THE STATE OF GOOD REPAIR OF THE **STATE'S TRANSPORTATION SYSTEM:** PAVEMENT AND BRIDGES

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Outline

- Overview of Washington's multimodal transportation system
- Asset Management at WSDOT
- Drivers of asset condition
- Pavement State of Good Repair Backlog
- Bridge Outlook
- Key Takeways

Overview of the state's connected, multimodal system

THE STATE'S TRANSPORTATION NETWORK IS A CONNECTED SYSTEM THAT MUST SERVE MANY MODES AND USERS

18,712
Highway lane miles

307
HOV lane miles

3,322
state-owned bridges

23
Ferries

24.7 million
passengers per year

32
Transit systems

16
WSDOT-operated airports

125*
miles dedicated bike lanes

400
miles of sidewalk within/adjacent to WSDOT right-of-way

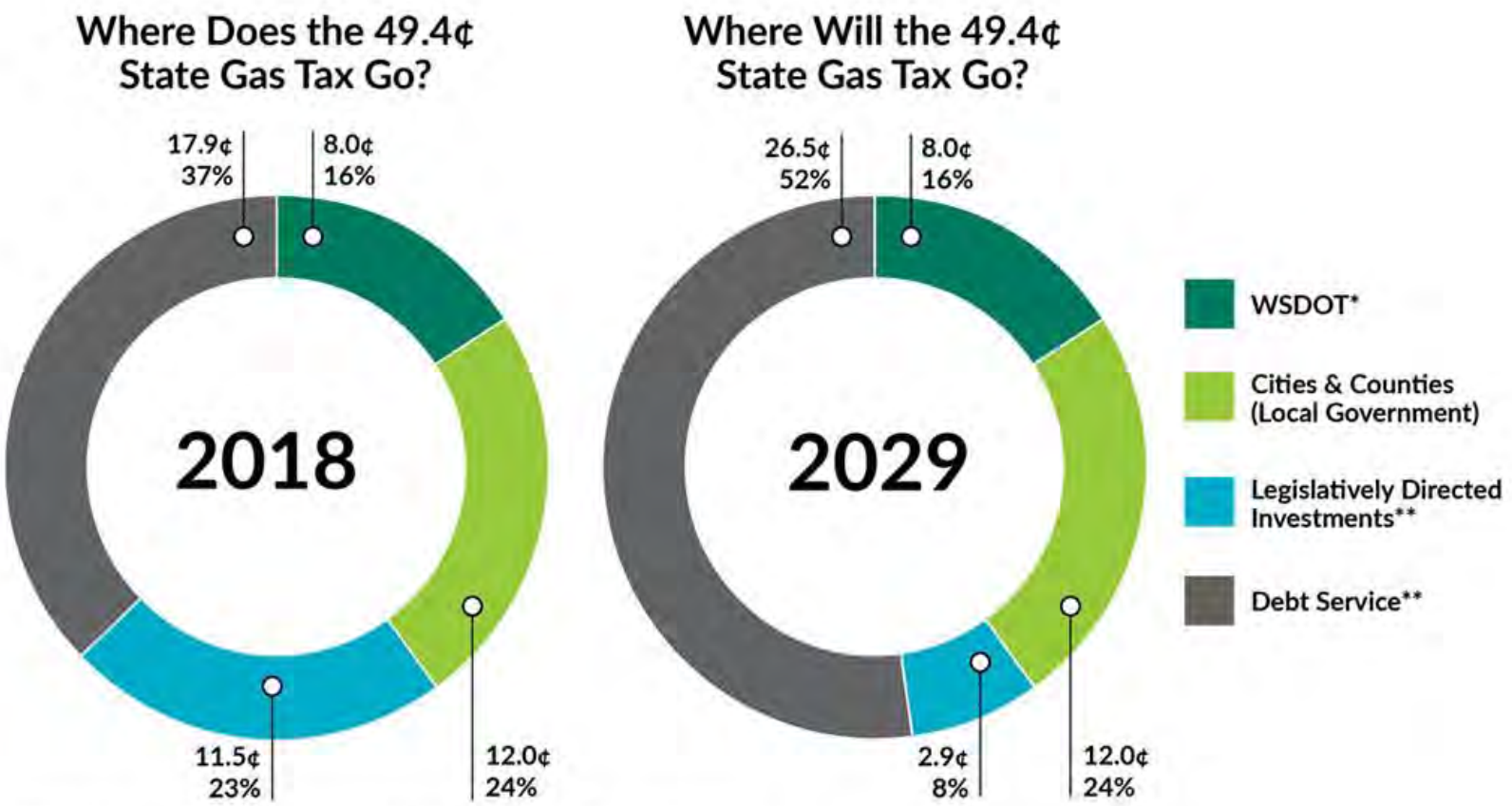
333
miles Amtrak Cascades

800,000
annual passengers

298
miles WSDOT-owned shortline freight railroad

*Most sidewalks/bike lanes are controlled by locals

Where does the 49.4 ¢ state gas tax go?



