

Developing a resilient transportation system for a rapidly changing world

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Agenda

- WSDOT and COVID-19
- Strategic Plan
- Resilient transportation systems
- A resilient response



WSDOT and COVID-19

WSDOT kept our economy moving in the face of the largest public health emergency in modern times

- The highway system is operating
- The ferry system is operating
- Intercity passenger rail is operating
- We helped transit systems stay operational and adapt to changing circumstances
- We helped keep commercial and general aviation operational
- We helped communities and businesses adapt to the surge in interest in walking and biking



WSDOT and COVID-19

We've demonstrated our ability to stay nimble, deliver our projects

- Highway System Plan – 2022 plan update underway
- Website redesign with full content overhaul – launched in November
- Re-established Amtrak Cascades Point Defiance bypass service in November
- Statewide Human Services Transportation Plan – 2021 update completed in July
- Good to Go! – new system launched in July
- Active Transportation Plan – completed first update in more than a decade
- Rapid modernization of IT systems and infrastructure to enable remote work operations

The screenshot shows the WSDOT website's travel planning interface. At the top, there are navigation links: Travel, Construction & planning, Business with WSDOT, Engineering & standards, and About. Below this is a header question: "How do you want to travel?". On the left, there is a vertical menu with icons and labels for "Cars & trucks", "Ferries", "Small aircraft", "Amtrak Cascades", "Bicycling & walking", and "Public transit". The main content area is divided into two columns. The left column is titled "Cars & trucks" and contains the text: "Whether you're commuting, road tripping or driving commercially, we have information to help you plan your route. See real-time alerts, live cameras, current travel times, and bridge and road restrictions for cars and trucks." Below this is a "View on a map" section with a map of Washington state and a "Go to real-time map" button. The right column is titled "Winter in Washington" and contains the text: "Winter weather is upon us. Know before you go and explore tools to keep you safe." Below this is a "View data by road" section with the text: "See real-time alerts, cameras and restrictions in a list view by road." There is a "Which road?" dropdown menu with "Select a road" and a "Search by Road" button. At the bottom of the right column, there are links for "Mountain passes", "Weather stations", and "See winter driving tips", followed by the text: "Prepare for your drive on Washington's roads & bridges."



WSDOT and COVID-19

Our COVID-19 safety protocols kept workers safe, allowed construction to continue:

- Revive I-5
- I-405/SR 167 Program
- SR 520 Bridge Replacement & HOV Program
- Alaskan Way Viaduct Replacement Program
- Puget Sound Gateway
- Tacoma HOV
- Interstate Bridge Replacement Program
- I-90 Snoqualmie Pass East
- US 97 Boundary Creek Bridge Fish Passage
- US 12 Nine Mile Hill to Frenchtown
- SR 26 passing lanes
- North Spokane Corridor
- WSF Colman Dock and Mukilteo Terminal



We are not through this pandemic



- **Business as usual is not appropriate or realistic** – We are a front-line service provider impacted by a global public health emergency.
 - Eight of our colleagues died, hundreds sickened
 - Vulnerable employees left to avoid risk
 - Crews exposed to co-workers who tested positive required to quarantine – 1,700+ employees, 17,390 total days lost to quarantine (as of Oct. 2021)
 - All saw impacts to family, friends, co-workers
- **Workforce contingency plan – adapting to changing conditions:**
 - WSF ridership numbers rebounding
 - Winter maintenance operations
- **Return to office won't look like it used to**
 - Employees want options and flexibility – opportunity for a better work/life balance
 - Agency telework transformation – 50% during pandemic
 - Future goal – 30% to 40% teleworking on any given day
 - Increased dependency on resilient IT systems and infrastructure

