3.1.b: Supplemental - Based on current funding, control the percent of state and local pavements in poor condition

PAVEMENT PRESERVATION AND MAINTENANCE

Washington State Department of Transportation

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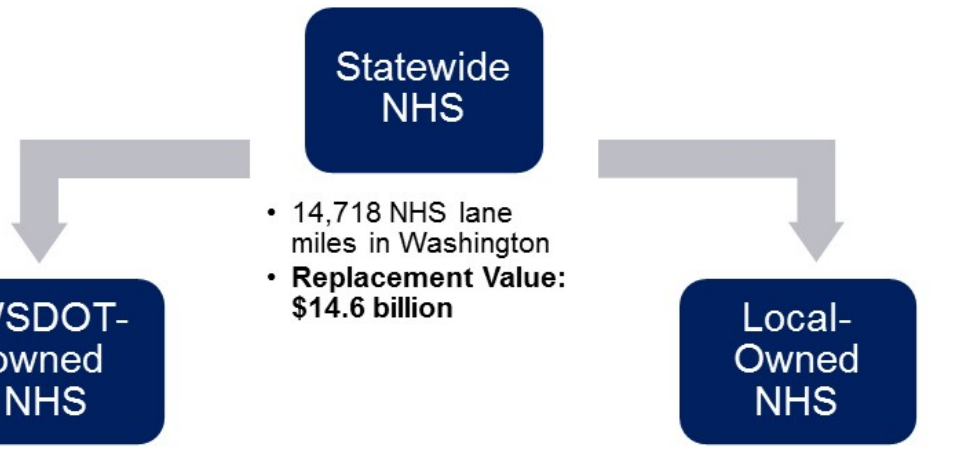
Background: Pavement and the Economy

- **Getting people to work:** In 2015, 82.2% of Washington workers over the age of 16 commuted to work by driving alone or carpooling; many commuters using other methods (public transit, bicycling) would also have traveled on paved roads
- **Getting goods to markets:** Washington is a highly trade-dependent state; in 2015 freight-dependent industries supported 1.4 million Washington jobs and generated $550 million in gross business income
- Trucks move an estimated **$42 million** of freight on roadways in Washington state **every hour of 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

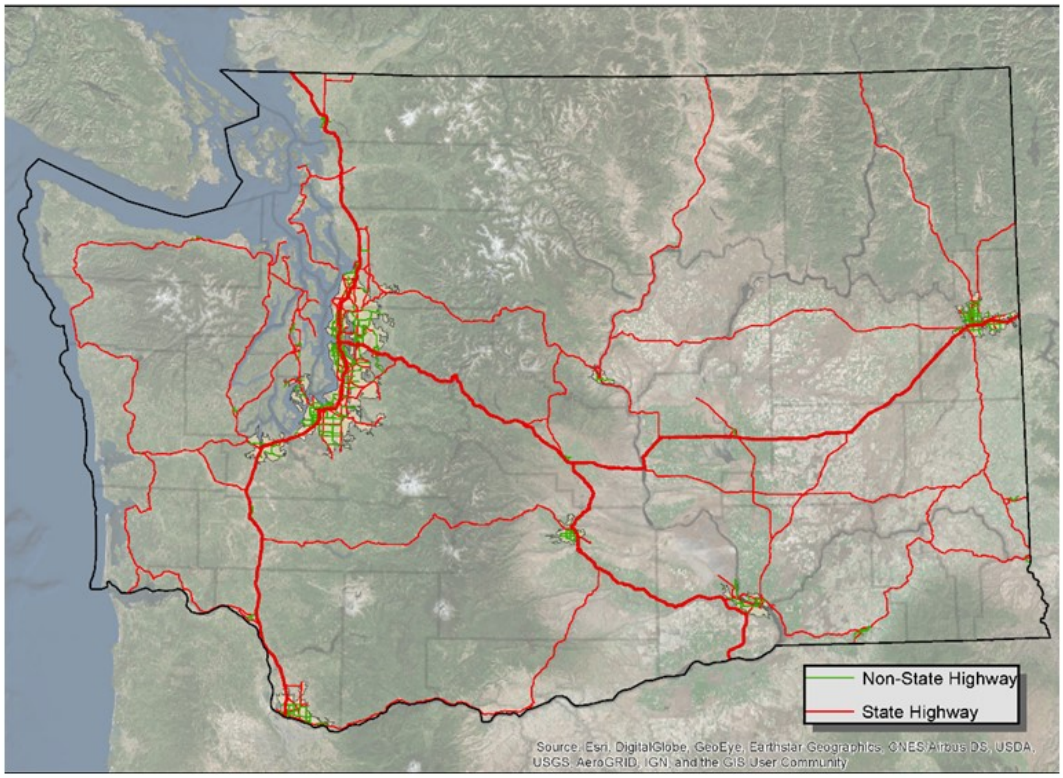
Data sources: American Community Survey, *Gray Notebook* 64, WSDOT Rail Freight & Ports Division, Washington State Department of Commerce

Background: What is the National Highway System (NHS)?