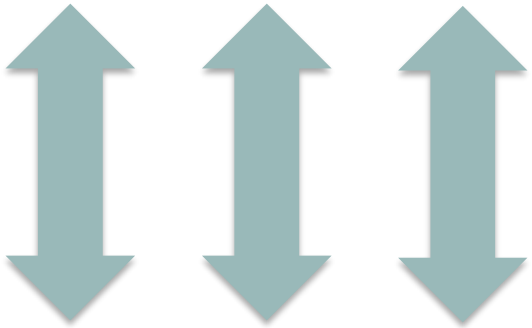
* Includes operations, maintenance, preservation and safety improvements.
** Includes funding for projects specified in the 2003 Nickel, 2005 Transportation Partnership, and 2015 Connecting Washington acts, as well as funding to pay off bonds funded by pre-2003 fuel tax.

Asset Management – All WSDOT

(Millions of dollars)	Replacement Value	10-year Average Spending	10-year Future Annual Avg. Spending	10-year Annual Additional Needs	10-year Budget, Plus Needs Annual Avg.
Highways	$109,390	$330	$335	$330	$665
Multimodal (i.e. Aviation, Public Transportation, Rail)	$600	$15	$20	$90	$110
Intra-Agency (i.e. IT, Facilities, Fleet, Real Estate)	$66,480	$55	$70	$55	$125
Ferries	$4,940	$110	$125	$215	$340
TOTAL	**$181,410**	**$510**	**$550**	**$690**	**$1,240**

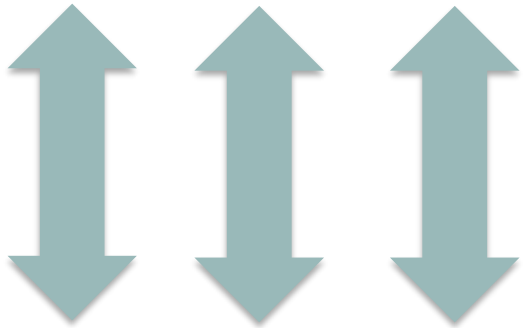
Drivers of Asset Conditions

PRESERVATION PROGRAM	MAINTENANCE PROGRAM	IMPROVEMENT PROGRAM
▪ Completes major repair and rehabilitation projects ▪ Replaces assets at the end of their useful life ▪ Includes work such as bridge painting, asphalt overlays, bridge & pavement replacement	▪ Operates the system ▪ Repairs the system when necessary ▪ Performs preventative maintenance ▪ Delivers small, non-programmed projects ▪ Crack sealing pavement, spot-paint bridges, etc.	▪ Adds new assets to the transportation system to improve mobility and safety ▪ Includes items such as adding a lane to a highway, purchasing a new ferryboat or building a new tunnel ▪ New assets must then be maintained and preserved