We are not through this pandemic

People living in WSDOT right of way, a situation exacerbated by COVID-19

- We're working with our partners
 - Offer shelter, social services to people who are homeless
 - Store personal belongings
- Work with law enforcement and others to remove encampments when they pose an immediate safety risk to people on the right of way, or to those traveling
 - Clean up property
 - Take actions to deter re-establishment
- Real solution is affordable housing, opportunities to become productive members of the community – will require coordination of many resources



Strategic plan – it's our foundation for managing through the pandemic



Workforce Development

WSDOT employees are our greatest asset

- WSDOT Office of Human Resources and Safety
 - Safety focus prior to pandemic
 - Recruitment and retention of a more diverse workforce with tools at our disposal
- Generational transition – significant portion of workforce is retiring
 - Tough labor market
 - Perceptions of public service
- Human Resources and Safety needs:
 - Competitive wages
 - Enhanced recruiting program
 - Enhanced training program

Strategic plan – it's our foundation for managing through the pandemic

Diversity, equity and inclusion

- Culturally competent agency
 - Diverse workforce
 - Disadvantaged Business Enterprise program
 - Construction workforce development
- Equity Journey
 - AASHTO/WASHTO resolutions
 - WSDOT Anti-Racism Executive Order
 - Equity baseline study
 - Equity plan
 - Commute Trip Reduction is evolving to Transportation Demand Management



Strategic plan – it's our foundation for managing through the pandemic

Practical solutions are embedded in our business practices

The Secretary's goal six years ago:

Avoid jumping to costly expansion projects, instead work to identify the right investment, at the right place, at the right time

Where we are today:

- Improved understanding of the need to preserve and maintain what we have, focusing on operational efficiency and demand management for mobility needs
- Improved project development with better consideration of multimodal transportation, more lower-cost operational efficiency and demand management strategies incorporated into final projects
- Continued emphasis on transparency and partnerships
- Continued work to embed practical solutions into our business practice

What comes next:

Build on this foundation of work and leverage this approach to focus on a resilient transportation system



The need for a resilient transportation system

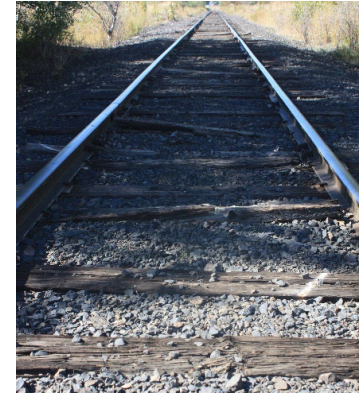
- **Climate change** – wildfires, flooding, excessive heat, sea-level rise, extreme storm events
- **Disasters** – Cascadia subduction earthquake, infrastructure failure, cybersecurity threats
- **Equity** – making sure our transportation system is accessible to everyone; addressing negative effects of transportation on overburdened neighborhoods
- **Economy** – our population is growing, how will the transportation system keep up – so what new tools, modes help us manage travel? How can streets and roads support vibrant local economies?



