



King County

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MEMORANDUM

DATE: June 21, 2012

TO: Metropolitan King County Council

FROM: Cheryle Broom, County Auditor *CB*

SUBJECT: Oversight Monitoring Consultant Report - Review of *Brightwater Cost Update, Current Conditions and Trends, January 2012* (2012 Trend Report)

Please find the attached Oversight Monitoring Consultant (OMC) review of the Wastewater Treatment Division's (WTD) annual Brightwater Program cost update – the 2012 Trend Report. The OMC's review independently forecasts the Brightwater Program total project cost to be \$1,862.9 million for the portions of the project without disputed costs associated with the Central Tunnel delay. The OMC's estimate is approximately \$10 million higher than last year's estimate and is \$3 million higher than WTD's estimate.

The OMC's report also:

- assesses that for the most part the remaining contingencies are sufficient;
- highlights several areas of remaining cost uncertainty, the most significant being the outcome of the County's litigation with the Central Tunnel contractor involving \$225 million (\$158 million in county claims and \$67 million in contractor counterclaims); and
- describes the areas of remaining expenditure, the total of which are forecast at \$98 million.

On April 26, WTD transmitted this year's Trend Report to the County Council. It shows a revised cost estimate of the non-disputed portions of the project of \$1,860 million, representing a \$10.7 million (or .6 percent) increase over the previous year's estimate. The baseline budget was established in 2004 with two inflation rate scenarios of five and three percent. Comparison of the cost update to the baseline budget shows the update at \$70 million and \$200 million (3.9 percent and 12 percent), respectively, above the baseline budget figures. The OMC has not conducted an analysis of the actual impact of inflation experienced since 2004. Such analysis may be of interest to Council and could be conducted as part of the post project review of Brightwater. It is important to note that, as was the case last year, the updated cost estimates do not include the disputed costs associated with the Central Tunnel delay.

Adding actual costs through December 2011 with future remaining estimated project expenditures arrives at a total projected cash outlay of \$1,970.6 million at the completion of the project. This assumes no recovery of costs, which the County is currently seeking to recover through litigation

against the Central Tunnel contractor. The trial date is set for September 4, 2012. This number provides Council with a comprehensive forecast of project costs at completion.

A presentation of this attached report is scheduled for the June 26 Government Accountability, Oversight and Financial Performance Committee meeting. The report was prepared by SAIC who is under contract with the Auditor's Office to provide oversight consulting services on the Brightwater Program. We want to acknowledge the Prosecuting Attorney's Office, Brightwater Program staff, and WTD and DNRP management for their cooperation and assistance during the development of the report. Should you have questions or comments on the report, please contact Tina Rogers, the Capital Projects Oversight Manager.

CB:TR:jl

Attachment: Oversight Monitoring Consultant Report - *Review of Brightwater Cost Update, Current Conditions and Trends, January 2012*

cc: Dow Constantine, King County Executive, King County Executive Office (KCEO)
Fred Jarrett, Deputy County Executive, KCEO
Dan Satterberg, Prosecuting Attorney, Prosecuting Attorney Office (PAO)
Rhonda Berry, Assistant Deputy County Executive, KCEO
Christie True, Director, Department of Natural Resources and Parks (DNRP)
Grover Cleveland, Business Development Manager, DNRP
Pam Elardo, Division Director, Wastewater Treatment Division (WTD), DNRP
Gunars Sreibers, Brightwater Project Manager, WTD, DNRP
Dwight Dively, Director, Office of Performance, Strategy and Budget, KCEO
Tom Kuffel, Senior Deputy Prosecuting Attorney, PAO
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Beth Mountsier, Council Policy Staff
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Oversight Monitoring Consultant Report - Review of Brightwater Cost Update, Current Conditions and Trends, January 2012

King County
Brightwater Project Oversight Services
Contract No. P43024P

June 2012

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Oversight Monitoring Consultant Report - Review of Brightwater Cost Update, Current Conditions and Trends, January 2012

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Oversight Monitoring Consultant Report Review of Brightwater Cost Update, Current Conditions and Trends, January 2012

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Executive Summary

This report is the Brightwater Oversight Monitoring Consultant (OMC) review of the Wastewater Treatment Division (WTD) 2012 Trend Report¹, including an updated OMC cost estimate.

WTD's revised total lifetime Brightwater Program cost estimate is \$1,859.9 million, \$199.7 to \$70.0 million higher than the 2004 baseline estimates using three percent and five percent inflation rates. The updated cost estimate is \$10.7 million higher than reported by WTD in the 2011 Trend Report. The primary reasons for this change are: increased Builders Risk Insurance premium costs, an increase in treatment plant construction costs beyond the available contingency, and unanticipated new work order contracts associated with reconfiguring the Treatment Plant and the Influent Pump Station from interim to final commissioning mode.