CONDITION OF HIGHWAY ASSETS

- Measured deficiencies in highway assets
- Level of Service ratings

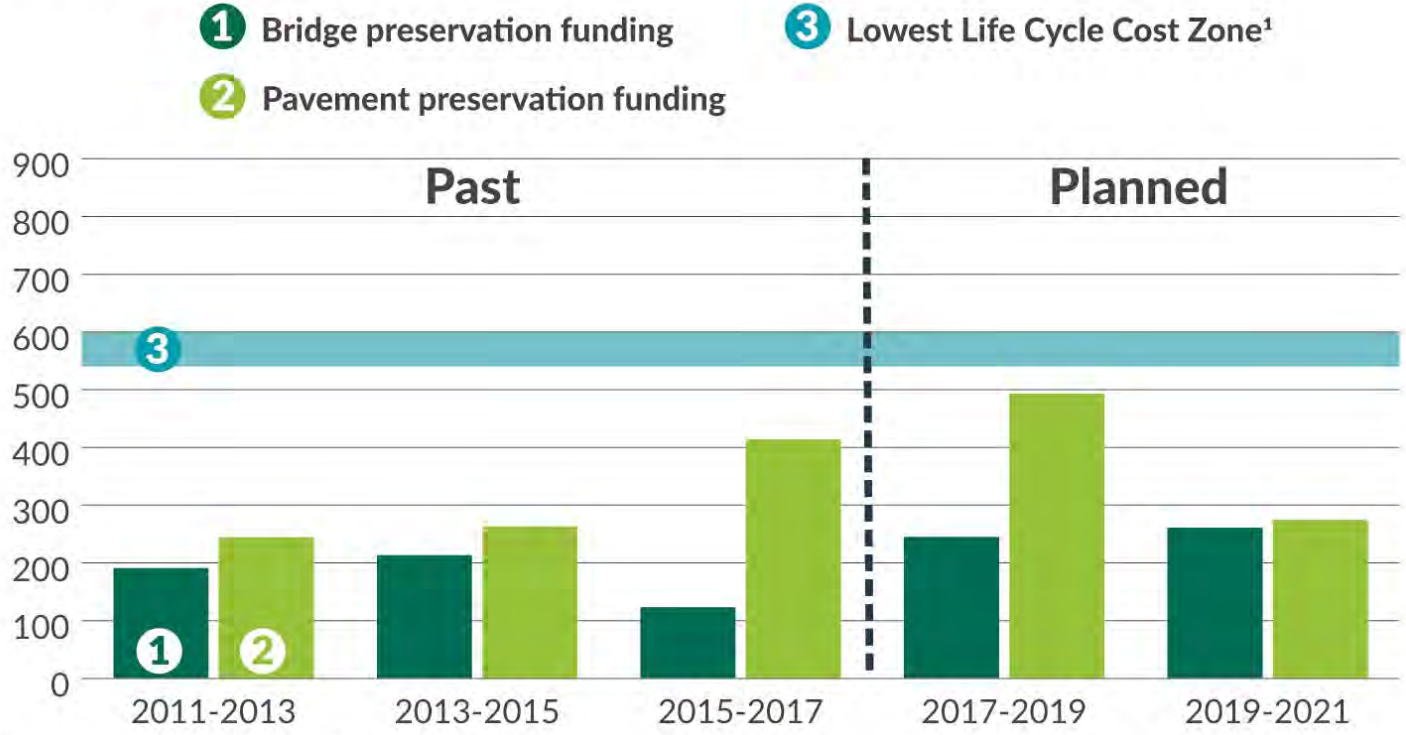


Wear and tear from extended use over time	General deterioration over time (weather, corrosion)	Damage from natural events (storms, earthquakes)	Damage from motor vehicle collisions	System additions (inventory)

Bridge and Pavement Preservation Funding

Preservation program investment levels

In millions of 2017-2019 dollars; adjusted for inflation using the Construction Costs Index

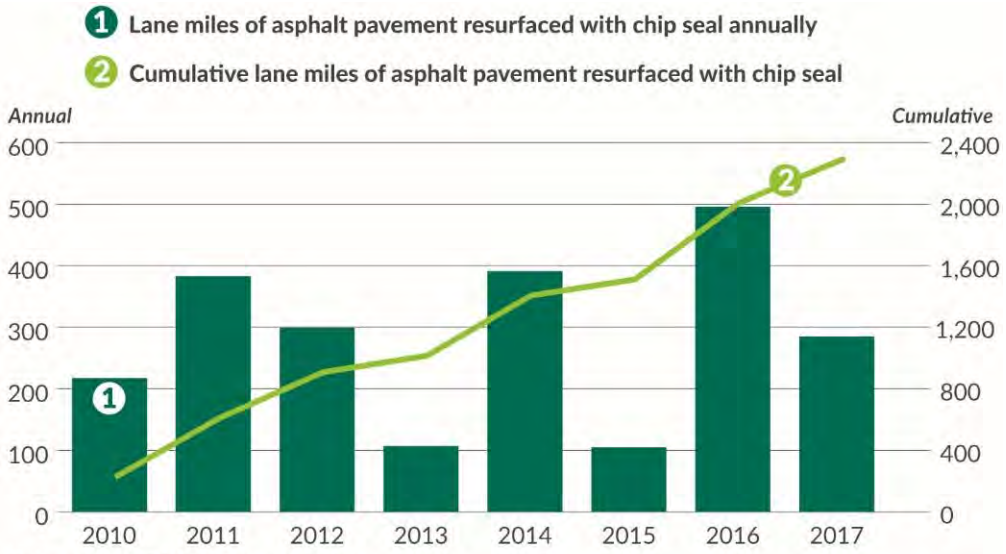


Data source: WSDOT Capital Program Development and Management, WSDOT Pavement Office.

