

WSDOT Takes a Leadership Role in Cost Estimating Improvements

WSDOT is committed to ongoing cost evaluation as a means to better manage projects and provide information to the public. This is intended to help address the widespread concern and public skepticism about project estimates and actual costs. Almost everybody is familiar with high-profile project cost overruns, like Boston's Central Artery and London's Jubilee Line Extension.

Recent research (by Flyvbjerg and others, see below) has shown that poor cost estimating is a chronic worldwide problem.¹ Flyvbjerg's original paper was published in June of 2002, the same time WSDOT released its first round of projects run through the Cost Estimate Validation Process. WSDOT was working to solve the problem even as Flyvbjerg's work was gaining prominence in trade and professional publications.¹

WSDOT's work to develop and publish cost estimates based upon risk analysis has been recognized in at least two recent national reports.² These reports have suggested that CEVP™ or a process like it should be more widely used to develop cost estimates for large, complex infrastructure projects.

The initial CEVP results were released June 3rd 2002 and earned WSDOT credit for providing "...an unprecedented public service ...a much-needed dose of fiscal reality... the Department offered realistic cost-range estimates" (Seattle Post-Intelligencer, June 9, 2002)

WSDOT's commitment to accurate cost estimates is part of our on-going commitment to gain public trust and demonstrate accountability. For more information, go to: <http://www.wsdot.wa.gov/>

¹ Flyvbjerg, B., Holm, M.S., and Buhl, S. "Underestimating Costs in Public Works Projects – Error or Lie?" *American Planning Association Journal*, Summer, Vol. 68, No. 3, 2002.

¹ Flyvbjerg, B., "Megaprojects and Risk: An Anatomy of Ambition," Cambridge University Press, 2003.

² "Best Practices and Guidelines for Project Cost Estimating", National Cooperative Highway Research Program, A *Synthesis of Highway Practice*; Schexnayder, C; Firoi, C & Weber, S; July 2003 review copy.

"Completing the 'Big Dig': Managing the Final Stages of Boston's Central Artery/Tunnel Project", Committee for Review of Project Management Practices, National Research Council, February 2003.

Background

In January 2002, WSDOT began a new process to improve upon its cost estimation procedures for complex transportation projects. The process, called the "Cost Estimate Validation Process" (CEVP™), provides a means, starting early in the project development cycle, to identify, assess and evaluate the risks and opportunities that may effect project cost or schedule. In June 2002, WSDOT released the results of CEVP™ reviews on nine major transportation projects across the state (see: <http://www.wsdot.wa.gov/projects/cevp/>). WSDOT is committed to ongoing attention to cost evaluation as a means to better manage projects and to provide information to decision-makers and the public.

What's New in 2003?

A CEVP™ update has recently been performed to assure projects are aligned with the Legislature's 2003 Transportation Funding Plan (the "nickel package") and the current financial plans being considered by the Regional Transportation Investment District (RTID). It appears that the "high water" RTID funding levels would top out around \$14 billion for projects in King, Snohomish and Pierce Counties.

WSDOT has focused its 2003 CEVP™ review efforts on the major projects in King County, where the largest problems are expected to be encountered in matching the states biggest transportation needs to available funding.

1. SR 99 Alaskan Way Viaduct and Seawall Project, Seattle
2. SR 520 Bridge Replacement and HOV Project
3. I-405 Congestion Relief and Bus Rapid Transit Projects King County
4. SR 509/I-5 Freight and Congestion Relief Project, South King County
5. I-90 Two-Way Transit and HOV (first-time CEVP™ review)

The results of the 2003 CEVP™ review are summarized inside this packet.

2003 CEVP™ UPDATE

July 16th, 2003

ALASKAN WAY VIADUCT & SEAWALL REPLACEMENT PROJECT

Project Status: Draft Environmental Impact Statement to be completed by April 2004, with final approval expected in Spring 2005. \$177 million included in the 2003 Legislative Transportation Funding package (the "Nickel Plan") provides for the EIS analysis, significant design and right of way purchases. If funding is available, construction could begin as soon as 2008.

| CEVP Ranges: | 2003 | 2002 | Change |
|---|-------------------|---------------------|-----------------|
| | 10% - 90% | 10% - 90% | |
| Rebuild – rebuilds existing viaduct and seawall | \$3.2 B - \$3.5 B | \$3.2 B - \$3.5 B | \$0 B |
| Aerial – replaces viaduct with new, wider viaduct and rebuilds seawall | \$3.2 B - \$3.5 B | \$5.7 B - \$6.4 B | \$2.5 - \$2.9 B |
| Tunnel – Replaces viaduct and seawall with a six-lane tunnel on central waterfront | \$3.8 B - \$4.1 B | \$10.1 B - \$11.6 B | \$6.3 - \$7.5 B |
| Bypass Tunnel – Replaces viaduct and seawall with a four-lane tunnel on central waterfront and expands Alaskan Way to six lanes. | \$3.1 B - \$3.4 B | New Option, N/A | New Option, N/A |
| Surface - Replaces viaduct with a six to eight lane Alaskan Way. Rebuilds seawall. | \$2.5 B - \$2.8 B | New Option, N/A | New Option, N/A |

Key Differences: Project limits are now primarily from Holgate Street through Battery Street Tunnel.

