



WASHINGTON
ROUNDTABLE

Washington Roundtable: Transportation Investment Initiative Review

October 2014

THE BOSTON CONSULTING GROUP

Scope and purpose of this study

BCG was asked by the Washington Roundtable to help assess the economic impact of the elements of the road and bridge infrastructure investment packages that had broad legislative support in the 2014 session

The analysis covers 6 projects across WA state and highway preservation spend based on 12-year spending packages (common among packages with broad legislative support)

We have evaluated the future cost and impact of these 6 projects vs. a "status quo" scenario that holds transportation funding at today's levels

The outcome of our work is a quantification of the economic impact to residents, businesses and the state government

This is not a “package” it is an economic analysis.

BCG's five drivers of global competitiveness – our country's starting point in infrastructure is challenged



Infrastructure



Human Capital



Business Environment



**Capital and Innovation
Ecosystem**



Global Connectedness

The US ranks 19th globally in infrastructure¹

The ASCE gives the US a D+ in infrastructure rating

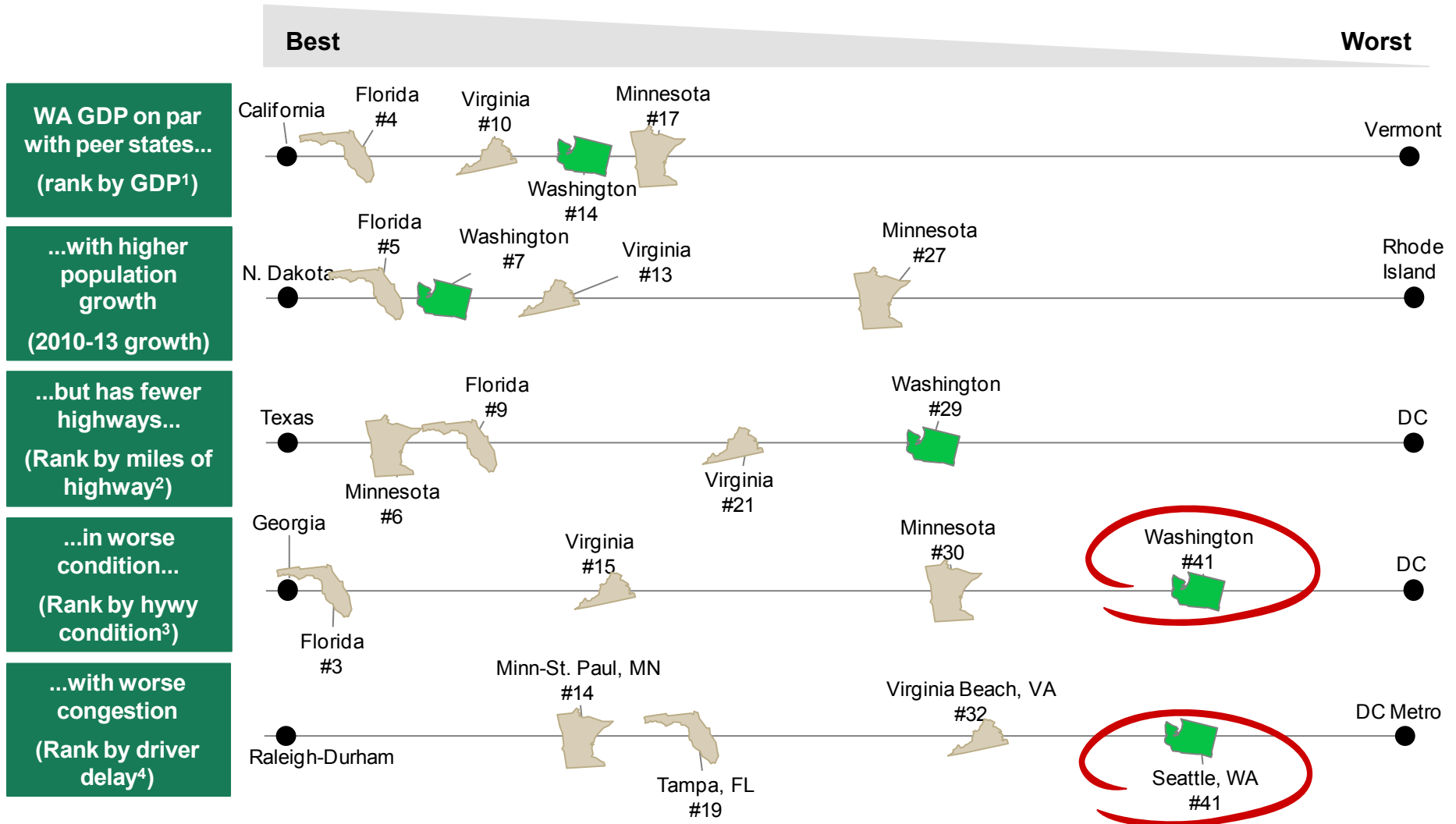
Need to invest \$3.6T by 2020 to upgrade infrastructure