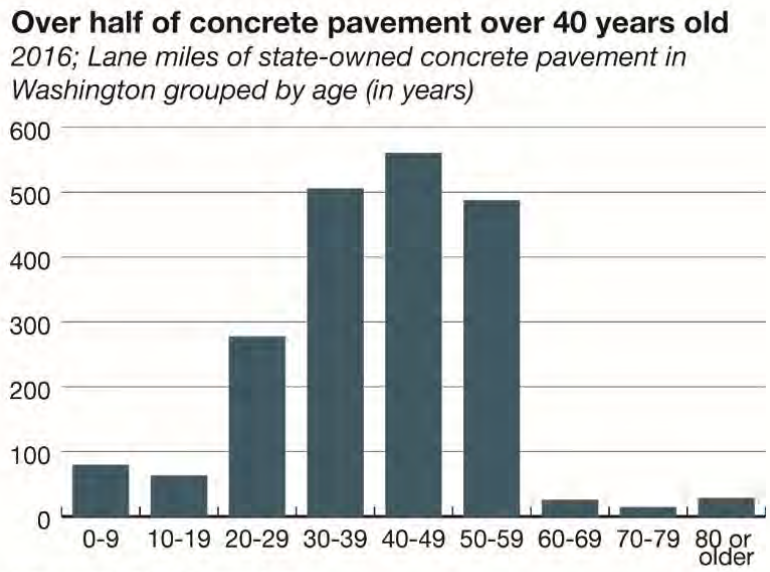
Notes: **1** Both Bridge and Pavement funding would need to be in the Lowest Lifecycle Cost Zone in each biennium in order for WSDOT to manage these assets in the most cost-effective way.

Doing all we can with Practical Solutions

- **Asphalt & Chip Seal: Practical Solutions Strategies**
  - Strategic Preventive Maintenance (One-touch policy)
  - Converting Asphalt Pavement Overlays to Chip Seal Treatment (2,300 of 3,000 planned lane miles converted)
- **Concrete: Practical Solutions and Age of Network**
  - WSDOT has used rehabilitation treatments on over 45% of its concrete (as of 2016)
  - The majority of WSDOT's concrete pavement was constructed in the 1960's, 1970's and 1980's, and so needed little-to-no repair until the 1990's. **Much of this pavement has been rehabilitated as much as possible, and is now in need of reconstruction**.

