

# Maintaining a resilient transportation system in a rapidly changing world

ROGER MILLAR, SECRETARY OF TRANSPORTATION

**TRANSPORTATION DEMAND MANAGEMENT EXECUTIVE BOARD MEETING**

FEB. 22, 2023

## RCW [47.04.280](#)

# Transportation system policy goals

- **Preservation**: To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services, including the state ferry system;
- **Safety**: To provide for and improve the safety and security of transportation customers and the transportation system;
- **Stewardship**: To continuously improve the quality, effectiveness, resilience, and efficiency of the transportation system;
- **Mobility**: To improve the predictable movement of goods and people throughout Washington state, including congestion relief and improved freight mobility;
- **Economic vitality**: To promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy; and
- **Environment**: To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment.

Section 2 of the RCW lists **Preservation** and **Safety** as priorities among the policy goals

## RCW [47.01.078](#)

# Transportation system policy goals—Duties

To support achievement of the policy goals described in RCW [47.04.280](#), the department shall:

- Maintain an inventory of the condition of structures and corridors in most urgent need of retrofit or rehabilitation
- Develop long-term financing tools that reliably provide ongoing maintenance and preservation of the transportation infrastructure
- Balance system safety and convenience through all phases of a project to accommodate all users of the transportation system to safely, reliably, and efficiently provide mobility to people and goods
- Develop strategies to gradually reduce the per capita vehicle miles traveled based on consideration of a range of reduction methods
- Consider efficiency tools, including high occupancy vehicle and high occupancy toll lanes, corridor-specific and systemwide pricing strategies, active traffic management, commute trip reduction, and other demand management tools
- Promote integrated multimodal planning
- Consider engineers and architects to design environmentally sustainable, context-sensitive transportation systems

# WSDOT Strategic Plan

Our Strategic Plan provides the vision, mission and values that guide the work of the agency. The important work of the agency is focused in three key areas:

- **Resilience**
- **Workforce Development**
- **Diversity, Equity & Inclusion**

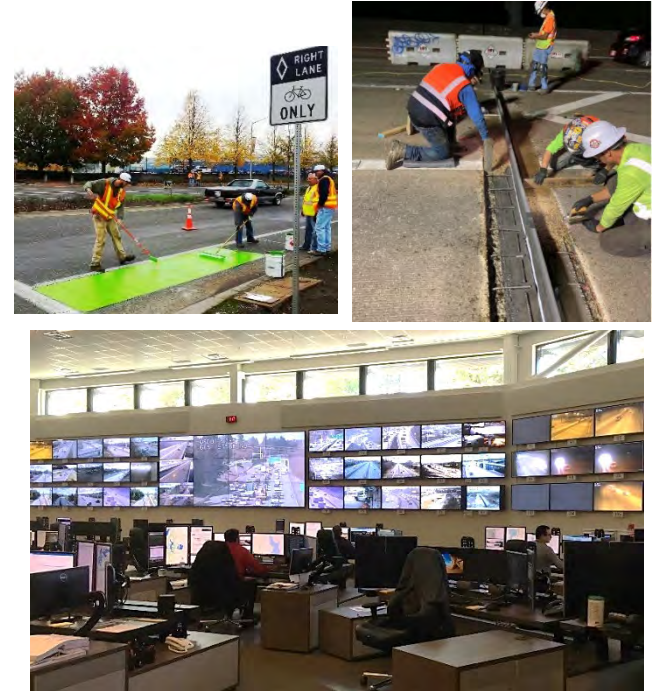


# Resilience

Resilience is the ability to prepare for, and adapt to, changing conditions and withstand and recover rapidly from disruptions.

A resilient transportation system is:

- **Safe**
- **Sound**
- **Smart**

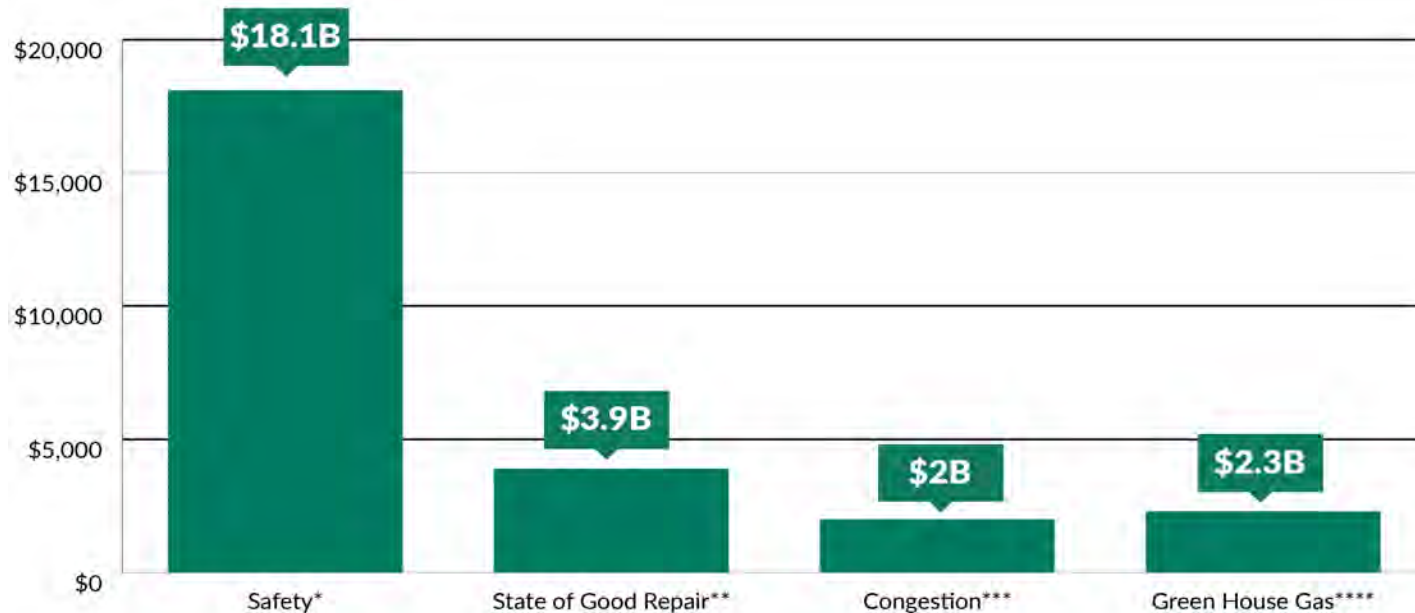


# We need resilient transportation systems

- **Climate change** – wildfires, flooding, excessive heat, sea-level rise, extreme storm events are already impacting our transportation systems
- **Other natural and human made disasters** – earthquakes, infrastructure failure, cybersecurity threats
- **Demographic change** – making our transportation system accessible to everyone; addressing how transportation systems keep up with growing and changing populations
- **Economic change** – transportation systems support vibrant local economies and the changes we're seeing (telework; increased deliveries) and must keep pace with the effects of economic downturns



# Annual cost of inaction to Washingtonians



\* Safety source: Societal costs of crashes calculated using methods described in Crash Cost for Highway Safety Analysis (FHWA-SA-17-071), Chapter 6, Federal Highway Administration, Office of Safety, 2021. Economic cost components include: medical care, emergency services, market productivity, household productivity, legal costs, insurance administrative costs, workplace costs, property damage and congestion.

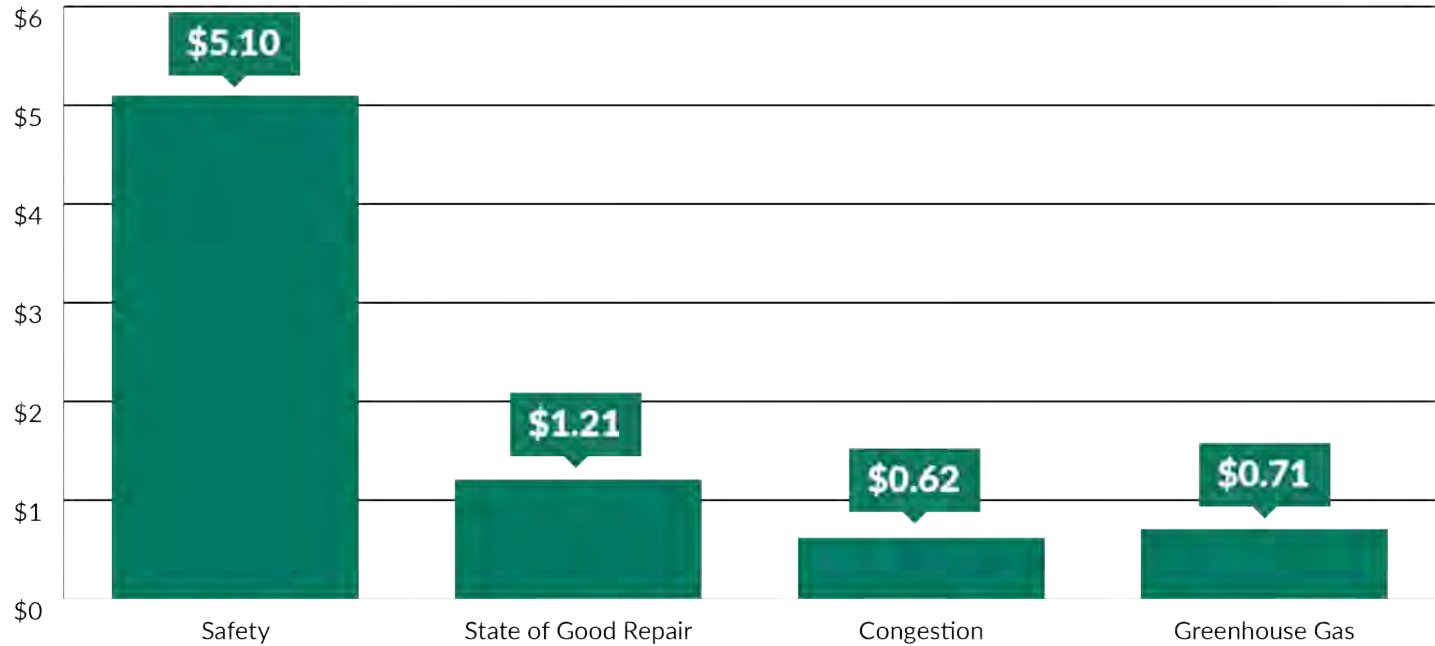
\*\* State of Good Repair source: ASCE 2021 Infrastructure Report Card; estimated at \$659 for every Washington driver.

\*\*\* Congestion cost source: Texas Transportation Institute's 2021 Urban Mobility Report; based on value of travel delay and excess fuel consumption statewide. 2019 congestion cost was \$4.8 billion; 2020 cost includes the first year of the pandemic with a significant drop in travel.

\*\*\*\* Source: Washington State Department of Ecology 2018 GHG Inventory.



