Washington State
Department of Transportation

The 2014 Corridor Capacity Report
Appendix

For the 13th edition of the annual *Congestion Report*

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Lynn Peterson, Secretary of Transportation

WSDOT's comprehensive annual analysis of multimodal state highway system performance

Developed in partnership with

BFCG · community transit smile & ride · C-TRAN · INTERcity TRANSIT · King County METRO · Puget Sound Regional Council PSRC · Sound Transit · RTC Southwest Washington Regional Transportation Council · SRTC Spokane Regional Transportation Council · Spokane Transit · thurston regional planning council · TRAC

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WSDOT's 2014 *Corridor Capacity Report* is available at http://wsdot.wa.gov/publications/fulltext/graynotebook/CCR14.pdf. Additional congestion and capacity related analyses are available at www.wsdot.wa.gov/Accountability/Congestion/

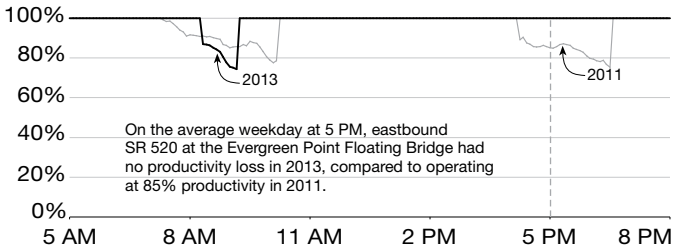
How to read throughput and stamp graphs

Throughput productivity

Vehicle throughput measures how many vehicles move through a highway segment/spot location in an hour. Throughput productivity is measured as the difference between the highest observed average 5-minute flow rate during the year and the flow rate that occurs when vehicles travel slower than the maximum throughput speed (42 to 51 mph) observed at a particular location of the highway for that calendar year. Lost throughput productivity is the percentage of a highway's vehicle throughput lost due to congestion (see pp. 5-6, 24, 29 and 33).

Example: Vehicle throughput productivity on eastbound SR 520 at Evergreen Point Floating Bridge (milepost (MP) 1.5)

2011 and 2013; Based on the highest observed 5-minute flow rate; Eastbound = 1,730 vehicles per hour per lane (vphpl) = 100% productivity



Data source: WSDOT Urban Planning Office.

Duration and frequency of congestion

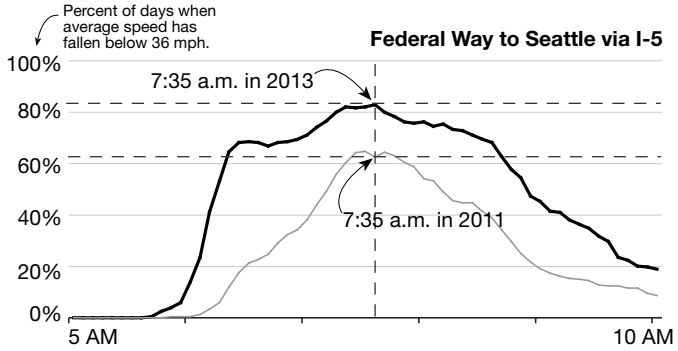
The best visual evidence to show whether the peak period is spreading or contracting can be seen in "stamp graphs". These graphs, comparing 2011 and 2013 data, show the percentage of days annually with average speeds that were slower than a defined congestion threshold (45 mph for "congestion" and 36 mph for "severe congestion") on key highway segments statewide (see pp. 8-9, 25-26, 30 and 32).

High occupancy vehicle (HOV) lane stamp graphs compare the frequency and duration of congestion for HOV lane users with the congestion experienced by single occupant vehicle (SOV) lane users on the same route during 2013 (see pp. 18-20).

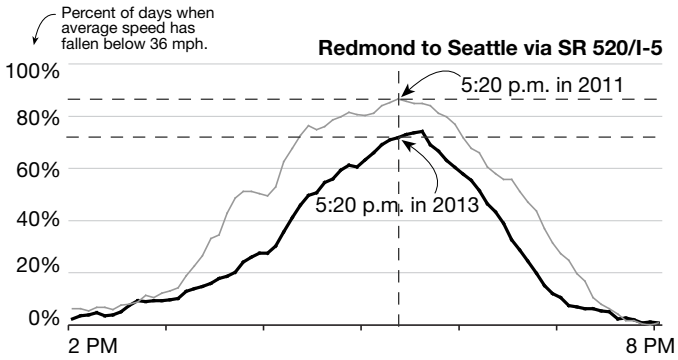
See WSDOT's *Handbook for Corridor Capacity Evaluation* for additional details regarding methods for measuring and reporting highway system performance.

How to read a stamp graph: Percent of days when speeds were slower than 36 mph

How frequently (and when) was the average trip speed slower than 36 mph? How have those conditions changed from 2011 to 2013?



At 7:35 a.m. in 2011, you had about a 63% chance that traffic would be moving slower than 36 mph. In 2013, the situation worsened (black line above gray line); your chance that traffic would be moving slower than 36 mph was about 83% in 2013.



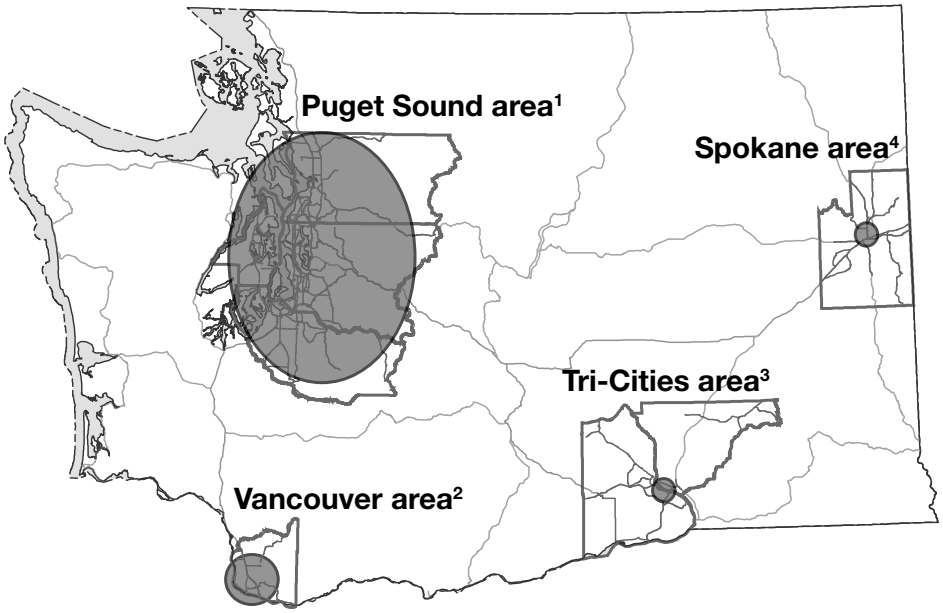
At 5:20 p.m. in 2011, you had about a 87% chance that traffic would be moving slower than 36 mph. In 2013, the situation improved (black line below gray line); your chance traffic would be moving slower than 36 mph was about 72% in 2013.

Data source: WSDOT Office of Strategic Assessment and Performance Analysis.

Vehicle hours of delay

Statewide delay by region

2011 and 2013; Daily vehicle hours of delay



Puget Sound area[1]
124,660 daily hours of delay in 2011
126,950 daily hours of delay in 2013
97.8% of statewide delay

Vancouver area[2]
670 daily hours of delay in 2011
520 daily hours of delay in 2013
0.2% of statewide delay

Tri-Cities area[3]
620 daily hours of delay in 2011
220 daily hours of delay in 2013
0.2% of statewide delay

Spokane area[4]
260 daily hours of delay in 2011
280 daily hours of delay in 2013
0.4% of statewide delay

Data source: WSDOT Urban Planning Office.

Notes: Symbols showing amount of congestion for urban areas are not directly proportional and are meant to be illustrative of relative amounts of delay. The four urban areas account for 98.6% of statewide delay. The other 1.4% occurs on roads outside of these defined areas. 1 Puget Sound area includes Snohomish, Kitsap, King and Pierce counties. 2 Vancouver area includes Clark county. 3 Tri-Cities area includes Benton and Franklin counties. 4 Spokane area includes Spokane county.

Percent of the state highway system that is delayed or congested

2009 through 2013; By percent of total state highway system

	% of system delayed[1]			% of system congested[2]		
	All	Urban	Rural	All	Urban	Rural
2009	11.5%	10.0%	1.5%	5.2%	4.7%	0.5%
2010	11.6%	9.8%	1.8%	5.5%	4.9%	0.6%
2011	10.9%	9.3%	1.6%	5.4%	4.9%	0.5%
2012	10.6%	9.0%	1.6%	5.5%	4.9%	0.6%
2013	10.8%	9.2%	1.6%	5.5%	5.0%	0.5%

Data source: WSDOT Urban Planning Office.

Notes: 1 The percent of the system delayed uses 85% of posted speed as the threshold (roughly 51 mph). 2 The percent of the system congested uses 70% of posted speed as the threshold (roughly 42 mph).

Average weekday delay and vehicle miles traveled comparison on major central Puget Sound area freeways

2009 through 2013; Vehicle hours of delay per day; Vehicle miles traveled in thousands per day

	Delay						Vehicle miles traveled (VMT)					
State route	**2009**	**2010**	**2011**	**2012**	**2013**	**2011 vs. 2013**	**2009**	**2010**	**2011**	**2012**	**2013**	**2011 vs. 2013**
I-5	6,684	7,033	7,354	9,888	11,534	**56.8%**	7,676	7,835	8,020	7,683	8,019	**0.0%**
I-90	212	455	565	830	964	**70.7%**	1,511	1,649	1,531	1,722	1,627	**6.3%**
SR 167	350	723	537	785	680	**26.8%**	947	1,060	1,003	1,058	975	**-2.8%**
I-405	4,478	5,605	5,719	6,574	7,976	**39.5%**	3,616	3,656	3,744	3,723	3,724	**-0.5%**
SR 520	1,334	1,496	1,335	277	486	**-63.6%**	901	933	941	723	750	**-20.3%**
Total	**13,058**	**15,312**	**15,510**	**18,353**	**21,641**	**39.5%**	**14,651**	**15,133**	**15,241**	**14,910**	**15,096**	**-0.9%**

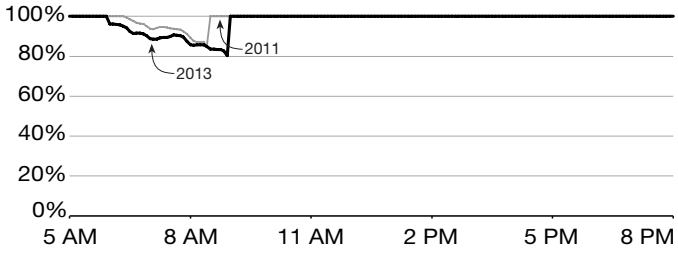
Data source: WSDOT Urban Planning Office.

Notes: The article on delay examines individual corridors while the commute trip analysis (2014 *Corridor Capacity Report* pp. 9-44) examines work trips, which include multiple corridors. The delay article examines vehicle miles traveled (VMT) for all day during weekdays, while commute trip analysis (pp. 13-14) looks at VMT for weekdays during morning peak (5-10 a.m.) and evening peak (2-8 p.m.) periods. The reported VMT numbers are only a partial representation for reasons such as only single occupant vehicle (SOV) lanes are analyzed, data station malfunction, work zone traffic diversion, etc. To make accurate comparisons, the 2011 data was recalculated for this report.

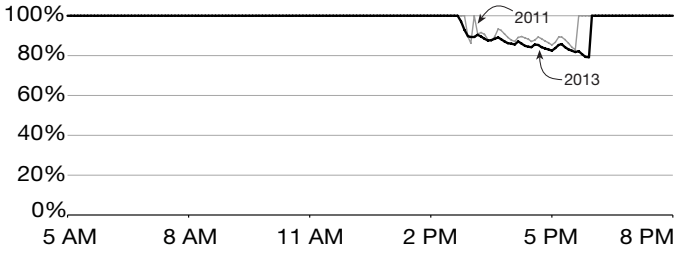
Throughput productivity

Throughput productivity at select central Puget Sound area freeway locations by commute direction (part 1)
2011 and 2013; Based on the highest observed 5-minute (min.) flow rates; Vehicles per hour per lane (vphpl) at specific mileposts (MP)

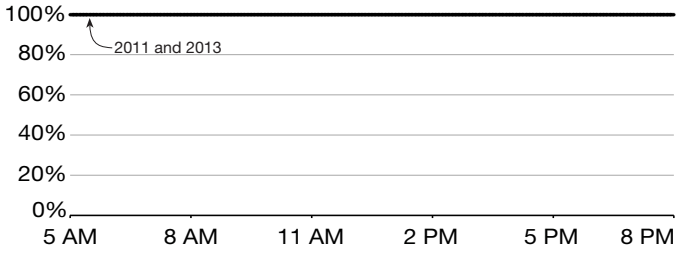
Northbound I-5 at S 188th Street (MP 153.0)
Based on the highest observed 5 min. flow rate of 1,960 vphpl = 100%



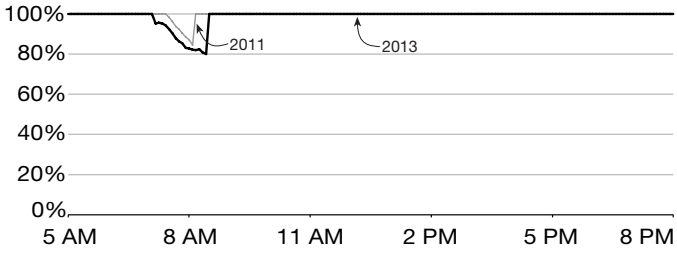
Southbound I-5 at S 188th Street (MP 153.0)
Based on the highest observed 5 min. flow rate of 1,510 vphpl = 100%