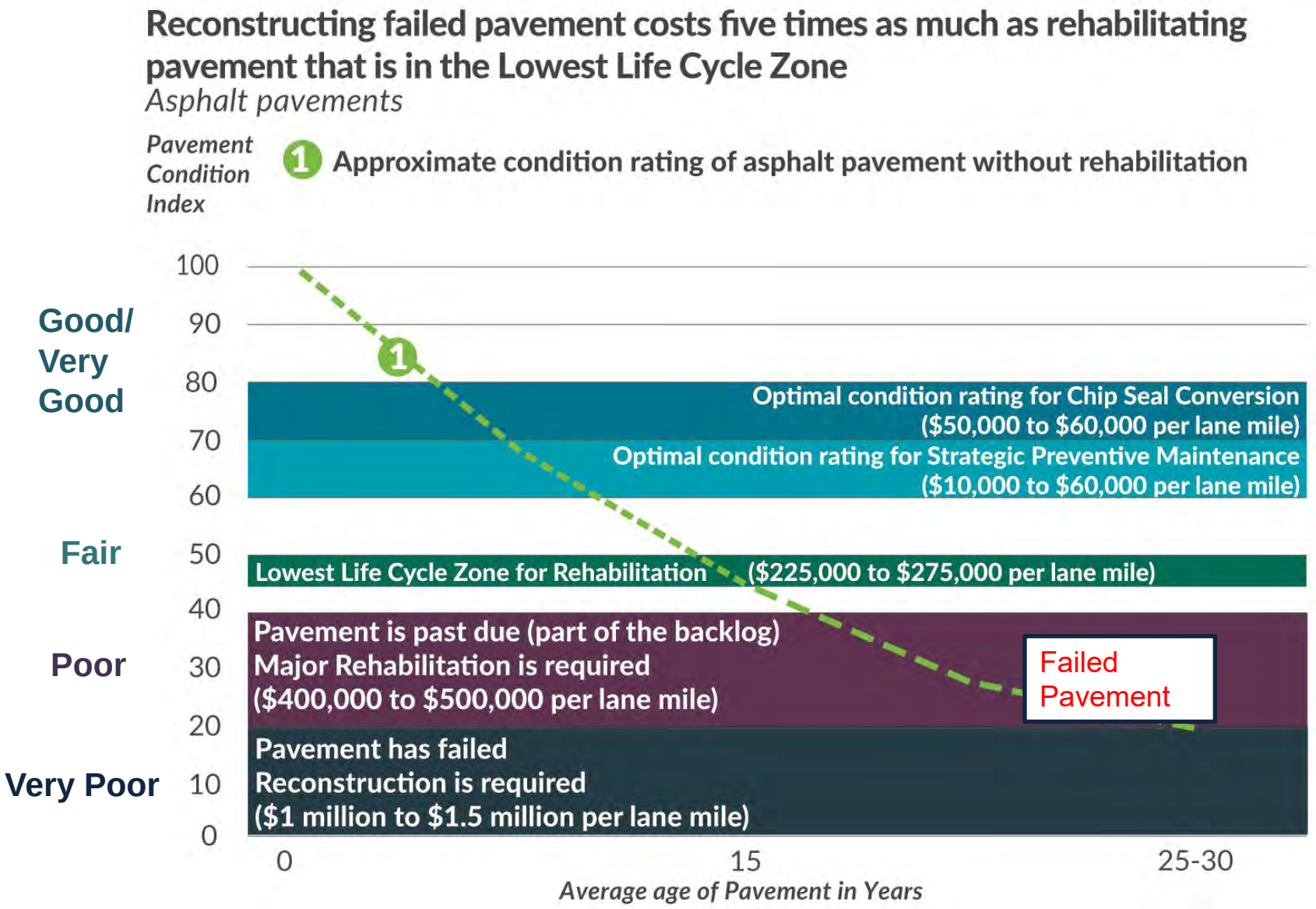


Data source: WSDOT Pavement Office.
Note: WSDOT plans to resurface a total of 3,000 lane miles of asphalt pavement with chip seal by the year 2024.

