

# The Alaskan Way Viaduct & Seawall Replacement Program



## Central Waterfront

**Alaskan Way Viaduct  
Stakeholder Advisory Committee**

**Cost, Construction and Funding  
Nov. 20, 2008**

## **What is a cost estimate?**

- Used industry standards
- Developed conceptual estimates with allowances
- Added contingencies, risk and inflation

## Cost Estimating Development

WSDOT, King County and the City of Seattle worked together to develop the cost estimates.

- Submitted cost estimates
- Assembled and standardized the information
- Conducted a risk workshop
- Reviewed and concurred with building block costs
- Next steps: estimate hybrid(s)

# Preliminary Cost Estimates

# **Create solutions that are fiscally responsible.**

**Guiding Principle 5, Measure 1:**  
Estimate capital cost and operating cost.

## SR 99 Building Blocks



- Elements included in cost estimates for SR 99:
  - Demolition and removal of structure.
  - For surface options this includes proposed Alaskan Way and Western Avenue configurations.
  - For bypass options this includes the bypass element as well as proposed waterfront surface street configurations.
  - Waterfront streetcar where it was built into the configuration for the waterfront.
  - Central seawall from S. Washington Street to Pine Street.
  - Utility relocation necessary to perform construction.

# SR 99 Building Blocks



<b>Waterfront SR 99 Capital Costs*</b>	
A: Surface Boulevard	\$800 million
B: Surface Boulevard	\$800 million
C: Surface Couplet	\$900 million
D: Independent Elevated	\$1.6 billion
E: Integrated Elevated	\$2.2 billion
F: Bored Tunnel	\$3.5 billion
G: Cut & Cover Tunnel	\$2.7billion
H: Lidded Trench	\$1.9 billion
<b>Operating Costs**</b>	\$3 to \$10 million

## Cost Estimates:

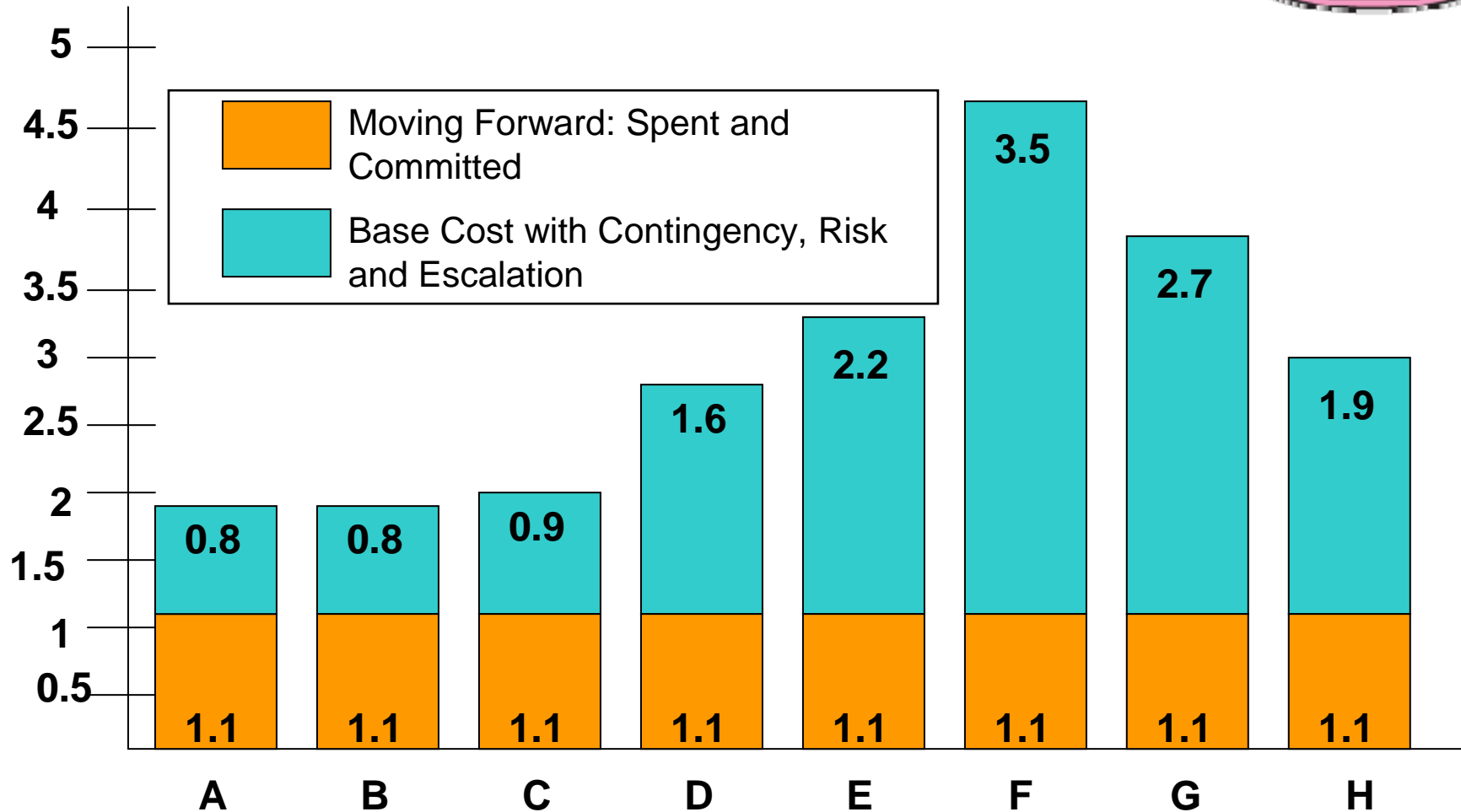
- Reflect a “construction efficient” approach.
- Increase by approximately 10% if a “traffic efficient” approach is taken.
- Capital costs escalated to year of expenditure.
- Scenario E costs do not include the development of commercial space, tenant improvements or right of way acquisition costs.