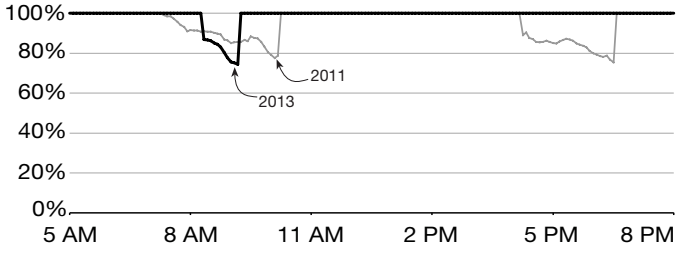
Eastbound I-90 at SR 900 (MP 16.5)
Based on the highest observed 5 min. flow rate of 1,660 vphpl = 100%



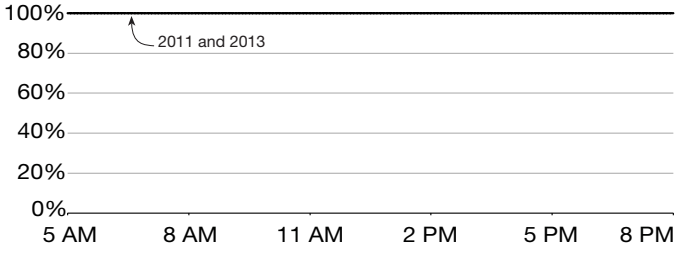
Westbound I-90 at SR 900 (MP 16.5)
Based on the highest observed 5 min. flow rate of 1,630 vphpl =100%



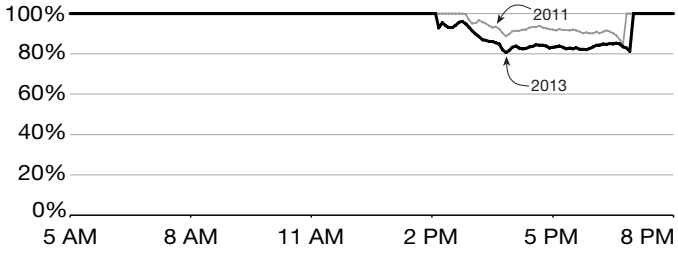
Eastbound SR 520 at Evergreen Point Floating Bridge (MP 1.5)
Based on the highest observed 5 min. flow rate of 1,730 vphpl = 100%



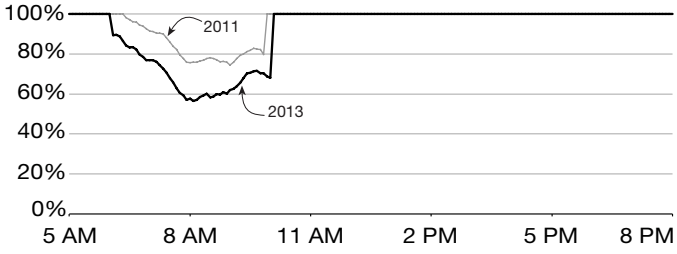
Westbound SR 520 at Evergreen Point Floating Bridge (MP 1.5)
Based on the highest observed 5 min. flow rate of 1,700 vphpl = 100%



Northbound I-405 at NE 160th Street (MP 22.5)
Based on the highest observed 5 min. flow rate of 1,710 vphpl = 100%



Southbound I-405 at NE 160th Street (MP 22.5)
Based on the highest observed 5 min. flow rate 1,800 vphpl = 100%

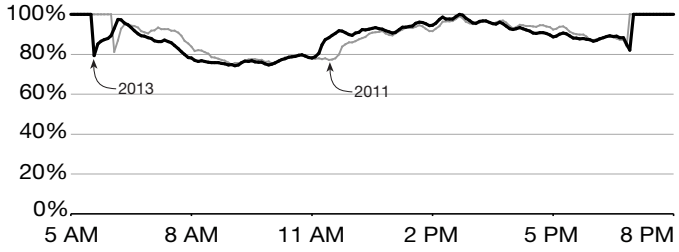


Data source: WSDOT Urban Planning Office.
Note: See p. 3 for throughput definitions and how to read these graphs.

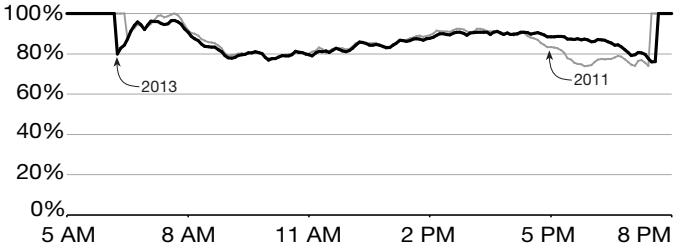
Throughput productivity

Throughput productivity at select central Puget Sound area freeway locations by commute direction (part 2)
2011 and 2013; Based on the highest observed 5-minute (min.) flow rates; Vehicles per hour per lane (vphpl) at specific mileposts (MP)

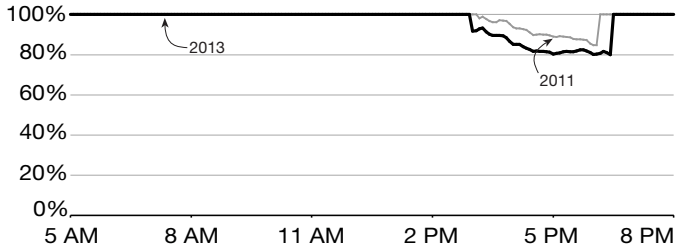
Northbound I-5 at I-90 (MP 164.0)
Based on the highest observed 5 min. flow rate of 1,530 vphpl = 100%



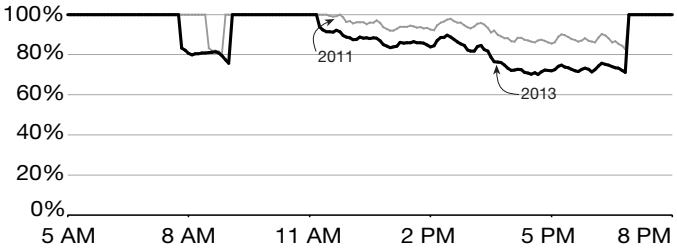
Southbound I-5 at I-90 (MP 164.0)
Based on the highest observed 5 min. flow rate of 1,790 vphpl = 100%



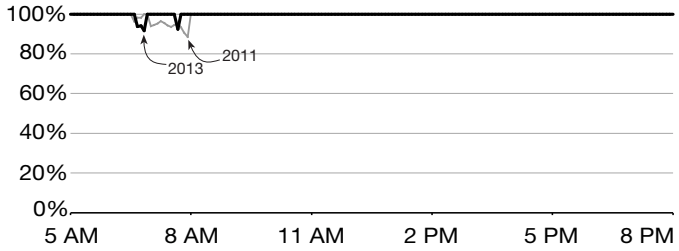
Northbound I-5 at NE 103rd Street (MP 172.0)
Based on the highest observed 5 min. flow rate of 1,570 vphpl = 100%



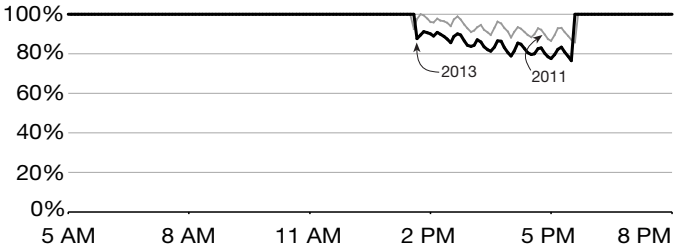
Southbound I-5 at NE 103rd Street (MP 172.0)
Based on the highest observed 5 min. flow rate of 1,720 vphpl = 100%



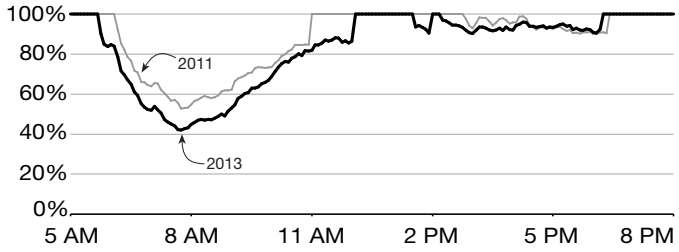
Northbound SR 167 at 84th Avenue SE (MP 21.5)
Based on the highest observed 5 min. flow rate of 1,560 vphpl = 100%



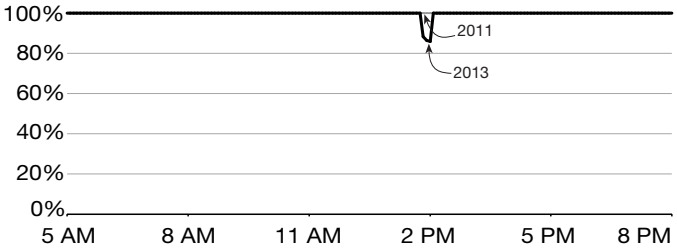
Southbound SR 167 at 84th Avenue SE (MP 21.5)
Based on the highest observed 5 min. flow rate of 1,690 vphpl = 100%



Northbound I-405 at SR 169 (MP 4.0)
Based on the highest observed 5 min. flow rate of 1,690 vphpl = 100%W



Southbound I-405 at SR 169 (MP 4.0)
Based on the highest observed 5 min. flow rate of 1,810 vphpl = 100%



Data source: WSDOT Urban Planning Office.
Note: See p. 3 for throughput definitions and how to read these graphs.

Routinely congested segments

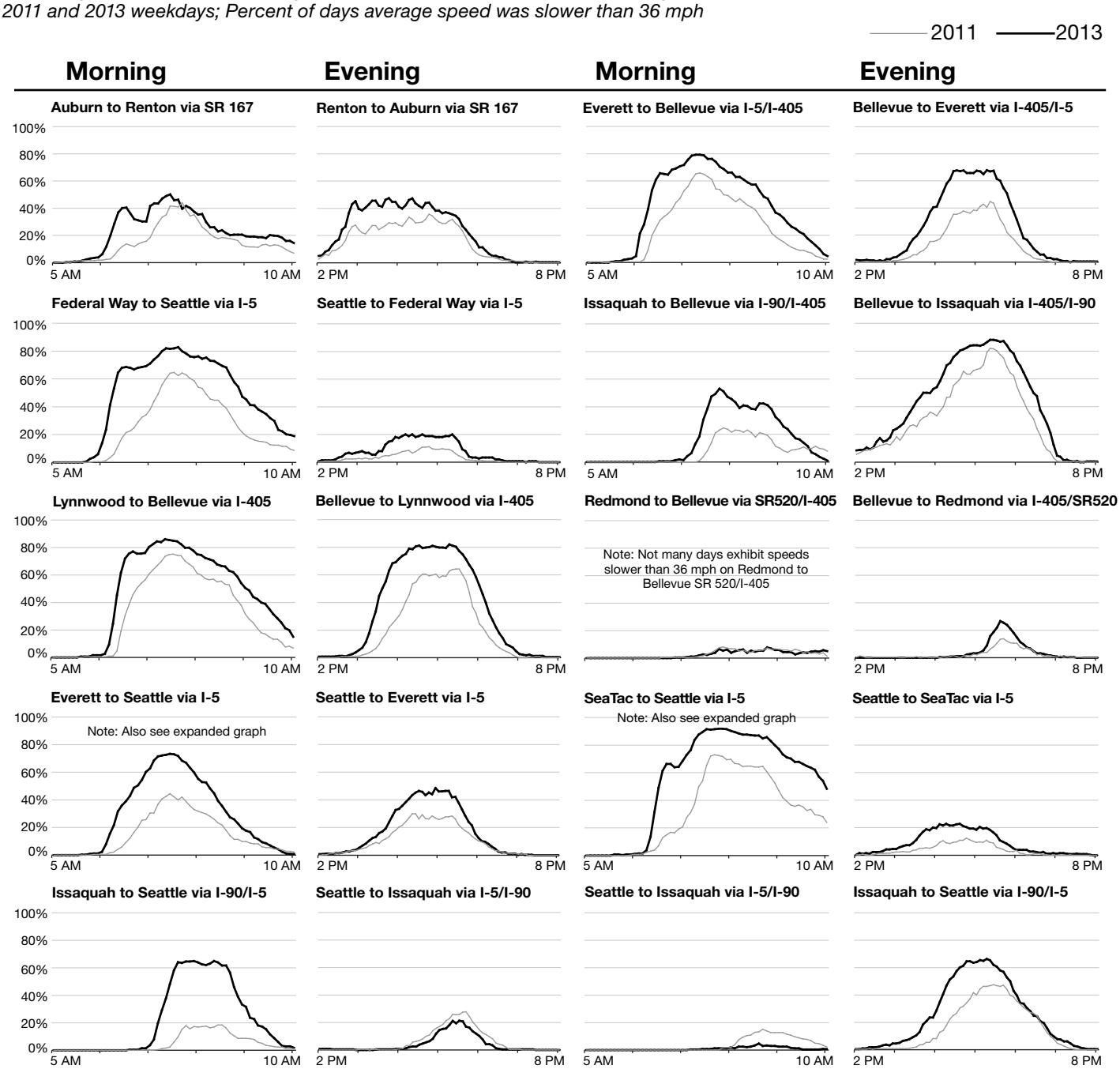
Central Puget Sound area routinely congested freeway segments
2013 weekdays; Length of congestion in miles; Duration of congestion in hours:minutes

