## LPA Phase I Summary

# **Columbia River Crossing Project**

Portland, OR and Vancouver, WA

August 2011

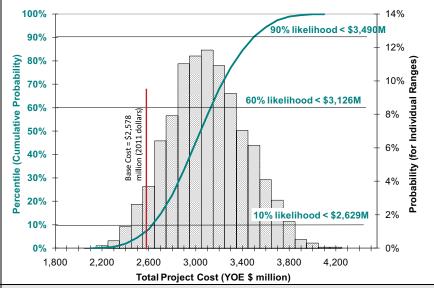


### **Project Description**

CRC is a long-term, comprehensive project to reduce congestion, enhance mobility and improve safety on I-5 between SR 500 in Vancouver, Wash., and Victory Boulevard in Portland. Project elements include:

- Replacing the Interstate Bridge
- Extending light rail to Vancouver
- Improving the highway corridor and five closely-spaced interchanges
- Enhancing pedestrian and bicycle paths and access to local networks
- Using transportation demand management features
- · Applying electronic tolling

# **CEVP Cost Range** (as of May 2011 analysis, without risk mitigation)



# **Project Benefits**

Benefits to local residents, the natural environment and the regional economy include:

- Reduced congestion on I-5 and adjacent neighborhoods
- A more reliable trip for freight, autos, and transit
- 20,000 new and sustained jobs with improved access to ports and highways
- 70 percent fewer collisions per year
- No bridge lifts
- Reduced emissions and improved water quality
- Earthquake protection

# CEVP Schedule Range (by percentile)

| Task  | 10th     | 60 <sup>th</sup> | 90th       |                          |
|---|----------|------------------|------------|--------------------------|
| Issue Columbia River<br>Bridge Design-Build RFP | Oct 2012 | Oct 2012         | March 2013 | Completed                |
| Construction Complete                           | Aug 2021 | March<br>2022    | Aug 2022   | analysis in<br>May 2011. |

# **Key Project Cost Risks** (Mean impact value in 2011 dollars; M = million)

### Threats (increases)

Increase size of lid at Evergreen (+\$18.4 M)

Columbia River bridges base uncertainty with low level of design (+\$17.1 M)

Uncertain market conditions for design-bid-build contracts (+\$16.8 M)

Type change for mainline connector to Hayden Island (+\$14.2 M)

### Opportunities (savings)

Test shaft/pile program (-\$39.0 M)

Uncertain market conditions for design-build contracts (-\$37.9 M)

Accelerate construction of Hayden Is. / SR-14 / Marine Dr. design-build contracts (-\$19.6 M)

# **Key Assumptions**

- In-water work is allowed year-round with construction activity restrictions during critical periods.
- Main river crossing will be a deck truss structure.
- Full funding is available; potential for delay treated via separate model scenario.
- Cost escalation rates based on WSDOT CCI/CPMS indices.
- Project to be delivered through a mix of design-build and design-bid-build contracts.

# Key Project Schedule Risks

**Threat** (Mean impact to critical path)

Issues relating to floating homes (1.8 months)

Railroad agreement term sheets take longer (1.5 months)

Issues managing design-build procurements (1.5 months)

Agreement between FHWA and FTA on shared parcels (1.5 month)

Delay getting possession and use for river crossing (1.1 months)

Hayden Island elevated transit station changes to at-grade (1.1 month)

### **Opportunities** (Mean acceleration potential)

Accelerate construction of Hayden Is/SR14/Marine Drive (-3.6 months)

Accelerate construction of Columbia River Bridge (-0.8 months)

Longer work hours available than assumed (-0.5 month)