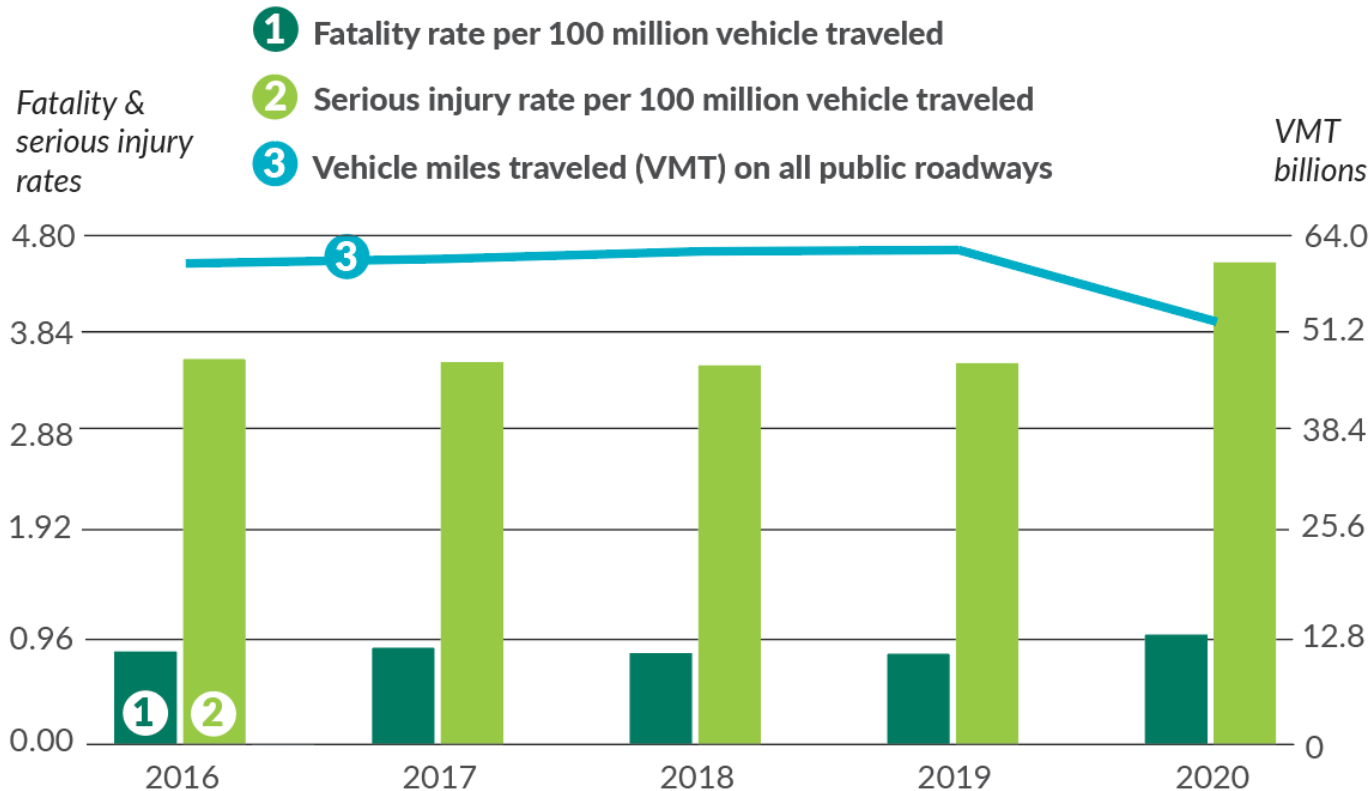
A resilient response



- State of Good Repair and Safety
 - Invest to reverse the trends
 - Fatalities and injuries
 - Asset decline – glidepath to failure