	Morning peak period				Evening peak period			
Route and direction	**Start and end times**	**Begin and end milepost**	**Length of congestion**	**Duration of congestion**	**Start and end times**	**Begin and end milepost**	**Length of congestion**	**Duration of congestion**
I-5 northbound	5:35-8:10 a.m.	144.5-153.5	9.0	2:35	2:00-6:25 p.m.	161.0-165.5	4.5	4:25
	6:10-9:55 a.m.	159.0-165.5	6.5	3:45	3:30-6:20 p.m.	166.0-172.5	6.5	2:50
					3:10-6:40 p.m.	172.5-179.0	6.5	3:30
					2:45-5:55 p.m.	184.5-185.0	0.5	3:10
					2:40-5:40 p.m.	191.0-192.5	1.5	3:00
I-5 southbound	6:15-6:30 a.m.[1]	184.5-184.0	0.5	0:15	2:00-7:00 p.m.	172.5-165.0	7.5	5:00
	6:10-9:00 a.m.	182.5-173.5	9.0	2:50	2:00-6:30 p.m.	164.5-163.0	1.5	4:30
	7:15-9:20 a.m.	171.5-168.0	3.5	2:05	2:45-5:45 p.m.	156.0-151.0	5.0	3:00
	7:25-7:50 a.m.[1]	167.0-166.5	0.5	0:25				
	7:05-8:05 a.m.	164.5-163.0	1.5	1:00				
I-405 northbound	5:45-9:55 a.m.	3.0-8.5	5.5	4:10	2:25-6:00 p.m.	0.5-5.5	5.0	3:35
	8:50-8:55 a.m.[1]	11.0-11.5	0.5	0:05	2:25-6:45 p.m.	15.0-23.5	8.5	4:20
					3:10-6:15 p.m.	25.0-28.0	3.0	3:05
I-405 southbound	6:10-9:55 a.m.	29.0-16.5	12.5	3:45	4:45-5:20 p.m.[1]	24.5-24.0	0.5	0:35
	7:15-8:10 a.m.	8.0-6.0	2.0	0:55	2:00-7:15 p.m.[2]	14.5-6.5	8.0	5:15
					2:00-2:45 p.m.[1]	3.0-2.5	0.5	0:45
					2:45-4:50 p.m.	0.5-0.0	0.5	2:05
I-90 eastbound	7:30-9:05 a.m.	3.5-4.0	0.5	1:35	5:20-5:25 p.m.[1]	3.5-4.0	0.5	0:05
					5:15-5:45 p.m.[1]	6.5-7.5	1.0	0:30
I-90 westbound	7:10-8:00 a.m.	16.5-15.0	1.5	0:50	4:45-5:35 p.m.	11.0-10.0	1.0	0:50
	7:15-9:05 a.m.	14.5-12.5	2.0	1:50	3:35-6:55 p.m.	8.5-5.5	3.0	3:20
	7:45-8:50 a.m.	11.0-10.5	0.5	1:05				
	7:20-8:00 a.m.[1]	8.0-9.0	1.0	0:40				
	7:25-9:10 a.m.[2]	6.5-2.5	4.0	1:45				
SR 520 eastbound	8:25-8:50 a.m.[1]	1.5-2.5	1.0	0:25	5:10-6:05 p.m.	11.0-13.0	2.0	0:55
SR 520 westbound	7:25-9:15 a.m.	4.0-1.5	2.5	1:50	3:40-6:45 p.m.	7.5-1.5	6.0	3:05
SR 167 northbound	5:35-8:20 a.m.[2]	14.5-19.5	5.0	2:45				
	6:15-8:45 a.m.	25.0-26.0	1.0	2:30				
SR 167 southbound					2:45-2:50 p.m.[1]	24.5-24.0	0.5	0:05
					2:15-6:25 p.m.	19.5-13.0	6.5	4:10

Data source: WSDOT Northwest Region Traffic Office and the Washington State Transportation Center (TRAC) at the University of Washington.
Notes: 1 Not reported on routinely congested segments map or narrative in main report due to duration of less than 50 minutes. 2 Segment is made of multiple smaller segments that are spaced close together (within 0.5 mile), in the same direction and start and end at similar times.

Stamp graphs: Frequency, duration of severe congestion

Stamp graphs of severe congestion by time of day on central Puget Sound area freeways (part 1)
2011 and 2013 weekdays; Percent of days average speed was slower than 36 mph

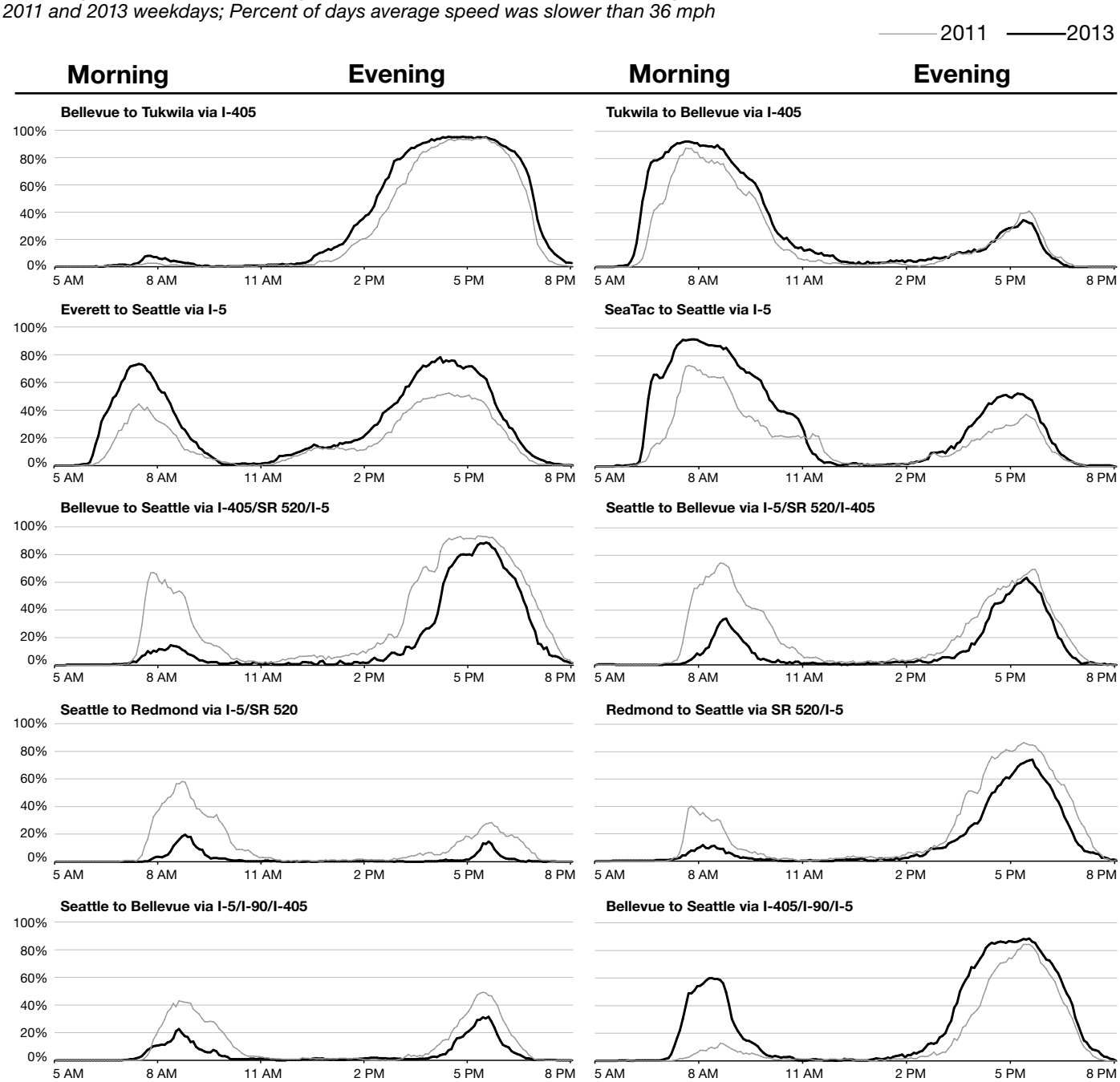


Data source: WSDOT Office of Strategic Assessment and Performance Analysis, and the Washington State Transportation Center (TRAC) at the University of Washington.

Note: See p. 3 for congestion definitions and how to read these graphs.

Stamp graphs: Frequency, duration of severe congestion

Stamp graphs of severe congestion by time of day on central Puget Sound area freeways (part 2)
2011 and 2013 weekdays; Percent of days average speed was slower than 36 mph



Data source: WSDOT Office of Strategic Assessment and Performance Analysis, and the Washington State Transportation Center (TRAC) at the University of Washington.

Note: See p. 3 for congestion definitions and how to read these graphs.

Central Puget Sound Area

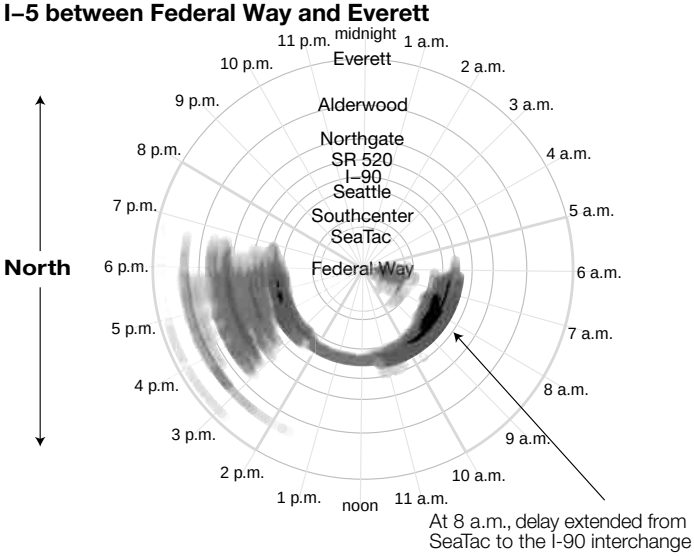
Spiral graphs: Daily vehicle hours of delay by corridor

Spiral graphs provide a graphic visualization of temporal and spatial data that is well suited to time-based traffic metrics. The graph can be read like a standard clock with variables specific to the chosen metric. In the following example, WSDOT modeled vehicle hours of delay by using time of day (measured in 5-minute intervals), location along the chosen corridor and intensity of delay. Darker shading represented more intense delay along the commute corridor. The shading factor was standardized for the aggregate data to allow cross-corridor comparisons. In addition, the spiral graphs were separated by direction along the corridor, supporting more detailed comparisons. Each direction is read in a different manner, as indicated by the arrows. The northbound graph to the right is read from the center to the edge. The corresponding southbound graph is read from the edge to the center. For the purposes of this report, the eastbound direction is read like northbound; the westbound direction like southbound.

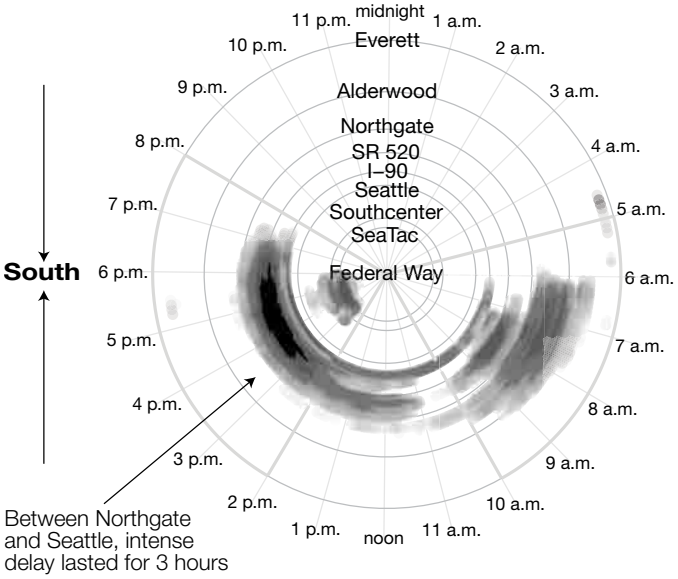
How to read a spiral graph

When and where was the most intense delay as measured by vehicle hours of delay? How does delay differ by direction of travel? What corridors experienced the most noticeable delay?

I–5 between Federal Way and Everett



Between 7 a.m. and 10 a.m. there was intense delay around the Seattle area. Evening delay peaked between 3:30 p.m. and 6:15 p.m. and was widespread along the entire northbound I-5 corridor.



Delay on I-5 southbound was more widespread during the morning but more pronounced during the evening commute. The most intense delay was southbound from Northgate to Seattle in the evening and lasted for about 3 hours.

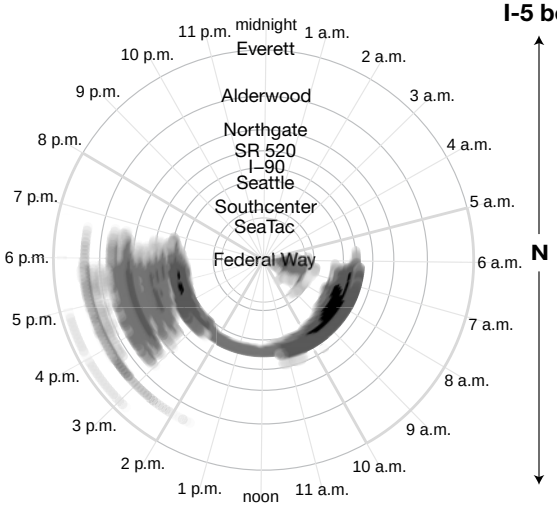
Data source: Washington State Transportation Center (TRAC) at the University of Washington and WSDOT Office of Strategic Assessment and Performance Analysis.