August 2011 Columbia River CROSSING

# EXHIBIT C CRC ACTUAL FINANCE PLAN ESTIMATED 30-YEAR COSTS

# CRC Estimated Additional Costs

| TIFIA Loan Interest                                  | \$<br>844,495,526   | Based on CRC Debt Service Schedule |
|--|---------------------|------------------------------------|
| State Backed Bond Interest                           | 733,489,870         | Based on CRC Debt Service Schedule |
| O&M Costs <sup>2,3</sup>                             | 58,200,000          | FEIS, Page 4-26                    |
| Facility Costs <sup>2,3</sup>                        | 264,600,000         | FEIS, Page 4-26                    |
| Insurance <sup>2,3</sup>                             | 45,000,000          | FEIS, Page 4-26                    |
| Variable Tolling Collection Cost <sup>2,3</sup>      | -                   | Unknown, based on FEIS Page 4-26   |
| Highway Rehab and Replacement <sup>2</sup>           | 46,360,000          | FEIS, Page 4-28                    |
| Tolling Equipment Rehab and Replacement <sup>2</sup> | 40,160,000          | FEIS, Page 4-28                    |
| TOTAL ANTICIPATED ADDITIONAL COSTS                   | \$<br>2,032,305,396 |                                    |

<sup>2.</sup> Reported in 2010 Dollars

Assumes no cost overruns

<sup>3.</sup> Reported annual costs multiplied by 30

Exhibit E

Total of Net Tolling Revenue

source: CRC Debt Service Schedules

|      |         | Net Tolling |
|------|---------|-------------|
| Year |         | Revenues    |
|      | 2016 \$ | -           |
|      | 2017    | -           |
|      | 2018    | -           |
|      | 2019    | 62,373,695  |
|      | 2020    | 73,585,795  |
|      | 2021    | 79,556,024  |
|      | 2022    | 81,058,588  |
|      | 2023    | 77,643,038  |
|      | 2024    | 83,923,520  |
|      | 2025    | 79,049,024  |
|      | 2026    | 87,061,562  |
|      | 2027    | 88,571,090  |
|      | 2028    | 84,427,628  |
|      | 2029    | 91,493,486  |
|      | 2030    | 92,766,020  |
|      | 2031    | 94,361,330  |
|      | 2032    | 87,472,266  |
|      | 2033    | 89,597,528  |
|      | 2034    | 96,444,455  |
|      | 2035    | 97,243,750  |
|      | 2036    | 97,649,613  |
|      | 2037    | 98,473,594  |
|      | 2038    | 92,067,621  |
|      | 2039    | 90,769,851  |
|      | 2040    | 100,542,771 |
|      | 2041    | 101,367,157 |
|      | 2042    | 101,771,343 |
|      | 2043    | 94,518,986  |
|      | 2044    | 103,282,965 |
|      | 2045    | 104,070,367 |
|      | 2046    | 93,994,974  |
|      | 2047    | 105,582,005 |
|      | 2048    | 96,698,675  |
|      | 2049    | 106,513,814 |
|      | 2050    | 107,263,583 |
|      | 2051    | 108,135,680 |
|      | 2052    | 108,741,346 |
|      | 2053    | 86,219,671  |
|      | 2054    | 109,676,530 |

