

RESPONSE TO REP GEOFF SIMPSON'S QUESTIONS

From: Simpson, Rep. Geoff [mailto:Simpson.Geoff@leg.wa.gov]
Sent: Monday, February 02, 2009 10:06 AM
To: Hammond, Paula; Dye, Dave
Subject: Cost Estimating Manual

QUESTION/COMMENT 1

It is extraordinary to me that the estimate you have provided the legislature for the SR 99 tunnel comes in exactly at the amount of money that the state currently has available for the project. In your own "**Cost Estimating Manual for WSDOT Projects**" published this past November I find several interesting passages, starting with the intro: "Estimators should be shielded from pressures to keep estimates within programmed or desired amounts."

WSDOT RESPONSE:

Your comments imply that the estimate was adjusted to fit available funding - nothing could be further from the truth. The \$2.82 billion was (and is) the established cap of state investment in the overall project based on a "replacement in kind" estimate updated in November 2006 consistent with previous legislative intent (expressed in several budget provisos). That amount does not represent the cost of the tunnel or the entire viaduct replacement program, but rather, continues the commitment of that level of funding into the overall viaduct program.

During discussions with the stakeholder advisory committee, the city, county, state and others, the limitations of state funding at this amount was discussed often. Options were developed and screened keeping this limitation in mind but without letting it completely limit our thinking; there was a strong desire to develop a multi-modal, systems solution around the stakeholder committee table. That is why all of the three final hybrid options - simple elevated replacement (all inclusive at \$3.5 billion), surface-transit (all inclusive at \$3.3 billion), and the deep bored tunnel (all inclusive at \$4.25 billion) - exceeded the \$2.8 billion state funding level. The specifics of each option varied in how the state's funding was expended, but all realized that additional funding from the city and county would be necessary to fund the viaduct program.

The SR 99 component of the program includes about \$900 million that is committed to work in progress (mostly for the south end project which replaces almost a mile of the existing viaduct, south of the bored tunnel entrance), along with the SR 99 tunnel (about \$1.9 billion), removal of the existing viaduct (\$80 million), and construction of a replacement four-lane Alaskan Way with a direct connection to Elliott and Western Ave (about \$200 million). In total, the SR 99 component is estimated to cost about \$3.1 billion, which exceeds the state's funding. When transit improvements, seawall replacement, other city street improvements, and utility relocations are added, the entire program cost is about \$4.25 billion. Thus a funding partnership is required to complete the program - even the basic "state" project needs the \$300 million contribution from the Port of Seattle to work.

QUESTION / COMMENT 2

The manual indicates that when projects are at a 0%-2% maturity, the estimates can vary by as much as +200%, and even when using CEVP on a project that is at between 1%-15% design - as your agency claims to have used for the tunnel- the estimates can vary by as much as +100%. Did WSDOT actually conduct a formal CEVP for the tunnel as indicated should be done during the design phase, or has the Department arrived at its estimate based on the self-modeling spreadsheet?

What percentage of design has been completed for the tunnel and for the project as a whole?

WSDOT RESPONSE:

The overall engineering level on the tunnel is near the one percent level, so your recitation of the variable nature of the project costs is well stated. And, while it is accurate to say WSDOT has not completed a full CEVP for the tunnel option, the estimate for the bored tunnel is a cost prepared by a veteran of considerable tunnel construction, which was then independently checked by other outside experts. Our program estimator, who has over 40 years of experience as a cost estimator and is a cost-lead for WSDOT CEVP workshops, supervised the application of risk and uncertainty factors (which generated the appropriate range for the project at this level of definition), engineering costs, and escalation for inflation.

The range of cost presented (\$1.2 to \$2.2 billion) reflects an appropriate degree of variability given the current level of design and is consistent with cost estimating manual guidance as well as industry standards. I should note that this estimate has been shaped and heavily influenced by our own experts within the program team and the outside, independent tunneling experts. The irony is that most of the outside tunneling experts believe we have overestimated the price of the tunnel. However, given where we are in the process, we feel confident in our \$1.9 billion "most likely estimate" as presented last week.

Regarding the funding spreadsheet, as noted above, the \$2.8 billion state cap is a reality the project faces. All three of the final hybrid options (elevated replacement, surface-transit, bored tunnel) exceeded that amount. During negotiations with the principals involved, it became clear that the level of interest in "adding money to the project pot" depended a great deal on the option selected. None of our partners were interested in financially participating in any of the elevated options. In the end, the City of Seattle was willing to exercise a number of taxing options to allow the state to concentrate its funding on the SR 99 component (bored tunnel) and agreed to pick up the rest (less King County METRO's infrastructure and service) because they agreed that the benefits achieved by the tunnel solution exceed the benefits from the other hybrid solutions.

QUESTION / COMMENT 3

The manual indicates that "When a utility is located on an easement and WSDOT acquires the property through ROW acquisitions, WSDOT must pay all relocation costs in addition to providing the affected utility with a new easement." How does this relate to the agreement that Seattle provide the utility relocation costs? Would that typically be the responsibility of the state? The same question applies to the seawall replacement. As I recall, the seawall replacement has always been considered to be within the scope of the projects.

WSDOT RESPONSE:

The issues regarding funding liability for the seawall and utility relocation are complex and subject to legal opinion. In general, financial responsibility for utility relocation depends on the specific rights the utility has acquired from the department. In this case, the City of Seattle owns the property upon which the viaduct rests, and the state owns the structure. Without going too far into this because of potential litigation down the road, it is suffice to say it can be argued either way. (We included it in the "all inclusive" estimate of \$2.8 billion but certain legislative leaders never agreed the state would cover those expenses.) The seawall is similar, in that as far as it is an integral part of maintaining the on-going performance of the state highway, it could be argued it would be the state's responsibility. However, it could also be argued that the foundations of the viaduct could be designed to obviate the need for the structural support of the seawall and then it would not be needed. (We included it in the "all inclusive" estimate of \$2.8

billion but certain legislative leaders never agreed the state would cover those expenses either.)

QUESTION / COMMENT 4

And finally, (for now) what level of independent review has been conducted of the estimate you have provided to the legislature?

WSDOT RESPONSE:

Cascadia and their independent tunnel experts have been very active in reviewing the tunnel estimate work to date. As noted earlier, their consultants (and others) still feel our tunnel estimates are too high, but our change of scope from twin bores to a single larger-bore tunnel and a refinement of other costs such as management, design/construction management, etc., to a “base cost” level brought the two estimates much closer in line. WSDOT has also engaged other tunneling experts, separate from the project’s design consultant, who have reviewed the base estimate and contributed to the appropriate sizing of risk, allowances and contingency. They have stated their support for the cost ranges shared last week.

Please note that, in 2007, the project used two independent cost-based estimates when the twin-bore tunnel was under consideration. One estimate was prepared by the project general engineering consultant (Parsons Brinkerhoff) and the other was prepared by the program management assistance contractor (Hatch Mott MacDonald). Both of these firms have substantial international tunnel experience. These estimates were extremely close when compared, based on criteria that included the diameter of the tunnel, length, production rate for the advancement of the tunnel boring machine, etc.