Spiral graphs: Daily vehicle hours of delay by corridor

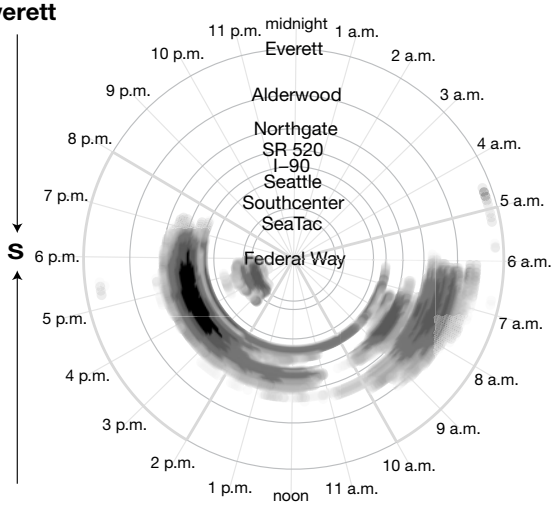
Extent of delay on central Puget Sound area corridors (part 1)

2013 weekdays; Vehicle hours of delay; Shading represents intensity of delay

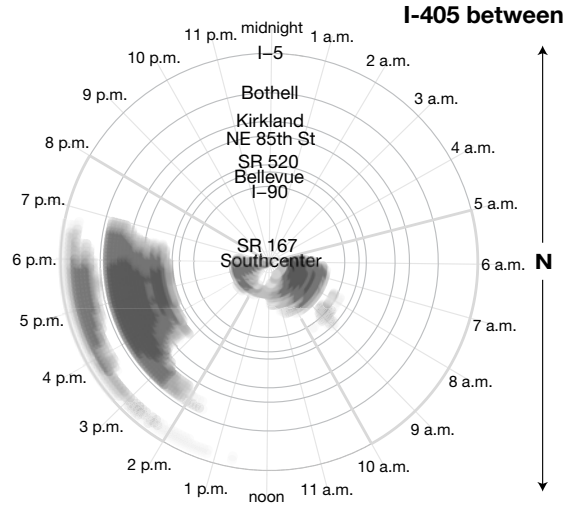
I-5 between Federal Way and Everett



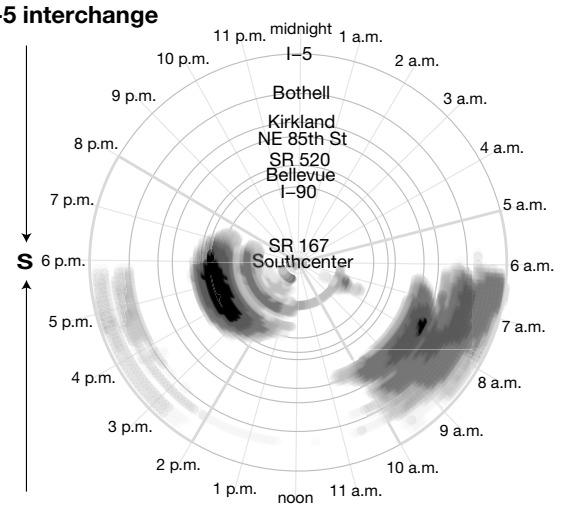
Around the Seattle area and I-90 interchange, delay lasts through both the morning and evening commutes, with a high intensity of delay between 6 a.m. and 10 a.m. Delay on I-5 northbound is more widespread during the evening commute but less intense than evening delay on I-5 southbound.



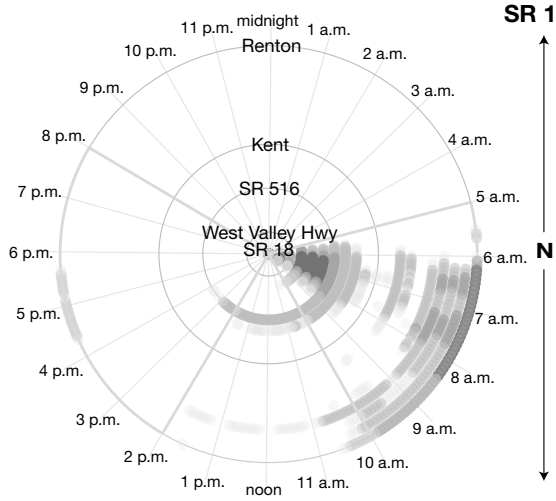
I-405 between Tukwila and Lynnwood I-5 interchange



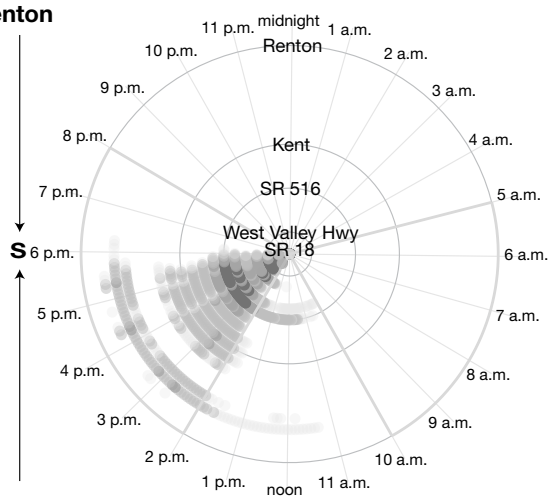
On I-405, delay is widespread and intense during both peak periods. Delay on I-405 southbound peaks during the morning commute, with noticeable delay from Bellevue to the Lynnwood I-5/I-405 interchange, mirroring the extent of delay on the northbound evening commute.



SR 167 between Auburn and Renton



Along the entire SR 167 corridor, there is noticeable delay in the northbound direction between 6 a.m. and 10 a.m. There is comparable delay in the same area on SR 167 southbound between 2 p.m. and 5:30 p.m.



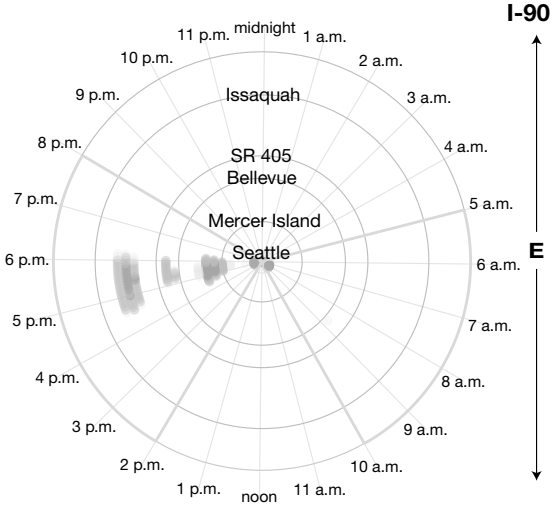
Data source: Washington State Transportation Center (TRAC) at the University of Washington and WSDOT Office of Strategic Assessment and Performance Analysis.

Spiral graphs: Daily vehicle hours of delay by corridor

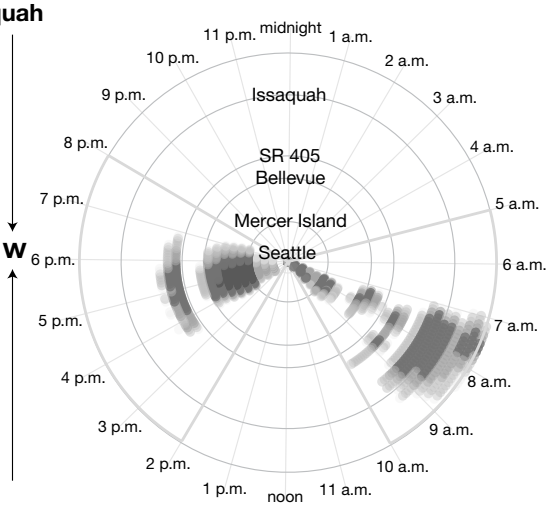
Extent of delay on central Puget Sound area corridors (part 2)

2013 weekdays; Vehicle hours of delay; Shading represents intensity of delay

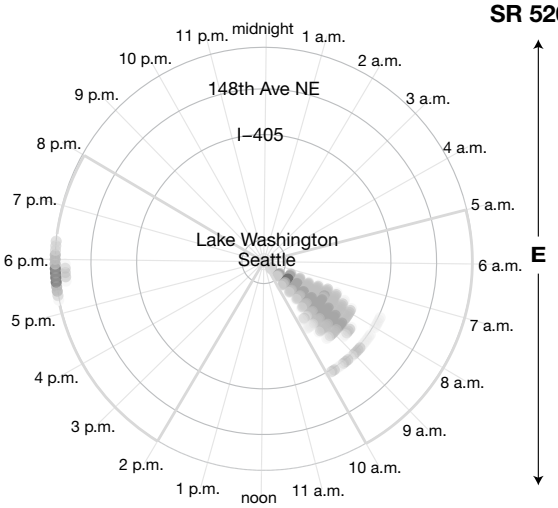
I-90 between Seattle and Issaquah



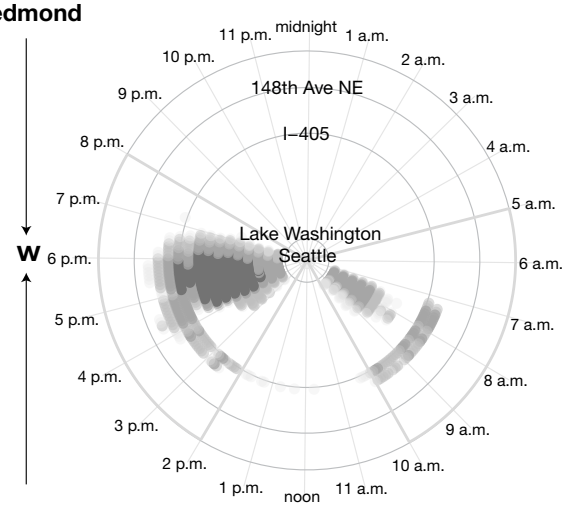
Delay is more prominent in the westbound direction for both the morning and evening commutes. The most intense delay occurs around Issaquah from 7 a.m. to 9 a.m., and between Bellevue and Seattle during the evening commute.



SR 520 between Seattle and Redmond



On SR 520, there is more delay during the morning commute in the eastbound direction. In the evening, delay is more prominent on SR 520 westbound. Around the I-405 interchange, delay occurs during both the morning and evening commute.



Data source: Washington State Transportation Center (TRAC) at the University of Washington and WSDOT Office of Strategic Assessment and Performance Analysis.

Commute trip analysis

Morning commutes: Changes in travel time performance, congestion, reliability, emissions and transit performance for 19 morning high-demand commute trips in the central Puget Sound area

2011 and 2013; Morning peak (5-10 a.m.) for an annualized average weekday; 5-minute peak of commuter rush (individual peak times vary); Length of route in miles; All travel times in minutes; Peak of commuter rush and duration of congestion expressed in hours and minutes; Cost of congestion in dollars; Emissions in pounds of carbon dioxide equivalents (CO_2e); Average transit ridership, average load, and emissions avoided based on the average maximum load during the peak period

