



3.1.a Based on current funding levels, control the percent of State and local bridges in poor condition from increasing over 10% by 2017

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Washington State Department of Transportation

Moving Washington Forward

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Overview:

- Bridge Preservation and Maintenance
 - State Bridges
 - Local Bridges

- Washington State Ferry Vessel and Terminals
 - WSF Vessel Preservation and Maintenance Program
 - WSF Terminal Preservation and Maintenance Program

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3.1.a. Control the percent of state and local bridges in poor condition from increasing over 10% by 2020

Background:

Asset Replacement Value for state-owned bridges on the NHS is estimated at \$50.9 billion

- Based on 80-year replacement cycles, WSDOT would need approximately \$727 million annually to keep up with the replacement cycle for these bridges
- Because of ongoing timely maintenance and preservation activities:
 - These bridges are maintained for much less than \$727 million per year and;
 - The service life may be extended beyond the 80-year replacement cycle
- There are 131 bridges over 80 years old on the state portion of the NHS which have a replacement value of \$1.9 billion
- Statewide, nearly 600 bridges need some seismic retrofitting
 - 85 of the 600 are on the “Lifeline route” & require an estimated \$161 million investment

WSDOT owns 3,294 bridges statewide;
 2,259 (69%) are on the national highway system
 As of June 2016

	State-owned bridges	
	Total	NHS
Number of bridges	3,294	2,259
Percent of deck area in fair or better condition	91.2%	90.8%
Number of bridges 80 years or older	223	131
Number of bridges 100 years or older	6	2
Number of bridges load restricted or posted	126	60

Data source: WSDOT Bridge and Structures Offices.



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Background:

Bridges and the economy:

Freight moved into, out of, within and through Washington

- 437 million tons moved by all modes in 2015
- Trucks moved 64.4% (281 million tons) of all freight in Washington by weight, with a total value of \$372 billion
 - On average, 771 thousand tons of freight valued at approximately \$1 billion moves on Washington roadways every day

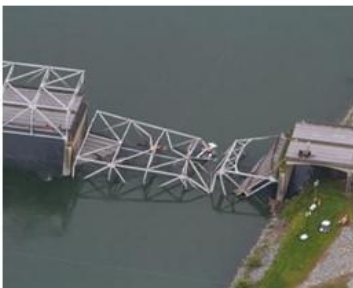
US International trade to and from Washington

- Total US International imports and exports to and from Washington by all modes valued at \$137.5 billion in 2015
 - \$79 billion in exports originates from Washington state
 - \$8 billion in exports passes through Washington state
 - \$51 billion in imports passes through Washington state

Background:

Bridges and the economy:

- I-5 Skagit River bridge collapse
 - I-5 is a major arterial for freight crossing the Canadian border
 - Fourth-busiest land port of entry on the northern US border in 2015
 - Goods moving over the bridge in 2012 valued at \$14 billion
 - Estimated direct cost from road users was estimated at \$8.3 million
 - Average weekday truck volume on the bridge prior to the collapse was 9,253; average weekday truck volume on the three detour routes after the collapse and before the temporary bridge replacement was 7,334



Bridge Preservation and Maintenance

Control the percent of state and local bridges (on the National Highway System) in poor condition from increasing over 10% by 2020

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WSDOT Bridge and Structures Office

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WSDOT Local Programs Division



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3.1.a. Control the percent of state and local bridges in poor condition from increasing over 10% by 2020

Current State: *Goal met!*

Washington achieves goal of keeping structurally deficient bridge deck area below 10% statewide
As of June 2016; Percent of bridge deck area considered structurally deficient (SD); Deck area in millions of square feet

	National Highway System		Statewide	
	Deck area ¹	Number of bridges	Deck area ¹	Number of bridges
WSDOT owned	44.4	2,259	53.5	3,294
<i>Amount SD (%)</i>	4.1 (9.2%)	99	4.7 (8.8%)	154
Locally owned²	4.6	189	17.8	4,041
<i>Amount SD (%)</i>	0.5 (10.0%)	19	1.2 (7.0%)	188
Total	49.0	2,448	71.3	7,335
<i>Amount SD (%)</i>	4.6 (9.3%)	118	5.9 (8.3%)	342

Data source: WSDOT Bridge and Structures Office and WSDOT Local Programs Office.
Notes: Structurally deficient is equal to the state's poor condition rating.
1 Due to rounding, some percentages are not computable based on numbers in the table. 2 Bridges owned by counties and cities.

