

Travel Times Show Gains & Losses During the Last Six Months of 2010 on Central Puget Sound Highways

This semi-annual travel time analysis provides up-to-date information about the central Puget Sound travel trends, ongoing congestion relief strategies and projects under the state's *Moving Washington* program to fight congestion. Specifically, this report focuses on a sample of 18 key commute routes in the central Puget Sound region, (see following page). These results supplement the 2010 annual Congestion Report, which takes a more comprehensive look at the state's congestion trends, as well as those of the central Puget Sound region. The next annual Congestion Report will be published in August 2011, and will include information on the benefits of completed projects.

The trends described in this summary result from a comparison of traffic conditions in the second six months of 2010 to those from the same time periods in 2007, 2008, and 2009. The extended period allowed comparison of both recent changes in travel as well as longer trends. The table on the following page summarizes the travel time and volume changes that occurred in the central Puget Sound in the second half of 2010 (July-December).

Travel time changes in second half of 2010 were mixed

Taken as a whole, travel times began to drop in 2008 and continued to fall through 2009. In 2010, morning commute travel times were slightly longer than the previous year while travel times in the afternoon commute were generally shorter. Still, 2010 travel times were almost all below 2007 levels – even in the morning. Travel times on I-405, where several WSDOT projects have been either under construction or recently completed, are examined in detail.

Travel time changes on I-405

I-405 NE 195th Street to SR 527 (Bothell vicinity) The northbound evening commute from Bellevue to Everett via I-405 showed an improvement of more than three minutes, in large part because WSDOT completed construction of an auxiliary lane in Bothell (see p. 59 of the 2010 annual Congestion Report for more details on this project).

I-405 South Bellevue Widening WSDOT completed this widening project in 2009, which shaved 13 minutes from the morning Tukwila-to-Bellevue commute compared to the second half of 2008. In the second half of 2010, peak hour traffic volumes grew, adding two minutes to the morning trip time; 11 minutes of the benefit provided by the project still remain.

Analyzing traffic volumes for this route showed several slight but noticeable shifts in traffic patterns over the course of the morning. In 2010, traffic volume between 5am and 6am was lower than in 2009; volume after 6am increased compared to 2009, and remained high through the “peak of the peak” contributing to increased congestion before declining again around 6:30am. This resulted in low volumes past 6:30am in 2010, compared to 2009.

Travel times reflected these volume shifts. Traffic was effectively free flowing in both 2009 and 2010 until after 6am, when increasing volume caused congestion on some days. However, by 6:30am, 2010 congestion was noticeably higher than that observed in 2009, and that congestion decreased vehicle throughput to less than that of 2009.

These results suggest that routinely high levels of congestion on I-405 – considered one of the region's two heaviest routes – convinced many commuters to start their work day earlier to avoid congestion. The dramatic reduction in congestion following the I-90 approach improvements appears to have allowed a group of those commuters to leave for work later in the morning. The result was lower volume during the 5am hour, but an increase in volume after 6am, leading to more congestion during the “peak of the peak” period in 2010 than in 2009.



The Gray Notebook

Excerpt from GNB 40

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July-December 2007-2010: Travel Times are Slightly Higher on 10 of 18 Sampled Key Commute Routes

Congestion returning on I-5 Federal Way to Seattle morning commute

In 2010, a two-year trend of improving am peak travel times along the Federal Way to Seattle route reversed. Between the second half of 2007 and 2009, the route had seen an 11-minute improvement in travel time, most likely due to the recession. In the second half

of 2010, this route experienced a modest three-minute increase in morning travel times, despite having no statistically significant change in traffic volumes. The observed 2010 travel times were similar to those found in 2008, but slightly higher than those found in 2009.

Travel time performance for July-December in 2007-2010 on a sample of 18 high demand commute routes

Morning (am) peak is between 6 am and 9 am; evening (pm) peak is between 3 pm and 7 pm; length of route in miles; all travel times in minutes

