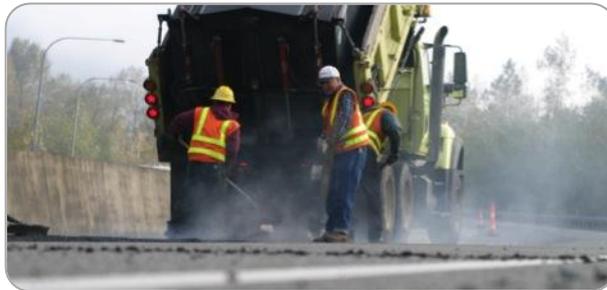


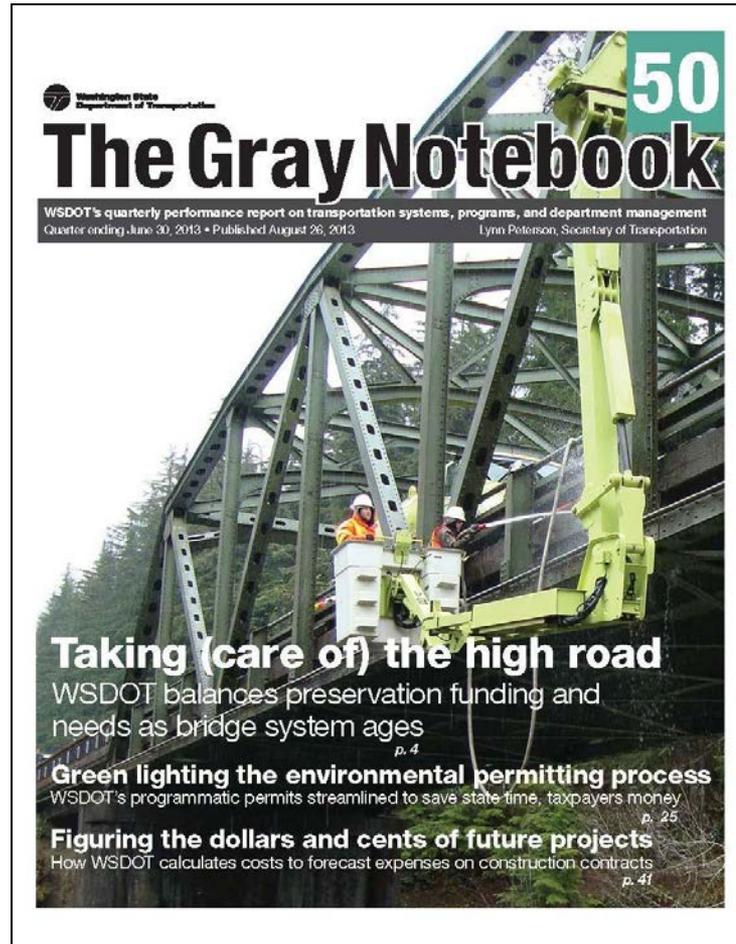
An Update on the Evolution Performance Reporting at WSDOT



Daniela Bremmer
Director, Office of Strategic Assessment
and Performance Analysis