**Total Toll Collection** \$ 3,353,969,345.00

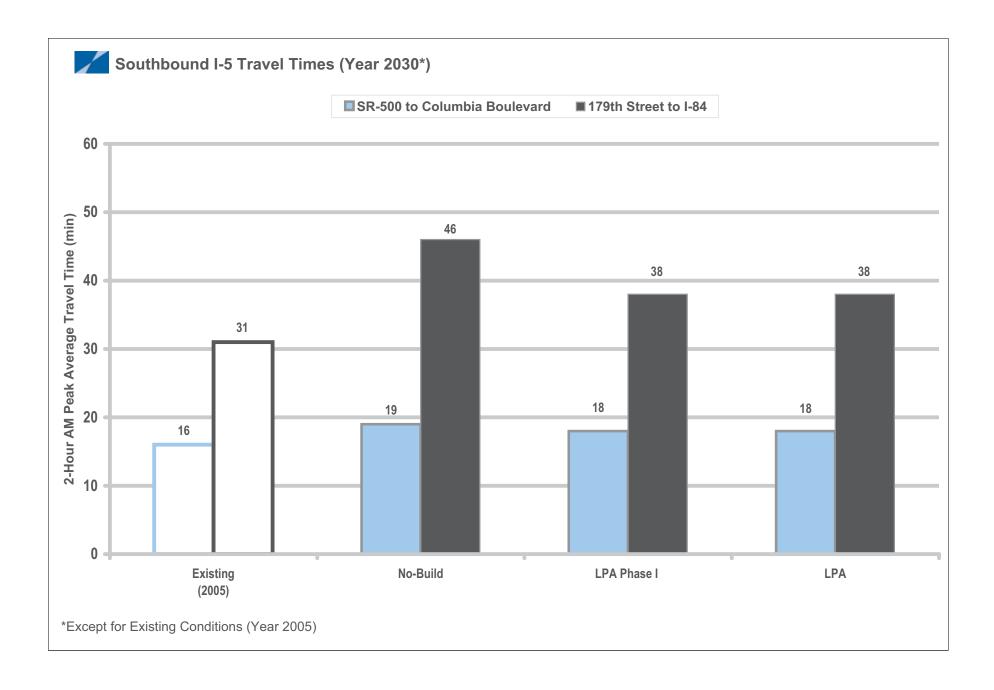
# Columbia River Crossing TIFIA Loan - Added Price Point Toll Rate - Low Estimate 35 Year Debt Term DEBT SERVICE SCHEDULE