- In 2016, 9.2% of WSDOT owned bridges by deck area and 10.0% of locally owned bridges by deck area on the National Highway System are in poor condition, or structurally deficient*
- Combined, 9.3% of NHS bridges by deck area are in poor condition
- Both WSDOT owned and locally owned bridges by deck area in poor condition is higher than in 2015
- Once the 520 bridge and the Alaskan Way Viaduct are complete, the state-wide percent of bridges in poor condition by decrease by nearly 2%

*Poor condition, or structurally deficient, does not mean the bridge is unsafe; it indicates that one or more components requires repair or preservation

Problem/Opportunity:

Connecting Washington opportunities:

- \$1.2 billion is allocated to state highway preservation, which includes pavement, bridges and traffic operations
 - Applying asset management principles across assets to maximize benefits to the transportation system.
- Three bridge preservation projects have been identified for funding from the revenue package
- Funding will help address the most critical needs for bridges



Connecting Washington challenges:

- Funding will not eliminate WSDOT’s list of structurally deficient (poor condition) bridges
 - Funding should allow WSDOT to maintain the number of structurally deficient bridges at or under 10% for approximately 10 years
- Available funding does not cover the projected 10-year preservation needs gap of \$1.5 billion

Problem/Opportunity:

Preservation needs:

- Current 10-year need for bridge preservation activities is estimated at \$2.7 billion
 - The bridge preservation program has a projected 10-year funded level of \$1.19 billion
 - The remaining predicted 10-year need is anticipated to be \$1.5 billion, which is currently unfunded



I-5 Nisqually River Bridge near Olympia
Painted in 2014

Concrete bridge deck preservation will be WSDOT’s largest bridge need in the next 10 years

2016 through 2026; Dollars in millions

Category	Current projected funding level	Projected additional needs	Total 10-year needs ¹
Border bridge preservation ²	\$81.2	N/A ³	\$81.2
Bridge element repairs	\$26.5	\$85.9	\$112.4
Expansion joint preservation ⁴	\$250.5	\$155.2	\$405.7
Movable bridge preservation ⁴	\$39.6	N/A ²	\$39.6
Concrete deck preservation	\$115.6	\$726.5	\$842.1
Steel painting	\$414.5	\$292.1	\$706.6
Bridge rehab or replacement	\$255.7	\$227.8	\$483.5
Bridge scour	\$9.5	\$20.0	\$29.5
Total	\$1,193.1	\$1,507.5	\$2,700.6

Data source: WSDOT Bridges and Structures Office.

Notes: **1** Total 10-year needs is the sum of the current projected funding level and projected additional needs **2** Border bridge preservation is the highest funding priority and includes work from other preservation categories in the table. **3** N/A = Not applicable; the predicted additional preservation need has not been defined. **4** Categories are separate to highlight specific bridge element repairs.

Problem/Opportunity:

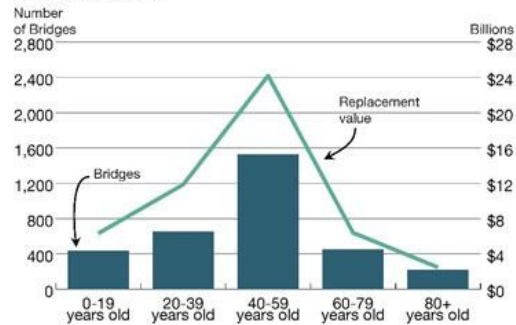
Replacing aging structures:

- The estimated average cost to replace a bridge over 80 years old is approximately \$11 million.
- Northbound I-5 Columbia River Bridge is 100 years old
 - Future replacement costs to be shared between Oregon and Washington



SR99 – Entrance to new Alaskan Way Tunnel

Replacing WSDOT's 223 bridges that are 80 years or older would cost \$2.5 billion over the next 20 years
As of June 2016; Number of bridges by age; Replacement value in billions of dollars



Data source: WSDOT Bridge and Structures Office.
Notes: The graph shows WSDOT-owned bridges only. Replacement value describes the cost to replace all bridges in each age range.

Strategies:

• Practical Solutions: Asset Management tools

- Data-driven approach to manage assets, improve the performance of the multimodal transportation system
- Operate and maintain bridges to meet performance objectives at the lowest cost
- Example: Instead of replacing a deteriorated bridge deck, WSDOT routinely will repair them and add a concrete overlay to extend their service life at a lower cost which saved approximately \$1.5 billion

• Strategic Preservation activities

- Repainting steel bridges maintains fair or good condition
- Replacing deteriorated bridge elements (anchor cables, expansion joints) extends bridge service life
- Washing steel bridge members to prolong their service life
- Eastern Washington bridge crew to address high priorities
- Resilient Washington – Recommendation #6
 - Strengthen regional transportation networks (Seismic retrofitting/Hardening)

Customer focus:



Chamber Way Bridge Repair & Replacement Project

Alicia Bull, Executive Director

Centralia – Chehalis Chamber of Commerce



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Working with Cities/Counties to maintain bridges:

Overview:

WSDOT assists communities in the successful delivery of transportation projects by providing educational, technical and financial support to cities, counties and other transportation partners such as tribal governments, ports and transit agencies.