Morning

Route	Direction of travel	Length of route	Peak commute time	Travel time at posted speed	Travel time at maximum throughput speed	Average travel time at peak of morning commute			Maximum throughput travel time index (MT[3]I)		Peak period %Δ in VMT	Duration of congestion: How long average speed is below 45 mph			Cost of congestion[1] per person[2], per trip			2011 percentiles				2013 percentiles				Δ: 2011 vs. 2013				Greenhouse gas emissions[3] in pounds of CO_2e: Emitted during peak period			Greenhouse gas emissions[3] in pounds of CO_2e: Emitted per person[2]			Daily ridership	Average daily load[5]	Percent of transit with load ≥ 90%	Transit travel time[6]	Daily emissions avoided[7]
																		Median 50th	80th	90th	95th	Median 50th	80th	90th	95th	Median 50th	80th	90th	95th											
						2011	2013	%Δ	2011	2013		2011	2013	Δ	2011	2013	%Δ													2011	2013	%Δ	2011	2013	%Δ	2013	2013	2013	2013	2013
To Seattle																																							
I-5 Everett to Seattle[9]	SB	24	7:20	24	28	40	50	25%	1.41	1.75	0%	2:15	2:50	0:35	$2.41	$4.28	78%	38	47	57	**62**	47	63	70	**80**	9	16	13	**18**	555,606	536,770	-3%	20.7	20.7	0%	8,565	64%	18%	0:49	86,165
I-5 Federal Way to Seattle[9]	NB	22	7:25	22	27	41	49	18%	1.55	1.83	-1%	3:20	4:35	1:15	$2.92	$4.19	43%	40	50	55	**57**	48	60	65	**69**	7	10	10	**12**	646,403	626,562	-3%	21.1	21.7	3%	10,472	89%	29%	0:38	122,961
I-90/I-5 Issaquah to Seattle	WB/NB	15	7:50	15	19	22	29	31%	1.18	1.55	4%	1:10	2:25	1:15	$0.95	$2.28	139%	21	25	27	**32**	29	34	39	**41**	8	9	12	**9**	275,277	279,807	2%	13.3	13.5	2%	3,493	82%	41%	0:38	26,336
SR 520/I-5 Redmond to Seattle	WB/SB	13	8:15	13	16	22	18	-16%	1.35	1.14	-7%	1:35	1:00	-0:35	$1.36	$0.64	-53%	21	25	28	**30**	17	19	22	**25**	-4	-6	-6	**-5**	149,158	130,836	-12%	11.2	11.2	0%	4,244	73%	25%	0:32	26,623
I-5 SeaTac to Seattle[8]	NB	13	8:20	13	16	26	31	21%	1.66	2.00	-1%	5:05	4:55	-0:10	$1.85	$3.03	64%	25	32	35	**42**	32	38	41	**44**	7	6	5	**2**	367,862	353,648	-4%	12.6	12.9	2%	5,748	95%	53%	0:40	38,258
I-405/I-90/I-5 Bellevue to Seattle	SB/WB/NB	10	8:30	10	12	14	18	28%	1.17	1.50	6%	1:10	2:35	1:25	$0.56	$1.30	132%	13	16	18	**20**	18	21	24	**26**	5	6	6	**6**	177,401	184,560	4%	9.1	9.2	1%	2,230	85%	58%	0:41	11,723
I-405/SR 520/I-5 Bellevue to Seattle	NB/WB/SB	10	8:15	10	12	19	15	-20%	1.55	1.24	-9%	3:20	2:00	-1:20	$1.32	$0.80	-39%	19	23	26	**27**	14	16	18	**21**	-4	-7	-8	**-6**	111,115	84,366	-24%	8.9	8.9	0%	607	55%	4%	0:27	1,930
To Bellevue																																							
I-5/I-405 Everett to Bellevue	SB	24	7:20	24	28	46	54	18%	1.61	1.90	-2%	2:50	3:35	0:45	$3.55	$5.05	42%	44	59	64	**71**	54	68	75	**84**	10	9	10	**13**	488,791	444,503	-9%	20.9	21.2	1%	679	90%	50%	0:41	8,436
I-405 Lynnwood to Bellevue	SB	16	7:30	16	19	37	44	20%	1.89	2.26	-4%	3:15	3:40	0:25	$3.19	$4.73	48%	36	49	54	**58**	45	56	65	**69**	9	7	11	**11**	339,551	311,852	-8%	14.5	14.8	2%	349	83%	40%	0:45	2,595
I-405 Tukwila to Bellevue	NB	13	7:35	13	16	29	36	24%	1.79	2.21	1%	3:50	4:35	0:45	$2.70	$3.88	44%	29	34	37	**40**	36	42	46	**50**	7	8	9	**10**	236,764	236,866	0%	12.8	13.2	3%	323	59%	0%	0:25	1,770
I-5/I-90/I-405 Seattle to Bellevue	SB/EB/NB	11	8:35	11	13	18	16	-11%	1.40	1.25	11%	2:35	1:45	-0:50	$1.16	$0.79	-32%	17	22	25	**27**	15	18	19	**22**	-2	-4	-5	**-5**	163,830	178,483	9%	9.6	9.4	-2%	809	83%	88%	0:41	5,701
I-5/SR 520/ I-405 Seattle to Bellevue	NB/EB/SB	10	8:40	10	12	22	17	-24%	1.78	1.35	-4%	3:35	1:55	-1:40	$1.79	$0.86	-52%	21	28	30	**33**	15	19	23	**25**	-6	-9	-7	**-8**	112,037	87,011	-22%	8.9	8.8	-1%	500	57%	10%	0:32	784
I-90/I-405 Issaquah to Bellevue	WB/NB	9	7:45	9	11	14	16	18%	1.21	1.42	2%	1:30	2:20	0:50	$0.61	$1.07	74%	13	16	17	**19**	16	19	22	**24**	3	4	4	**5**	178,918	172,405	-4%	8.2	8.2	0%	310	68%	25%	0:35	1,464
SR 520/I-405 Redmond to Bellevue	WB/SB	6	8:50	6	7	9	8	-5%	1.19	1.13	1%	1:25	0:25	-1:00	$0.35	$0.29	-18%	9	9	10	**11**	8	9	10	**11**	0	0	0	**0**	71,984	73,185	2%	5.1	5.2	2%	149	39%	0%	0:14	228
Other																																							
I-405 Bellevue to Tukwila	SB	13	7:40	13	16	16	17	6%	1.04	1.10	1%	0:00	0:00	0:00	$0.00	$0.00	N/A	16	18	20	**21**	17	19	21	**24**	1	1	2	**3**	211,020	205,733	-3%	11.6	11.5	-1%	96	29%	0%	0:31	298
I-405/SR 520 Bellevue to Redmond	NB/EB	5	9:15	5	7	8	7	-10%	1.20	1.09	0%	1:50	0:00	-1:50	$0.36	$0.00	-100%	8	9	9	**9**	7	7	8	**8**	-1	-1	-1	**-1**	41,073	40,936	0%	4.6	4.6	0%	164	22%	0%	0:10	-704
SR 167 Auburn to Renton[9]	NB	10	7:30	10	12	17	17	3%	1.43	1.47	-4%	2:50	4:00	1:10	$0.97	$1.09	12%	15	19	22	**27**	16	20	24	**28**	0	1	2	**1**	66,359	148,916	-10%	9.5	9.4	-1%	2,186	95%	24%	0:35	12,630
I-5/I-90 Seattle to Issaquah	SB/EB	16	8:35	16	19	21	20	-6%	1.13	1.06	9%	0:35	0:00	-0:35	$0.73	$0.00	-100%	19	25	27	**30**	19	22	23	**25**	0	-4	-5	**-5**	207,145	216,107	4%	13.5	13.2	-2%	411	52%	7%	0:50	2,673
I-5/SR 520 Seattle to Redmond	NB/EB	13	8:40	13	16	24	19	-22%	1.53	1.18	-4%	2:35	0:35	-2:00	$1.79	$0.82	-54%	24	31	33	**36**	18	22	25	**27**	-6	-9	-8	**-9**	126,883	108,457	-15%	11.3	11.1	-2%	1,918	64%	25%	0:50	12,862

Data source: WSDOT Office of Strategic Assessment and Performance Analysis, WSDOT Northwest Region Traffic Office, Washington State Transportation Center (TRAC) at the University of Washington, King County Metro, Sound Transit, Community Transit and the Puget Sound Regional Council (PSRC).

Notes: The symbol "Δ" is used to denote change in a variable. Commute lengths and travel time values have been rounded to integer values for publication only. MT^3 Index values cannot be reproduced as published using the integer values in the table. 1 Commute congestion cost based on $21.90 for every hour of congested conditions measured when commute speeds are slower than 45 mph, applied to the volume of traffic during the congested conditions on an average annual weekday commute. 2 Per-person metrics were estimated based on vehicle occupancy observed on the freeway in the single occupant vehicle lanes. 3 Greenhouse gas emissions were calculated based on emission factors developed by PSRC for different vehicle types at varying travel speeds for each analysis year. In addition, the emissions used the traffic volume and percent of trucks, the average speeds for every 5-minute interval during the peak period, and the average vehicle occupancy on the freeway. 4 Transit performance: Ridership was reported for the peak transit commute periods (6-9 a.m. and 3-6 p.m.). 5 Average load represents utilization of the available transit capacity based on the average maximum load of each bus or train trip and the total seats on the bus or train. Individual trips could show a load greater than 100% if there was standing-room only. Averaging the load for each commute levels out this variation across multiple trips, and may under-represent the load experienced during the peak utilization of transit. 6 Transit travel times include off-highway travel such as exiting to stop at a transit center and may not be directly comparable to private auto times which only include highway travel. 7 Greenhouse gas emissions avoided by transit use were estimated based on the following factors: a) the average maximum transit load; b) the assumption that for every transit passenger mile traveled, 0.62 miles of single-occupant vehicle travel is avoided; c) the distance traveled on the WSDOT-defined commute trip (not the entire transit trip); d) the average emissions of one pound of CO_2e for every mile traveled; and e) the emissions from transit vehicle operations provided by the transit agencies. 8 Transit services include buses and Link light rail trains. 9 Transit services include buses and Sounder commuter trains.

Commute trip analysis

Evening commutes: Changes in travel time performance, congestion, reliability, emissions and transit performance for 21 evening high-demand commute trips in the central Puget Sound area

2011 and 2013; Evening peak (2-8 p.m.) for an annualized average weekday; 5-minute peak of commuter rush (individual peak times vary); Length of route in miles; All travel times in minutes; Peak of commuter rush and duration of congestion expressed in hours and minutes; Cost of congestion in dollars; Emissions in pounds of carbon dioxide equivalents (CO_2e); Average transit ridership, average load, and emissions avoided based on the average maximum load during the peak period

Evening

Route	Direction of travel	Length of route	Peak commute time	Travel time at posted speed	Travel time at maximum throughput speed	Average travel time at peak of morning commute 2011	2013	%Δ	Maximum throughput travel time index (MT³I) 2011	2013	Peak period %Δ in VMT	Duration of congestion: How long average speed is below 45 mph 2011	2013	Δ	Cost of congestion[1] per person[2], per trip 2011	2013	%Δ
From Seattle																	
I-5 Seattle to Everett[8]	NB	23	16:55	23	28	36	39	8%	1.26	1.40	1%	2:25	2:45	0:20	$1.76	$2.39	36%
I-5 Seattle to Federal Way[8]	SB	22	16:35	22	27	29	32	10%	1.09	1.21	1%	0:00	1:55	1:55	$0.00	$1.39	N/A
I-5 Seattle to SeaTac[9]	SB	13	16:10	13	16	17	19	12%	1.11	1.24	1%	0:05	2:00	1:55	$0.51	$0.91	78%
I-5/I-90/I-405 Seattle to Bellevue	SB/EB/NB	11	17:25	11	13	19	17	-11%	1.49	1.32	10%	2:50	1:45	-1:05	$1.12	$0.88	-21%
I-5/SR 520/I-405 Seattle to Bellevue	NB/EB/SB	10	17:30	10	12	21	18	-14%	1.69	1.48	-13%	4:20	3:25	-0:55	$1.51	$1.18	-22%
I-5/SR 520 Seattle to Redmond	NB/EB	13	17:35	13	16	21	18	-14%	1.32	1.13	-11%	2:10	0:20	-1:50	$1.06	$0.60	-43%
I-5/I-90 Seattle to Issaquah	SB/EB	16	17:30	16	19	23	23	0%	1.25	1.21	7%	1:20	1:05	-0:15	$1.15	$1.06	-8%
From Bellevue																	
I-405/I-5 Bellevue to Everett	NB	23	17:15	23	28	38	43	13%	1.36	1.52	-2%	2:35	3:20	0:45	$2.26	$3.03	34%
I-405 Bellevue to Lynnwood	NB	16	17:15	16	19	29	34	17%	1.53	1.77	-3%	2:55	3:35	0:40	$2.24	$3.10	39%
I-405 Bellevue to Tukwila	SB	13	16:45	13	16	32	35	9%	2.03	2.21	-1%	5:20	6:00	0:40	$3.24	$3.69	14%
I-405/I-90/I-5 Bellevue to Seattle	SB/WB/NB	10	17:15	10	12	26	28	8%	2.14	2.28	3%	4:05	4:50	0:45	$2.31	$2.57	11%
I-405/SR 520/I-5 Bellevue to Seattle	NB/WB/SB	10	17:30	10	12	30	22	-27%	2.38	1.80	-11%	7:05	5:20	-1:45	$2.29	$1.70	-26%
I-405/I-90 Bellevue to Issaquah	SB/EB	9	17:30	9	11	17	19	12%	1.55	1.69	0%	4:00	4:30	0:30	$1.22	$1.51	23%
I-405/SR 520 Bellevue to Redmond	NB/EB	5	17:40	5	7	8	8	0%	1.22	1.28	-5%	2:40	1:15	-1:25	$0.30	$0.41	35%
Other																	
I-5 Everett to Seattle	SB	24	16:10	24	28	42	50	19%	1.48	1.75	-4%	4:10	5:15	1:05	$2.74	$3.71	35%
I-90/I-5 Issaquah to Seattle	WB/NB	15	17:15	15	19	28	30	7%	1.52	1.63	3%	2:30	3:10	0:40	$1.97	$2.39	21%
SR 520/I-5 Redmond to Seattle	WB/SB	13	17:30	13	16	33	31	-6%	2.08	1.92	-10%	4:35	4:15	-0:20	$2.97	$2.37	-20%
SR 520/I-405 Redmond to Bellevue	WB/SB	6	17:25	6	7	15	19	27%	2.01	2.60	-2%	4:05	4:45	0:40	$1.33	$1.87	41%
I-5 SeaTac to Seattle[9]	NB	13	17:15	13	16	21	24	14%	1.37	1.51	0%	2:45	3:30	0:45	$1.13	$1.43	27%
SR 167 Renton to Auburn[8]	SB	10	16:20	10	12	16	18	13%	1.36	1.51	-3%	3:15	3:40	0:25	$0.93	$1.32	42%
I-405 Tukwila to Bellevue	NB	13	17:25	13	16	22	21	-5%	1.39	1.31	1%	1:50	1:40	-0:10	$1.26	$1.10	-12%