| Period | Net Revenues  |                                       | TI         | FIA          |  |  |  |
|--------|---------------|---------------------------------------|------------|--------------|--|--|--|
| Ending | Not Novolidos | Principal                             | Interest   | Debt Service |  |  |  |
|        |               | · · · · · · · · · · · · · · · · · · · |            | 20010011100  |  |  |  |
| 2014   | -             | -                                     | -          | -            |  |  |  |
| 2015   | -             | -                                     | -          | -            |  |  |  |
| 2016   | -             | -                                     | -          | -            |  |  |  |
| 2017   | -             | -                                     | -          | -            |  |  |  |
| 2018   | -             | -                                     | -          | -            |  |  |  |
| 2019   | 62,373,695    | -                                     | -          | -            |  |  |  |
| 2020   | 73,585,795    | -                                     | 33,850,495 | 33,850,495   |  |  |  |
| 2021   | 79,556,024    | 1,390,569                             | 33,831,977 | 35,222,546   |  |  |  |
| 2022   | 81,058,588    | 2,142,497                             | 33,745,293 | 35,887,790   |  |  |  |
| 2023   | 77,643,038    | 1,456,613                             | 33,656,176 | 35,112,789   |  |  |  |
| 2024   | 83,923,520    | 3,629,214                             | 33,526,992 | 37,156,206   |  |  |  |
| 2025   | 79,049,024    | 2,254,876                             | 33,376,456 | 35,631,332   |  |  |  |
| 2026   | 87,061,562    | 5,365,558                             | 33,179,982 | 38,545,540   |  |  |  |
| 2027   | 88,571,090    | 6,342,234                             | 32,871,633 | 39,213,867   |  |  |  |
| 2028   | 84,427,628    | 4,802,592                             | 32,576,802 | 37,379,395   |  |  |  |
| 2029   | 91,493,486    | 8,275,268                             | 32,232,457 | 40,507,725   |  |  |  |
| 2030   | 92,766,020    | 9,307,808                             | 31,763,317 | 41,071,125   |  |  |  |
| 2031   | 94,361,330    | 10,542,790                            | 31,234,641 | 41,777,431   |  |  |  |
| 2032   | 87,472,266    | 7,992,005                             | 30,735,370 | 38,727,374   |  |  |  |
| 2033   | 89,597,528    | 9,399,920                             | 30,268,391 | 39,668,311   |  |  |  |
| 2034   | 96,444,455    | 13,035,286                            | 29,664,426 | 42,699,712   |  |  |  |
| 2035   | 97,243,750    | 14,120,829                            | 28,932,762 | 43,053,590   |  |  |  |
| 2036   | 97,649,613    | 15,090,522                            | 28,142,760 | 43,233,282   |  |  |  |
| 2037   | 98,473,594    | 16,301,532                            | 27,296,559 | 43,598,090   |  |  |  |
| 2038   | 92,067,621    | 14,292,077                            | 26,469,840 | 40,761,917   |  |  |  |
| 2039   | 90,769,851    | 14,494,026                            | 25,693,318 | 40,187,344   |  |  |  |
| 2040   | 100,542,771   | 19,744,367                            | 24,769,829 | 44,514,196   |  |  |  |
| 2041   | 101,367,157   | 21,215,030                            | 23,664,153 | 44,879,183   |  |  |  |
| 2042   | 101,771,343   | 22,579,311                            | 22,478,821 | 45,058,132   |  |  |  |
| 2043   | 94,518,986    | 20,534,326                            | 21,312,905 | 41,847,231   |  |  |  |
| 2044   | 103,282,965   | 25,661,848                            | 20,065,537 | 45,727,386   |  |  |  |
| 2045   | 104,070,367   | 27,445,839                            | 18,630,160 | 46,075,999   |  |  |  |
| 2046   | 93,994,974    | 24,387,868                            | 17,227,363 | 41,615,231   |  |  |  |
| 2047   | 105,582,005   | 31,014,358                            | 15,730,902 | 46,745,260   |  |  |  |
| 2048   | 96,698,675    | 28,701,470                            | 14,110,795 | 42,812,265   |  |  |  |
| 2049   | 106,513,814   | 34,762,113                            | 12,395,696 | 47,157,808   |  |  |  |
| 2050   | 107,263,583   | 37,036,835                            | 10,452,925 | 47,489,760   |  |  |  |
| 2051   | 108,135,680   | 39,493,293                            | 8,382,579  | 47,875,872   |  |  |  |
| 2052   | 108,741,346   | 41,967,377                            | 6,176,646  | 48,144,023   |  |  |  |
| 2053   | 86,219,671    | 34,057,563                            | 4,115,239  | 38,172,802   |  |  |  |
| 2054   | 109,676,530   | 46,625,737                            | 1,932,329  | 48,558,066   |  |  |  |

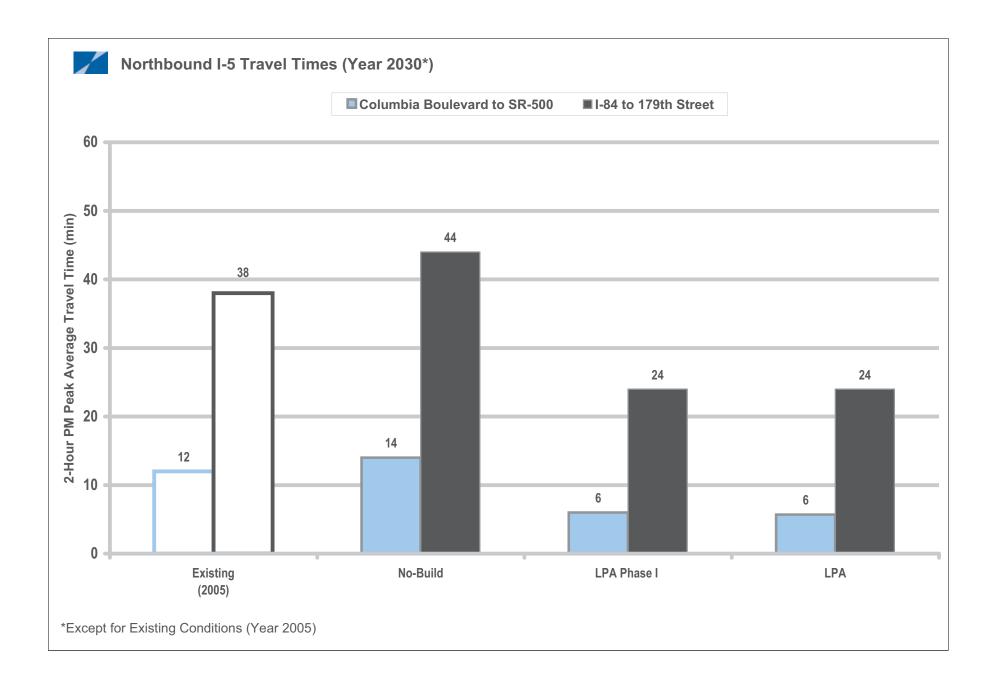
# Columbia River Crossing State-Backed Debt - Added P. rice Point Toll Rate - Low Estimate 30 Year Debt Term DEBT SER\ /ICE SCHEDULE