Public construction is less than 1.5% of GDP vs. 2% long-term average

States fund 70% of highway maintenance / projects, which is straining local budgets

Federal Highway Transportation Fund revenues are falling and raising add'l taxes is politically difficult

Washington's highways are not able to continue supporting our population growth and economy



1. GDP values from 2012 2. Federal aid highway miles from FHWA 3. Highways rated "poor" or "mediocre" based on IRI data from 2012 4. Average hours of commuter driver delay per year, top 50 cities by population analyzed

Source: Bureau of Economic analysis (GDP), FHWA (mileage and condition, 2012), Congestion from 2011 Urban mobility report

The current state of Washington roads poses significant costs to residents and businesses...

Today

Congestion

- 97 million hours in traffic¹
- Costs \$840/driver per year

Road Conditions

- 14% in poor/very poor condition²
- Costs \$380/driver per year

Bridge Conditions

- 26% obsolete or structurally deficient³

Highway Preservation Costs

- \$300K-\$400K per mile rehabilitation costs⁴

Trade originating from ports

- 3.5M TEUs in Trade at the ports⁵, ranking 11th and 18th in the nation⁶

1. Congestion estimates based on 2011 Urban Mobility Report figure of 48 hours grown by 1%/yr (TRIP VMT growth estimate). Value of time = \$16.79/hr from Urban Mobility Report, 2.05M peak drivers affected by congestion as shown in UMR

2. Road quality estimate based on 2012 FHWA report, cost estimate taken from TRIP, expected to expand at fraction of fair/poor roads, 5.1M licensed drivers used from TRIP report

3. Based on FHWA National Bridge Inventory, 2013

4. From Smart Growth America's *The Best Stimulus for the Money*

5. For Ports of Seattle/Tacoma only

6. Ranking of ports only, based on total value of commerce, sources from USTradeNumbers.com

...and will only deteriorate further at the current funding status quo

	Today		2026 condition @ status quo ¹
Congestion	<ul style="list-style-type: none"> • 97 million hours in traffic • Costs \$840/driver per year 	➔	<ul style="list-style-type: none"> • 109 million hours in traffic² • Costs \$940/driver per year
Road Conditions	<ul style="list-style-type: none"> • 14% in poor/very poor condition • Costs \$380/driver per year 	➔	<ul style="list-style-type: none"> • 60% in poor/very poor condition³ • Costs \$1,040/driver per year
Bridge Conditions	<ul style="list-style-type: none"> • 26% obsolete or structurally deficient 	➔	<ul style="list-style-type: none"> • 40% obsolete or structurally deficient⁴
Highway Preservation Costs	<ul style="list-style-type: none"> • \$300K-\$400K per mile rehabilitation costs 	➔	<ul style="list-style-type: none"> • \$2.7M per mile reconstruction costs⁵
Trade originating from ports	<ul style="list-style-type: none"> • 3.5M TEUs in Trade at the ports, ranking 11th and 18th in the nation 	➔	<ul style="list-style-type: none"> • Flat volume or declining share

1. Based on current WSDOT funding and expenditure estimates, which include a 25% reduction in Federal Highway Trust funding

2. Based on 1%/yr. VMT growth as shown by TRIP, does not account for increase in number of drivers

3. Based on 2024 projection provided by WSDOT in Gray Notebook, 2012. Linearly projected forward to reach 2026 estimate.

4. Based on linear projection of bridge condition under funding levels as shown by WSDOT response to TRIP survey, 2014

5. \$2M/mile reconstruction costs plus 3%/yr. inflation adjustment over 10 years.