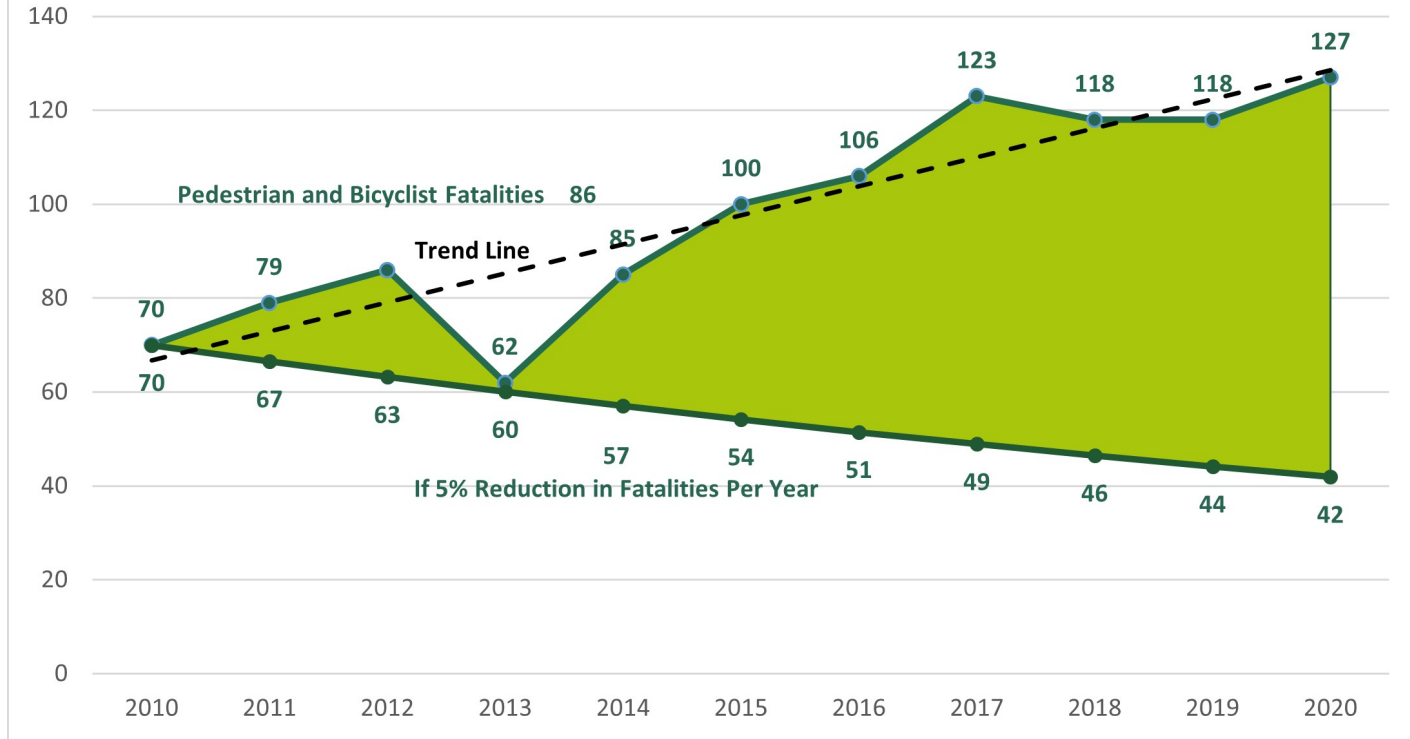


Fatality and serious injury rates on Washington public roadways



Data sources: Washington Transportation Data, GIS and Modeling Office; the Coded Fatal Crash System, Washington Traffic Safety Commission

Pedestrian and Bicyclist Fatalities 2010 - 2020



Combined pedestrian and bicyclist fatalities from 2010-2020, comparing actual deaths to lives that would have been spared if the state had met a reduction goal of 5 percent per year.

Return on investment - preservation

- 3,500 lane miles of pavement are due for preservation, another 4,200 are past due, and 1,300 lane miles are in poor condition; currently paving 750 lane miles per year
- 18 bridges need replacement, 22 more need major rehabilitation; 3 are being replaced
- 50 steel bridges are due for painting, 57 are past due; 3 are being painted
- 69 concrete bridge decks are due for repair, and 42 more are past due; 2 are being repaired
- WSDOT's Ferry vessels experienced 516 days of unscheduled maintenance in FY21 which is a decrease from 678 in FY20
- 25% of the Palouse River and Coulee City (PCC) is in poor condition; 80% of the system is operated at 10 MPH or less
- 119, or 42%, of WSDOT-owned primary buildings are more than 50 years old; 126, or 44%, are in poor condition