# Annual cost to Washingtonians (gas tax equivalent)



Source: Based on June 2022 Transportation Revenue Forecast Council, page 11-20 (Net for Distribution for FY 2023).  
<https://ofm.wa.gov/sites/default/files/public/budget/info/transpo/June2022VolumnII.pdf>



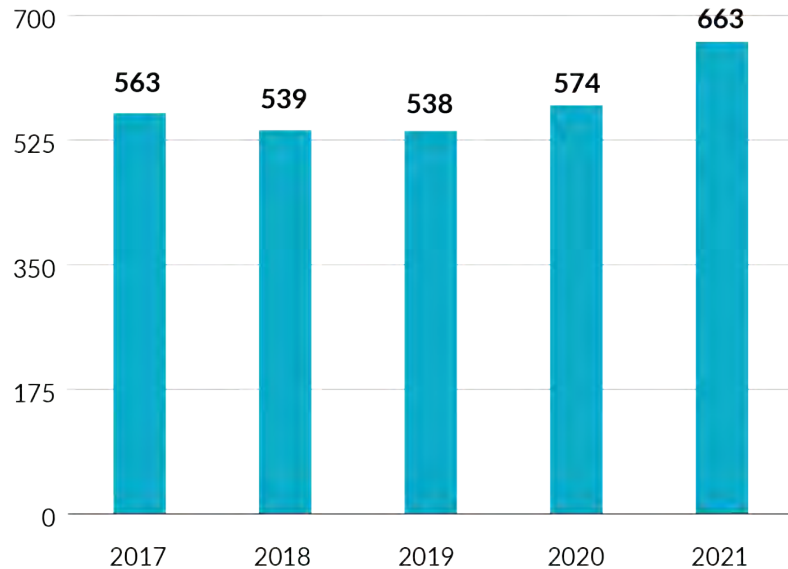
# Target Zero goals and realities

- Many names but the same goal: increased safety and zero deaths
- We're not making the progress we need to reach this goal
- We're seeing increased speeding, reckless and impaired driving on roadways and in work zones

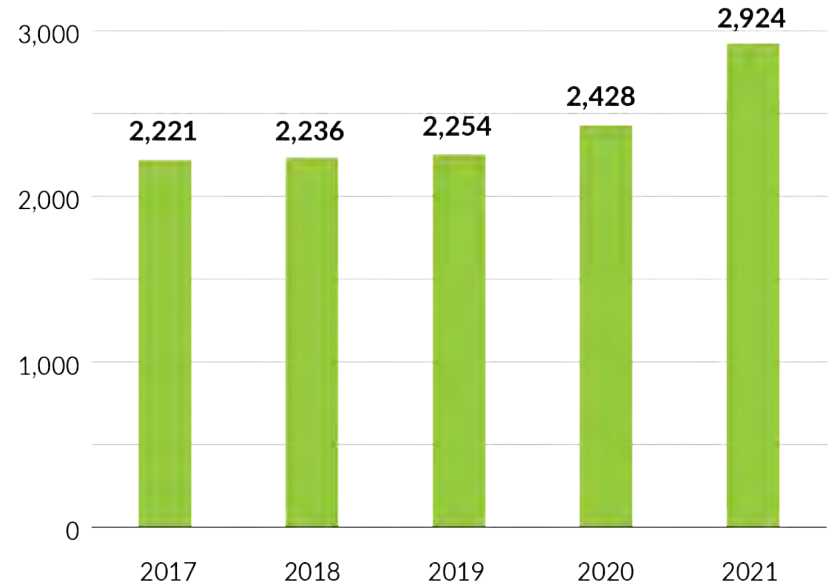


# Moving in the wrong direction

Traffic fatalities



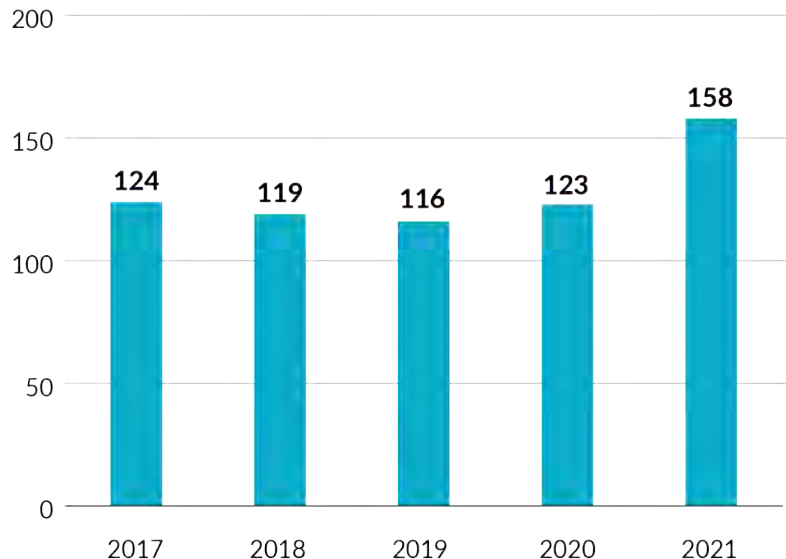
Traffic serious injuries



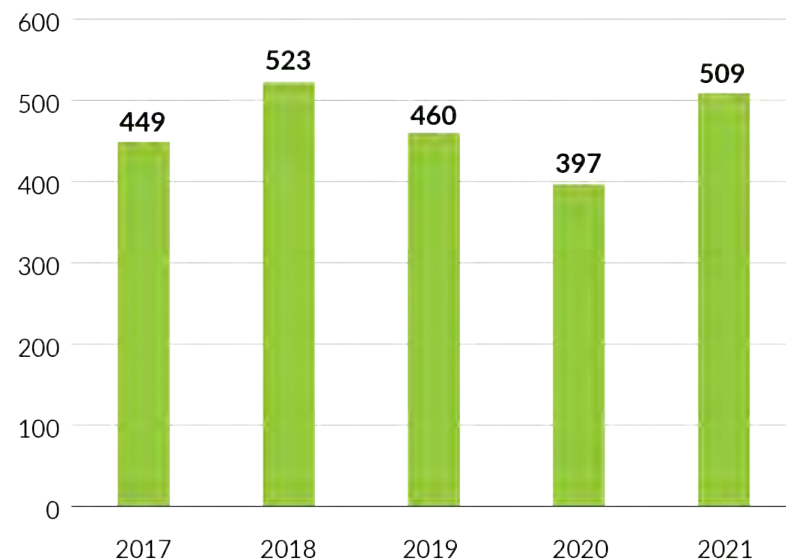
Data source: WSDOT Crash Data and Reporting Office; the Coded Fatal Crash System (CFC), Washington Traffic Safety Commission.