Proposed packages in Olympia include 7 projects with low relative technical complexity

	Expenditure	Proposed work	Expected Benefit
Highway Preservation and Maintenance	\$1.25B	<ul style="list-style-type: none"> Preventative maintenance Washington-state wide 	Improving poor road conditions, preventing highway re-build cost
SR 520 West Side	\$1.30B	<ul style="list-style-type: none"> New structure, earthquake resistant Completes HOV lane addition 	Prevents catastrophic loss, "unlocks" prior 520 construction benefits
I-405 Bellevue to Renton	\$1.29B	<ul style="list-style-type: none"> Adding 2 express lanes and convert current HOV to express 	Relieves congestion on one of most traveled highways
I-5 JBLM	\$0.35B	<ul style="list-style-type: none"> Adding lanes and re-pave I-5 near Joint Base Lewis-McChord 	Enables growth in military and port traffic/commerce
Puget Sound Gateway	\$1.66B	<ul style="list-style-type: none"> New 4-lane highways connecting I-5 to 509 and SR 167 	Enables growth in commerce, jobs at the ports
I-90 Snoqualmie Pass	\$0.39B	<ul style="list-style-type: none"> Widening lanes and improve safety management 	Reduces cost of agricultural trade from Eastern WA
US 395 N-S Spokane	\$0.75B	<ul style="list-style-type: none"> Extend state route 395 to I-90 north of Spokane 	Improves trade routes, especially for Eastern WA

\$7B Total

There are seven levers which benefit residents, businesses and the WA state government

Benefits to Residents:

- 1 Reduced congestion and quality of life improvement from reliable travel times
- 2 Safer roads that cause less wear and tear on vehicles
- 3 Near-term construction employment

Benefits to Businesses:

- 4 Lower costs (supply chain and attrition)
- 5 Improved productivity (Long term job growth, expansion of port activity, decrease in on-the-job travel time)

Benefits to Government:

- 6 Greater tax revenue from increased economic activity and project construction
- 7 Reduction in risks and delayed costs of inaction

We believe these projects will deliver \$42B in value...

		Major Improvement	Benefit (\$B)	30-yr benefit ¹
Residents	1	Reduced Congestion:	4M fewer congestion hours/yr	\$2.1B
	2	Improved safety and lower vehicle operating costs:	Up to \$160/yr per person	\$13.9B
	3	More construction jobs:	184K jobs over 12 years	\$4.3B
Businesses	4	Lower costs that allow for greater investment in Washington:	\$600M/yr supply chain costs	\$10.5B
	5	Enablement of significant port expansion:	\$2.5B in building + \$370M/yr jobs	\$5.4B
Government	6	Revenue from increased economic activity and lower unemployment:	\$20-80M/yr from business productivity	\$0.6B ²
	7	Avoided costs and risks from not acting near-term:	\$650M/yr cost avoidance	\$5.0B
			Total:	\$42B

Note: See appendix for detailed calculations on improvements and benefits

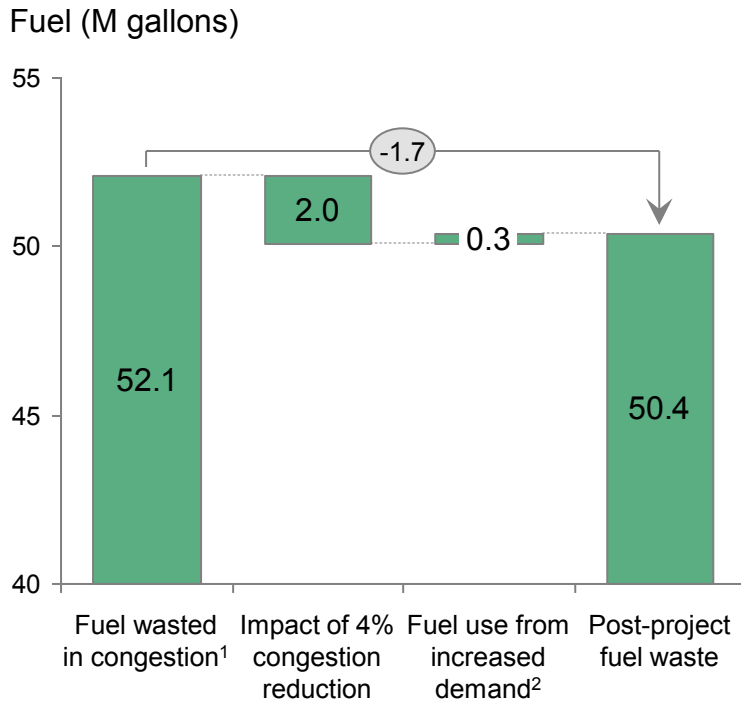
1. Based on a 5% discount rate and 3% annual inflation