| 11.01000000 | Not Revenues | FY201            | 17         | FY201        | 18         | FY20       | 19            | 40,000,000  | Total        |   |
|-------------|--------------|------------------|------------|--------------|------------|------------|---------------|-------------|--------------|---|
| Ending      |              | Principal        | Interest   | Principal    | Interest   | Principal  | Interest      | Principal   | Interest     | Debt Service                                |
| 2014        |              |                  |            |              |            |            | ALL PROPERTY. |             | 1 1 1        |   |
| 2015        | 1 0          | 0                | 1 1 2      | 3            | 1          | 0          | 0             |             | - 2          | 3   |
| 2016        |              | 8                |            |              |            | - 0        | 3             | - V         |              | and a second                                |
| 2017        |              | 9.0              | 6,567,596  | 0            | 2          | 0          | 5.            |             | 6,567,596    | 6,567,596                                   |
| 2018        |              | 3/1              | 6,567,596  |              | 11,400,376 |            |               |             | 17,967,972   | 17,967,972                                  |
| 2019        | 62,373,695   | 8,863            | 6,569,599  | 22,415       | 11,403,498 | 106,309    | 10,370,455    | 137,588     | 28,343,552   | 28,481,130                                  |
| 2020        | 73,585,795   | 913,796          | 6,847,189  | 1,709,776    | 11,770,023 |            | 10,570,465    | 4,383,816   | 29,217,004   | 33,600,820                                  |
| 2021        | 79,556,024   | THE STATE OF THE |            |              |            | 1,760,244  |               | 6,193,337   | 30,133,615   | [21] [22] [23] [23] [23] [23] [23] [23] [23 |
| 2022        | 81,058,588   | 1,299,964        | 7,090,693  | 2,429,630    | 12,143,825 | 2,463,743  | 10,899,097    | 6,262,392   | 30,750,662   | 36,326,952                                  |
| 2023        | 77,643,038   | 1,316,645        | 7,233,285  | 2,458,900    | 12,389,802 | 2,487,647  | 11,127,575    | 4,757,772   |              | 37,013,054                                  |
| 2024        |              | 996,923          | 7,191,974  | 1,863,760    | 12,359,264 | 1,897,089  | 11,144,432    | 6,249,343   | 30,695,670   | 35,453,442                                  |
| 2025        | 83,923,520   | 1,315,216        | 7,536,074  | 2,457,095    | 12,916,418 | 2,477,031  | 11,619,407    | 7.42 (0.42) | 32,071,899   | 38,321,242                                  |
|             | 79,049,024   | 942,530          | 7,394,655  | 1,761,725    | 12,718,855 | 1,788,392  | 11,489,289    | 4,492,646   | 31,602,799   | 36,095,445                                  |
| 2026        | 87,061,562   | 1,305,896        | 7,876,359  | 2,439,165    | 13,509,190 | 2,451,711  | 12,171,816    | 6,196,773   | 33,557,365   | 39,754,138                                  |
| 2027        | 88,571,090   | 1,290,182        | 8,051,281  | 2,409,611    | 13,815,267 | 2,419,169  | 12,457,911    | 6.118,962   | 34,324,459   | 40,443,420                                  |
| 2028        | 84,427,628   | 1,007,716        | 7,898,742  | 1,882,562    | 13,583,296 | 1,897,025  | 12,284,087    | 4,787,303   | 33,764,125   | 38,551,429                                  |
| 2029        | 91,493,486   | 3,128,231        | 6,521,452  | 2,321,610    | 14,438,606 | 2,326,332  | 13,041,616    | 7,776,173   | 34,001,675   | 41,777,847                                  |
| 2030        | 92,766,020   | 3,454,965        | 6,328,931  | 2,256,055    | 14,737,270 | 2,259,005  | 13,322,687    | 7,970,024   | 34,388,889   | 42,358,913                                  |
| 2031        | 94,361,330   | 3,836,150        | 6,116,001  | 5,973,308    | 11,312,254 | 2,211,812  | 13,637,841    | 12,021,269  | 31,066,096   | 43,067,365                                  |