**Washington State Transportation
Commission**
October 16, 2013

Third generation: It's about continuous improvement



Third generation: It's about continuous improvement

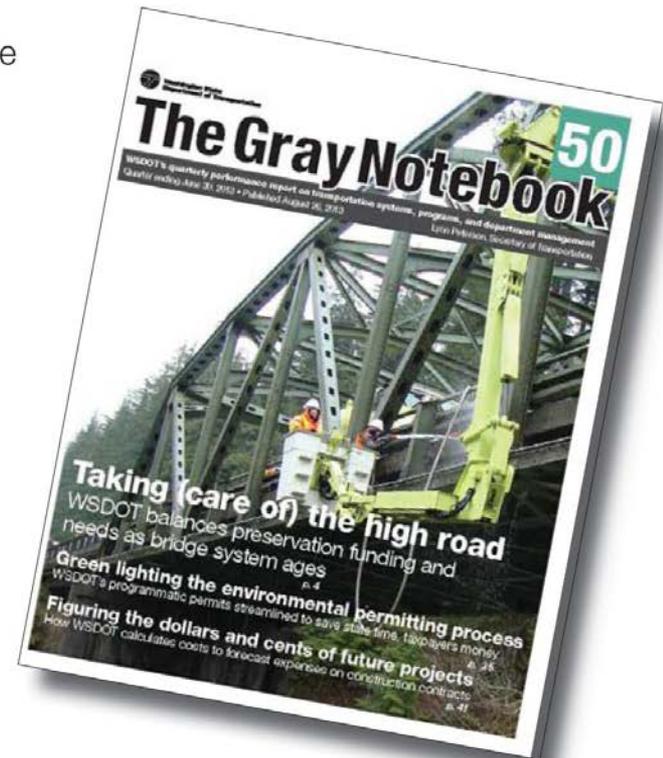
Share your vision for *performance reporting*

WSDOT has begun to **revamp, refine** and **re-brand** the way the agency tells its performance story, and we want your opinion.

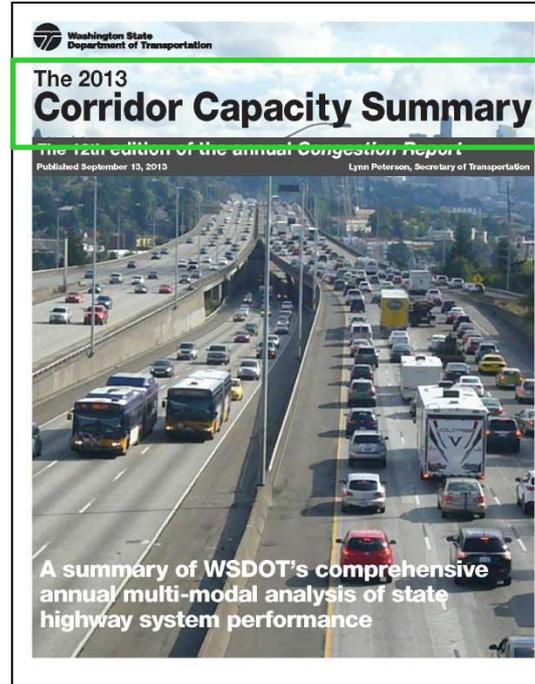
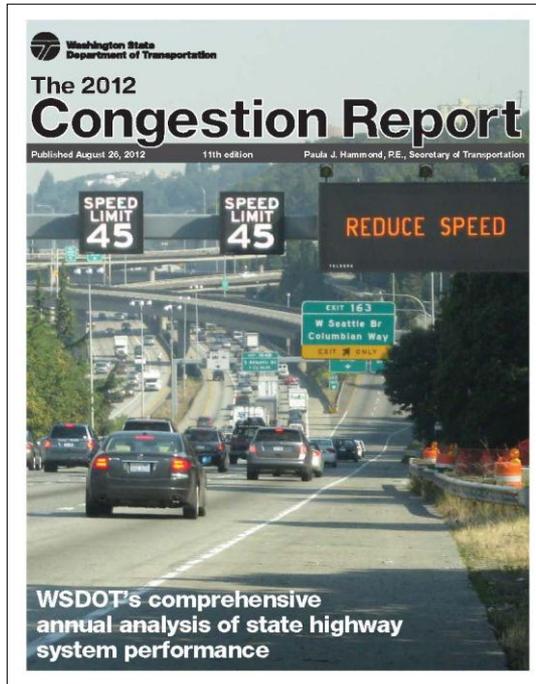
Long considered the gold standard, we're aiming for **platinum** - with a new look and feel, our latest publication furthers WSDOT's accountability and transparency while appealing to a **broader audience**.