2. Does not include \$420M of sales taxes from proposed project spend

...and provide possible environmental benefits

Reduced congestion reduces emissions

Proposed projects have the potential to reduce commuter fuel use by **1.7M gallons/yr.**



Projects include funds to protect nearby ecosystems

- ✓ **Collecting & treating storm water**
 - Bringing project sites to 2006 runoff standards
- ✓ **Restoring wetland habitats along project corridors**
- ✓ **Wildlife overpasses to protect animals along Snoqualmie Pass**
- ✓ **Sustainable, native vegetation planted along project corridors**
- ✓ **Noise pollution reduction structures built along corridors**

1. For Seattle and Spokane only, based on Urban Mobility Report plus 1%/yr. growth in fuel use/cost will incur a 15% "rebound" from increased demand.

2. Based on FHWA "Strategies to reduce GHG emissions" study, assumes that a decrease

This investment also adds \$2B+ to Washington's state and local taxes over the next 30 years

Proposed funding to come from dedicated sources...

Fuel tax increases

- Direct charge for use of roadways
- 11.5¢/gal phased in through 2017

Truck and vehicle fees

- Ensures all vehicles contribute
- \$15-\$35 for trucks/passenger vehicles

Bond proceeds

- Allows near-term project benefit from long-term tax and tolling revenue streams

...but generates benefits for WA state general funds



\$1.7B in state and local taxes from increased port activity over 30 years¹



\$260M in B&O/sales tax over 30 years from job growth and business productivity



Additional \$420M from project sales tax if not used for transportation spending²








\$2B+ in additional state and local taxes over 30 years

Road investment can bolster funds for education, not detract from them

1. 58% increase of current \$90M in taxes by year 10, with a 3% increase after from years 11-30

2. Retail sales and use tax for project spend estimated at \$420M from Washington State Association of Counties statement, November 2013

This package delivers significant improvements over the status quo

	2026 @ status quo		After proposed investment
Congestion	<ul style="list-style-type: none"> • 109 million hours in traffic • Costs \$940/driver per year 		<ul style="list-style-type: none"> • 4 million fewer hours of congestion, saving \$85/driver per year
Road Conditions	<ul style="list-style-type: none"> • 60% in poor/very poor condition • Costs \$1,040/driver per year 		<ul style="list-style-type: none"> • Reduction of poor roads by 25%, saving average driver \$160/yr.
Bridge Conditions	<ul style="list-style-type: none"> • 40% obsolete or structurally deficient 		<ul style="list-style-type: none"> • Complete 520 repair, maintain other systems
Highway Preservation Costs	<ul style="list-style-type: none"> • \$2.7M per mile reconstruction costs 		<ul style="list-style-type: none"> • Avoidance of reconstruction costs of 225 hywy miles/yr.
Trade originating from ports	<ul style="list-style-type: none"> • Flat volume or declining share 		<ul style="list-style-type: none"> • 50%+ port growth over 10 years

Note: See appendix for detailed calculations on the value of the proposed package and its improvements

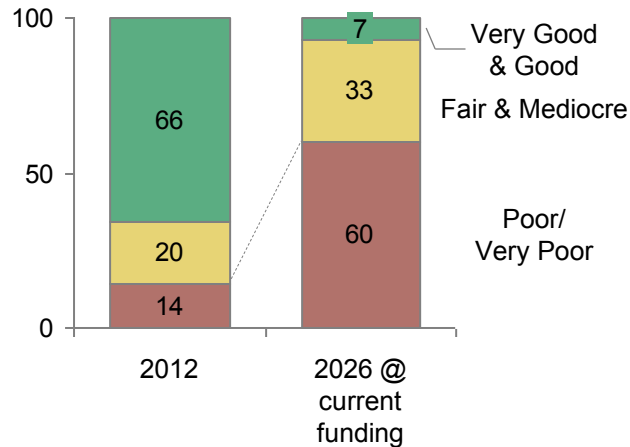
Increasing maintenance and preservation investment to \$3.4B would eliminate poor quality roads, save \$4.6B/year

Status quo preservation and maintenance funding will cost drivers \$5.3B/yr by 2026...