# Pedestrian/bicyclist fatalities & serious injuries

## Combined pedestrian and bicyclist fatalities



## Combined pedestrian and bicyclist serious injuries

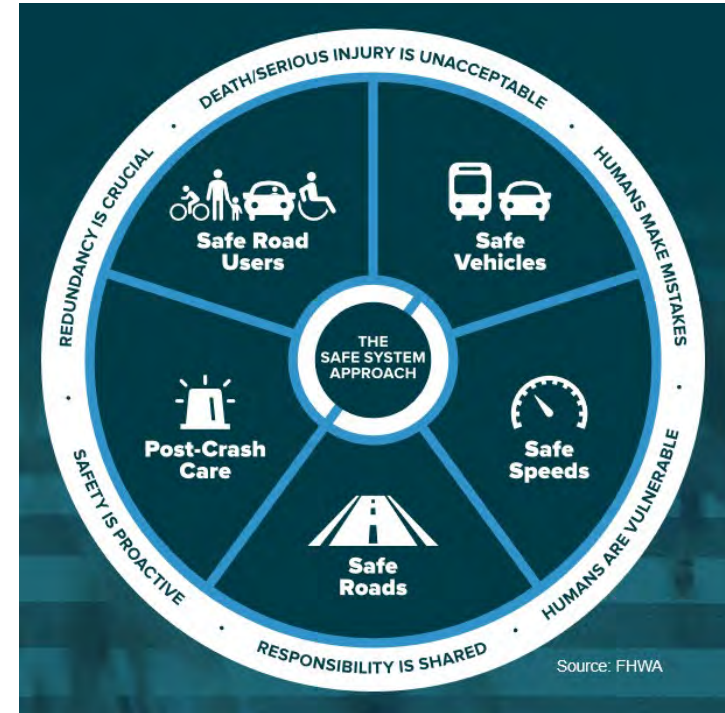


Data source: WSDOT Transportation Data, GIS and Modeling Office.

Notes: Some numbers have changed since previous data reports due to updates within the Coded Fatality Files and WSDOT Engineering Crash Datamart. 1. Pedestrians include people in wheelchairs and those using small rideable devices such as skateboards and scooters, in addition to those walking. 2. Data for 2021 is preliminary.

# Multi-pronged safety approach

- Design
  - Safe Systems approach
  - Speed versus safety
  - Complete Streets
- Using technology to protect all users
  - Intelligent Transportation Systems
  - Automated speed cameras
- Work zone safety
  - Seeing higher risks on roadways
  - Needed changes to improve safety
  - Safety improvements will mean more congestion or delays around projects
  - Working with Union, State Legislature and Industry group on suggestions



# Complete Streets

Complete Streets is a requirement in Washington state law (RCW 47.24)

Designed to “improve the safety, mobility, and accessibility of state highways ... with all users in mind, including pedestrians, bicyclists, and public transportation users”

Applies to state transportation projects \$500,000 or more that start design on or after July 1, 2022



# Complete Streets screening

- Screening of all projects over \$500,000
- Focus on projects in:
  - Incorporated cities,
  - Other population centers where active transportation gaps have been identified in WSDOT or local plans
  - Areas where projects touch overburdened communities
- About 430 projects screened statewide (with design start dates between 2022 and 2028)
- Complete Streets applies to some portion of ~47% of projects

## Complete Streets

### Project Screening Worksheet

PIN: \_\_\_\_\_  
Project Title: \_\_\_\_\_

Screening

**PART A. Screening Questions**

1. Is any portion of the project in an incorporated city? ☐ Yes ☐ No  
 a. If A1 = "No", is any portion of the project in a population center? ☐ Yes ☐ No ☐ NR  
 If A1 = "Yes", please check "NR".

If A1 = "No" and A1a = "Yes", please proceed with researching criteria A2-A4.  
 If A1 = "Yes" or both A1 and A1a = "No", A2-A4 are optional and you may proceed to Part B.

2. Do any WSDOT plans identify active transportation gaps within or across the extents of the project? ☐ Yes ☐ No ☐ NR  
 3. Does the project traverse any vulnerable populations/overburdened communities as defined below in the V/O Screening Questions section? ☐ Yes ☐ No ☐ NR  
 4. Do any local plans identify active transportation gaps within or across the extents of the project? ☐ Yes ☐ No ☐ NR

\* Local plans review is optional if A2 or A3 are "Yes".

Regardless of the answers in Part A, please mark whether or not the project is in or adjacent to tribal lands or has a documented tribal nexus, as noted in the V/O Screening Questions section. ☐ Yes ☐ No

**PART B. Project Detail Questions**

1. Is bicycling restricted (prohibited) throughout the entire project limits? ☐ Yes ☐ No  
 2. Is this a regionwide project with only low-cost implementation elements at any given spot? (e.g., patching, crack sealing, spot painting, minor element repairs, and regionwide sign projects) ☐ Yes ☐ No  
 3. Is this project exclusively Limited Access mainline? ☐ Yes ☐ No  
 4. Does the extent of the work within incorporated cities and other population centers total to less than \$500,000? ☐ Yes ☐ No

**Complete Streets Analysis Determination**

This project requires a Complete Streets analysis. ☐ Yes ☐ No  
 If the determination is "No", please provide a short description of the reason. If answered "Yes", no explanation is required but additional reasoning can be provided in this space if desired.  
 [Place justification here or delete if not needed]

Please follow the steps below to submit the project for Headquarters concurrence review.