Three ways to share your ideas:

Visit WSDOT **Headquarters**, third floor, A wing, and post your ideas on our hallway idea wall, email them to **GrayNotebook@wsdot.wa.gov** or call or email Production Manager **Yvette** Wixson at (360) 705-7970 or yvette.wixson@wsdot.wa.gov



WSDOT strives to go multi-modal in system performance measurement...



...in partnership with Metropolitan Planning Organizations (MPOs), Transit agencies



WSDOT's *Corridor Capacity Report...* ...What's new?

Each page in the *Corridor Capacity Summary* document works as a handout that tells the corridor story.

Some of the enhancements are:

- **Getting to the point** – we've put results up front "At a glance"
- **Telling the system capacity story: Multi-modal performance** – We're expanding to include transit performance on key commute corridors, and looking at highway segments that have regularly recurring congestion, indicating capacity constraints
- **Making it personal: what the system performance means to you** – We shifted our perspective to look at per-person metrics, such as how much it costs a driver in wasted gas and extra time due to traffic
- **Greenhouse gas emissions: transportation's impact on the environment** – we've assessed the per person emissions per trip on the regularly congested commute routes, along with the emissions avoided due to transit ridership
- **Graphics are now easier to grasp** – we're using more "infographics" and maps to display relevant information and performance trends

Getting to the point...

At a glance

- In 2012, per person vehicle miles traveled was 8,303 miles annually on all public roads, the lowest since 1988
- In 2012, the average Washington driver spent 4.5 hours in traffic, which is 12 minutes less than they did in 2010

Per person vehicle miles traveled hit lowest levels in Washington since 1988

Per person (per capita) vehicle miles traveled (VMT) decreased for the third year in a row. In 2012, per person VMT hit a record low of 8,303 miles annually on all public roads and 4,578 on state highways; these are the lowest observed per person VMT values in the past quarter century. This does not mean the VMT is at its lowest, but rather the 2012 ratio between VMT and statewide population is the lowest recorded since 1988.

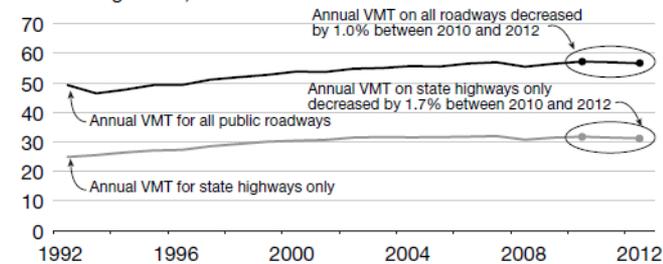
The VMT on all public roads shows the average Washingtonian drove 202 fewer miles in 2012 than in 2010, and 114 fewer miles than in 2011. Similarly, for VMT exclusively on state highways, Washingtonians drove 145 fewer miles in 2012 than in 2010 and 69 fewer miles than in 2011.

The per person VMT on all public roads decreased by 2.4% between 2012 and 2010. A similar trend was observed between 2012 and 2011, with a 1.4% decrease in per person VMT. The per person VMT measured exclusively

Statewide vehicle miles traveled decreases for the third year in a row

In 2012, vehicle miles traveled statewide on all public roads decreased for the third year in a row. The average annual VMT on all public roadways in Washington decreased by 1% in 2012 (56.607 billion) compared to 2010 (57.191 billion). The 2012 annual VMT decreased by 0.6% compared to 2011 for all public roadways. The VMT only on state highways in 2012 decreased by 1.7% compared to 2010 and decreased by 0.8% compared to 2011.

Annual vehicle miles traveled decline three years in row 1992 through 2012; VMT in billions



Data source: Statewide Travel and Collision Data Office (STCDO).