- The **NHS** is a network of strategic highways **designated by the Federal Highway Administration** within the United States, and includes both state and local highways as well as roads serving major airports, ports, rail and/or truck terminals, and other transport facilities.



Background: What is the National Highway System (NHS)?



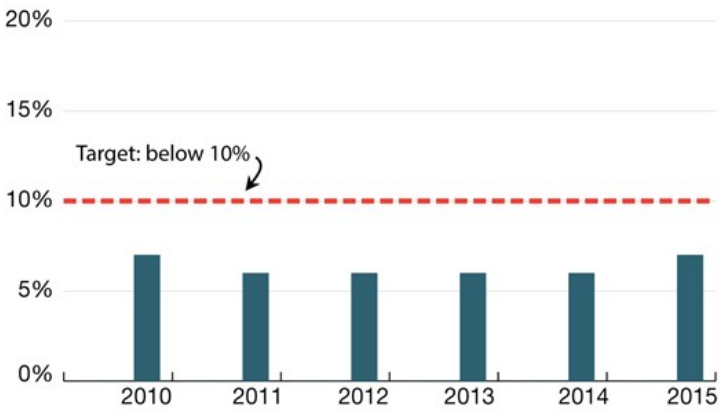
Goal 3.1.b applies only to pavement on the National Highway System (NHS)

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

Current State of Pavement Asset Conditions: *On Plan!*

As of 2015, ***7% of NHS pavement in Washington*** *was in poor condition*

Percent of pavement on the NHS in Poor Condition
All NHS pavement in Washington state



Data source: WSDOT Pavement Office

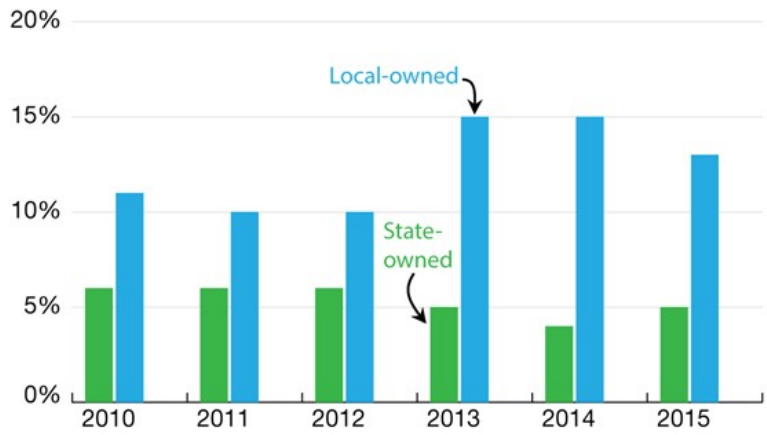
Problem/Opportunity: State-owned NHS pavement in poor condition under 10% but increasing; local-owned over 10% but decreasing

As of 2015:

- 5% of state-owned NHS pavement was in poor condition (up from 4% in 2014)
- 13% of local-owned NHS pavement was in poor condition (down from 15% in 2014)

Percent of pavement on the NHS in Poor Condition

Separated by state-owned and locally-owned



Data source: WSDOT Pavement Office

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

Strategy 1: *Coordinating With Local Agencies*

WSDOT's Local Programs office

- Administers federal grant programs including the National Highway Performance Program and the Surface Transportation Program
- Provides a coordinated technology transfer program that is responsive to local agencies in partnership with WSDOT and FHWA