All figures as of 2021, unless otherwise noted

Investment needed for State of Good Repair

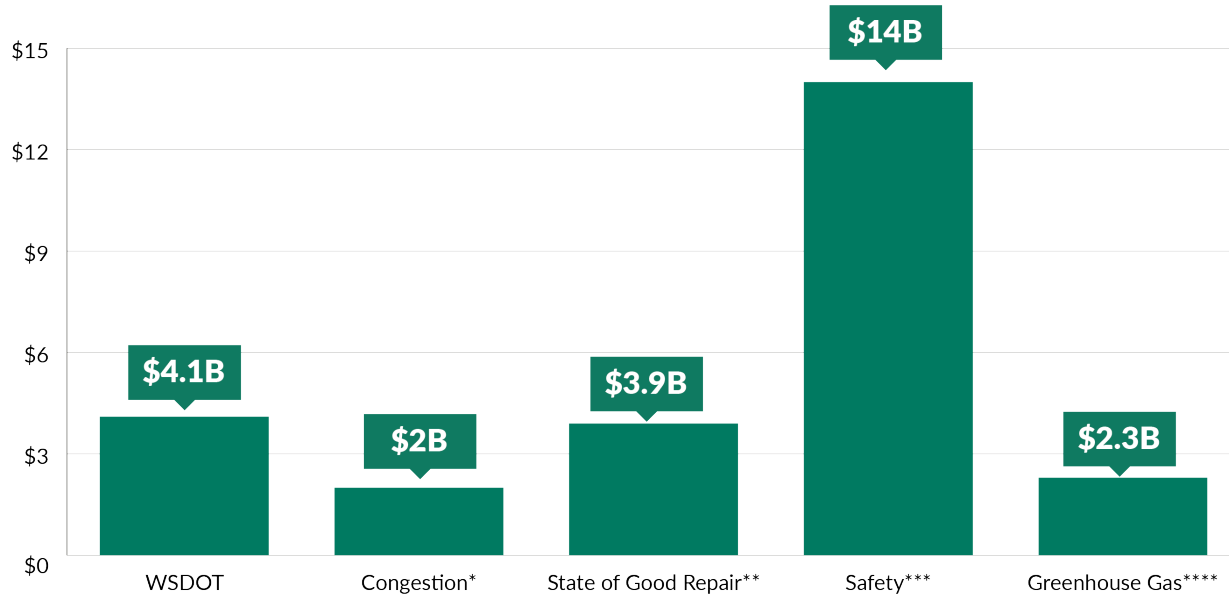
Asset Category	Replacement Value	Average Annual Need	Current plan annual average spending	Average annual funding shortfall
Highways	\$123,425	\$1,055	\$580	\$475
Multimodal (i.e. Aviation, Public Transportation, Rail)	\$685	\$115	\$25	\$90
Intra-Agency (i.e. IT, Facilities, Fleet, Real Estate)	\$70,245	\$185	\$80	\$105
Ferries	\$5,325	\$510	\$215	\$295
TOTAL	\$199,680	\$1,865	\$900	\$965

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

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

These numbers do not include any assumptions for receiving federal funds from the Infrastructure Investment and Jobs Act