\*Capital costs, which includes base cost, cost for allowances, contingencies, risks, and inflation. SR 99 capital costs on this slide do not include 1.1 billion for Moving Forward projects and prior expenditures. Includes the costs for central seawall and utilities relocation.

\*\*Annual operating costs are in 2008 dollars.

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# SR 99 Costs\*



\*Capital costs, which includes base cost, cost for allowances, contingencies, risks, and inflation.

# I-5 Building Blocks



Cost Estimate Range		
	Low	High
<b>Concept-level cost estimate*</b>	\$195 million	\$498 million
	Minimal pavement and structural improvements required included.	
<b>Example building blocks</b>	<ul style="list-style-type: none"> <li>• Manage southbound HOV lane</li> <li>• Active traffic management</li> <li>• Change reversible lane ramps use</li> </ul>	<ul style="list-style-type: none"> <li>• Northbound managed lane</li> <li>• Second northbound lane to I-90 collector/distributor</li> <li>• Transit ramps at Industrial Way</li> </ul>
<b>Annual operating costs**</b>	No significant increase in operation cost	No significant increase in operation cost

\*Capital costs, which includes base cost, cost for allowances, contingencies and risks, and inflation.

# Surface Street Building Blocks



	Cost Estimate Range	
	Low	High
<b>Concept-level cost estimate*</b>	\$205 million	\$378 million
<b>Example building blocks</b>	<ul style="list-style-type: none"> <li>• Two-way Mercer between I-5 and Elliott (partial funding)</li> <li>• Spokane Street Viaduct Widening (partial funding)</li> <li>• Stewart/Olive/Howell transit lanes</li> </ul>	<ul style="list-style-type: none"> <li>• Qwest Field north lot arterial</li> <li>• SR99/Aurora transit lanes (Denny to 205th)</li> <li>• Widen Denny Way from Sixth to Eighth Avenue</li> </ul>
<b>Annual operating costs**</b>	No significant increase in operation cost	No significant increase in operation cost

\*Capital costs, which includes base cost, cost for allowances, contingencies and risks, and inflation. Reflects partial funding for Mercer Street, Spokane Street, and East Marginal Way projects required to fully fund projects.