Local (City/County) Federal Bridge Program:

- Helps local agencies comply with state and federal performance metrics
 - Provide resources needed at the local level to complete projects
 - Eligible projects selected by the program will be awarded funds in fall 2017
- Bridge Replacement Advisory Committee
 - Provides advice and recommendations to WSDOT to help inform the selection of local bridge projects for funding
 - Made up of representatives from cities and counties with a WSDOT committee chair.
- More than \$70 million was awarded for 32 local agency bridge projects in 2014
- The 2017 call for projects is expected to distribute approximately \$60 million to local agency bridge replacement, preservation and maintenance projects

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Background:

Asset Replacement Value for locally-owned bridges on the NHS is estimated to be \$3.7 billion

- Based on 80-year replacement cycles, WSDOT would need approximately \$46 million annually to keep up with the replacement cycle for these bridges
- Because of ongoing timely maintenance and preservation activities the service life may be extended beyond the 80-year replacement cycle
- There are 33 bridges over 80 years old on the local portion of the NHS which have a replacement value of \$670 million

Local agencies own 4,041 bridges statewide;
189 (5%) are on the national highway system
As of June 2016

	Local-owned ¹ bridges	
	Total	NHS
Number of bridges	4,041	189
Percent of deck area in fair or better condition	94.4%	90.0%
Number of bridges 80 years or older	418	33
Number of bridges 100 years or older	117	12
Number of bridges load restricted or posted	196	14

Data source: WSDOT Bridge and Structures Offices.
Notes: 1 Local agencies include cities and counties.



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Problem/Opportunity:

Local resources:

- Local transportation agencies may not have the necessary resources to complete all aspects of a bridge project
 - Inspector Training and Certification
 - Short span bridges/Culverts

Available funding:

- Limited funding is available to support the preservation needs of local agencies
 - Funding is applied statewide based on data-driven performance
 - \$75 million Asset Management Grant Program for local agencies to incentivize asset management practices

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LITTLEROCK ROAD BRIDGE

Thurston County

**Scott Lindblom, P.E.
Interim Public Works Director**



February 22, 2017

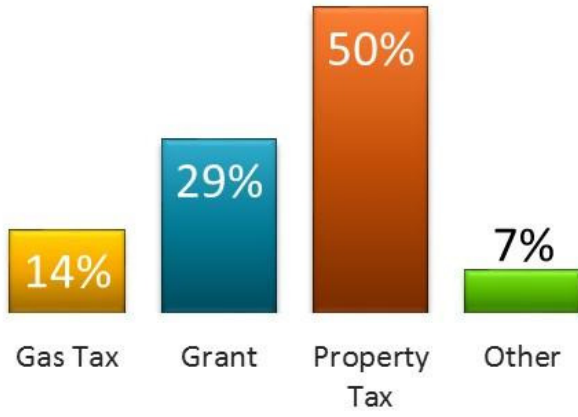


Thurston County Overview:

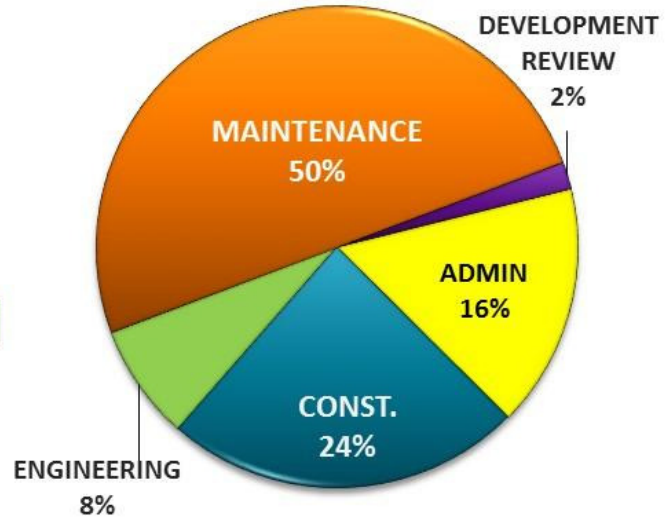


Thurston County Funding:

\$36M Annual Revenue



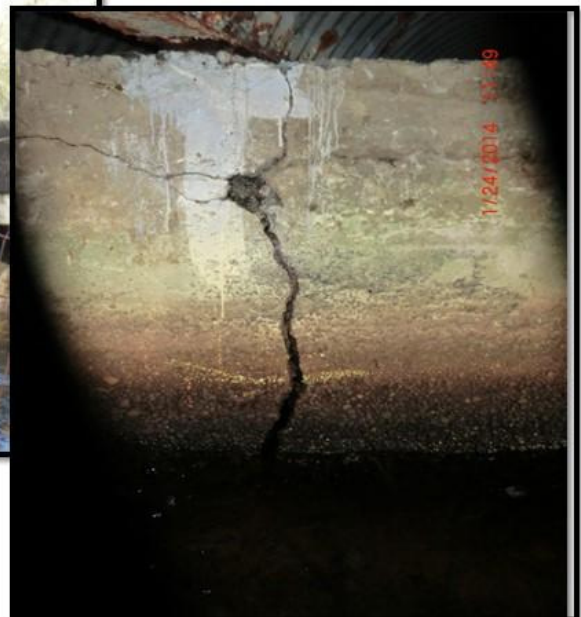
Annual Expenditures



Littlerock Road Bridge (L-4):



Crack in Pier

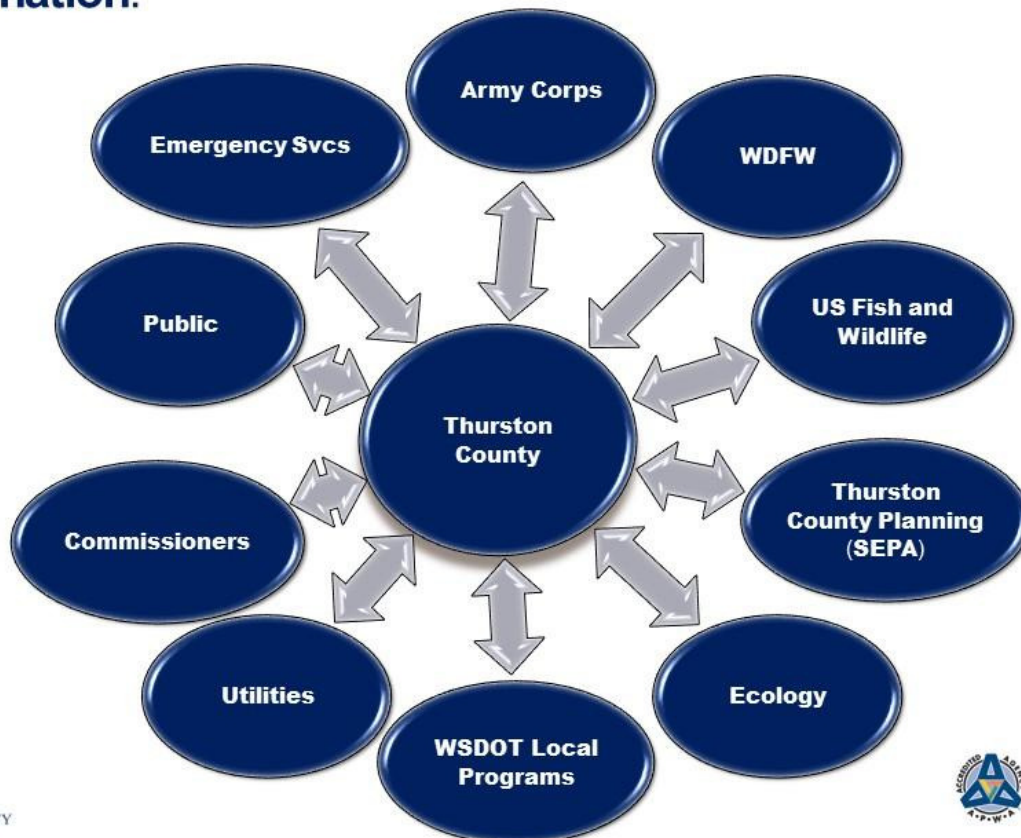


Funding:

Dates	Monday	Tuesday	Wednesday	Thursday	Friday
Jan. 20-24					Bridge Closed
Jan. 27-31	Local Programs Meeting	Update Bridge Inventory	Early Funding Request	Funding Secured	




Coordination:



Construction:



Outcome:

Littlerock Road Bridge Replacement (L-4)

- *Ahead of schedule*
- *Under budget*



Assistance Needed:

- Thank you for your support:
 - Connecting Washington Transportation Funding package
 - \$75 million Asset Management Grant Program for local agencies to incentivize asset management practices
- Continued support for:
 - Practical Solutions: Asset Management
 - Project Prioritization
 - Workforce Development
 - Prepared to respond to situations such as Skagit, Chamber Way, Thurston County
 - 2016 Recruitment and Retention Study
 - Inclusion
 - Local Partnerships & Community Engagement
 - Resilient Washington - Recommendation 6:
 - Strengthen regional transportation networks