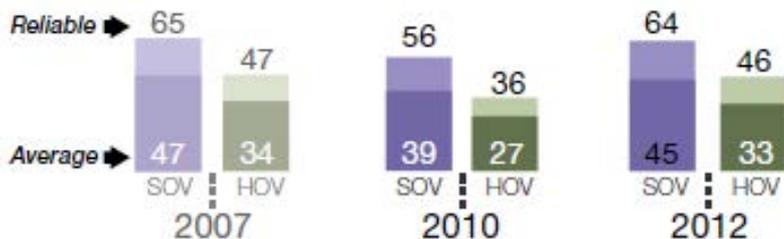
Telling corridor capacity story...



Routinely congested segments

2012; Morning and evening peak periods (5-10 a.m. and 2-8 p.m.);
Direction of travel; Length in miles; Duration in hours

Federal Way to Seattle morning commute
5-10 a.m.; Trip length 22 miles; Travel times in minutes



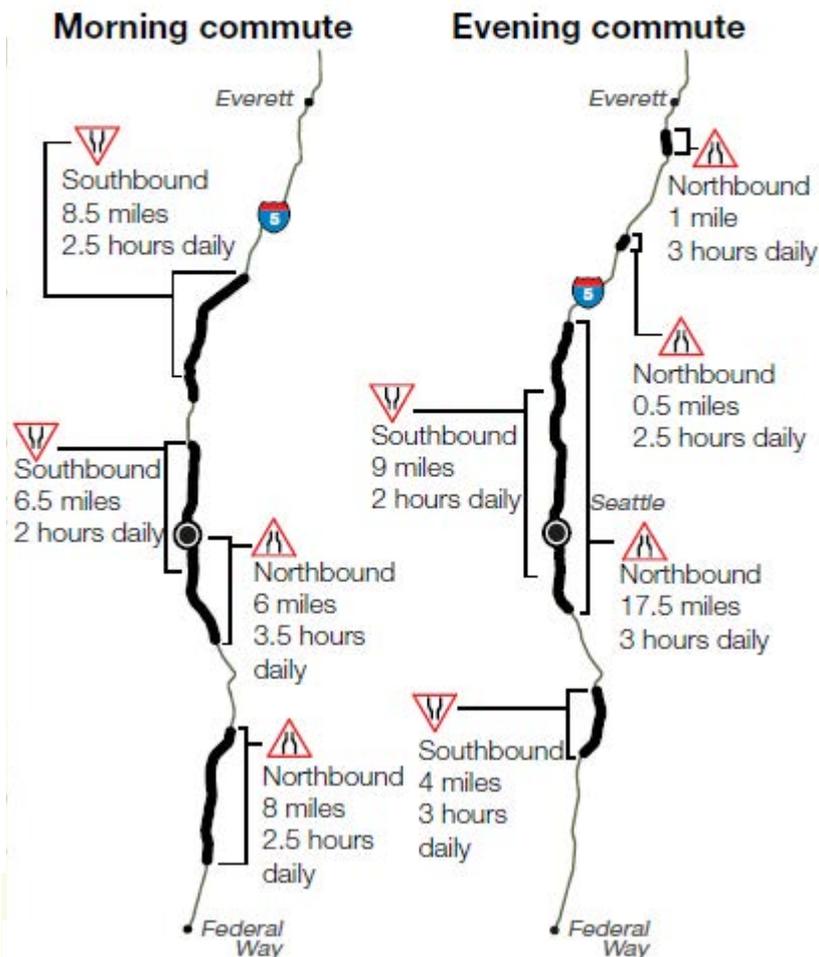
3,030 peak period transit ridership
83% of seats occupied on average

Park and ride capacity⁵

2012; Parking spaces and average percent occupied

Federal Way-Seattle commute route

Park and ride	Spaces	Percent occupied
Lakewood area	1,093	69%
Sumner train station	286	100%
Puyallup area	583	93%
Tacoma Dome station	2,283	95%
Federal Way area	2,067	75%