# Streetcar Building Blocks



	Cost Estimate Range	
	Low	High
<b>Concept-level cost estimate*</b>	\$0 million	\$641 million
<b>Example building blocks</b>	<ul style="list-style-type: none"><li>• No additional streetcar service</li></ul>	<ul style="list-style-type: none"><li>• First Avenue</li><li>• U-District</li><li>• Fremont-Ballard</li></ul>
<b>Annual operating costs**</b>	\$0 million	\$26 million

\*Capital costs, which includes base cost, cost for allowances, contingencies and risks, and inflation.

\*\*Annual operating costs are in 2008 dollars.

# Transit Building Blocks



	Cost Estimate Range	
	Low	High
<b>Concept-level cost estimate*</b>	\$135 million	\$476 million
<b>Example building blocks</b>	<ul style="list-style-type: none"> <li>• Rapid Trolley network improvements</li> <li>• Expanded local service</li> </ul>	<ul style="list-style-type: none"> <li>• New RapidRide – Delridge and Lake City</li> <li>• Enhanced RapidRide – Ballard, Aurora, West Seattle, Pacific Hwy</li> <li>• Added peak express service</li> </ul>
<b>Annual operating costs**</b>	\$9 million	\$60 million

\*Capital costs, which includes base cost, cost for allowances, contingencies and risks, and inflation

\*\*Annual operating costs are in 2008 dollars.

# Policies and Management



	Cost Estimate Range	
	Low	High
<b>Concept-level cost estimate*</b>	<b>\$4 million</b>	<b>\$24 million</b>
<b>Example building blocks</b>	<ul style="list-style-type: none"> <li>• Parking programs</li> <li>• Bike commuter training</li> <li>• Transit pass incentives</li> <li>• FlexPass incentives</li> </ul>	<ul style="list-style-type: none"> <li>• Parking pricing by real time demand</li> <li>• Required transit passes</li> <li>• Community telework sites</li> <li>• On-going fare discounts</li> <li>• Tolling***</li> </ul>
<b>Annual operating costs**</b>	<b>\$2 million</b>	<b>\$36 million</b>

\*Capital costs, which includes base cost, cost for allowances, contingencies and risks, and inflation.

\*\*Annual operating costs are in 2008 dollars.

\*\*\*Operating and capital costs to be covered through tolling revenue.

## Mitigation Costs

- Over \$500 million already committed to construction traffic mitigation from the State, County and City
  - Mitigation included in the Moving Forward projects
  - Dynamic message and travel time signs on I-5
  - Mercer Corridor Project and Spokane Street Viaduct Widening Project
  - New bus and RapidRide service in West Seattle, Ballard/Uptown, Aurora Avenue
  - Upgraded traffic signals and message signs on north-south arterials
  - Information about travel alternatives
- Additional mitigation will be identified after hybrid scenarios are developed

# Construction Analysis

## **SR 99 Construction Periods: Assumptions**

- Construction schedules and durations shown for SR 99 are approximate; potential links to non-SR 99 projects are not included.
- Construction start dates are reliant on:
  - Funding
  - Permitting
  - Building block construction schedules

## Major Construction on SR 99

- What is included in the “major construction” period?
  - All scenarios include utility relocation, removal of the viaduct, seawall reconstruction, Battery Street Tunnel reconstruction and needed connections.
  - Scenarios C, E and F also include rebuilding Western Avenue.
  - Scenarios D and E also include a new elevated structure.
  - Scenarios G and H also include a new cut-and-cover structure.
  - Scenario F also includes a bored tunnel.