WSDOT logo  
 Last updated 5.28.2022  
 Complete Streets Screening Worksheet Page 1



# Investment needed for State of Good Repair

## *Delivering Complete Streets w/ highway preservation dollars*

| Asset category   | Replacement value | Average annual need | Current plan annual average spending (including MAW) | Average annual funding shortfall |
|--|-------------------|---------------------|--|----------------------------------|
| Highways   | \$123,425         | \$1,055             | \$705  | \$350                            |
| Deliver Complete Streets with Preservation                 | N/A               | \$210               | \$70   | \$140                            |
| Multimodal<br>(i.e. Aviation, Public Transportation, Rail) | \$685             | \$115               | \$60   | \$55                             |
| Intra-Agency<br>(i.e. IT, Facilities, Fleet, Real Estate)  | \$70,245          | \$185               | \$80   | \$105                            |
| Ferries  | \$5,325           | \$510               | \$330  | \$180                            |
| <b>TOTAL</b>   | <b>\$199,680</b>  | <b>\$2,075</b>      | <b>\$1,245</b>                                       | <b>\$830</b>                     |

Notes: Figures in millions of dollars, rounded to the nearest \$5M.

State of Good Repair funding need is Preservation and Maintenance funding numbers combined.

It is assumed that approximately 50% of the additional Highways Preservation dollars provided by Move Ahead Washington, excluding the funding provided for Highway Maintenance, will be needed to implement the Complete Streets proposal in conjunction with those projects.

The funding numbers above (excluding Replacement Value) represent 10-year annual averages.



# Preservation needs continue

Move Ahead Washington was a great down payment on our repair needs as we identify future funding for remaining and ongoing needs.

- 3,490 lane miles of pavement are due for preservation, another 6,000 are past due, and 1,390 lane miles are in poor condition; currently paving 920 lane miles per year
- 16 bridges need replacement, 36 more need major rehabilitation; 4 are being replaced
- 50 steel bridges are due for painting, 57 are past due; 3 are being painted
- 87 concrete bridge decks are due for repair, and 72 more are past due; 24 decks are being resurfaced
- WSDOT's ferry vessels experienced 539 days of unscheduled maintenance in FY22 which is a slight increase from 516 in FY21
- 25% of the Palouse River and Coulee City (PCC) is in poor condition; 80% of the system is operated at 10 MPH or less \*
- 42% of WSDOT-owned buildings are more than 50 years old; 44% are in poor condition.\* Concerns include asbestos, failing to meet pollution discharge and clean building standards, outdated and inefficient systems.

All figures as of 2022, unless otherwise noted; \*2021 figures



# Revive I-5 and other preservation work

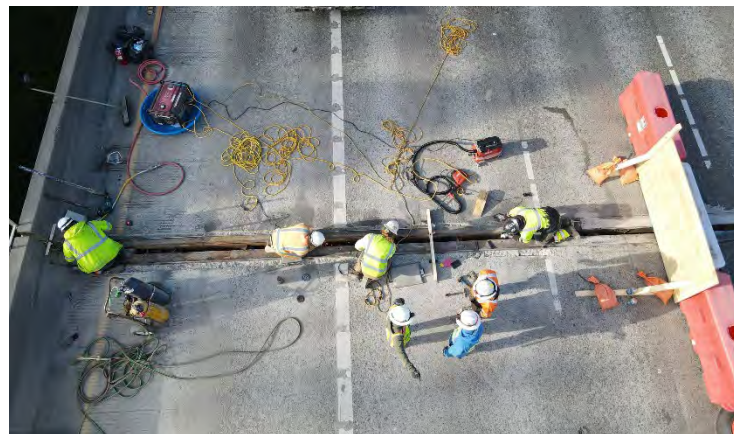
**2021-2022:** Work reviving sections of aging I-5 wrapped up this fall between I-90 and Spokane Street

- 63 expansion joints replaced, 1.25-mile of paving

**Spring 2023:** Replacing panels, other repairs on NB & SB I-5 between South Seattle and Tukwila

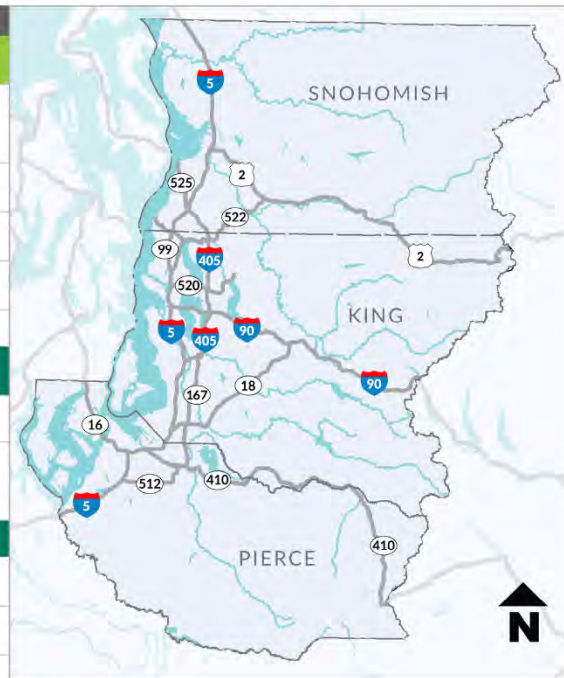
**Late 2023/ early 2024:** One of the largest preservation projects in agency history