Making it personal... using person metrics

...by major urban corridor

Central Puget Sound area I-5 corridor performance

Annual miles traveled per person ¹				Annual delay ² per person				Annual emissions per person			
2007	2010	2012	↑ 1%	2007	2010	2012	↑ 45%	2007	2010	2012	↓ 1%
4,973	4,901	4,955		6.8	4.4	6.4		N/A	5,022	4,986	
Baseline	in miles traveled		2010 vs. 2012	Baseline	in hours of delay		2010 vs. 2012	Baseline	in pounds of CO ₂		2010 vs. 2012

...by commute route

Cost of congestion, greenhouse gas emissions, and transit use

Morning commutes: Cost of congestion, vehicle emissions and transit performance for 19 high-demand commute trips 2010 and 2012; Morning (AM) peak (5-10 a.m.) for an annualized average weekday; Length of route in miles; Cost of congestion in dollars; Emissions in pounds of carbon dioxide (CO₂); Average transit ridership, average load, and emissions avoided based on the average maximum load during the peak period

Route	Direction of travel	Length of route	Cost of congestion ¹			Greenhouse gas emissions ² in pounds of CO ₂			Daily transit performance ³					
			Per person ⁴ , per trip			Emitted during peak period			Emitted per person ⁴			Total ridership	Average load ⁵	Emissions avoided ⁶
			2010	2012	%Δ	2010	2012	%Δ	2010	2012	%Δ	2012	2012	2012
To Seattle														
I-5 Everett to Seattle ^{7,9}	SB	24	\$3.00	\$3.30	\$0.30	556,000	545,130	-2%	20.8	20.7	-1%	5,770	63%	84,430
I-5 Federal Way to Seattle	NB	22	\$2.30	\$3.70	\$1.40	638,530	627,880	-2%	20.8	21.2	2%	2,710	81%	36,650
I-90/I-5 Issaquah to Seattle	WB/NB	15	\$0.90	\$1.80	\$0.90	277,890	286,020	3%	13.4	13.4	0%	2,740	81%	26,180

Greenhouse gas emissions...

...transportation's impact on the environment

- In 2012, 3.2 million metric tons of CO₂ was emitted from the 40-high demand commute corridors (weekdays only) in the central Puget Sound area, this is 3% less than 2010
- Transit use has a significant positive impact in terms of avoiding GHG emissions
- In 2012, the emissions **avoided by transit use** in the central Puget Sound area was about 80,000 metric tons, during the weekday peak commute periods only
 - This is equal to shutting down the Seattle area power plants for 23.5 years to eliminate the same amount of CO₂ emissions in King and Snohomish counties (3,400 metric tons annually in 2009) (source: CARMA database)

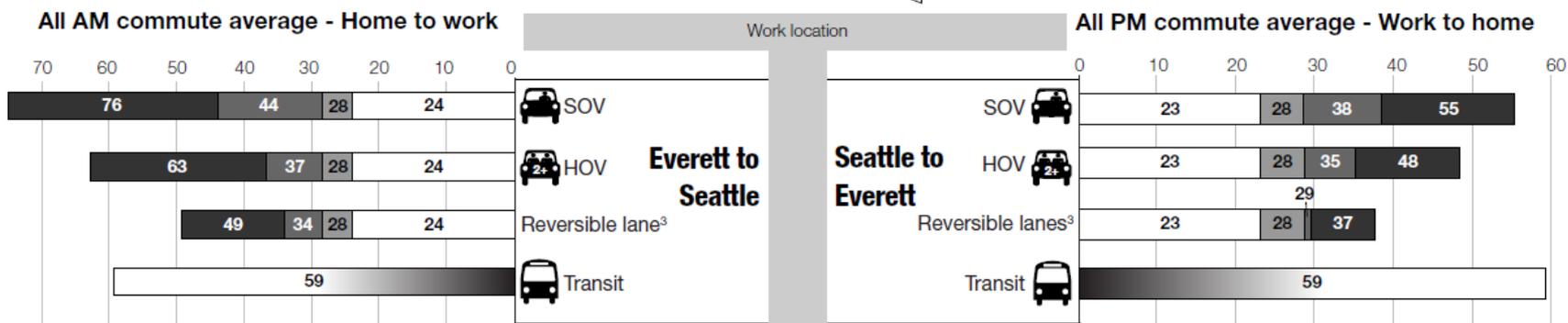
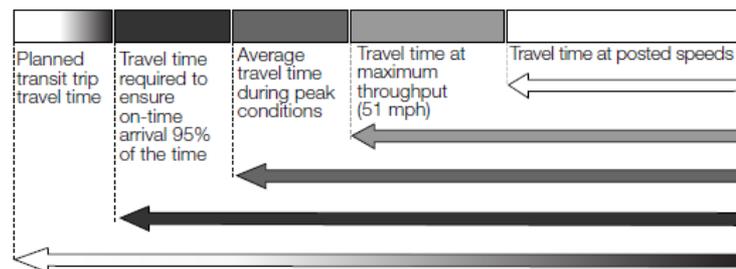
Graphics are now easier to grasp...