Similar to last year, the total lifetime Brightwater Program cost estimate excludes Known Disputed Costs that are related to the delay in performance on the Central Tunnel contract. WTD's 2012 Trend Report indicates that Known Disputed Costs includes approximately \$158 million for which King County will seek reimbursement, and approximately \$66.7 million in counterclaims on the Central Tunnel Contract for which King County denies the obligation to pay.

OMC's revised lifetime Brightwater Program cost estimate is \$1,862.9 million, \$10.3 million higher than last year. Like WTD's estimate, this also excludes Known Disputed Costs. The \$3.0 million difference between OMC's estimate and WTD's estimate continues to decrease as construction nears completion.

Table 1
Revised OMC Cost Estimate and Comparison with WTD Estimate, \$M

Project Component	WTD Baseline Budget	WTD 2011 Trend Report	WTD 2012 Trend Report	OMC 2011 Estimate	OMC 2012 Estimate
	3% Infl. - 5% Infl				
Conveyance	\$1,020.6 - \$1,105.5	\$964.1	\$963.6	\$966.5	\$964.8
Treatment Plant	\$639.6 - \$684.4	\$885.1	\$896.3	\$886.1	\$898.1
Subtotal	\$1,660.2 - \$1,789.9	\$1,849.2	\$1,859.9	\$1,852.6	\$1,862.9

This report also includes an assessment of WTD's 2012 Trend Report contingencies. WTD's cost estimate includes approximately \$25.1 million in conveyance system contingency. This OMC review concludes that WTD's conveyance contingency will likely be sufficient to cover risks in non-disputed portions of the Brightwater project conveyance system. Were it not for the dispute related to the Central Tunnel, OMC may have recommended a reduction in the contingency, as the project is so close to completion. However, OMC is not proposing any revisions to WTD's conveyance contingency at this time.

¹ Full name of report is Brightwater Cost Update, Current Conditions and Trends, January 2012.

The entire treatment plant contingency has been used and WTD is not carrying any contingency for the treatment plant in its 2012 cost update. OMC anticipates additional treatment plant contingency may be needed to cover risk on remaining treatment plant construction and non-construction costs. OMC has included a treatment plant contingency of \$3.0 million, and it is this additional treatment plant contingency that explains the difference between OMC's and WTD's revised lifetime cost estimates.

WTD estimates that the total remaining project expenditures (as of December 31, 2011) for the Brightwater Project are approximately \$98.0 million.

In separate monthly reports², WTD indicates that the total project expenditures to date are approximately \$1,878.3 million. This is higher than the WTD's lifetime project cost estimate because WTD's project expenditures to date include Known Disputed Costs that WTD has already paid and seeks reimbursement.

² Brightwater Treatment System Monthly Project Report, February 2012

Oversight Monitoring Consultant Report, Review of Brightwater Cost Update, Current Conditions and Trends, January 2012

Introduction

This report is the Brightwater Oversight Monitoring Consultant (OMC) review of the Wastewater Treatment Division's (WTD) 2012 Trend Report. WTD published its 2012 Trend Report on April 25, 2012, at which time the OMC began its review. The OMC also received assistance from WTD in responding to questions and requests for backup data.

This report describes key assumptions of WTD's 2012 Trend Report and changes from the 2011 Trend Report, and presents a revised OMC estimate of Brightwater project costs. There are a number of terms in this report that have been defined in previous OMC reports³. This background information is not repeated here, and previous reports should be referred to for any clarification that may be needed.

Key 2012 Trend Report Assumptions

- The 2012 Trend Report is based on project progress through December 31, 2011. Project developments since that time are not incorporated.
- WTD reports an update to its compilation of Known Disputed Costs associated with the delay in the performance of the Central Tunnel contract. These Known Disputed Costs are those that were known as of December 31, 2011.
- The 2012 Trend Report makes no projection of the outcome of the Central Tunnel dispute.
- Full Commissioning occurs in September 2012.
- The Trend Report assumes that IPS performance deficiencies related to surge protection at high flows will be resolved. WTD has been working with the designer and insurance company to cover the costs of the repair and no specific WTD expenditures for this repair are included in the 2012 Trend Report.

Correspondingly, there are project developments occurring since December 31, 2011 which, though noted, are not specifically included in the 2012 Trend Report, but are reflected in this OMC review. These developments include:

- Changes in construction progress and change order activity from December 31, 2011 through March 31, 2012.