| 2032        | 87,472,266   | 3,320,179        | 5,905,393  | 5,035,139    | 10,988,450 | 1,616,480  | 13,076,033    | 9,971,798   | 29,969,876   | 39,941,674                                  |
| 2033        | 89,597,528   | 3,752,080        | 5,697,639  | 5,740,743    | 10,672,163 | 1,531,695  | 13,417,793    | 11,124,519  | 29,787,594   | 40,912,113                                  |
| 2034        | 96,444,465   | 4,723,471        | 5,448,384  | 7,380,654    | 10,286,505 | 5,920,509  | 10,279,041    | 18,024,634  | 26,013,930   | 44,038,564                                  |
| 2035        | 97,243,750   | 5,096,696        | 5,159,460  | 7,978,751    | 9,834,827  | 6,417,338  | 9,916,468     | 19,492,784  | 24,910,755   | 44,403,539                                  |
| 2036        | 97,649,613   | 5,450,586        | 4,848,375  | 8,540,213    | 9,347,712  | 6,877,433  | 9,524,545     | 20,868,232  | 23,720,632   | 44,588,864                                  |
| 2037        | 98,473,594   | 5,870,681        | 4,515,184  | 9,213,424    | 8,825,442  | 7,436,662  | 9,103,718     | 22,520,767  | 22,444,345   | 44,965,112                                  |
| 2038        | 92,067,621   | 5,531,217        | 4,179,020  | 8,563,945    | 8,301,444  | 6,779,541  | 8,684,843     | 20,874,702  | 21,165,307   | 42,040,009                                  |
| 2039        | 90,769,851   | 5,725,905        | 3,847,458  | 8,838,572    | 7,789,085  | 6,966,009  | 8,280,391     | 21,530,486  | 19,916,934   | 41,447,421                                  |
| 2040        | 100,542,771  | 7,135,327        | 3,468,772  | 11,219,160   | 7,198,748  | 9,079,517  | 7,808,419     | 27,434,003  | 18,475,938   | 45,909,941                                  |
| 2041        | 101,367,157  | 7,658,063        | 3,032,982  | 12,055,590   | 6,513,333  | 9,772,918  | 7,253,488     | 29,486,570  | 16,799,802   | 46,286,373                                  |
| 2042        | 101,771,343  | 8,167,708        | 2,565,966  | 12,864,927   | 5,778,037  | 10,436,997 | 6,657,298     | 31,469,632  | 15,001,301   | 46,470,933                                  |
| 2043        | 94,518,986   | 7,876,052        | 2,092,727  | 12,277,892   | 5,036,550  | 9,815,949  | 6,060.185     | 29,969,893  | 13,189,461   | 43,159,354                                  |
| 2044        | 103,282,965  | 9,306,652        | 1,586,451  | 14,677,286   | 4,242,583  | 11,928,208 | 5,419,992     | 35,912,146  | 11,249,026   | 47,161,171                                  |
| 2045        | 104,070,367  | 9,957,660        | 1,018,488  | 15,717,436   | 3,346,674  | 12,788,784 | 4,691,673     | 38,463,880  | 9,056,835    | 47,520,715                                  |
| 2046        | 93,994,974   | 9,468,316        | 445,196    | 14,771,428   | 2,447,023  | 11,822,521 | 3,965,596     | 36,062,265  | 6,857,815    | 42,920,079                                  |
| 2047        | 105,582,005  | 40,000,000       | 11151.1117 | 29,157,796   | 1,318,802  | 14,545,329 | 3,189,035     | 43,703,125  | 4,507,836    | 48,210,961                                  |
| 2048        | 96,698,675   |                  | 11.16.1    | amitalist di | 71777777   | 42,185,539 | 1,969,108     | 42,185,539  | 1,969,108    | 44,154,646                                  |
| 2049        | 106,513,814  |                  | 6          | 1000         |            |            | 19201100      | Sarrial C.  | Partition at | 102/02/20                                   |
| 2050        | 107,263,583  |                  | 0          | 10           |            |            |               | N N         |              |   |
| 2051        | 108,135,680  |                  |            |              | 10         | 15         |               | Q           |              |   |
| 2052        | 108,741,346  | 0                | 0          | 0            | -          | 0          | - C           | 10          | 0            |   |
| 2053        | 86,219,671   |                  |            | 0            | 3          | (3)        | 3             | 8           |              |   |
| 2054        | 109,676,530  | -                | 111        | -            |            | - 0        |               | 0           |              |   |