...“infographics” and “maps” to present information visually

Travel time comparison for SOV, HOV, transit trips to work in Seattle

Travel times at posted speeds, maximum throughput speeds, peak travel times, and 95th percentile reliable travel times
Morning and afternoon commutes by work location

2012; Single occupancy vehicle (SOV), high occupancy vehicle (HOV) and public transit commutes in the central Puget Sound area; Travel time in minutes



The above “infographic” directly allows one to compare Everett to Seattle trip travel times by mode - SOV, carpool, reversible HOV, and transit.

Less is more...

Strategic story telling & reporting – more stories but with fewer pages focusing on the relevant information

- 2013 *Corridor Capacity Summary* edition is 26 pages, compared to 86 pages for the 2012 *Congestion Report* – that's 70% less
- We continue to publish the regular 2013 *Corridor Capacity Report*, which is 92 pages – at least for this time around as a transition

How does the corridor page in the summary document look?

A preview of the corridor performance page

Telling the corridor capacity and performance story ... A new feature: incorporating "infographics" with narrative to tell the whole story

Per-person metrics tell the story and what it means to you:

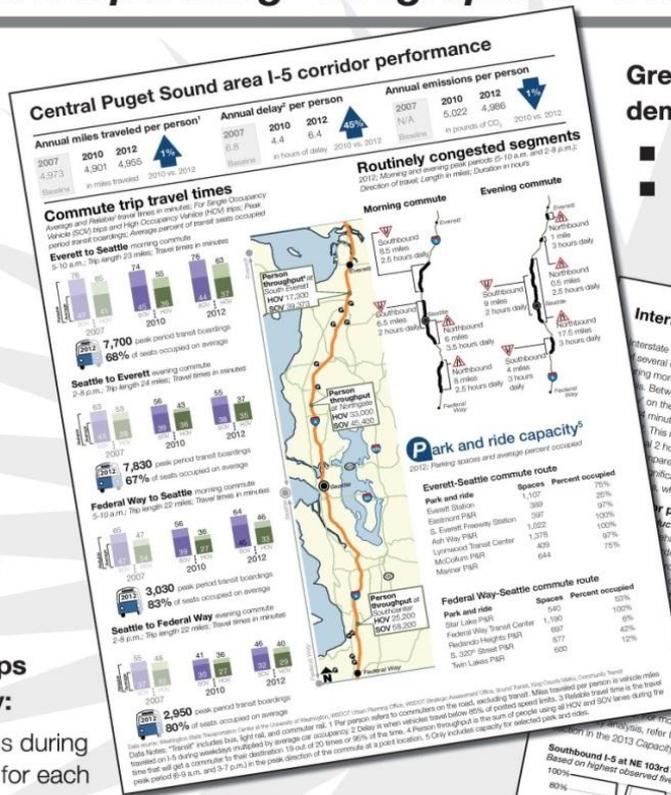
- Person miles traveled
- Person hours of delay
- Emissions per person

