and \$38.0 million, respectively. WTD notes that it currently receives an M&E exemption related to biosolids from its other treatment facilities.

WTD reports that initial rulings by the Department of Revenue and an administrative law judge denied WTD's position, and as a result, the County is preparing to take legal action on this matter. WTD anticipates that the results of its legal action may not be known until 2010.

The OMC is not tasked to assess County legal opinions and strategies, and has not provided any independent review of whether the \$41 million amount cited by WTD is appropriate.

Revised OMC Cost Estimate

Table A-3 summarizes WTD's recent estimates and compares them with the OMC's estimates. WTD's 2004 Baseline estimate is shown, as are trend estimates from 2007, 2008, and 2009. Similarly, the OMC estimates from 2007, 2008, and 2009 are shown.

WTD's 2009 low estimate represents what WTD believes to be the most probable outcome based on current assumptions and known uncertainties. WTD's 2009 high estimate is based on not receiving the M&E exemption and includes an additional \$3 million of non-construction costs to address potential major construction issues.

**Table A-3
Comparison of Project Cost Estimates (nominal \$M)**

	WTD 2004 Baseline		WTD Trend Estimates ⁽¹⁾			
	3% Infl	5% Infl	2007	2008	2009 Low ⁽²⁾	2009 High
Conveyance	\$1,021	\$1,106	\$928	\$927	\$921	\$955
Treatment Plant	\$640	\$684	\$840	\$875	\$879	\$890
Total	\$1,660	\$1,790	\$1,767	\$1,802	\$1,800	\$1,844

OMC Estimates Based On WTD Trends

	2007	2008	2009	
			w/M&E Exempt.	w/o M&E Exempt.
Conveyance	\$946 - \$952	\$942 - \$944	\$929 - \$935	\$961 - \$967
Treatment Plant	\$882 - \$911	\$901 - \$905	\$892 - \$898	\$901 - \$907
Total	\$1,827 - \$1,862	\$1,843 - \$1,849	\$1,821 - \$1,833	\$1,862 - \$1,874

1. Totals may not add up due to rounding to nearest \$1 million.
2. WTD's "2009 High" estimate assumes the M&E exemption, while its "2009 Low" estimate does not.

The OMC offers separate ranges with and without the M&E exemption, and then combines the two ranges into an overall estimated range. The overall range is from \$1,821 million (low end of the range with the exemption) to \$1,874 million (high end of the range without the exemption).

As stated above, the OMC is not commenting on the viability of receiving the M&E exemption or the amount proposed by WTD. In projecting the estimated total project cost, the OMC believes it is more prudent to include in its cost estimate range the possibility of not receiving any M&E exemption. The OMC believes it is appropriate to

report a large range to account for the possibility that the dollar amount of an M&E exemption may be different, and possibly less, than the \$41 million estimated by WTD.

The OMC's current range is higher than its 2008 estimate and approximately equal to the 2007 estimate, though the 2009 top end of the range is higher than that in 2007. The primary reason the OMC's estimate has increased is because of the OMC's recommended contingencies to account for the current schedule delays and the potential for additional schedule delays.

The OMC's estimate remains higher than WTD's, and exceeds WTD's low (most probable) estimate by between \$21 million and \$74 million.