# Exhibit 7-15

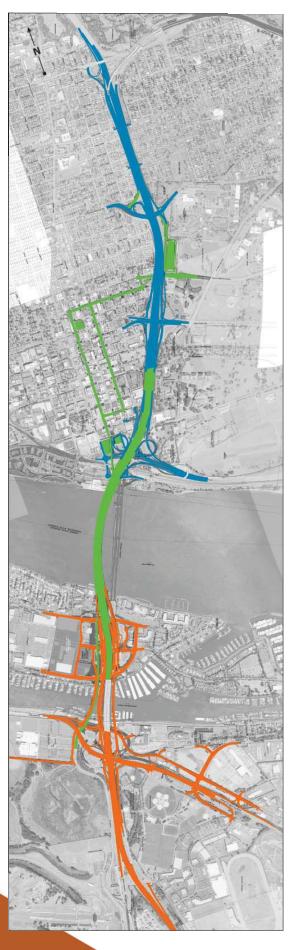


# Exhibit 7-16



# 10

# Construction cost estimates and fund Sources



| Columbia River |         | Cost<br>\$595<br>million | Oregon Roadway and Interchanges Total |
|----------------|---------|--------------------------|---------------------------------------|
| Columbia River | Funding | Cost                     | Oregon Roadway                        |
| and Approa     | Source  |                          | and Interchanges                      |

| Light Rail Transit   | Light Rail Transit                        |
|----------------------|---|
| Extension            | Extension Total                           |
| Funding<br>Source    | Tolls and<br>State or<br>Federal<br>funds |
| Cost                 | \$1.2<br>billion                          |
| olumbia River Bridge | Numbia River Bridge                       |
| and Approaches       | nd Approaches Total                       |

| Fundin<br>Source   | State an<br>or Fede<br>Funds |
|--------------------|------------------------------|
| Cost               | \$435<br>million             |
| Washington Roadway | Washington Roadway and       |
| and Interchanges   | Interchanges Total           |
| Funding            | FTA New                      |
| Source             | Starts                       |