Trip travel times help people and goods arrive on schedule:

- Average trip time
- Trip time for HOV lanes
- Reliable trip travel times

Transit performance helps capture system capacity:

- Transit system boardings during peak commute periods for each commute trip
- Percent of existing transit system capacity utilized during peak periods
- Emissions avoided and cars off the road due to transit ridership



Throughput productivity illustrates efficient use of roadway capacity

Greenhouse gas emissions demonstrate impact of travel

- Annual emissions per person
- Emissions avoided due to transit use

Congestion trouble-spots constrain the highway system's capacity:

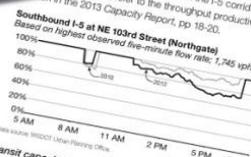
- Locations of recurrent congestion
- How long congestion lasts

Interstate 5 corridor performance story

Several corridors that experience heavy congestion during morning and evening commute hours on a daily basis. Between 2010 and 2012, per-person hours of delay on the I-5 corridor increased 45% from 4.4 hours to 6.4 hours. This means an average commuter spent an additional 2 hours on the road over the course of 2012 compared to 2010. However, the corridor did not experience significant changes in 'person-miles traveled' when comparing the same years.

Productivity analysis

As traffic increases, a road is able to handle more vehicles, but the result is a drop in the road's productivity. The productivity of the I-5 corridor (northbound and southbound on South 188th Street), in 2012, ranged between 70% and 80% of the road's capacity. Northbound in the southbound direction, productivity was 30% at 5 p.m. during the morning commute, but it was 70% recovered if the roadway was used during the evening commute. Comparatively, this productivity is a drop in the road's productivity when compared to the I-5 corridor in the 2013 Capacity Report, pp. 18-20.



Transit capacity: Transit carries several thousand people along the I-5 corridor each day during peak commute periods. Similar to roadway capacity, transit utilization rates along the I-5 corridor vary between 62% and 82% during peak periods.

Park and ride capacity: Availability of Park and Ride (P&R) locations within the transit service network is integral to transit ridership along express routes in the central Puget Sound area. P&R locations need to have enough parking spaces to accommodate transit demand. On the I-5 corridor, transit center, Lynnwood Way and Everett, the Federal Way Everett Station saw a 75% utilization rate. For more P&R lot details see: www.wsdot.wa.gov/choices/parkride.cfm

Capacity constraints along the I-5 corridor

The I-5 corridor has numerous, prominent points of congestion that lengthen the existing commute trip time as shown on the map on the previous page. For example, two prominent bottlenecks that last 3 hours and extend for a total of 14 miles along this 32-mile trip. These locations contribute to significant congestion on the corridor and have only worsened since 2010. This is due in part to the recovering regional economy, construction on SR 99, and shifting traffic patterns caused by the SR 520 bridge toll.

Commute trip reliability and average travel times

The most significant shift in travel times was a 12-minute increase on the Everett to Seattle afternoon commute via a typical commuter traveling Monday through Friday.

In 2012, Everett-Seattle peak commute periods trip reliability (95th percentile travel time - being on time 19 out of 20 times) was extended between 4 and 19 minutes when compared to 2010. However, the Seattle to Seattle morning commute and Seattle to Everett evening commute both saw an improvement in trip reliability of 3 minutes. For more details, refer to the commute trip reliability analysis section of the 2013 Capacity Report, pp. 22-36.

So, how much is congestion costing you?

In 2012, the commute congestion cost incurred by each person on the I-5 corridor, for a round trip to and from Seattle, ranged from \$400 to \$1,500 per year. For Everett (wasted time and gas) is \$1,500 per person. For a household of two commuters this means a total of \$3,000 extra each year in transportation related costs and time.

Park and Ride lot utilization illustrates supply and demand:

- Parking capacity
- Typical use of parking spaces at park and ride lots

Cost of congestion demonstrates personal impact to pocketbooks:

- Per person cost of congestion per trip
- Annual cost of congestion