Annual cost to Washingtonians



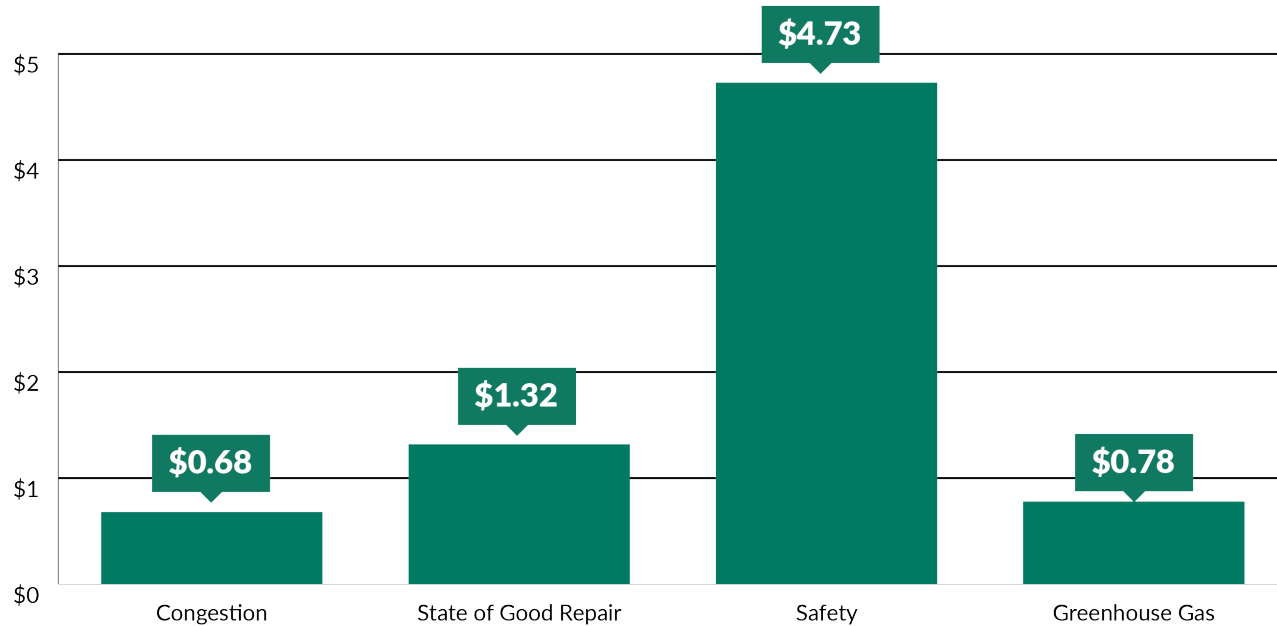
* Congestion cost source: Texas Transportation Institute's 2021 Urban Mobility Report; based on value of travel delay and excess fuel consumption statewide. 2019 congestion cost was \$4.8 billion; 2020 cost includes the first year of the pandemic with a significant drop in travel.

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

*** 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, 2018. Economic cost components include: medical care, emergency services, market productivity, household productivity, legal costs, insurance administrative costs, workplace costs, property damage and congestion.

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

Annual cost to Washingtonians (gas tax equivalent)



Source: Based on November 2021 Transportation Revenue Forecast Council, page 11-18 "Net for Distribution" for FY 2021, www.ofm.wa.gov/sites/default/files/public/budget/info/transpo/Nov2020VolumnII.pdf

A resilient response



- Decarbonize everything
 - Autos
 - Transit
 - Ferries
 - Aviation
- Finish what we've started
 - Complete Nickel, TPA and Connecting Washington
 - Complete the fish passage program



A resilient response

- Get more out of what we have through system and demand management
- Link transportation and land use
 - Affordable housing and transportation choices
 - Make it safe and easy to shift short trips to walk/bike
 - Telecommunity
- Intelligent Transportation Systems
 - Automated vehicles/Advanced driver assistance systems
 - Mobility on demand/Mobility
 - Advanced air mobility

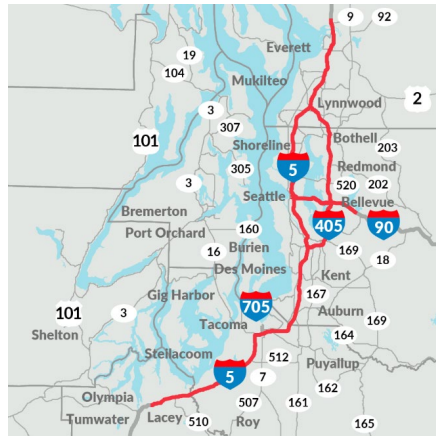


“Solving” Congestion

If we could add enough lanes to build our way out of congestion — what would that look like?

