Seattle’s Transportation Inventory

- Seattle’s transportation facilities have a replacement value of over $13 billion (2010 Asset Mgmt report)
  - Replacement value rose over 65% from pre-BTG levels
    - Reflects construction cost increases
    - Better asset management information
    - Growth in transportation facilities and equipment
  
  - Pavement, Roadway Structures and the Ped/Bike system are largest asset classes
  
  - Roadway Structures make up over 33% system value
    - Includes bridges, retaining walls and areaways
SDOT Maintenance Needs

• Transportation deferred maintenance backlog is estimated at over $1.8 billion (2010 estimate)
  o Maintenance backlog continues to grow
    ▪ ‘Bridging the Gap’ did not fill the gap
    ▪ Base funding declined during recession
    ▪ System has grown increasing maintenance needs

• Roadway structures maintenance backlog is over $1 B

• City should spend about $190 million on maintenance each year to prevent backlog from growing
  • Currently spend about $40 to $50 million a year
Agenda – Bridge Management

• Bridge Inventory

• Bridging the Gap

• Condition

• Inspection

• Age

• Replacement Needs
SDOT Bridge Inventory

Owned & Maintained

- 103 Bridges
- 122 Segment

Partially Owned and/or Maintained

- 32 Bridges

2.5 Billion Replacement Value
### Inventory Changes

**2010**

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Action</th>
<th>Area (SF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROYAL BROUGHAM /RR</td>
<td>ADDED</td>
<td>35,298 SF</td>
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</tbody>
</table>

**2011**

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Action</th>
<th>Area (SF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE 45TH ST VIA - W APPR</td>
<td>REMOVED</td>
<td>-20,559 SF</td>
</tr>
<tr>
<td>E MARGINAL WAY &amp; HORTON</td>
<td>REMOVED</td>
<td>-27,888 SF</td>
</tr>
<tr>
<td>S SPOKANE, 4TH AVE RAMP</td>
<td>ADDED</td>
<td>48,407 SF</td>
</tr>
</tbody>
</table>

**2012**

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Action</th>
<th>Area (SF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPOKANE ST VIADUCT</td>
<td>WIDENING</td>
<td>138,224 SF</td>
</tr>
<tr>
<td>E MARGINAL GRADE SEPARATION</td>
<td>ADDED</td>
<td>30,815 SF</td>
</tr>
<tr>
<td>THOMAS ST PED</td>
<td>ADDED</td>
<td>11,306 SF</td>
</tr>
<tr>
<td>S SPOKANE, 1ST AVE RAMP</td>
<td>ADDED</td>
<td>36,840 SF</td>
</tr>
</tbody>
</table>

**Net Deck Area:**  
+ 252,443 SF  
8.0%
Completed
• E Duwamish Waterway—Deck Replacement
• Jose Rizal - Rehabilitation
• Fauntleroy Expressway – Seismic Retrofit
• E Marginal Way @ Horton St – Filled
• 15\textsuperscript{th} Ave NE & NE 105\textsuperscript{th} – Rehabilitation
• 45\textsuperscript{th} St Viaduct – West Approach Filled
• Albro /Airport – Seismic Retrofit

In construction
• Airport Way /Argo - Replacement
• King St Station Bridges – Seismic Retrofit
• Ballard Bridge Seismic – Seismic Retrofit
Sufficiency Rating

Sufficiency Rating (SR) is a value that indicates a bridge’s sufficiency to remain in service. The value of 100 percent represents a new bridge in good condition and zero percent represents a bridge in poor condition.

SR determines Federal funding eligibility:
- SR < 80 Rehabilitation Candidates
- SR < 50 Replacement Candidates

Average SR of All Bridges

30% of SDOT bridges have SR < 50 with a replacement value of $945M
Structurally Deficient

SD: Typically needs maintenance and repair and eventual rehabilitation or replacement to address deficiencies. An SD bridge is often posted with reduced weight limits.

SDOT has
- 10 SD Bridges - Replacement Value is $392M
- 7 Load Restricted Bridges - Replacement Value $446M

E Interlaken Boulevard – Restricted to 16 Tons

Load Restricted Sign
System Condition & Cost over Time

- Excellent
- Good
- Fair
- Poor
- Very Poor

- 40% Quality Drop
- 18% Time
- 75% Time

Each $1 in repair cost here...

Will cost $3 - $7 if delayed to here
Bridge Condition

**SDOT**
- Good: 59%
- Fair: 36%
- Poor: 5%

**WSDOT**
- Good: 86%
- Fair: 9%
- Poor: 5%

**Counties**
- Good: 84%
- Fair: 12%
- Poor: 4%

**Cities**
- Good: 77%
- Fair: 16%
- Poor: 7%
Functionally Obsolete

Geometry, clearances, load capacity do not meet current standards

Although FHWA’s focus on FO as it relates to vehicle travel, SDOT has begun collecting data on how well bikes and pedestrians are accommodated on bridges

SDOT has 43 FO Bridges
Inspection Program

Keep Seattle Bridges Safe

- 122 Routine
- 27 UBIT
- 14 Fracture Critical
- 2 Boat
- 2-3 Underwater
- 5 Special
- Post Earthquake
62 Bridges over 60 years old, replacement cost is $1.5 B
Design Life

Replacement Value

- Past Design Life: $1,408,800,000
- Approaching Design Life: $238,100,000
- New: $806,600,000

2nd Ave Ext, Age 84
Maintenance Budget

Preservation is part of the solution

Bridge Maintenance Budget

<table>
<thead>
<tr>
<th>Year</th>
<th>Budget</th>
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</thead>
<tbody>
<tr>
<td>2007</td>
<td>$2,800,000</td>
</tr>
<tr>
<td>2008</td>
<td>$2,700,000</td>
</tr>
<tr>
<td>2009</td>
<td>$2,600,000</td>
</tr>
<tr>
<td>2010</td>
<td>$2,500,000</td>
</tr>
<tr>
<td>2011</td>
<td>$2,400,000</td>
</tr>
<tr>
<td>2012</td>
<td>$2,300,000</td>
</tr>
</tbody>
</table>

Jose Rizal Maintenance
Replacement is critical to maintaining the function of our transportation system

- Load Restriction – limits freight mobility
- Bridge Closure – adds economic cost due to delay and detours

Magnolia Bridge
Other Funding

Map 21
• BRAC: Bridge Replacement Advisory Committee

BRAC does not address large projects
   Magnolia - $300 million plus
   King Street Station Bridges - $100 million plus
Questions?