- Multi-year work on 8 miles between the city center and the Northgate area north of downtown
- Replacing expansion joints and concrete down to the supporting soil & repaving other sections, including the Lake Washington Ship Canal Bridge
- **Tremendous traffic impacts on the region – coordination already underway**



# Major Central Puget Sound projects: 2023-2027

|                          |   | 2022  | 2023   | 2024  | 2025 | 2026 | 2027 |
|--------------------------|---|---|--|---|------|------|------|
| I-5                      | I-5/Yesler Way to NE 117th St - Pavement, Deck & Expansion Joint            |   |  | Traffic control strategy is under development. Significant regional impacts are likely. |      |      |      |
|                          | SR 520/I-5 Connection Project   | Nightly and full weekend I-5 ramp closures, express lane reduction, full weekend requested by contractor: NB I-5 and express lanes. |  |   |      |      |      |
|                          | I-5/Duwamish River to S Lucile St - Concrete Pavement Rehab                 |   | Possible multi-lane weekend closures.  |   |      |      |      |
|                          | I-5/SR 18 to S 336th St Bridges & SR 18/152nd Ave SE-Deck Rehab & Joints    |   |  | Weekend closures possible.  |      |      |      |
| I-405                    | I-405/Renton to Bellevue - Corridor Widening                                |   | Many weekend closures including full roadway closures. Numbers and location are flexible.                          |   |      |      |      |
|                          | I-405 NE 85th St Interchange Project  |   | Possibly two weekend closures for fish passages.   |   |      |      |      |
|                          | I-405 Brickyard to SR 527 Capacity Improvement Project                      |   | Possible extended length closures for deep fish passages on I-405 and SR 522.                                      |   |      |      |      |
| SR 520                   | SR 520/Montlake Project   | Weekend closures on SR 520.   |  |   |      |      |      |
|                          | SR 520/I-5 Connection Project   | Weekend and nightly ramp and/or mainline closures on SR 520, 9+ day WB off-ramp to Roanoke closure.                                 |  |   |      |      |      |
|                          | SR 520/Portage Bay Project  |   |  | Weekend or longer full closures on SR 520.  |      |      |      |
| I-90                     | I-90, SR 161, SR 202 & SR 203 - Fish Passage                                | Extended traffic shift/narrowing + ramp closure on I-90.  |  |   |      |      |      |
|                          | I-90/Mercer Slough Br Rehab/Scour/Repair & WB E Fork Issaquah Cr Br Seismic |   | Closure impacts TBD.   |   |      |      |      |
| Other important projects | SR 509 Completion Project   | Nighttime Impacts. Possible extended lane shift/narrowing on I-5.   |  |   |      |      |      |
|                          | SR 167/I-5 to SR 509 - New Expressway                                       |   | ~2-year lane shift/narrowing on I-5.<br>~1-year lane shift/narrowing on SR 99.                                     |   |      |      |      |
|                          | I-5/NB Marine View Dr to SR 529 - Corridor & Interchange Improvements       | At least 2 NB I-5 roadway closures. NB and SB I-5 lane and ramp closures.   |  |   |      |      |      |
|                          | I-5/Mounts Rd to Steilacoom-Dupont Rd - Corridor Improvements               |   | Occasional extended weekend closures/detours. Year-round traffic shifts/narrowing, nightly lane and ramp closures. |   |      |      |      |
|                          |   |   |  |   |      |      |      |



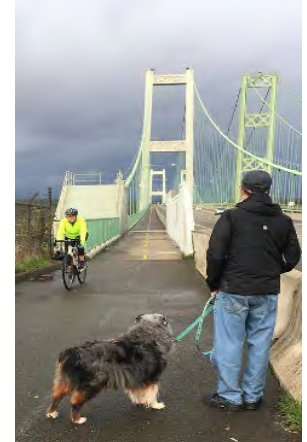
- Lane closures
- Road/ramp closures
- Unknown impacts at this time