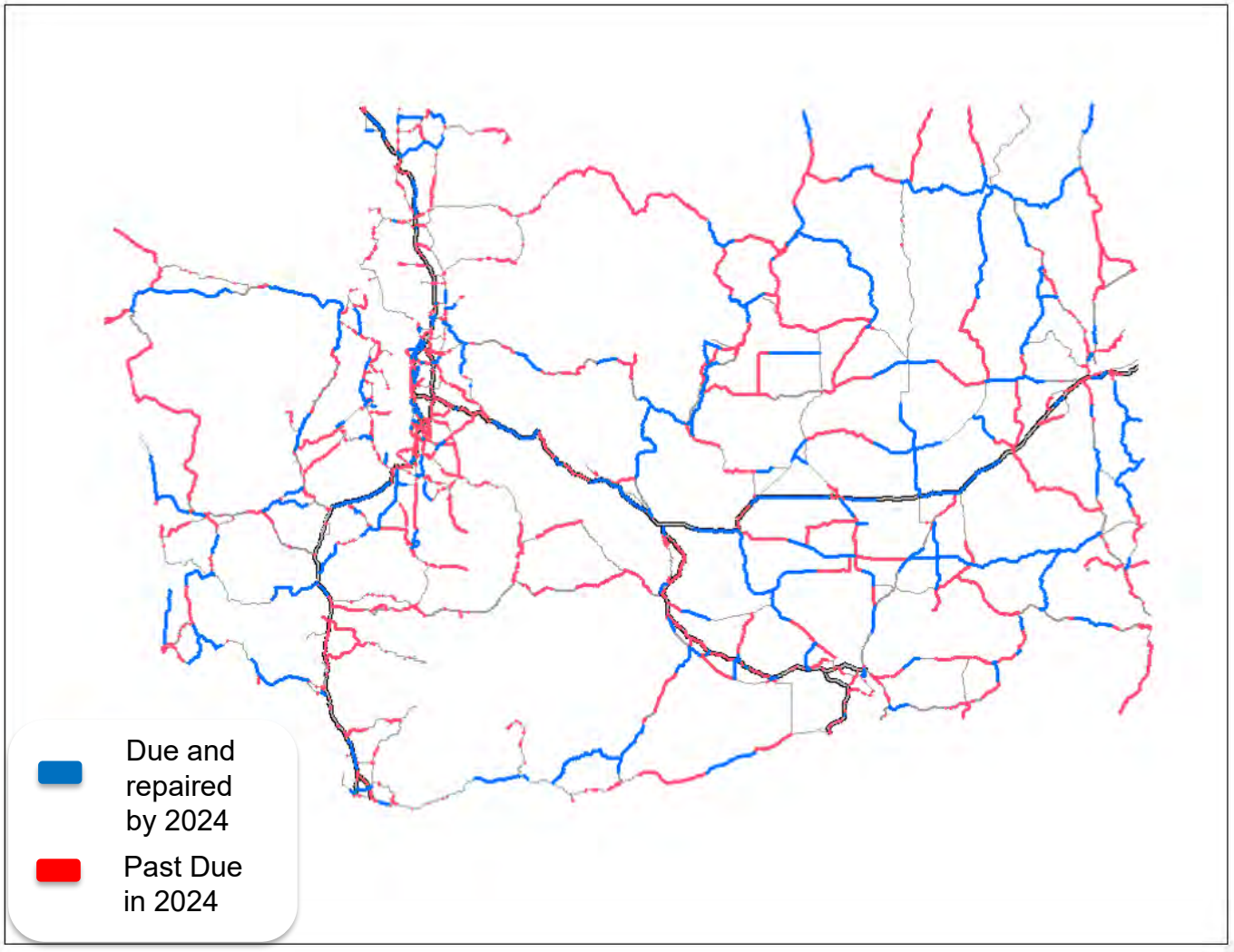


Data source: WSDOT Pavement Office.
Note: Data in graph does not include concrete bridge decks.