Route name (route length)	Direction of travel	Average travel time in minutes during peak period				Peak average travel time change in minutes			Peak volume change		Daily volume change	
		2007	2008	2009	2010	2008 vs. 2007	2009 vs. 2008	2010 vs. 2009	2009 vs. 2008	2010 vs. 2009	2009 vs. 2008	2010 vs. 2009
Morning commutes												
I-5 Federal Way to Seattle (22)	NB	42	35	31	34	-7	-4	+3	+5%	-1%	+5%	-1%
I-5 Everett to Seattle (24)	SB	41	36	35	37	-5	-1	+2	+3%	-4%	+3%	-1%
I-5/I-405 Everett to Bellevue (23)	SB	42	37	36	40	-5	-1	+4	0%	-2%	+3%	0%
I-405 Tukwila to Bellevue (13)	NB	35	33	20	22	-2	-13	+2	+33%	-2%	+10%	+1%
SR 167 Auburn to Renton (10)	NB	17	14	14	15	-2	0	+1	+9%	-2%	+5%	-1%
I-405/I-90/I-5 Bellevue to Seattle (11)	SB/WB/NB	14	-*	12	12	-*	-*	0	-1%	+1%	0%	+3%
I-405/SR 520/I-5 Bellevue to Seattle (10)	NB/WB/SB	14	13	14	14	-1	+1	0	0%	-3%	+2%	-2%
I-5/I-90/I-405 Seattle to Bellevue (11)	SB/EB/NB	14	14	12	13	0	-2	+1	-5%	0%	+1%	-1%
I-5/SR 520/I-405 Seattle to Bellevue (10)	NB/EB/SB	16	15	15	16	-1	0	+1	-2%	-2%	+2%	-2%
Evening commutes												
I-5 Seattle to Federal Way (22)	SB	31	29	28	27	-2	-1	-1	+4%	-1%	+5%	-2%
I-5 Seattle to Everett (24)	NB	38	34	37	36	-4	+3	-1	-3%	0%	+2%	0%
I-405/I-5 Bellevue to Everett (23)	NB	41	35	36	33	-5	+1	-3	+4%	0%	+3%	0%
I-405/I-5 Bellevue to Tukwila(13)	SB	31	31	26	25	0	-5	-1	+5%	-1%	+5%	0%
SR 167 Renton to Auburn (10)	SB	16	14	13	15	-2	-1	+2	+2%	-2%	+5%	+2%
I-405/I-90/I-5 Bellevue to Seattle (11)	SB/WB/NB	22	-*	17	18	-*	-*	+1	+1%	0%	0%	+3%
I-405/SR 520/I-5 Bellevue to Seattle (10)	NB/WB/SB	23	21	23	22	-1	+2	-1	+2%	-1%	+2%	-2%
I-5/I-90/I-405 Seattle to Bellevue (11)	SB/EB/NB	13	13	13	15	0	0	+2	+2%	-3%	+1%	-1%
I-5/SR 520/I-405 Seattle to Bellevue (10)	NB/EB/SB	16	16	17	17	0	+1	0	+3%	-2%	+2%	-2%

Data source: WSDOT Northwest Region and the Washington State Transportation Center (TRAC) at the University of Washington.

Note: Travel time and volume data for weekdays only. General purpose lane volumes only, HOV/HOT lane volumes not included.

Daily volumes are duplicates in both the am and pm routes. An asterisk (*) indicates data not available for westbound I-90 due to construction.

Factors Influencing Travel Trends

Impact of an extreme weather event on average travel times

Unlike the morning peak period, the afternoon commute on four north/south I-5 travel routes showed very modest improvements in travel time. However, on November 22, 2010 the Seattle region experienced a major snow storm just before the evening peak period. The result was an exceedingly heavy commute with extreme travel times. That “extreme” day was so congested that it alone increased the mean travel time for the six-month analysis period by 30 seconds or more on many of the study routes. It is important to note here that small variations and changes are to be expected in average travel times due to this sort of event, and a small change in average travel times due to a significant event might not mean a change in typical commute time (See the Incident Response Quarterly Update on p. 28 of the December 31, 2010 *Gray Notebook 40* for more information).

Commutes across Lake Washington

In contrast to the changes observed on the north/south routes, the smallest travel time changes occurred on the trips crossing Lake Washington’s two floating bridges. These trips, both east/west on I-90 and SR 520, have had very stable travel times for the past four years.

Of particular interest is that only modest changes were observed on I-90 westbound. This roadway has undergone a variety of changes in the past four years. WSDOT’s I-90 Two-Way Transit and HOV project has constructed half of a new HOV lane that will eventually allow transit and carpools to use HOV lanes on I-90 in both directions all day. (Currently, carpools and transit use the reversible lanes in the peak direction but must share the general purpose lanes in the other direction.) The new HOV lane construction allows transit and carpools to remain in an HOV lane halfway across Mercer Island before they must merge into the general purpose lanes, shifting where the merge congestion occurs on I-90. Construction of the corresponding eastbound lane is currently under way and a third stage of the project will extend the new HOV lanes into Seattle.



Stage 2 of the I-90 Two-Way Transit and HOV project was under construction in August 2010. In order to widen the roadway crews must demolish the existing barrier. This is the view looking west. The center roadway and westbound I-90 are on the right.

No major changes in spot traffic volume

Data on the previous page shows that vehicle volume counts performed at representative locations along each study corridor in the second half of 2010 revealed very little change in traffic volumes in comparison to the second half of 2009. This was true for both peak period travel and daily travel. Importantly, 13 of the 18 count locations showed slight decreases in peak period travel, and 11 showed decreases in daily travel. However, all of these changes were smaller than the margin of error of the traffic counting devices.

For volume changes, the only corridor that merits special mention is northbound I-405 from Tukwila to Bellevue in the morning commute period. This corridor showed a major increase in peak period volume throughput (33%) in 2009 as a result of the decrease in congestion caused by the addition of capacity approaching the I-90 interchange. In 2010, a small part (1.5%) of this increase in throughput was lost to increasing congestion as commuters shifted their time of departure from before the start of the peak to later in the morning to take advantage of the faster trip. However, volume and travel times both remained considerably better than in 2008, before the completion of the project.