\$850 million

Cost

Total costs based on 2011 CEVP and assume a 95-foot bridge height = \$3.1 billion

| Targeted Columbia River Crossing Funding Sources | Amount (billions) |
|--|-------------------|
| FTA New Starts (light rail)                      | \$0.85            |
| FHWA.  | \$0.4             |
| Tolls  | \$0.9 - \$1.3     |
| OR/WA.   | \$0.9             |
| TOTAL FUNDING SOURCES \$3.05 - \$3.45            | \$3.05 - \$3.45   |



# EXHIBIT L COLUMBIA RIVER CROSSING BUDGETED COSTS FOR "EXTRA" PROJECTS ITEMIZED IN CRC BASE COST ESTIMATE

|   | Bas | se Cost Per CEVP |    | Add 37.5744% Cost<br>Escalation |
|---|-----|------------------|----|---------------------------------|
| Steel Bridge Improvements                     | \$  | 250,000.00       | \$ | 343,936.00                      |
| Hood River Channel Restoration                |     | 5,000,000.00     |    | 6,878,720.00                    |
| Bike Pedestrian Bridge (Hayden Island to CRC) |     | 7,280,000.00     |    | 10,015,416.32                   |
| Ruby Junction                                 |     | 37,200,000.00    |    | 51,177,676.80                   |
| TriMet Operations Center                      | \$  | 2,000,000.00     |    | 2,751,488.00                    |
| Total "Extras" - Oregon                       |     | 51,730,000.00    |    | 71,167,237.12                   |
|   |     |                  |    |                                 |
| Bike Pedestrian Ramp to Vancouver Waterfront  | \$  | 6,210,680.00     | \$ | 8,544,305.75                    |
| Curation Facility                             |     | 7,574,000.00     |    | 10,419,885.06                   |
| Lewis River Confluence Restoration            |     | 11,036,400.00    |    | 15,183,261.08                   |
| Community Connector (Vancouver)               |     | 25,600,120.00    |    | 35,219,211.49                   |
| Total "Extras" - Washington                   |     | 50,421,200.00    |    | 69,366,663.37                   |
| Total Extrac                                  | •   | 102 151 200 00   | ¢  | 140 522 000 40                  |
| Total Extras                                  | \$  | 102,151,200.00   | \$ | 140,533,900.49                  |

Note - Bike Pedestrian Walkway Costs on ACTUAL bridge not reflected here.

# EXHIBIT M ECONOMIC VALUE OF TOLLS ON SW WASHINGTON COMMUTERS

| Total Tolling<br>Revenue | Southwest<br>Washington                 | <br>onomic Value -<br>Over 30 Years | Eco | Annual<br>onomic Value |
|--------------------------|---|-------------------------------------|-----|------------------------|
| 3,353,969,345            | 25%                                     | \$<br>838,492,336                   | \$  | 27,949,745             |
| 3,353,969,345            | 35%                                     | 1,173,889,271                       |     | 39,129,642             |
| 3,353,969,345            | 50%                                     | 1,676,984,673                       |     | 55,899,489             |
| 3,353,969,345            | 60%                                     | 2,012,381,607                       |     | 67,079,387             |
| 3,353,969,345            | 75%                                     | 2,515,477,009                       |     | 83,849,234             |
| Total Tolling<br>Revenue | % Trips from<br>Southwest<br>Washington | onomic Value -<br>Over 30 Years     | Eco | Annual<br>onomic Value |
| 4,000,000,000            | 25%                                     | \$<br>1,000,000,000                 | \$  | 33,333,333             |
| 4,000,000,000            | 35%                                     | 1,400,000,000                       |     | 46,666,667             |
| 4,000,000,000            | 50%                                     | 2,000,000,000                       |     | 66,666,667             |
| 4,000,000,000            | 60%                                     | 2,400,000,000                       |     | 80,000,000             |
| 4,000,000,000            | 75%                                     | 3,000,000,000                       |     | 100,000,000            |