³ Previous reports containing background information and definitions of terms include Oversight Monitoring Consultant, Review of Brightwater Cost Update – Current Conditions and Trends, January 2010, prepared by RW Beck.

Changes from WTD's 2011 Trend Report

Costs.

The 2012 Trend Report cost estimate is \$10.7 million higher than the 2011 Trend Report cost estimate. The reasons for the increase are summarized in Table 2.

Table 2
Changes from 2011 Trend Report

Description	Amount, \$M	Notes
Unanticipated Conversion Contracts	\$3.8	Work Order Contracts at Treatment Plant and IPS Completion
Increased Treatment Plant Construction Cost	\$4.2	Change Orders Exceeding WTD's Previous Treatment Plant Contingency
Contingency Adjustment	(\$6.8)	Release of Unused East Tunnel Contingency
Increased Builder's Risk Premium	\$4.7	Builder's Risk Insurance Premium
Other Construction Costs	(\$1.6)	Misc. changes on differing costs from those projected in 2011
Increase in Non-Construction Costs	\$6.4	Increases due to reassessment of resources required to complete the project
Total Change from 2011 Trend Report	\$10.7	

The specific changes from the 2011 Trend Report include:

- Addition of two Work Order contracts, for Treatment Plant and Influent Pump Station (IPS) conversion from interim to final operation. Construction would begin in 2012 and continue into 2013. These contracts are comparatively small, and WTD has determined that it would be less expensive to contract separately for this work rather than retain the original construction contractors and complete this work through change orders.
- Based on the updated cost forecast by WTD, the contingency for the Treatment Plant will be fully exhausted. Additional change orders on the Treatment Plant contracts will result in an increase in the treatment plant project cost.
- Unused contingency for the East Tunnel contract was released, resulting in a reduction in the total program cost.
- Increased Builders Risk Insurance costs.⁴
- Non-Construction costs increased, due to a number of factors including additional legal and technical resources and staffing related to the Central Tunnel delay.

In its Trend Reports, WTD compares the Lifetime Cost Estimates with the Baseline Budget prepared in 2004. These comparisons include the Baseline Budget with annual inflation escalation of three percent and five percent. WTD's revised total lifetime Brightwater Program cost estimate is \$1,859.9 million, \$199.7 to \$70.0 million higher than the baseline estimates. OMC has not provided comment on the appropriate inflation rate to use for comparisons with the Baseline Budget. It is likely that a single inflation adjustment would not be comprehensive enough to assess the true impact of inflation, because the various construction contracts were procured over a multi-year period, and the construction duration and contracting methods varied.

⁴ Prior trends carried the initial premium costs which were based on an estimate of the final construction cost of the project. At completion, the insurance premium is revised based on actual costs. Because the final cost is higher than the original estimate, the insurance carrier is issuing this additional premium.

Schedule. The largest schedule changes from the 2011 Trend Report are the delay in final acceptance of the Solids and Liquids contracts, and the delay of Full Commissioning from July 31, 2012 to September 30, 2012⁵. Additionally, the 2012 Trend Report reflects construction continuing into 2013, as a result of comparatively minor ongoing construction at the IPS, the North Kenmore Portal, and the Ballinger Way Portal.

Revised OMC Estimate

Revised Lifetime Cost Estimate

As noted in the following Table 3, OMC revised lifetime cost estimate differs from WTD's in three areas:

1. Certain change order activity occurring since December 31, 2011 is incorporated into the OMC revised estimate. For the conveyance system, OMC's adjustments shift costs from contingency to construction, resulting in no net change in the cost estimate. This can be identified in Table 3 in the increase to the East, Central, West, Ancillary Contracts and IPS Contract lines, and corresponding reduction in the Construction Contingency line. For the treatment plant, OMC's adjustments increase the construction cost by \$30,000, a small net increase in the overall lifetime cost.
2. OMC has added a \$3 million treatment plant contingency, as described in more detail above.
3. OMC has moved approximately \$1.2 million of construction mitigation costs from the treatment plant to the conveyance system estimate, resulting in no net change in the separately accounted mitigation budget or in the overall lifetime cost estimate. This adjustment is to reflect a portion of the anticipated expenses for the Wetlands Restoration at the North Kenmore Portal. This change is made in the All Other Construction Costs lines of Table 3.

This comparison is shown in Table 3, and it does not include any Known Disputed Costs.

⁵ These are the dates reported in WTD's December 2010 and December 2011 Schedule Reports, respectively.