Target-Setting Collaboration Under Map-21

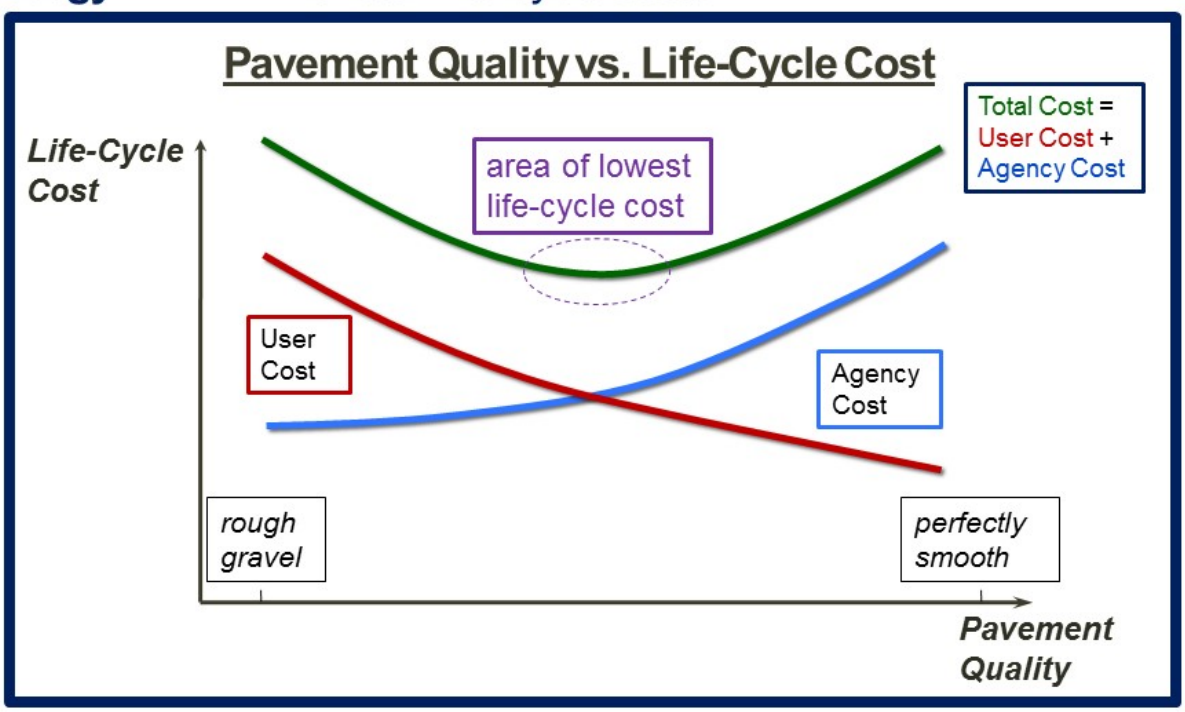
- Federal rules released under the Moving Ahead for Progress in the 21st Century Act (MAP-21) require states to coordinate with local agencies to set pavement performance targets for NHS roadways

- In anticipation of this rule, WSDOT collaborated with Washington state Metropolitan Planning Organizations (MPOs) to create teams to work on target-setting

Strategy 1 a: *Incentivize Local Agency Asset Management*

- **WSDOT has developed a grant funding program to collaborate with local agencies on pavement asset management, which will:**
  - Evaluate a local agency's use of a pavement management system
  - Evaluate the local agency's roadway system funding level
  - Emphasize pavement rehabilitation over reconstruction to focus on cost-effectiveness
- Approximately $75 million is expected to be distributed through this program via two calls for projects
  - **First Call for Projects:** May 19, 2017
    - WSDOT's Local Programs Office will award $30-$40 million
    - Applications are limited to 103 local agencies with NHS roadways
  - **A second Call for Projects** will award the remainder of the funding in 2018-2019

Strategy 2: *Minimize Total Life-Cycle Costs*



User Costs: Wear and tear on vehicles; drivers pay an estimated **$623** extra per year due to driving on Washington roads in need of repair (per August 2016 TRIP report: http://tripnet.org/docs/Fact_Sheet_WA.pdf)

Agency Costs: Engineering, Construction (materials, equipment, and labor), Traffic Management

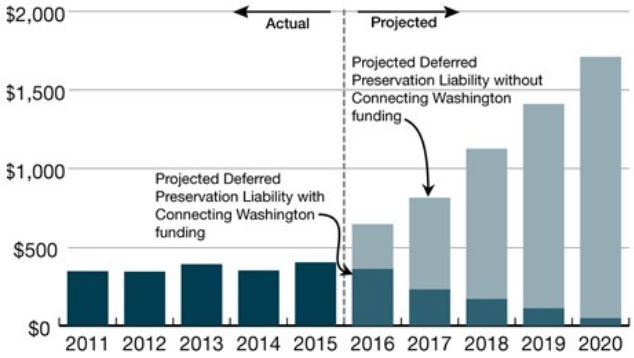
Problem/Opportunity: Connecting Washington funding package

Connecting Washington allocates $1.2 billion over 16 years to state highway preservation, which includes **pavement**, **bridges and traffic operations**

- This funding is expected to allow WSDOT to keep the percent of state-owned NHS pavement in poor condition steady, avoiding a drastic reduction in the condition of the pavement network

WSDOT's Deferred Preservation Liability expected to decline with Connecting Washington funding

2011 through 2020; Dollars in millions; Projections based on agency budget assumptions for pavement



Data source: WSDOT Materials Lab.