Total additional interstate miles needed to drive posted speed limit at all times:

- 451 lane miles at an estimated cost of \$115 billion
- Depending on timing and percent bonded, would require a \$2.20 to \$2.50 gas tax increase



Greater Puget Sound area

(Olympia to Marysville/Seattle to Issaquah)

- 385 new lane miles
- Maximum of four additional lanes in each direction in select locations within the Central Puget Sound



Vancouver area

- 38 new lane miles



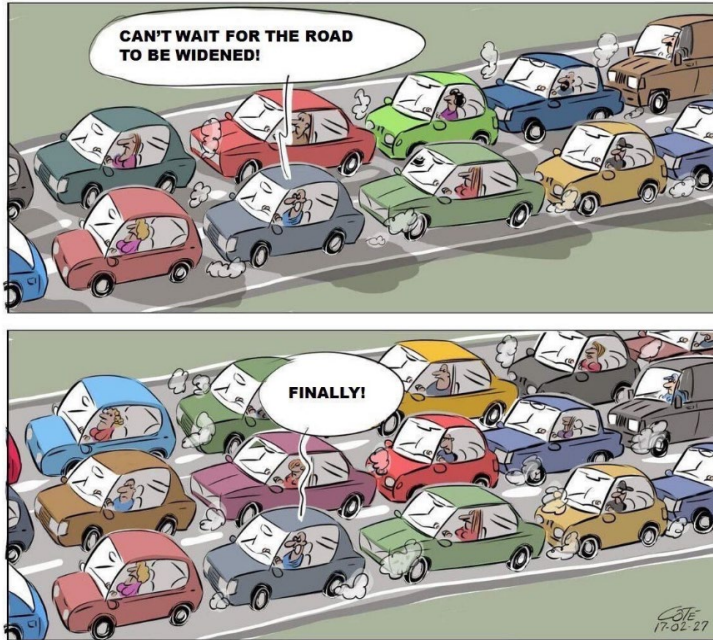
Spokane area

- 28 new lane miles

“Solving” Congestion Assumptions

High-level analysis for the interstate system:

- Assumes no induced demand
- No growth in demand
- Does not address increased capacity needed on other state routes or local roads
- May not address costs or timing of full environmental impacts
- No additional transit or alternative modal options
- Current year costs (in 2017)



Cartoon via @Brent Toderian on Twitter

A resilient response

- System expansion
 - Active Transportation
 - Public Transportation
 - Ultra High-Speed Ground Transportation
 - Emerging Aeronautics
 - Freight access
 - Supply chain
 - Package delivery



An investment in transportation is an investment in Washington jobs

Transportation projects create new jobs and support economic growth in our communities. Smart Growth America reports:

*“Public transportation, and road and bridge repairs, produce more jobs. Public transportation investments generate **31 percent more jobs per dollar** than new construction of roads and bridges, and repair work on roads and bridges generates **16 percent more jobs per dollar** than new bridge and road construction.”*

A study from the University of Massachusetts Amherst found:

“...bicycle and pedestrian infrastructure projects create significantly more jobs than infrastructure projects for cars alone.”

- Bicycle projects create 11.4 jobs for every \$1 million invested – 46% more than car-only road projects
- Pedestrian-only projects create an average of about 10 jobs per million
- Multi-use trails create 9.6 jobs per million
- Road-only projects create the least with 7.8 jobs per million

Recent Lessons from the Stimulus: Transportation Funding and Job Creation (February 2011), Smart Growth America ([lessons-from-the-stimulus.pdf \(smartgrowthamerica.org\)](#))
New report reveals bike and pedestrian projects create more jobs the those for car only, Smart Growth America ([New report reveals bike and pedestrian projects create more jobs than those for cars only | Smart Growth America](#))

Conclusion

WSDOT continues to rethink our old models

- Work with partners and stakeholders to recommend solutions
- Re-examine how we use our transportation infrastructure – accommodate all people and modes
- Ensure our policy and program decisions are equitable and inclusive
- Adapting transportation investment to the modern work environment
- Emphasize resilience and select flexible, adaptable investment strategies that can be effective in an uncertain future



Questions?

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