Table 3
Lifetime Cost Estimate Comparison, \$M

	WTD 2012 Trend Report	OMC 2012 Estimate	Difference
CONVEYANCE			
Construction Costs			
East, Central, West, Ancillary Contracts	\$485.7	\$486.3	\$0.6
Influent Pump Station Contract	103.2	103.9	\$0.7
Marine Outfall Contract	26.0	26.0	\$0.0
Construction Contingency	25.1	23.8	(\$1.3)
Sales Tax	58.8	58.8	\$0.0
All other construction costs	32.8	34.0	\$1.2
Non-Construction Costs			
Engineering / Planning & Mgmt Services	\$82.9	\$82.9	\$0.0
Construction Management	\$48.0	\$48.0	\$0.0
Other	\$101.3	\$101.3	\$0.0
Subtotal - Conveyance	\$963.6	\$964.8	\$1.2
TREATMENT PLANT			
Construction Costs			
Liquids Contract	\$260.2	\$260.2	\$0.0
Solids Contract	172.0	172.0	\$0.0
Construction Contingency	0.0	3.0	\$3.0
Sales Tax	29.5	29.5	\$0.0
Owner-Furnished Equipment	30.0	30.0	\$0.0
Outside Agency Costs	5.9	5.9	\$0.0
All other construction costs	62.1	60.9	(\$1.2)
Non-Construction Costs			
Engineering Services	\$78.5	\$78.5	\$0.0
Construction Management	\$19.4	\$19.4	\$0.0
Credits and Revenues	(\$3.1)	(\$3.1)	\$0.0
Other	\$241.7	\$241.7	\$0.0
Subtotal - Treatment Plant	\$896.3	\$898.1	\$1.8
Total	\$1,859.9	\$1,862.9	\$3.0

This OMC 2012 Estimate is the estimated lifetime cost of the Project, and excludes Known Disputed Costs.

Known Disputed Costs

The Trend Report discusses Known Disputed Costs related to delay in the performance of the Central Tunnel contract. WTD reports that King County's claims are \$158 million, which represents an increase of \$47 million from the value reported in the 2011 Trend Report. King County's claims include costs the County has already paid or will pay and seeks to recover. The majority of King County's claims are costs the County has already paid.

WTD reports that Vinci, Parsons, Frontier-Kemper (VPFK), the Central Tunnel contractor, has made counterclaims of \$66.7 million, which is less than the \$95.4 million reported in the 2011 Trend Report.

The Known Disputed Costs will continue to change over time. Because they are by definition "disputed", the final set of costs, final amount, and determination of responsibility has not been established.

The above summary does not include the following:

- BT-3C incentives that have not yet been earned. Jay Dee/Coluccio (JDC), the BT-3C contractor, has the potential to earn up to another \$610,000 in incentives if future milestones are met.
- Future change orders for JDC's work to complete the West Tunnel that are considered disputed.

Remaining Cost Uncertainty

The uncertainty in the lifetime cost has continued to decrease in the past year, because of the following developments:

- Continued progress on construction, particularly at the Treatment Plant, Influent Pump Station, Central Tunnel, and West Tunnel.
- Completion of interim commissioning.
- Recent bids on ancillary contracts.
- Greater certainty of the schedule for full commissioning.

By far the most significant cost uncertainty is the dispute related to delay in performance of the Central Tunnel. The outcome of this dispute is the most significant remaining uncertainty in defining the total project cost. Additional factors that can influence, and decrease the project cost include:

1. Successful completion of the remaining West Tunnel construction at a cost less than estimated by WTD.
2. Successful completion of the remaining BT-3C contract mining at a cost less than estimated by WTD. BT-3C is considered a disputed cost.
3. Resolution of IPS performance deficiencies related to surge protection at high flows.

-
4. Repairs to out-of-specification treatment plant yard piping.
 5. Meeting the projected schedules for full commissioning. There are currently multiple tasks that are either on the critical path or close to the critical path to full commissioning, and a delay in any one of them could delay full commissioning. These activities include repairs to out-of-specification treatment plant yard piping, certain VPFK activities on BT-3 and the North Kenmore Portal, temporary odor control facilities in the conveyance system, and the diffuser cap removal at the Marine Outfall.
 6. Managing non-construction costs.
 7. Completing the remaining work without using the full amount of remaining contingency.