Notes: Deferred Preservation Liability is defined as the funding necessary to address past due pavement rehabilitation for all pavement types. WSDOT's goal is to have $0 in Deferred Preservation Liability.

The graph above refers to **state-owned pavement**, approximately 60% of which is on the NHS

Strategy 3 : *Implement Practical Solutions*

- **Practical Design**
  - WSDOT uses the practical design approach to make project decisions that focus on the specific problem that the project is intended to address.
- **Prioritize Cost Effective Projects**
  - WSDOT prioritizes projects so as to avoid reconstruction, emphasize lower annual cost, and take traffic volume into consideration.

Rehabilitation

Reconstruction

Strategy 3 a: *Practical Solutions for Asphalt Pavement*

- **Strategic Pavement Maintenance**
  - Performing maintenance treatments at the appropriate time (before rehabilitation is needed) extends pavement life and lowers annual cost.
  - WSDOT's policy is that no pavement rehabilitation takes place until strategic maintenance has been used to extend pavement life.
  - Strategic maintenance can extend pavement life by as much as four years
  - This policy has been applied to about 40% of WSDOT's asphalt pavement
- **Extending Asphalt Pavement Life by Using Thicker Pavements**
  - WSDOT removes the top two inches of cracked pavement and replaces it with new asphalt
  - Resurfacing while the pavement is still in fair condition allows WSDOT to avoid reconstruction
  - Resurfacing an asphalt roadway instead of reconstructing it saves approximately $14,000 per lane mile annually

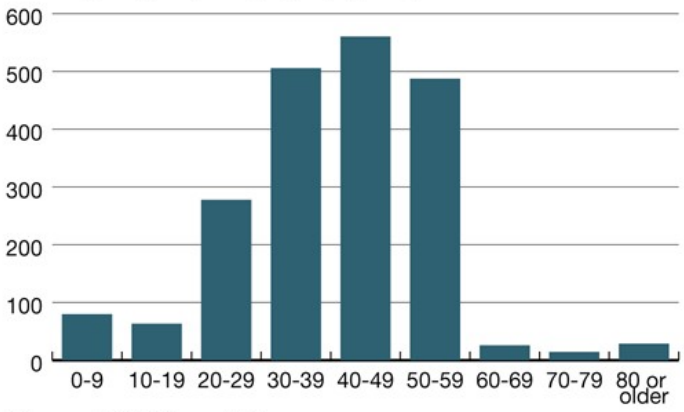
Data Source: WSDOT Pavement Office

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

Problem/Opportunity: *Aging Concrete Pavement*

Over half of concrete pavement over 40 years old

2016; Lane miles of state-owned concrete pavement in Washington grouped by age (in years)



Data source: WSDOT Pavement Office.

Note: Data in graph does not include concrete bridge decks.

50% of Interstate highways in Washington are concrete pavement

- *Over half of concrete lane miles (1,200) are over 40 years old*
- *No more than 10% of WSDOT concrete is expected to remain in acceptable condition beyond the age of 60 years*

Strategy 3 b: *Practical Solutions for Concrete Pavement*

- **Concrete Pavement Plan**
  - WSDOT has drafted **10- and 30-year strategic plans** for the state's concrete pavement network
  - The **10-year plan** identifies specific projects that will need to be completed, and selects the **most cost-effective option** for each project
    - Different methods for reconstructing concrete pavement extend pavement life by differing lengths of time
    - Cost also varies enormously, ranging from $600,000 to $2.5 million per lane mile depending on the method.
    - Not all methods are appropriate in all locations/under all conditions.

Data Source: WSDOT Pavement Office

Strategy 4: *Collaborative Research*

Improved Benefit Estimation for Preservation Methodology Projects

- WSDOT is helping to fund a research project at Washington State University
- The project is expected to help WSDOT improve the way it estimates the economic benefits of preservation pavement projects
- After the research is complete, WSDOT will be better able to prioritize the pavement preservation projects which provide the greatest benefit per dollar spent

Washington State Department of Transportation

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Assistance Needed:

Thank you for your support of:

Connecting Washington Transportation Funding Package

We would appreciate your continued support in communicating the importance of preserving the pavement network in Washington state

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