Route	Reliability: 2011 percentiles (Median) 50th	80th	90th	95th	2013 percentiles (Median) 50th	80th	90th	95th	Δ: 2011 vs. 2013 (Median) 50th	80th	90th	95th	Emissions: Greenhouse gas emissions[3] in pounds of CO_2e Emitted during peak period 2011	2013	%Δ	Emitted per person[2] 2011	2013	%Δ	Transit[4] Daily ridership 2013	Average daily load[5] 2013	Percent of transit with load ≥ 90% 2013	Transit travel time[6] 2013	Daily emissions avoided[7] 2013
From Seattle																							
I-5 Seattle to Everett[8]	35	41	46	**49**	39	47	51	**57**	4	6	5	**8**	740,862	731,119	-1%	18.2	17.9	-2%	8,036	60%	12%	0:58	79,653
I-5 Seattle to Federal Way[8]	28	32	37	**40**	30	37	43	**48**	3	5	6	**8**	823,620	812,162	-1%	18.9	18.8	-1%	10,411	93%	22%	0:51	125,473
I-5 Seattle to SeaTac[9]	16	19	23	**24**	19	22	26	**28**	2	3	3	**4**	473,252	460,674	-3%	11.1	11.1	0%	6,968	110%	57%	0:47	47,086
I-5/I-90/I-405 Seattle to Bellevue	17	23	27	**30**	15	19	24	**28**	-3	-4	-3	**-2**	240,363	259,482	8%	9.0	8.7	-3%	2,282	85%	60%	0:35	12,169
I-5/SR 520/I-405 Seattle to Bellevue	20	25	29	**33**	18	22	23	**25**	-1	-4	-6	**-8**	148,347	99,748	-33%	8.5	8.4	-1%	761	59%	7%	0:37	2,189
I-5/SR 520 Seattle to Redmond	20	24	30	**34**	17	21	23	**24**	-2	-3	-7	**-10**	190,544	156,190	-18%	10.6	10.4	-2%	4,596	63%	15%	0:44	27,053
I-5/I-90 Seattle to Issaquah	22	28	31	**33**	21	26	31	**34**	-1	-2	-1	**1**	371,517	386,097	4%	13.6	13.4	-1%	3,037	79%	40%	0:36	22,538
From Bellevue																							
I-405/I-5 Bellevue to Everett	38	43	48	**50**	43	49	53	**55**	5	6	5	**5**	595,511	566,344	-5%	18.8	18.8	0%	691	87%	47%	0:48	8,355
I-405 Bellevue to Lynnwood	29	34	39	**42**	34	41	44	**47**	5	7	6	**5**	408,859	394,004	-4%	13.7	13.9	1%	263	63%	22%	0:53	1,879
I-405 Bellevue to Tukwila	32	37	41	**45**	36	39	42	**47**	4	2	1	**2**	299,197	291,645	-3%	12.0	12.0	0%	354	59%	0%	0:38	1,870
I-405/I-90/I-5 Bellevue to Seattle	25	35	38	**42**	28	35	39	**43**	3	1	1	**1**	234,656	245,175	4%	9.1	9.2	1%	837	92%	100%	0:47	4,543
I-405/SR 520/I-5 Bellevue to Seattle	30	35	40	**43**	21	25	29	**34**	-8	-10	-10	**-9**	166,313	134,715	-19%	9.0	8.7	-3%	509	55%	0%	0:34	808
I-405/I-90 Bellevue to Issaquah	17	19	20	**21**	19	21	22	**25**	2	2	2	**4**	249,410	248,939	0%	8.2	8.3	1%	195	45%	0%	0:34	729
I-405/SR 520 Bellevue to Redmond	8	8	10	**10**	7	10	11	**12**	0	1	1	**2**	79,214	80,645	2%	4.4	4.4	0%	169	45%	0%	0:17	300
Other																							
I-5 Everett to Seattle	40	52	62	**67**	49	60	67	**74**	9	8	5	**7**	661,092	631,325	-5%	18.8	18.8	0%	N/A	N/A	N/A	N/A	N/A
I-90/I-5 Issaquah to Seattle	25	37	44	**48**	30	37	43	**47**	5	-1	0	**-1**	309,380	313,873	1%	13.5	13.6	1%	542	59%	18%	1:02	3,714
SR 520/I-5 Redmond to Seattle	31	42	50	**55**	28	40	48	**53**	-2	-2	-2	**-2**	190,272	168,415	-11%	11.3	11.2	-1%	1,755	58%	19%	1:05	11,460
SR 520/I-405 Redmond to Bellevue	11	23	28	**34**	17	28	34	**39**	7	5	6	**5**	71,507	73,817	3%	5.1	5.5	8%	166	20%	0%	0:23	54
I-5 SeaTac to Seattle[9]	20	26	30	**33**	22	30	34	**39**	3	4	3	**6**	396,239	380,069	-4%	11.3	11.2	-1%	2,851	55%	38%	0:40	18,971
SR 167 Renton to Auburn[8]	14	20	24	**28**	16	22	26	**35**	2	2	2	**7**	200,929	188,134	-6%	8.8	8.7	-1%	2,325	94%	30%	0:47	13,274
I-405 Tukwila to Bellevue	21	28	32	**37**	20	27	30	**34**	-1	-1	-2	**-3**	296,838	293,622	-1%	11.2	11.0	-2%	96	29%	0%	0:31	303

Data source: WSDOT Office of Strategic Assessment and Performance Analysis, WSDOT Northwest Region Traffic Office, Washington State Transportation Center (TRAC) at the University of Washington, King County Metro, Sound Transit, Community Transit and the Puget Sound Regional Council (PSRC).

Notes: The symbol "Δ" is used to denote change in a variable. Commute lengths and travel time values have been rounded to integer values for publication only. MT³ Index values cannot be reproduced as published using the integer values in the table. 1 Commute congestion cost based on $21.90 for every hour of congested conditions measured when commute speeds are slower than 45 mph, applied to the volume of traffic during the congested conditions on an average annual weekday commute. 2 Per-person metrics were estimated based on vehicle occupancy observed on the freeway in the single occupant vehicle lanes. 3 Greenhouse gas emissions were calculated based on emission factors developed by PSRC for different vehicle types at varying travel speeds for each analysis year. In addition, the emissions used the traffic volume and percent of trucks, the average speeds for every 5-minute interval during the peak period, and the average vehicle occupancy on the freeway. 4 Transit performance: Ridership was reported for the peak transit commute periods (6-9 a.m. and 3-6 p.m.). 5 Average load represents utilization of the available transit capacity based on the average maximum load of each bus or train trip and the total seats on the bus or train. Individual trips could show a load greater than 100% if there was standing-room only. Averaging the load for each commute levels out this variation across multiple trips, and may under-represent the load experienced during the peak utilization of transit. 6 Transit travel times include off-highway travel such as exiting to stop at a transit center and may not be directly comparable to private auto times which only include highway travel. 7 Greenhouse gas emissions avoided by transit use were estimated based on the following factors: a) the average maximum transit load; b) the assumption that for every transit passenger mile traveled, 0.62 miles of single-occupant vehicle travel is avoided; c) the distance traveled on the WSDOT-defined commute trip (not the entire transit trip); d) the average emissions of one pound of CO_2e for every mile traveled; and e) the emissions from transit vehicle operations provided by the transit agencies. 8 Transit services include buses and Sounder commuter trains. 9 Transit services include buses and Link light rail trains.

Commute trip analysis

Additional 12 commutes: Changes in travel time performance, congestion, and reliability

2011 and 2013; Morning peak (5-10 a.m.) and evening peak (2-8 p.m.) for an annualized average weekday; 5-minute peak of commuter rush (individual peak times vary); Length of route in miles; All travel times in minutes; Peak of commuter rush and duration of congestion expressed in hours and minutes

Morning

				Travel Times								Congestion			Reliability		
						Average travel time at peak of morning commute			Maximum throughput travel time index (MT³I)			Duration of congestion - How long average speed is slower than 45 mph			95th percentiles		
Route	Direction of travel	Length of route	Peak commute time	Travel time at posted speed	Travel time at maximum throughput speed	2011	2013	%Δ	2011	2013	Peak period %Δ in VMT	2011	2013	Δ	2011	2013	%Δ
From Seattle, Bellevue and Renton																	
I-5 Seattle to Everett	NB	23	9:40	23	28	25	24	-4%	0.90	0.86	3%	0:00	0:00	0:00	30	26	-13%
I-5 Seattle to SeaTac	SB	13	7:50	13	16	14	15	7%	0.91	0.93	1%	0:00	0:00	0:00	16	17	6%
I-405 Bellevue to Lynnwood	NB	16	7:35	16	19	18	16	-11%	0.93	0.86	2%	0:00	0:00	0:00	19	17	-11%
SR 167 Renton to Auburn	SB	10	7:40	10	12	10	10	0%	0.88	0.89	2%	0:00	0:00	0:00	11	11	0%
I-5 Seattle to Federal Way	SB	22	7:50	22	27	23	24	4%	0.88	0.89	0%	0:00	0:00	0:00	25	26	4%
I-405/I-5 Bellevue to Everett	NB	23	7:30	23	28	25	24	-4%	0.91	0.87	1%	0:00	0:00	0:00	27	25	-7%
I-405/I-90 Bellevue to Issaquah	EB	9	7:45	9	11	11	11	0%	0.96	0.96	2%	0:00	0:00	0:00	11	11	0%

Evening

To Seattle, Bellevue and Renton																	
I-405 Lynnwood to Bellevue	SB	16	17:05	16	19	24	27	13%	1.24	1.37	-1%	1:20	2:25	1:05	39	41	5%
SR 167 Auburn to Renton	NB	10	14:40	10	12	11	11	0%	0.96	0.95	-3%	0:00	0:00	0:00	13	15	15%
I-90/I-405 Issaquah to Bellevue	WB	9	17:20	9	11	13	13	0%	1.15	1.13	1%	0:25	0:20	-0:05	18	17	-6%
I-5 Federal Way to Seattle	NB	22	17:10	22	27	31	33	6%	1.15	1.23	1%	0:35	1:40	1:05	43	47	9%
I-5/I-405 Everett to Bellevue	SB	24	16:55	24	28	33	36	9%	1.16	1.25	-1%	0:55	1:50	0:55	47	51	9%

Data source: WSDOT Office of Strategic Assessment and Performance Analysis, WSDOT Northwest Region Traffic Office and the Washington State Transportation Center (TRAC) at the University of Washington.

Notes: The symbol "Δ" is used to denote change in a variable. Commute lengths and travel time values have been rounded to integer values for publication only. MT³ Index values cannot be reproduced as published using the integer values in the table.

Reliability percentiles in plain English

Analyzing reliability based on travel times recorded on approximately 260 weekdays in a calendar year during the peak 5-minute interval

	Definition	Why do we measure this?
Average travel time (the mean)	Average of all the recorded travel times.	Describes the "average" experience on the road that year.
50th percentile travel time (the median)	Half of recorded travel times were shorter, half longer, than this duration.	The median is not affected by very large times as an average is, so it gives a better sense of actual conditions.
80th percentile travel time	80% of recorded travel times were shorter than this duration.	WSDOT uses this percentile to track changes in reliable travel times over the years at a finer level, to better evaluate operational improvements.
90th percentile travel time	90% of recorded travel times were shorter than this duration.	WSDOT uses this percentile to track changes in reliable travel times over the years at a finer level, to better evaluate operational improvements.
95th percentile travel time	95% of recorded travel times were shorter than this duration.	Allows commuters to plan how much time will be required to make a trip and be on time 19 days a month, on average (late one of 20 days).

Central Puget Sound Area

High occupancy vehicle (HOV) trip analysis

Morning commutes: HOV lane travel time performance compared to single occupant vehicle (SOV) lanes

2011 and 2013; Morning peak (6-9 a.m.) for an annualized average weekday; 5-minute peak of commuter rush (individual peak times vary); Length of route in miles; All travel times and differences in minutes; Peak of commuter rush expressed in hours and minutes

			Travel times on the route at		Average travel time at peak of morning rush					95% reliable travel times				
					HOV lanes			SOV lanes	2013: Difference	HOV lanes			SOV lanes	2013: Difference
Route	Length of route	Peak commute time	Posted speed	Maximum throughput speed	2011	2013	Δ	2013	HOV vs. SOV	2011	2013	Δ	2013	HOV vs. SOV
To Seattle														
I-5 Everett to Seattle														
Regular HOV lane	24	7:20	24	28	34	39	5	50	-11	49	61	12	80	-19
Reversible lanes	24	7:20	24	28	33	37	4	50	-13	48	55	7	80	-25
I-5 Federal Way to Seattle[1]	22	7:25	22	27	30	36	6	49	-13	41	49	8	69	-20
I-90/I-5 Issaquah to Seattle														
HOV & SOV lanes[1]	14	7:40	14	17	16	18	2	24	-6	19	22	3	35	-13
HOV & reversible lanes[1]	14	7:40	14	17	15	16	1	24	-8	17	19	2	35	-16
SR 520/I-5 Redmond to Seattle	13	8:15	13	16	19	18	-1	18	0	23	23	0	25	-2
I-5 SeaTac to Seattle	13	8:20	13	16	18	21	3	31	-10	26	30	4	44	-14
I-405/I-90/I-5 Bellevue to Seattle														
HOV & SOV lanes[1]	9	8:30	9	11	11	14	3	14	0	14	18	4	20	-2
HOV & reversible lanes[1]	9	8:30	9	11	10	10	0	14	-4	10	12	2	20	-8
I-405/SR 520/I-5 Bellevue to Seattle	10	8:15	10	12	16	14	-2	15	-1	20	18	-2	21	-3
To Bellevue														
I-5/I-405 Everett to Bellevue	24	7:20	24	28	27	31	4	54	-23	31	41	10	84	-43
I-405 Lynnwood to Bellevue	16	7:30	16	19	18	22	4	44	-22	21	30	9	69	-39
I-405 Tukwila to Bellevue	13	7:35	13	16	14	18	4	36	-18	17	27	10	50	-23
I-5/I-90/I-405 Seattle to Bellevue[1]	9	8:40	9	11	14	12	-2	12	0	22	15	-7	16	-1
I-90/I-405 Issaquah to Bellevue	9	7:45	9	11	11	12	1	16	-4	13	15	2	24	-9
SR 520/I-405 Redmond to Bellevue	6	8:50	6	7	9	9	0	8	1	11	11	0	11	0
To other locations														
I-405 Bellevue to Tukwila	12	7:40	12	15	13	13	0	17	-4	13	13	0	24	-11
SR 167 Auburn to Renton (HOT)	10	7:30	10	12	11	12	1	17	-5	12	17	5	28	-11
I-5/I-90 Seattle to Issaquah[1]	14	8:40	14	17	17	16	-1	16	0	26	19	-7	20	-1
I-5/SR 520 Seattle to Redmond[3]	13	8:40	13	16	24	19	-5	19	0	36	28	-8	27	1

Data source: WSDOT Office of Strategic Assessment and Performance Analysis, WSDOT Northwest Region Traffic Office and the Washington State Transportation Center (TRAC) at the University of Washington.