Contingency Assessment

In WTD's baseline budget, there were two types of contingencies for the Brightwater Project: Construction Contingency and Project Contingency. The Construction Contingency was intended to cover additional costs paid to construction contractors for items such as change orders and claims. The Project Contingency was primarily intended to cover changes in non-construction cost risks, for items such as engineering, construction management, administration, and land purchases. In its 2010 Trend Report, WTD reduced the Project Contingency to \$0 and since 2010 has reported a single contingency. Correspondingly, OMC is also reporting a single contingency to cover both construction and non-construction cost risks.

As of the December 31, 2011, WTD's conveyance construction contingency is approximately \$25.1 million, and there is no treatment plant construction contingency remaining. Table 4 summarizes the potential items in the non-disputed portions of the project that may require use of contingency.

Table 4
Potential Demands on WTD's Remaining Contingency
(Excluding Disputed Portions of the Project)

Conveyance – Trend Report: Approximately \$25.1 M Contingency Remaining

- West Tunnel: future change orders and incentives on the undisputed portion of JDC Change Order 8.
- Central Tunnel: future change orders on the undisputed portion of BT-3 work. Resolution of approximately \$0.5M in potential change orders.
- Influent Pump Station (IPS): future change orders on the undisputed IPS work. Resolution of approximately \$4.2M in potential change orders.
- Marine Outfall: bid risk and any future change orders associated with diffuser cap removal.
- Ancillary Facilities: future change orders on the North Kenmore Portal and Ballinger Way Portal Odor Control facilities. Cost risk on the future North Kenmore Portal wetlands restoration project, to the extent the project cost exceeds the \$1.8 million estimate in the 2012 Trend Report.
- Construction and non-construction cost risk associated with any further schedule delay that is not related to the delay in performance of the Central Tunnel contract.

Treatment Plant – Trend Report: No contingency remaining.

- Liquids: future change orders on the undisputed portion of Liquids work. Resolution of approximately \$27K in potential change orders.
 - Liquids: any use of buyout savings.
 - Solids: future change orders on the undisputed portion of Solids work. Resolution of approximately \$22K in potential change orders.
 - Construction and non-construction costs not associated with dispute-related schedule delays.
-

This OMC review concludes that WTD's conveyance contingency will likely be sufficient to cover cost risks in the non-disputed conveyance portions of the Brightwater project.

In many construction projects, it is often appropriate to reduce the contingency as the project nears completion. For Brightwater, OMC is not proposing any revisions to WTD's conveyance contingency at this time because of the ongoing dispute related to the Central Tunnel.

OMC includes \$3 million treatment plant contingency to cover remaining cost risks on the non-disputed treatment plant portions of the project.

Remaining Project Expenditures

Table 5 shows the OMC estimate of the remaining Brightwater Project expenditures. This information is provided because it can help focus attention to the remaining portions of the project.

The total remaining expenditures for the Brightwater Project are approximately \$98.0 million. This does not include use of contingency but does include some costs that OMC anticipates will be considered disputed and added to the County's amount to seek reimbursement. WTD's ability to affect remaining project costs is limited and will occur within the areas shown in Table 5. Costs in Table 5 are those remaining as of December 31, 2011.

Table 5
Project Costs Remaining to be Incurred / Paid

	Estimated Cost, \$M
Conveyance (1)	
Construction (Includes Sales Tax)	
Central Tunnel (VPFK)	\$9.5
BT3C (JDC)	\$22.8
IPS	\$5.5
Marine Outfall (Diffuser Cap)	\$0.5
IPS Completion Contract	\$3.3
Ballinger Wy/N.Kenmore Odor Control	\$1.6
All Other	\$0.1
Construction Mitigation	\$2.0
Non-Construction	\$27.1
Other	\$2.9
Subtotal, Conveyance	<u>\$75.3</u>
Treatment Plant (1)	
Construction (Includes Sales Tax)	\$10.7
Construction Mitigation	\$1.6
Non-Construction	\$8.2
Other	\$2.2
Subtotal, Treatment Plant	<u>\$22.7</u>
Total, Project	\$98.0

Notes:

(1) Includes costs that OMC anticipates that WTD will consider disputed, and will seek to recover.

Approximately 60 percent of the remaining project expenses are for construction. The remainder is for non-construction and other costs. WTD reports that the non-construction cost estimate was based on an evaluation of the resources needed to complete the project. Non-construction costs in Table 5 also include additional legal and technical resources and staffing related to the Central Tunnel delay. “Other” costs in Table 5 are primarily the remaining Builders Risk Insurance costs. WTD’s estimate continues to carry approximately \$3.6 million in remaining construction mitigation funds; the single largest remaining mitigation expense from these funds (estimated by WTD at \$1.8M) is the Wetlands Restoration at the North Kenmore Portal.