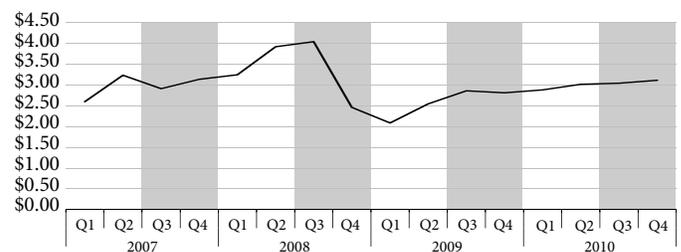
Other potential factors that influence travel trends during the second half of 2010

The modest changes in both volume and travel times are partially explained by the fact that the baseline economic conditions that affect travel in the region did not change significantly between the second half of 2009 and the second half of 2010.

Gas prices increased very slightly, from just under \$3.00 a gallon in the third and fourth quarter of 2009 to just over \$3.00 a gallon in the same quarters of 2010.

Washington statewide quarterly gasoline prices

Dollars per gallon; 2007-2010



Data source: US Department of Energy; Energy Information Administration (EIA).

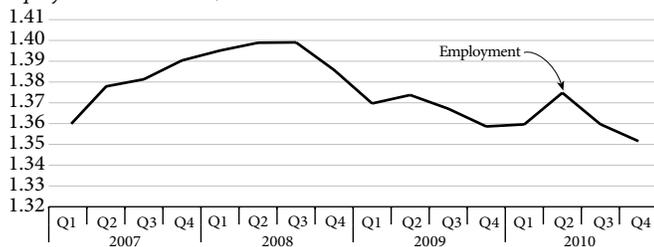
Influence on Travel Times: Transit Ridership

Employment levels at the end of 2010 were slightly below those observed at the end of 2009, while the unemployment rate remained stable near 9%. These trends indicate that during the second half of 2010:

- there was no significant change in the demand for peak period commuter travel in the region;
- there was no significant change in the cost of travel;
- therefore, no significant change was expected in the level of discretionary travel occurring in the region between the end of 2009 and the end of 2010 that would have been caused by changes in the economy.

Seattle-Bellevue-Everett metropolitan statistical area quarterly employment trends

Employment in millions, 2007-2010

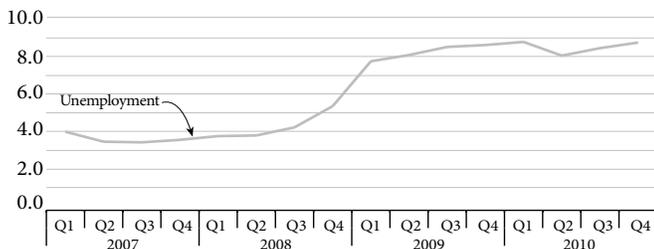


Data source: Washington State Employment Security Department, Labor Market and Economic Analysis (LEMA).

Note: Data is not seasonally adjusted. December 2010 data is preliminary.

Seattle-Bellevue-Everett metropolitan statistical area quarterly unemployment trends

Unemployment rate, 2007-2010



Data source: Washington State Employment Security Department, Labor Market and Economic Analysis (LEMA).

Note: Data is not seasonally adjusted. December 2010 data is preliminary.

Ridership continues to grow on Central Link Light Rail in the second half of 2010

About 3.8 million passengers boarded the Central Link Light Rail trains between SeaTac International Airport and Seattle during the second six months of 2010. This is more than a 50% increase in ridership compared to 2009. However, the 2009 data does not capture the first 17 days since the Central Link Light Rail was inaugurated on July 18 2009, providing service between Seattle and Tukwila. The extension to the SeaTac/Airport station began operating on December 19, 2009. Between inauguration and the end of year (2009) there were about 2.5 million boardings.

Central Puget Sound region transit ridership

July-December; 2007-2010

Year	ST Express Bus	Sounder Train	Central Link*
2007	5,509,559	1,183,070	n/a
2008	6,645,912	1,408,513	n/a
2009	6,681,530	1,259,755	2,501,211
2010	6,329,868	1,159,035	3,794,050

Data source: Sound Transit.

Note: *Central Link service started Saturday July 18, 2009

Sounder train ridership dropped from 1.26 million to 1.16 million boardings between the second halves of 2009 and 2010, a decrease of about 8%, and down from a peak of 1.41 million in 2008. Bus ridership along the freeway network decreased 5.3% in second half of 2010 compared to the second half of 2009. Decline in ridership might be attributed to the effects of recession.



The Sound Transit 'Sounder' commuter rail train underneath WSDOT's Royal Brougham Bridge flyover in Seattle's stadium district.

How to find performance information

The information presented here is from an article excerpt from the *Gray Notebook* 40. The full version for the quarter ending December 31, 2010, is available on line at: www.wsdot.wa.gov/Accountability/GrayNotebook/default.htm. Previous Semi-Annual Travel Trends Reports are available online as downloadable PDFs, along with the current and past editions of the annual Congestion Report are also available online at: www.wsdot.wa.gov/Accountability/Congestion/.

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