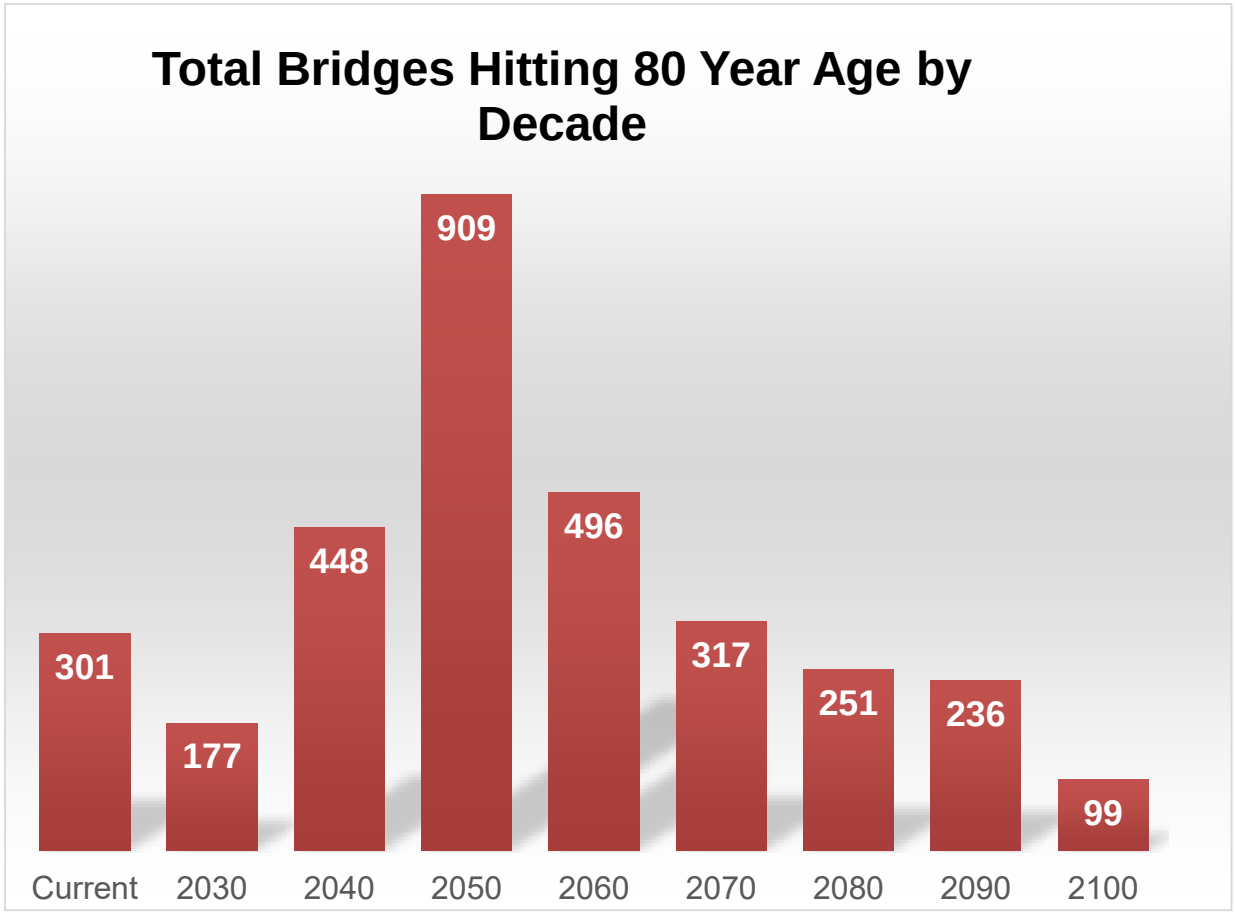
Asphalt Pavement Deterioration



Projection: 2024 under current funding conditions



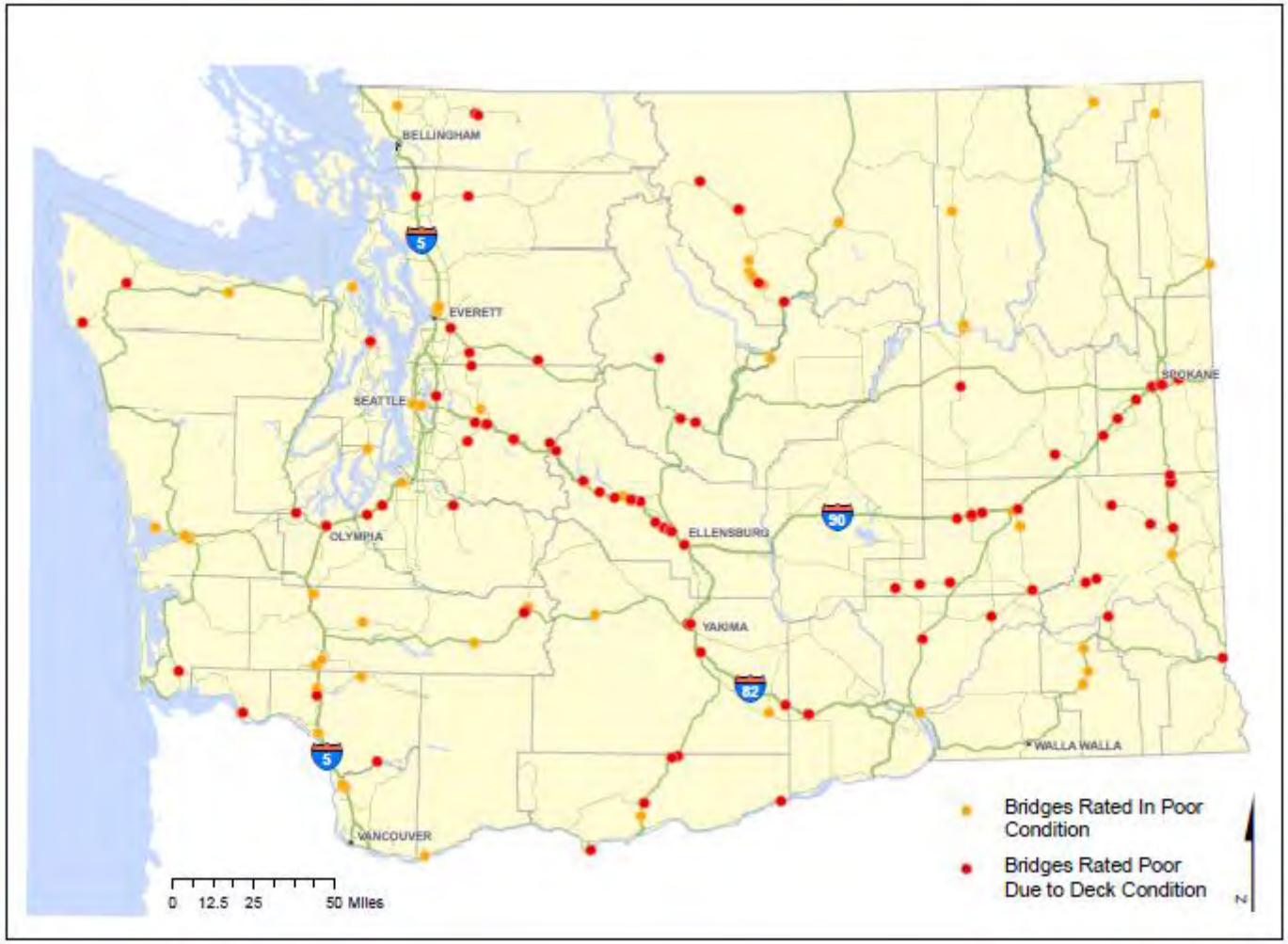
WSDOT Bridge Replacement Due to Age



The replacement value for all WSDOT-owned bridges is $57.6 billion

Good asset management and preservation will help extend the life of WSDOT's bridges, reducing the spike in 2050

Bridges Currently in Poor Condition



Bridge Outlook: No Good Options

- Bridge needs, like other asset classes, are currently funded at about 45% of needs.
- There will be many hard decisions about which bridges to repair in the future.