Notes: Commute lengths have been rounded to integer values for publication purposes only. Trip routes on I-5 and I-90 include reversible lane options for the weekday time periods (morning or evening) and directions of travel when the reversible lanes are in effect. 1 Some HOV trips have modified trip lengths compared to the corresponding standard SOV trips in the central Puget Sound area due to the lack of data at the HOV trip's endpoints. Affected trips are on northbound I-5 from Federal Way to Seattle, and I-90 trips between Seattle and Issaquah, and between Bellevue and Seattle (both eastbound and westbound). In each case, to enable a direct comparison, the lengths of the corresponding SOV trips have been adjusted to match the HOV trip length as closely as possible; this means travel times and time stamps for the peak of the commuter rush for these modified SOV trips will not necessarily match those in the SOV trip tables on pp. 13-15. 2 HOV trips with the same endpoints as SOV lane trips, but differing lengths, do not require any adjustment, since the difference in lengths is the result of HOVs using different roadways than SOVs (e.g., an HOV only interchange ramp). 3 The HOV trip on SR 520 eastbound from Seattle to Bellevue is no longer reported, because HOV lanes exist along only a very short portion of the route.

High occupancy vehicle (HOV) trip analysis

Evening commutes: HOV lane travel time performance compared to single occupant vehicle (SOV) lanes

2011 and 2013; Evening peak (3-6 p.m.) for an annualized average weekday; 5-minute peak of commuter rush (individual peak times vary); Length of route in miles; All travel times and differences in minutes; Peak of commuter rush expressed in hours and minutes

			Travel times on the route at		Average travel time at peak of evening rush					95% reliable travel times				
					HOV lanes			SOV lanes	2013: Difference	HOV lanes			SOV lanes	2013: Difference
Route	Length of route	Peak commute time	Posted speed	Maximum throughput speed	2011	2013	Δ	2013	HOV vs. SOV	2011	2013	Δ	2013	HOV vs. SOV
From Seattle														
I-5 Seattle to Everett														
Regular HOV lane	23	16:55	23	28	33	35	2	39	-4	46	48	2	57	-9
Reversible lanes	23	16:55	23	28	29	30	1	39	-9	38	39	1	57	-18
I-5 Seattle to Federal Way	22	16:35	22	27	26	29	3	32	-3	35	41	6	48	-7
I-5 Seattle to SeaTac	13	16:10	13	16	16	19	3	19	0	22	27	5	28	-1
I-5/I-90/I-405 Seattle to Bellevue														
HOV & SOV lanes[1]	9	17:25	9	11	15	12	-3	13	-1	24	18	-6	20	-2
HOV & reversible lanes[1]	9	17:25	9	11	10	10	0	13	-3	11	11	0	20	-9
I-5/SR 520 Seattle to Redmond[3]	13	17:35	13	16	21	17	-4	18	-1	34	22	-12	24	-2
I-5/I-90 Seattle to Issaquah														
HOV & SOV lanes[1]	14	17:25	14	17	18	17	-1	19	-2	27	22	-5	27	-5
HOV & reversible lanes[1]	14	17:25	14	17	14	15	1	19	-4	16	16	0	27	-11
From Bellevue														
I-405 Bellevue to Everett	23	17:15	23	28	28	30	2	43	-13	35	40	5	55	-15
I-405 Bellevue to Lynnwood	16	17:15	16	19	20	22	2	34	-12	26	29	3	47	-18
I-405 Bellevue to Tukwila	12	16:45	12	15	17	19	2	35	-16	25	29	4	47	-18
I-405/I-90/I-5 Bellevue to Seattle[1]	9	17:15	9	11	16	17	1	23	-6	25	26	1	36	-10
I-405/SR 520/I-5 Bellevue to Seattle	10	17:30	10	12	18	15	-3	22	-7	27	19	-8	34	-15
I-405/I-90 Bellevue to Issaquah	9	17:30	9	11	14	15	1	19	-4	19	20	1	25	-5
I-405/SR 520 Bellevue to Redmond	5	17:40	5	7	8	7	-1	8	-1	10	9	-1	12	-3
From other locations														
I-5 Everett to Seattle	24	16:10	24	28	40	42	2	50	-8	58	58	0	74	-16
I-90/I-5 Issaquah to Seattle[1]	14	17:15	14	17	18	19	1	25	-6	26	28	2	42	-14
SR 520/I-5 Redmond to Seattle	13	17:30	13	16	22	21	-1	31	-10	36	32	-4	53	-21
I-5 SeaTac to Seattle	13	17:15	13	16	17	18	1	24	-6	27	27	0	39	-12
SR 167 Renton to Auburn (HOT)	10	16:20	10	12	11	12	1	18	-6	14	17	3	35	-18
I-405 Tukwila to Bellevue	13	17:25	13	16	14	14	0	21	-7	15	15	0	34	-19

Data source: WSDOT Office of Strategic Assessment and Performance Analysis, WSDOT Northwest Region Traffic Office and the Washington State Transportation Center (TRAC) at the University of Washington.

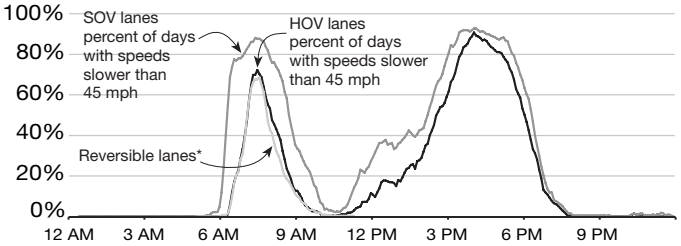
Notes: Commute lengths have been rounded to integer values for publication purposes only. Trip routes on I-5 and I-90 include reversible lane options for the weekday time periods (morning or evening) and directions of travel when the reversible lanes are in effect. 1 Some HOV trips have modified trip lengths compared to the corresponding standard SOV trips in the central Puget Sound area due to the lack of data at the HOV trip's endpoints. Affected trips are on northbound I-5 from Federal Way to Seattle, and I-90 trips between Seattle and Issaquah, and between Bellevue and Seattle (both eastbound and westbound). In each case, to enable a direct comparison, the lengths of the corresponding SOV trips have been adjusted to match the HOV trip length as closely as possible; this means travel times and time stamps for the peak of the commuter rush for these modified SOV trips will not necessarily match those in the SOV trip tables on pp. 13-15. 2 HOV trips with the same endpoints as SOV lane trips, but differing lengths, do not require any adjustment, since the difference in lengths is the result of HOVs using different roadways than SOVs (e.g., an HOV only interchange ramp). 3 The HOV trip on SR 520 eastbound from Seattle to Bellevue is no longer reported, because HOV lanes exist along only a very short portion of the route.

HOV stamp graphs: Frequency, duration of congestion

Comparing HOV and adjacent SOV lanes: Percent of weekdays experiencing congestion (part 1)

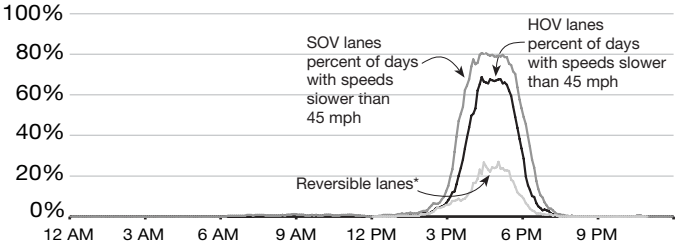
2013; Percent of days average speed was slower than 45 mph on HOV and SOV lanes

I-5 Everett to Seattle



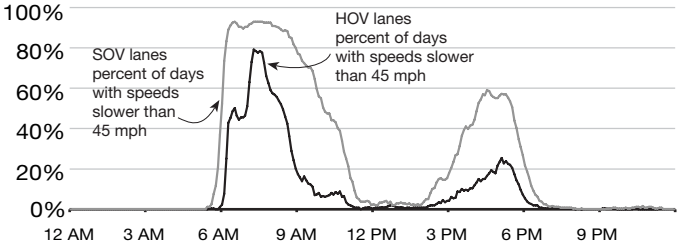
* Monday-Friday hours of operation: Southbound - 5 - 11:15 am; Northbound - 12 p.m. (noon) - 11 p.m.; Closed 11 p.m. to 5 a.m.

I-5 Seattle to Everett

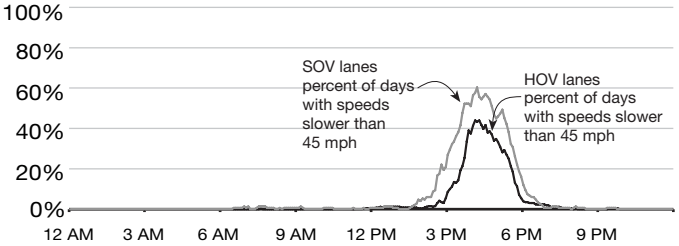


* Monday-Friday hours of operation: Southbound - 5 - 11:15 am; Northbound - 12 p.m. (noon) - 11 p.m.; Closed 11 p.m. to 5 a.m.

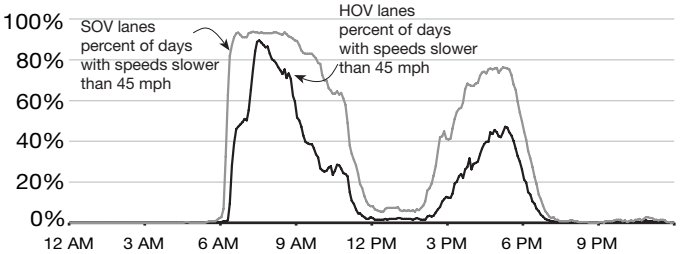
I-5 Federal Way to Seattle



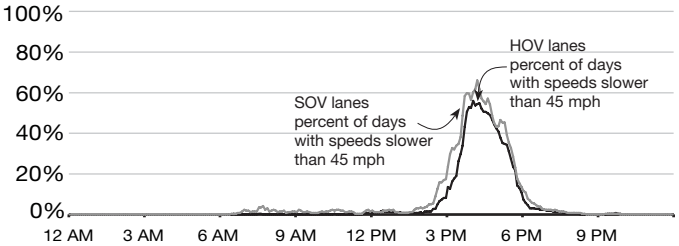
I-5 Seattle to Federal Way



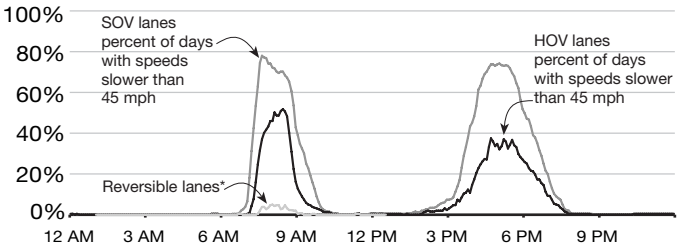
I-5 SeaTac to Seattle



I-5 Seattle to SeaTac

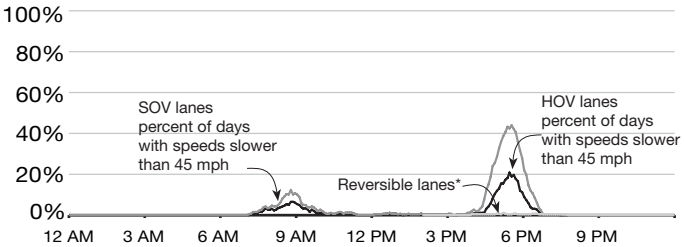


I-90/I-5 Issaquah to Seattle



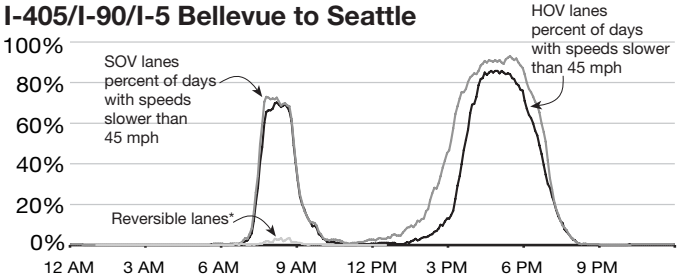
* Monday-Friday hours of operation: Westbound - 1 a.m. to 12:30 p.m.; Eastbound - 2 p.m. to 12 a.m. (midnight).

I-90/I-5 Seattle to Issaquah



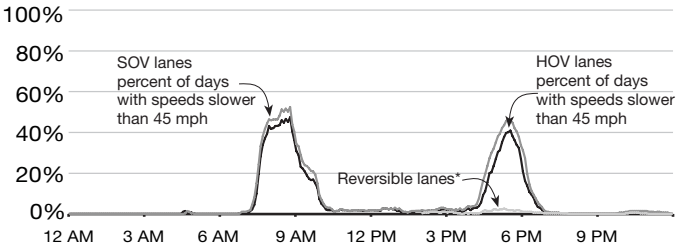
* Monday-Friday hours of operation: Westbound - 1 a.m. to 12:30 p.m.; Eastbound - 2 p.m. to 12 a.m. (midnight).

I-405/I-90/I-5 Bellevue to Seattle



* Monday-Friday hours of operation: Westbound - 1 a.m. to 12:30 p.m.; Eastbound - 2 p.m. to 12 a.m. (midnight).