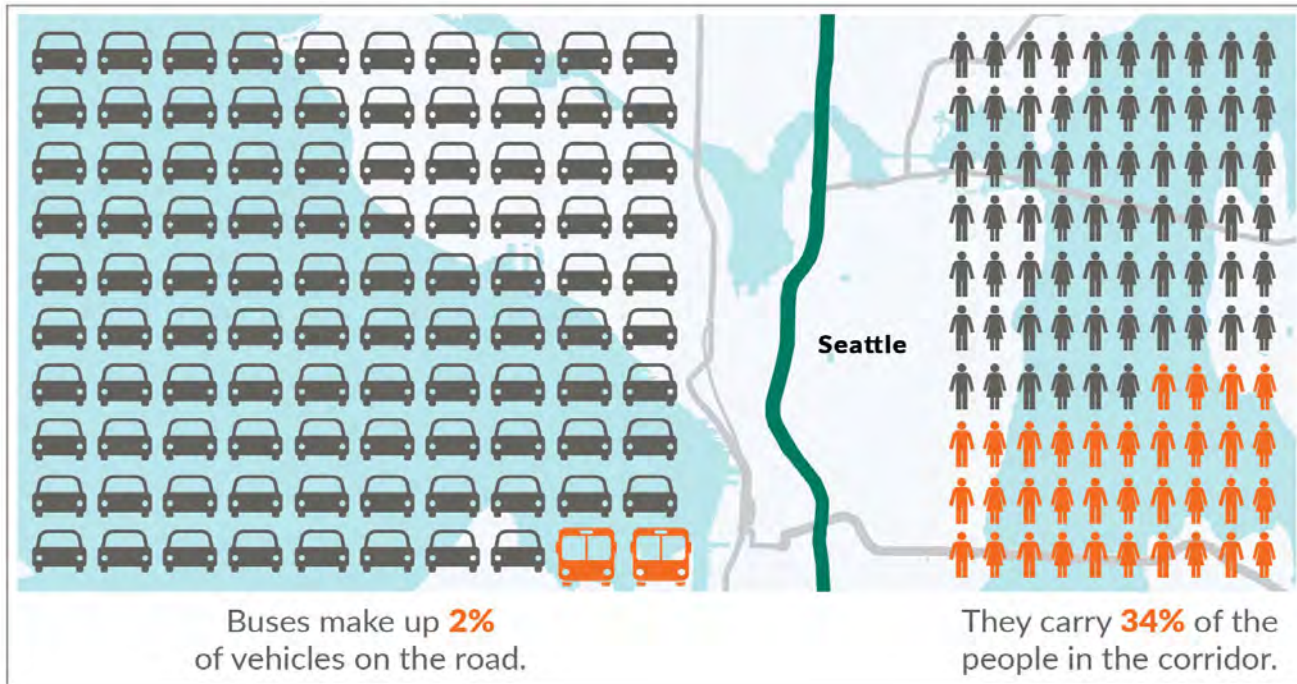
# Getting more out of what we have

## Transportation Systems Management and Operations

- Transportation Demand Management
- Intelligent Transportation Systems
  - Automated vehicles/Advanced driver assistance systems
  - Mobility on demand/Mobility as a Service
  - Advanced air mobility



# Traffic Demand Management and hidden capacity



Buses contribute added capacity on the I-5 southbound morning commute into Seattle.

# System expansion: Neighborhood

- Complete Streets
- Multimodal options for all, including trails, bicycle lanes, crosswalks
- Local jurisdiction preservation needs



# System expansion: Regional

- Transit options and connections
- Active Transportation
- Moving more people and goods; not more vehicles





# System expansion: Multi-regional

- I-5 Study, including seismic investments request
- Exploring ultra high speed ground transportation
- Commercial Aviation Coordinating Commission studying airport capacity needs

We need to link these efforts at scale and continue to study the entire mega-region need, rather than separate, siloed studies.



# Land use and transportation

We need to integrate land use and transportation decision making in ways we haven't before

- Affordable housing and transportation choices
- Make it safe and easy to shift short trips to walk/bike
- Telecommunity
- New partnerships:
  - Cities/Counties
  - Developers/Realtors
  - Investors
  - Advocates



# Land use impact on VMT

Focusing on land use has the greatest potential of reducing vehicle miles traveled

VMT management strategies and potential average impact (● = 5%)

| Strategy                         | Potential VMT impact        |
|----------------------------------|-----------------------------|
| Land use                         | ●●●●●●●●●●●●○○○○○○○○○○○○    |
| Constrained highway spending     | ●○○○○○○○○○○○○○○○○○○○○○○○○   |
| Transit enhancements             | ●●○○○○○○○○○○○○○○○○○○○○○○○○  |
| Bike and pedestrian enhancements | ●○○○○○○○○○○○○○○○○○○○○○○○○○○ |
| Commuter benefits                | ●●○○○○○○○○○○○○○○○○○○○○○○○○  |
| Parking policy                   | ●●●●○○○○○○○○○○○○○○○○○○○○○○  |
| Road pricing                     | ●●●●●○○○○○○○○○○○○○○○○○○○○○○ |
| Broadband and remote access      | ●○○○○○○○○○○○○○○○○○○○○○○○○○○ |

State Smart Transportation Initiative / Smart Growth America recommendations

# Zoning drives transportation needs

With so much land reserved for low density housing:

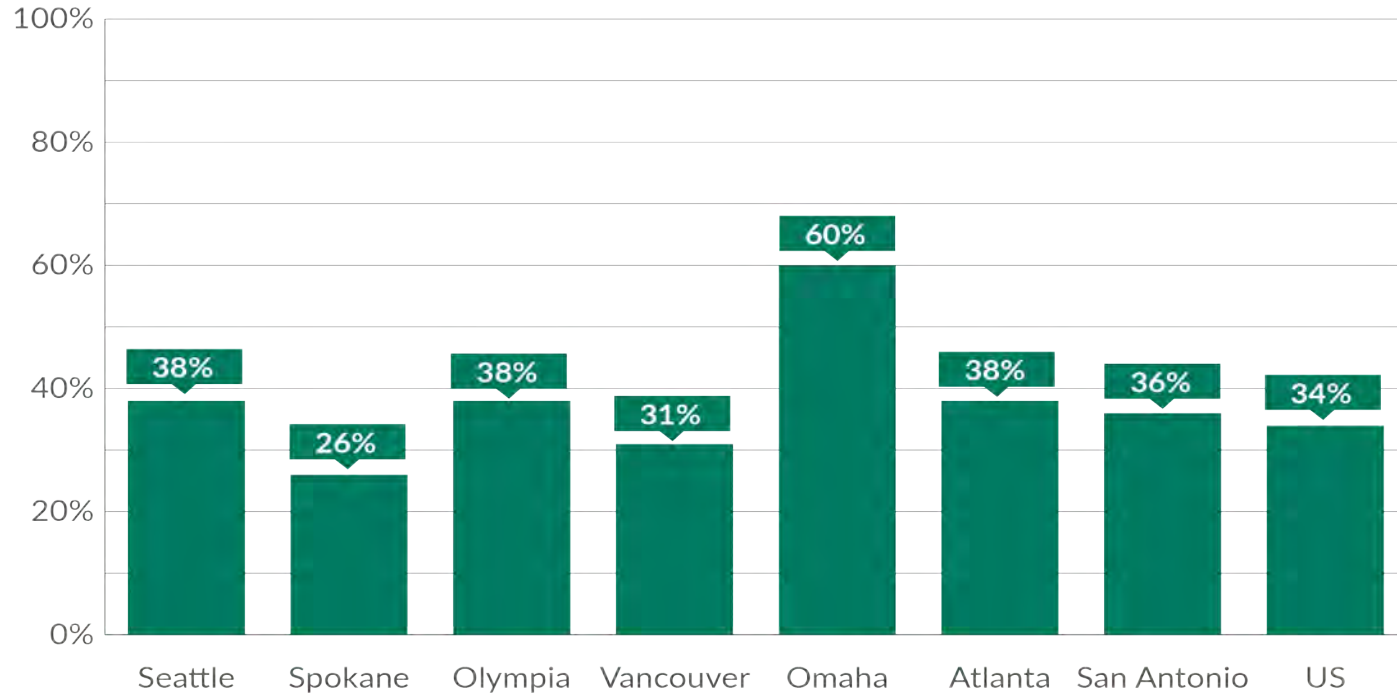
- People cannot afford to live near the activities they wish to participate in, so they live further away and are often forced to drive as opposed to riding transit, walking or bicycling.
- This is not equitable and creates more traffic and more pollution.
- DOTs are then asked to solve a land-use problem after the fact through the transportation system.