Category	Current needs	Predicted additional needs	Total 10-year needs
Border bridge preservation[1]	$81.2	N/A[2]	$81.2
Bridge element repairs	$26.5	$85.9	$112.4
Expansion joint preservation[3]	$250.5	$155.2	$405.7
Movable bridge preservation[3]	$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**

Key Takeaways

- **Highway assets will need $6.65 billion in SOGR investment over the next ten years.**
  - Current funding projections indicate a shortfall of $3.3 billion over those ten years.
- **As a result, the number of bridge and pavement assets in poor condition (failed/past due) will increase, resulting in:**
  - Reduced speed limits on roads in poor condition
  - Load restricted, posted and/or closed bridges
  - Difficult decisions will need to be made about which assets will be allowed to deteriorate/fail.
- **Having a substantial portion of highway assets in poor condition is new and uncharted territory for WSDOT.**
  - Decreased ability to make predictions about asset reliability.
  - Increased risk of unexpected urgent needs.
- **Deferring preservation increases risks in other realms:**
  - Safety impacts—driving at the speed limit on pavement in poor condition can be unsafe, leading to speed limit reductions
  - Mobility impacts—closed and/or weight-restricted bridges require detours and lowered speed limits, both increase travel times
  - Economic impacts—impacts to mobility may negatively impact freight routes and/or commute routes

Questions?

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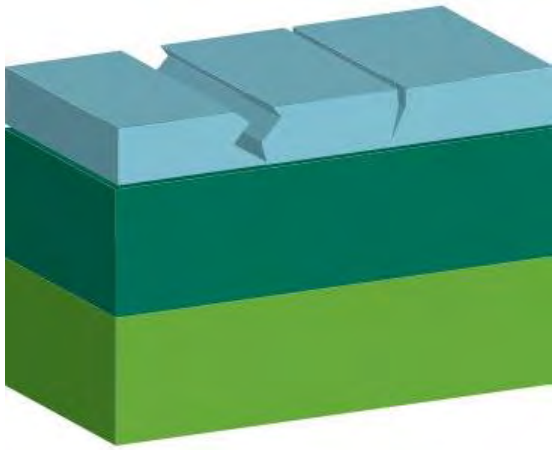
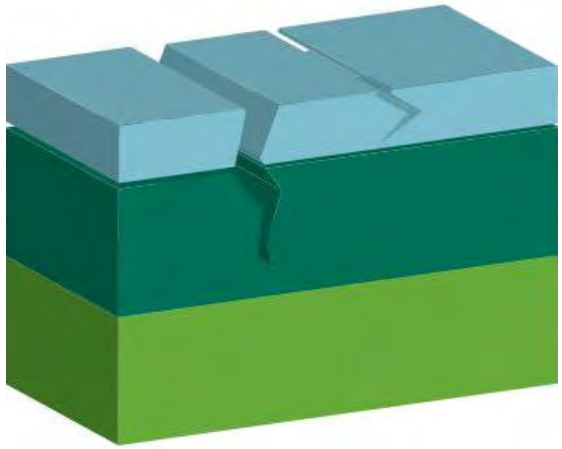
Pavement Condition Categories

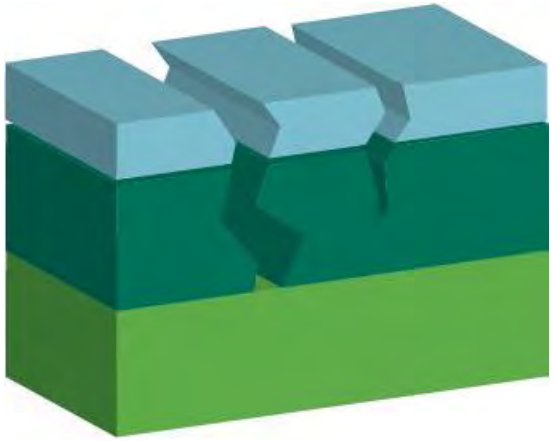
Good/Very Good



Fair



Poor



Very Poor