SR 509 – I-5 FREIGHT CORRIDOR & CONGESTION RELIEF

Project Status: The Environmental Impact Statement was approved in March 2003. \$35 million included in the 2003 Legislative Transportation Funding package (the "Nickel Plan") for continued design, permits and right of way acquisition. If funding is available, construction could begin as soon as 2006.

| CEVP Ranges: | 2003 | 2002 | Change |
|--|-------------------|-------------------|---------------|
| | 10%-90% | 10%-90% | |
| SeaTac to Federal Way – completes SR 509 as a six-lane freeway and adds six miles of new lanes to I-5 from Federal Way to SeaTac. | \$898 M - \$987 M | \$920 M - \$1.02B | \$22 - \$33 M |

I-405 CONGESTION RELIEF & BUS RAPID TRANSIT PROJECT

Project Status: Corridor Record of Decision and selected alternative were finalized in October 2002. \$485 million included in the 2003 Legislative Transportation Funding package (the "Nickel Plan") provides three congestion relief projects. The first project will be open to traffic 2010. Footprint designs and environmental clearances for this project will jump-start the next project phase. If funding is available, construction could begin as soon as 2008.

| CEVP Ranges: | 2003 | 2002 | Change |
|---|-------------------|-------------------|-----------------|
| | 10%-90% | 10%-90% | |
| Renton, Bellevue, and Kirkland Improvements – I-405/West Valley Highway to Maple Valley Highway, I-405/SE 8 th to I-90, and I-405/SR 520 to SR 522. | \$392 M - \$493 M | New Option, N/A | New Option, N/A |
| Tukwila to Bothell – multi-modal corridor improvement projects from I-5 in Tukwila to SR 522 in Bothell. | \$4.2 B - \$5.1 B | \$5.2 B - \$6.1 B | \$1 B |

Key Differences: The Renton, Bellevue, and Kirkland improvement projects are new since 2002. Tukwila to Bothell projects/scopes continue to be evaluated as funding packages are developed with federal, state and regional funding options.

Notes:

GP / General Purpose Lane
HOV / Heavy Occupancy Vehicle Lane
HCT / High Capacity Transit Lane

SR 520 BRIDGE REPLACEMENT AND HOV PROJECT

Project Status: Draft Environmental Impact Statement is expected in Summer 2005, with final approval by Summer 2006. \$56.5 million included in the 2003 Legislative Transportation Funding package (the "Nickel Plan") provides for the EIS analysis, significant design and early right of way purchases. Highest priority is to replace aging and vulnerable Evergreen Point Floating Bridge. If funding is available, construction could begin as soon as 2008.

| CEVP Ranges: | 2003 | 2002 | Change |
|---|-------------------|-------------------|-------------------|
| | 10% - 90% | 10% - 90% | |
| 4-lane – Rebuilds existing facility | \$1.5 B - \$1.8 B | \$1.8 - \$2.1 B | \$0.3 B |
| 4-lane w/ accommodation of HCT – Rebuilds existing facility with accommodations for future high capacity transit across Lake Washington. | \$1.6 B - 1.9 B | New Option, N/A | New Option, N/A |
| 6-lane – Expands existing facility by adding one HOV lane in each direction and accommodates for future HCT. | \$2.1 B - \$2.5 B | \$4.9 B - \$5.9 B | \$2.8 B - \$3.4 B |
| 8-lane – Expands existing facility by adding one HOV and one GP lane in each direction and accommodates for future HCT. | *TBD | | |

Key Differences: Project limits changed to east of I-5 to west of I-405.
*8-lane option needs further analysis and engineering before full CEVP.

I-90 TWO-WAY TRANSIT AND HOV

Project Status: Draft Environmental Impact statement was published in April 2003, with final approval expected by March 2004. Sound Transit provides \$17 million for EIS analysis and design. \$15 million included in the 2003 Legislative Transportation Funding package (the "Nickel Plan") provides remaining design work and contributes to construction. If funding is available, construction could begin as soon as 2005.

| CEVP Ranges: | 2003 | 2002 | Change |
|--|-------------------|-----------------|-----------------|
| | 10% - 90% | 10% - 90% | |
| R-2B – Converts center roadway to a two-way facility for transit and HOV carpools. Mercer Island SOV traffic moves to outer roadways. | \$ 43 M - \$ 49 M | New Option, N/A | New Option, N/A |
| R-5 Restripe – Provides transit only use of outer roadway shoulders in peak periods, EB in the morning and WB in the evening, through restriping of existing roadway. | \$ 19 M - \$ 21 M | New Option, N/A | New Option, N/A |
| R-5 Modified – Provides transit only use of outer roadway shoulders in peak periods, EB in the morning and WB in the evening, through restriping of existing roadway. Also includes additional widening where possible. | \$ 85 M - \$93 M | New Option, N/A | New Option, N/A |
| R-8A – Adds an HOV lane in each direction to the outer roadways, by narrowing roadway lanes and shoulders, or widening where possible. | \$115 M - \$128 M | New Option, N/A | New Option, N/A |