|                          | Olympia | Seattle | Spokane | Vancouver |
|--------------------------|---------|---------|---------|-----------|
| Single-family land       | 53%     | 65%*    | 60%     | 41%       |
| Acreage in single-family | 6,816   | 36,608  | 26,688  | 13,764    |
| Apartment vacancy        | 2.6%    | 4.3%    | 3.4%    | 2.7%      |

Sources: Washington Center for Real Estate Research; US Census; city GIS data

\* Seattle percentage based on 2021 numbers; changes in zoning categories no longer list single family housing as its own category

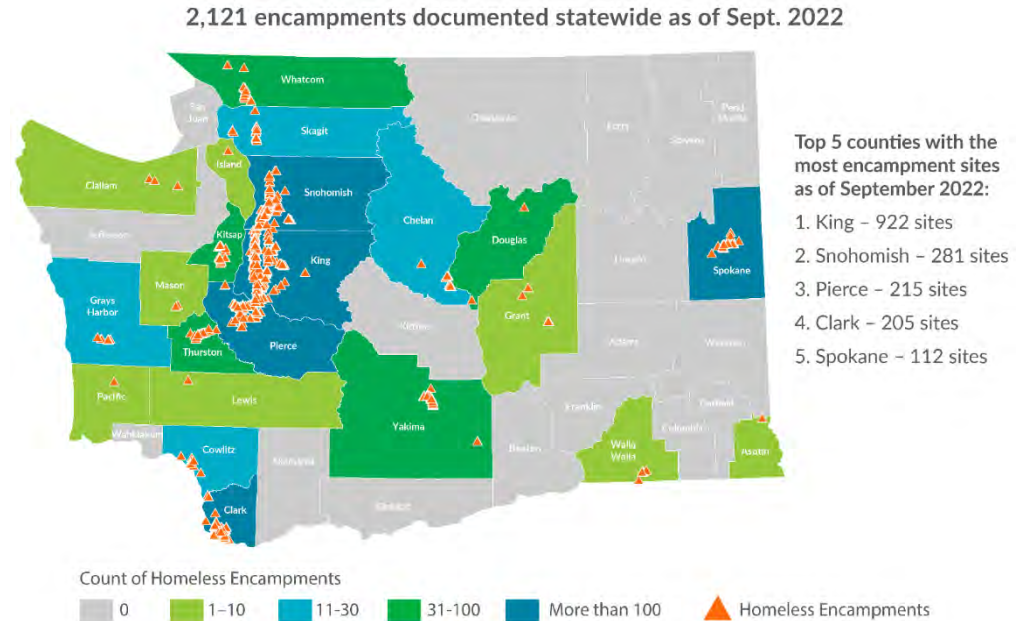
# Percent of population able to afford median priced home





# Encampments on rights of way

- A national challenge, including in WA
- WSDOT works with local leaders on encampments throughout the state
- Partnerships are crucial to deliver the needed social services and outreach
- Overarching need is more housing - *and more affordable housing*



Counts are not a census, but rather total number of sites marked at any time since 2015 – they may not all be active

# Right of Way Safety Initiative

- Partnership with WSDOT, Commerce, WSP, local leaders and non-profits
- New funding specifically to address housing shortages
- Offering shelter/housing to people before clearing an area
  - Intensive outreach
  - Better long-term results
- Clearing, cleaning and modifying sites
- This takes time but seeing improved chance of ending cycle of homelessness
- Focused on 5 counties:
  - King, Pierce, Snohomish, Spokane and Thurston
- 13 sites cleared or in progress
  - Outreach may include assistance services, trash removal, etc., until housing is available
- 225 people accepted offered housing
  - Of that 225, 212 – **94 percent** – remain housed as of end of the year



# Conclusion

We must:

- Emphasize resilience in all parts of the agency
- Focus on safe systems investment
- Accommodate all people and modes in our transportation infrastructure
- Ensure policy and program decisions are equitable and inclusive
- Adapt transportation investment to the “new normal” and the modern work environment
- Align state land use, housing and transportation policies and investments
- Select flexible, adaptable investment strategies that can be effective in an uncertain and potentially volatile future

# Questions?

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