# SR 99 Construction Periods

## SR 99 Construction

Construction Efficient	A	B	C	D	E	F	G	H
Total Construction Period (years)	5	5	5.5	6.5	7	9.5	6.5	6
Major Construction (years)	4	4	4.5	5	5.5	5.5	6	5
SR 99 Detour (years)	2	2	2	3	3.5	.5	4	3

# SR 99 Construction Periods

## SR 99 Construction

Traffic Efficient	A	B	C	D	E	F	G	H
Total Construction Period (years)	5.5	5.5	5.5	8.5	8.5	9.5	8	6.5
Major Construction (years)	4.5	4.5	4.5	7	7.5	5.5	7.5	6.5
SR 99 Detour or Closure (years)	2	2	2	3.5	4	0	3.5	3

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# SR 99 Construction Periods: Construction Efficient Example

CONSTRUCTION EFFICIENT - CE		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>C</b> <small>CE</small>	Surface St.Couplet-Scenario C-NB										
	Surface St.Couplet-Scenario C-SB										
<b>D</b> <small>CE</small>	Elevated Struct. -Scenario D-NB										
	Elevated Struct.-Scenario D- SB										

Legend:

- SR 99 - Open
- SR 99 - Reroute- Moderate Traffic Impact
- SR 99 - Reroute- Significant Traffic Impact
- SR 99 - Closed

◆ - Existing Viaduct Closure for Demolition

☒ Scenario E does not include any construction time or traffic impact for joint development of commercial spaces

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# SR 99 Construction Periods: Traffic Efficient Example

TRAFFIC EFFICIENT - TE		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>C</b> <small>TE</small>	Surface St. Couplet-Scenario C- NB										
	Surface St. Couplet-Scenario C- SB										
<b>D</b> <small>TE</small>	Elevated Struct.-Scenario D- NB										
	Elevated Struct.-Scenario D-SB										

Legend:

- SR 99 - Open
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## SR 99 Construction: Key Findings

- Scenarios that include bypass options (D, E, G, H), have longer impacts on SR 99 traffic during construction.
- Scenario F has a substantially longer overall construction period, but is less disruptive than other bypass options on SR 99 traffic. Disruptions on the central waterfront in Scenario F are similar to other surface scenarios.

## **SR 99 Construction: What Did We Learn?**

- Traffic efficient construction approaches can extend the period of total and major construction up to two years.
- Extending the construction period increases the total project costs.

# Funding

# Create solutions that are fiscally responsible.

## **Guiding Principle 5, Measure 2:**

Identify available and potential funding and impacts to the State of Washington's bond rating.

## Alaskan Way Viaduct Funding

- Funding commitment based on 2006 elevated structure cost estimate
- New approach required to fund systems solution:
  - I-5
  - Surface Streets
  - Transit
  - Transit Policy and Management

## Current Funding Sources

- **2005 Gas Tax (Partnership) - \$1.56 Billion**
  - **2003 Gas Tax (Nickel) - \$251.4 Million**
  - **2005 Federal Earmark Funds - \$205.4 Million**
  - **Federal Bridge Funds - \$72.6 Million**
  - **Other Funds - \$301.5 Million**
    - \$247.4 million in other state funding,
    - \$5.3 million from the City of Seattle
    - \$48.8 million of Federal Emergency Repair Fund

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  - **Total Funding Available - \$2.39 Billion**
- ❖ State's contribution up to \$2.8B (Guiding Principle #5)

## Understanding Funding

- What is the source?
- Who is eligible to receive the funds?
- What can the funding be used for?
  - Gas tax funds are designated for highway purposes and construction related impacts
  - Uses governed by 18<sup>th</sup> Amendment of WA State Constitution
  - Transit eligible during construction only
- What is the level of funding?
- Is there existing authority for this funding?

## Funding Options

- Examples include:
  - Federal Highway Administration
  - State Motor Vehicle Fuel Tax
  - Tolling
  - State Municipal Account
  - Commercial Parking Tax
  - Federal Transit Administration
  - Local Improvement District