...and \$1.25B in extra funding only closes part of the gap...

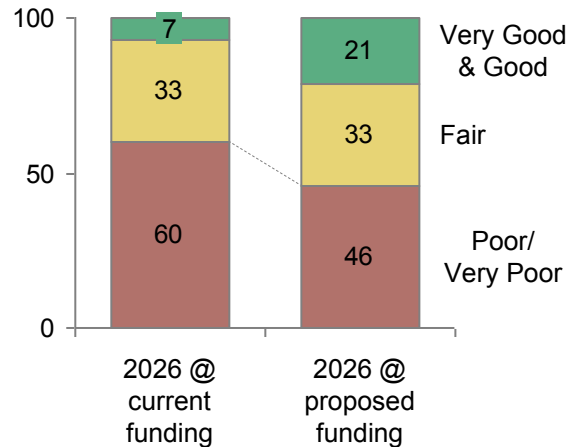
...while a \$3.4B investment over 12 years would save drivers almost \$4.6B/yr.³

Road quality (% of Highways)¹



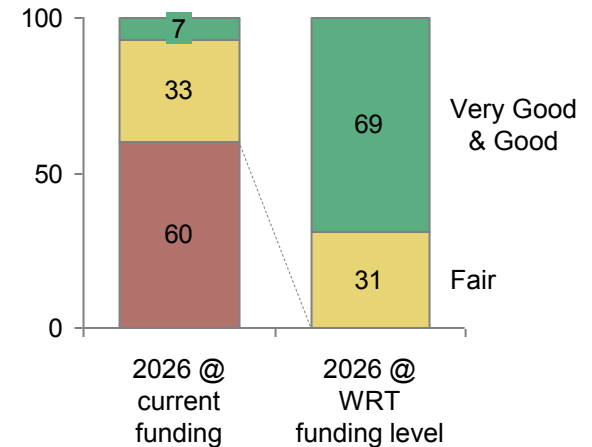
Cost/yr (per driver)
\$2.0B (\$380) **\$5.3B (\$1040)**

Road quality (% of Highways)²



Saving vs. status quo
\$0.7B (\$160)

Road quality (% of Highways)



Saving vs. status quo
\$4.6B (\$890)

1. Road quality estimate based on taking linear projection from WSDOT's 2023 condition estimate and 2012 FHWA report, cost estimate based on 2014 TRIP report, expected to expand at fraction of fair/poor roads, 5.1M licensed drivers used from TRIP report (assumed constant through future years for simplicity)

2. Assumes 25% spend increase decreases fair to poor roads by 25%

3. Takes \$2.8B in highway maintenance and preservation spend from 2013 WSDOT assessment and increases by 20% to account for 12 year vs. 10 year length, WSDOT assessment provided to estimate investment required to reach zero poor/very poor roads. Assumes federal highway funding reduced by 25% from 2013 levels.

Source: TRIP, FHWA

Summary of today's discussion

Washington has a call to action: There is an opportunity to make a **high impact investment** in the state's roads and bridges to ensure the **future growth** of the state

- Washington currently trails peer states in road quality and congestion, and maintaining the status quo will lead to further deterioration in the state's roads and higher costs to drivers

\$7B in projects and preservation spend have the opportunity to create **\$42B in value** for residents, businesses and the government over the next 30 years, benefits include:

- 4 million fewer hours spent in congestion
- \$160/person per year saved in vehicle wear-and-tear
- 184 thousand jobs created, distributed over 12 years
- \$600M/yr lower supply chain costs to businesses
- \$650M/year of lower costs to the government compared to delaying repairs

Proposed investments will drive **billions of dollars in economic activity**, increasing tax revenue generated for the **general fund by \$2B+** over 30 years and improving the environment

- Residents across Washington will benefit from systemic supply-chain improvements that promote and facilitate trade—especially for the agricultural and port economies
- Proposed investments include spend dedicated to improving storm water, wildlife and vegetation, and reducing congestion would save almost 2 million gallons of wasted fuel per year