

SR 99 Deep Bored Tunnel Contract and Engineering Review Update

**SEATTLE CITY COUNCIL
PRESENTATION
January 31, 2011**

Overview

○ Review Scope

- Changes in the signed contract from the RFP and how they affect allocation of tunneling risks between WSDOT and Seattle Tunnel Partners (STP).
- STP's technical proposal and mitigation plan.

○ Findings

- Changes result in shift of risks to STP, higher compensation to STP, and less contingency to fund WSDOT retained risks.
- STP's technical proposal, as part of the contract, acknowledges their responsibility for most of the tunneling risks.
- Project contingency is within industry standards.

Total D/B Contract Value

- ◉ **Base D/B Contract Award** is for \$1,089,700,002
 - Lump Sum Bid Items
 - Unit Price Work (\$5.85M)
- ◉ **Additional Costs** payable to STP include:
 - Lump sum transfer for South Access work
 - Fixed limit contract funds for other contractor costs
 - Contract incentive
 - Costs for WSDOT retained risks (Project Contingency)

Additional Cost Summary

SR 99 Bored Tunnel and Systems	January 2010 Budget	January 2011 Contract
BASED D/B CONTRACT AWARD	\$ 1,090	\$ 1,090
Escalation Fund (Inflation)		\$ 110
Bonding and Insurance Fund		\$ 100
Port of Seattle Fund		\$ 20
Completion Incentive (For early Substantial Completion)		\$ 25
South U-Section Fund (Scope transfer from South Access DBB)		\$ 50
Total Value of D/B Contract	\$ 1,090	\$ 1,395
North and South Access DBB Contracts	\$ 170	\$ 121
Total Project Construction Contract Costs	\$ 1,260	\$ 1,516
Deformation and Mitigation Repair Fund		\$ 20
TBM interventions (over 60 days in base contract) / DSCs	\$ 40	\$ 40
WSDOT Held Risk / Contingency	\$ 218	\$ 100
Total Contingency (w/ % of the Base D/B Contract Award)	\$ 258 24%	\$ 160 15%
TOTAL SR 99 CONTRACT BUDGET	\$ 1,518	\$ 1,676
WSDOT Project Costs	\$ 442	\$ 334
City of Seattle reimbursement		(\$ 50)
TOTAL PROJECT COST	\$ 1,960	\$ 1,960

WSDOT Held Contingency

- **\$100M for WSDOT held project contingency covers:**
 - Change orders for Extraordinary Intervention Work and Differing Site Conditions to the extent they exceed \$40M.
 - Change orders for Deformation Mitigation and Repair to the extent they exceed \$20M.
 - Additional Unit Price Work.
 - WSDOT controlled delays or added scope.
 - Specified events that affect performance of the work.

Summary Discussion

- ◉ **Guaranteed contract funds offset contingency amounts otherwise in the Base D/B Contract Award.**
- ◉ **Contingency Incentive rewards STP for minimizing tunneling problems related to their risks.**
- ◉ **A higher proportion of the project contingency is shared. These are for the highest WSDOT retained risks, which makes sense for risk mitigation.**
- ◉ **Overall project contingency has been reduced from 24% to 15% of the Base D/B Contract Award. This is still near the high end of industry standards.**

Contingency Adequacy

- A U.S. National Committee on Tunneling Technology study on the cost of claims and extra work (project contingency) looked at numerous DBB tunnel projects.
- The study provided guidelines for geotechnical data necessary to reduce risk, as performed by WSDOT.
- The study suggested a prudent project contingency is between 5% and 15%.
- Experience to date suggests that less project contingency is actually required on D/B projects.

D/B Contract Advantages

- The D/B contracting method has reduced the potential for Differing Site Conditions (DSC)
 - STP's proposal indicates a complete understanding of DSC related risks and means to address these risks.
 - Additional responsibility has been assumed by STP. An example is assuming lower strengths for soil in face support calculation.
 - Considerable detail is provided in STP's proposal on the Tunnel Boring Machine (TBM) technical features and on operation and maintenance focusing on deformation mitigation.
 - South End Settlement Deformation Plan with controlled "Safe Havens" within protection boxes and a viaduct protection wall.

Contingency Perspective

- For some perspective on the amount of contingency:
 - Based on STP's lump bid, mitigation of additional buildings could be in the range of \$2M to \$5M each.
 - Sound Transit spent less than \$4M filling voids created during mining of the Beacon Hill tunnels.
 - If the TBM requires extended repairs, the range of daily costs could be pretty high – \$100,000 to \$200,000. Assuming six months (125 working days), the additional costs are \$25M.
- These examples show that the \$160M project contingency is more than adequate to address numerous such events.

Summary

- ⦿ The project contingency amount is reasonable, consistent with industry standards, and should be adequate to cover WSDOT retained risks.
- ⦿ D/B contracting provides additional assurance that Differing Site Conditions will not be claimed.
- ⦿ The City of Seattle is not responsible for any additional costs due to project risks and is an additional insured under the project insurance policies.