I-5/I-90/I-405 Seattle to Bellevue



* Monday-Friday hours of operation: Westbound - 1 a.m. to 12:30 p.m.; Eastbound - 2 p.m. to 12 a.m. (midnight).

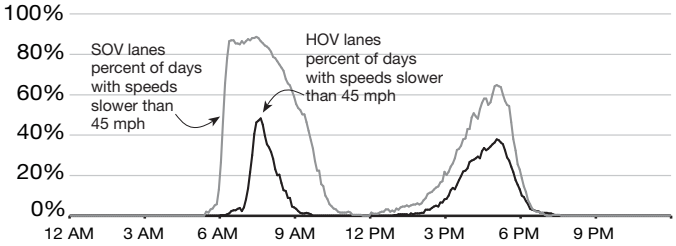
Data source: WSDOT Office of Strategic Assessment and Performance Analysis.

Note: See p. 3 for congestion definitions and how to read these graphs.

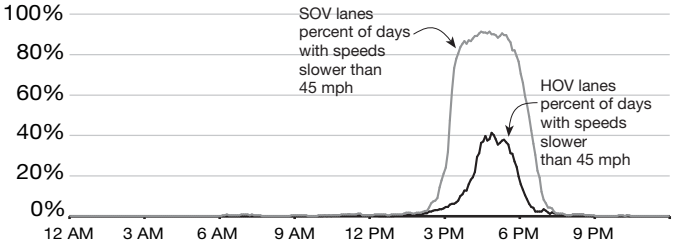
HOV stamp graphs: Frequency, duration of congestion

Comparing HOV and adjacent SOV lanes: Percent of weekdays experiencing congestion (part 2)
2013; Percent of days average speed was slower than 45 mph on HOV and SOV lanes

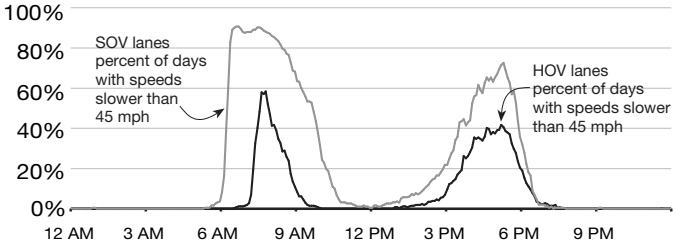
I-5/I-405 Everett to Bellevue



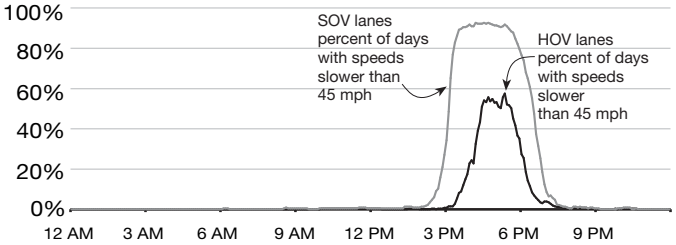
I-405/I-5 Bellevue to Everett



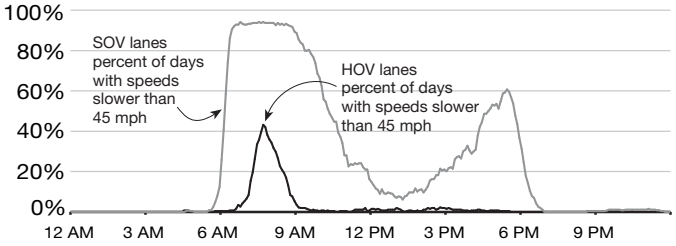
I-405 Lynnwood to Bellevue



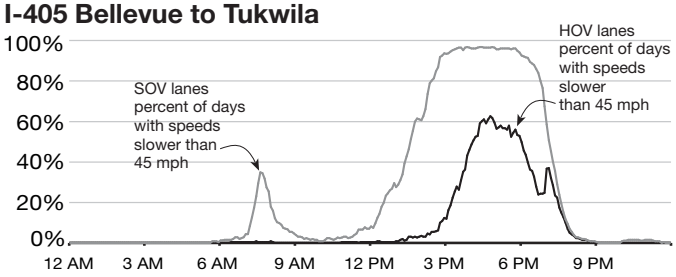
I-405 Bellevue to Lynnwood



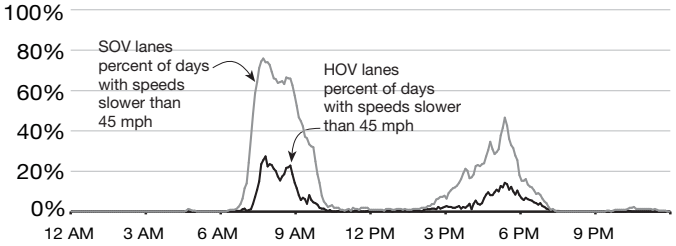
I-405 Tukwila to Bellevue



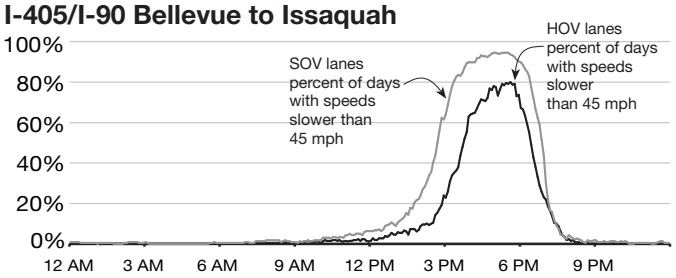
I-405 Bellevue to Tukwila



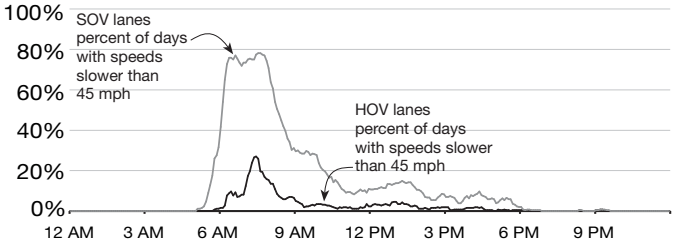
I-90/I-405 Issaquah to Bellevue



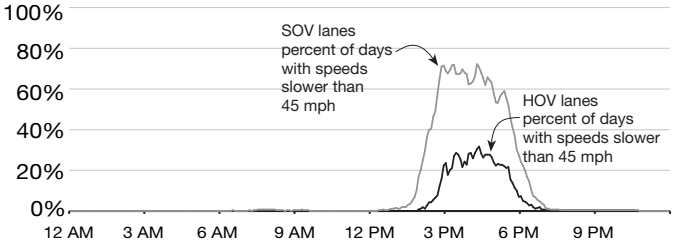
I-405/I-90 Bellevue to Issaquah



SR 167 Auburn to Renton



SR 167 Renton to Auburn



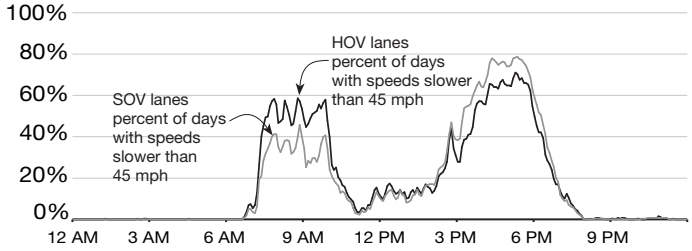
Data source: WSDOT Office of Strategic Assessment and Performance Analysis.
Note: See p. 3 for congestion definitions and how to read these graphs.

HOV stamp graphs and reliability performance

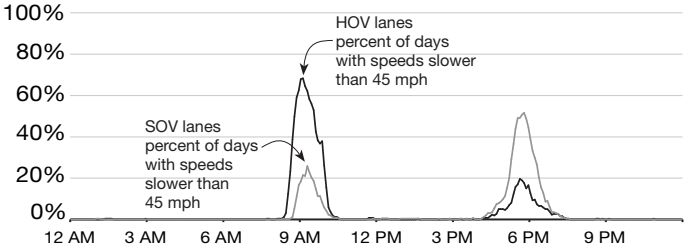
Comparing HOV and adjacent SOV lanes: Percent of weekdays experiencing congestion (part 3)

2013; Percent of days average speed was slower than 45 mph on HOV and SOV lanes

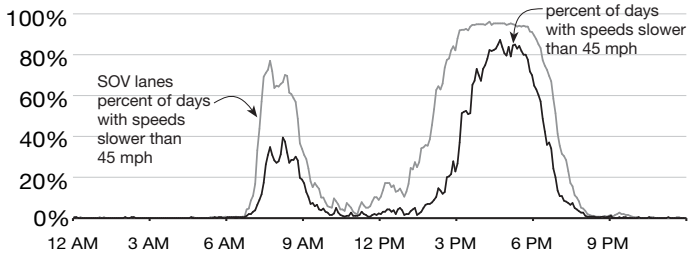
SR 520/I-405 Redmond to Bellevue



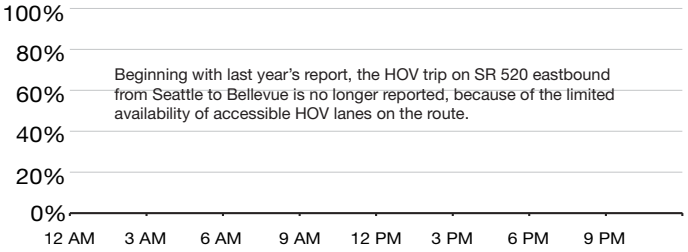
I-405/SR 520 Bellevue to Redmond



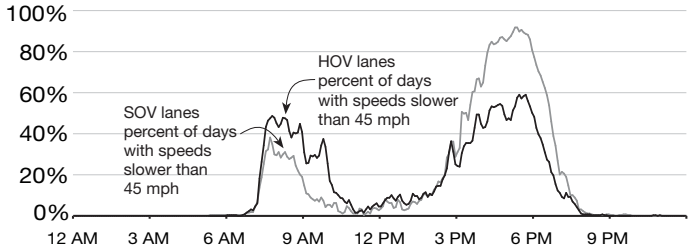
I-405/SR 520/I-5 Bellevue to Seattle



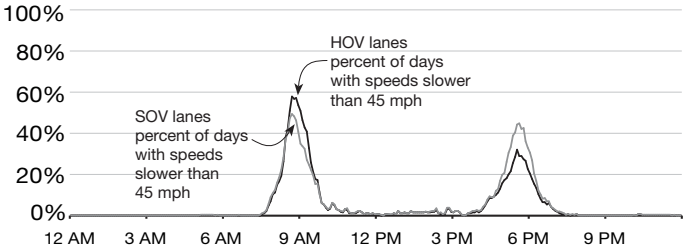
I-5/SR 520/I-405 Seattle to Bellevue



SR 520/I-5 Redmond to Seattle



I-5/SR 520 Seattle to Redmond



Data source: WSDOT Office of Strategic Assessment and Performance Analysis.

Note: See p. 3 for congestion definitions and how to read these graphs.

High occupancy vehicle lane speed and reliability performance on major central Puget Sound corridors

2009 through 2013; Goal is to maintain 45 mph for 90% of peak hour

= Goal not met

Commute routes	2009	2010	2011	2012	**2013**	Commute routes	2009	2010	2011	2012	**2013**
Morning peak period commutes						**Evening peak period commutes**					
I-5, Everett to Seattle SB	69%	61%	64%	54%	**42%**	I-5, Seattle to Everett NB	49%	55%	76%	68%	**66%**
I-5, Federal Way to Seattle NB	92%	86%	72%	51%	**43%**	I-5, Seattle to Federal Way SB	67%	77%	82%	63%	**53%**
I-405, Lynnwood to Bellevue SB	94%	92%	94%	76%	**54%**	I-405, Bellevue to Lynnwood NB	71%	77%	74%	56%	**46%**
I-405, Tukwila to Bellevue NB	99%	99%	98%	93%	**65%**	I-405, Bellevue to Tukwila SB	70%	74%	60%	43%	**41%**
I-90, Issaquah to Seattle WB	96%	100%	100%	100%	**100%**	I-90, Seattle to Issaquah EB	95%	99%	99%	100%	**99%**
SR 520, Redmond to Bellevue WB	94%	94%	97%	51%	**50%**	SR 520, Redmond to Bellevue WB	71%	61%	70%	54%	**52%**
SR 167, Auburn to Renton NB[1]	99%	100%	99%	96%	**94%**	SR 167, Renton to Auburn SB[1]	99%	99%	99%	98%	**98%**

Data source: Washington State Transportation Center (TRAC) at the University of Washington.

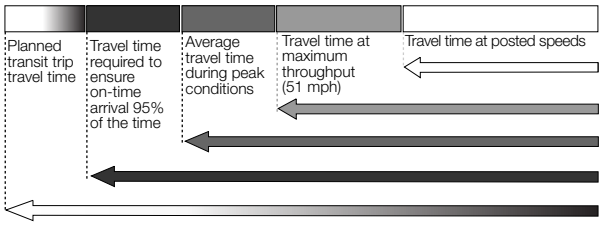
Notes: HOV reliability performance standards are based on the peak hour, the one-hour period during each peak period when average travel time is slowest. To meet the standard, a speed of 45 mph must be maintained for 90% of the peak hour. Numbers represent the percentage of the peak hour when speeds are faster than 45 mph. TRAC analyzes performance data for all complete segments of HOV lanes that have a loop detector. In some cases, data cannot be analyzed for the very beginning and ends of the lanes because there are no detectors at these locations. 1 High occupancy toll (HOT) lanes replaced regular HOV lanes May 3, 2008.

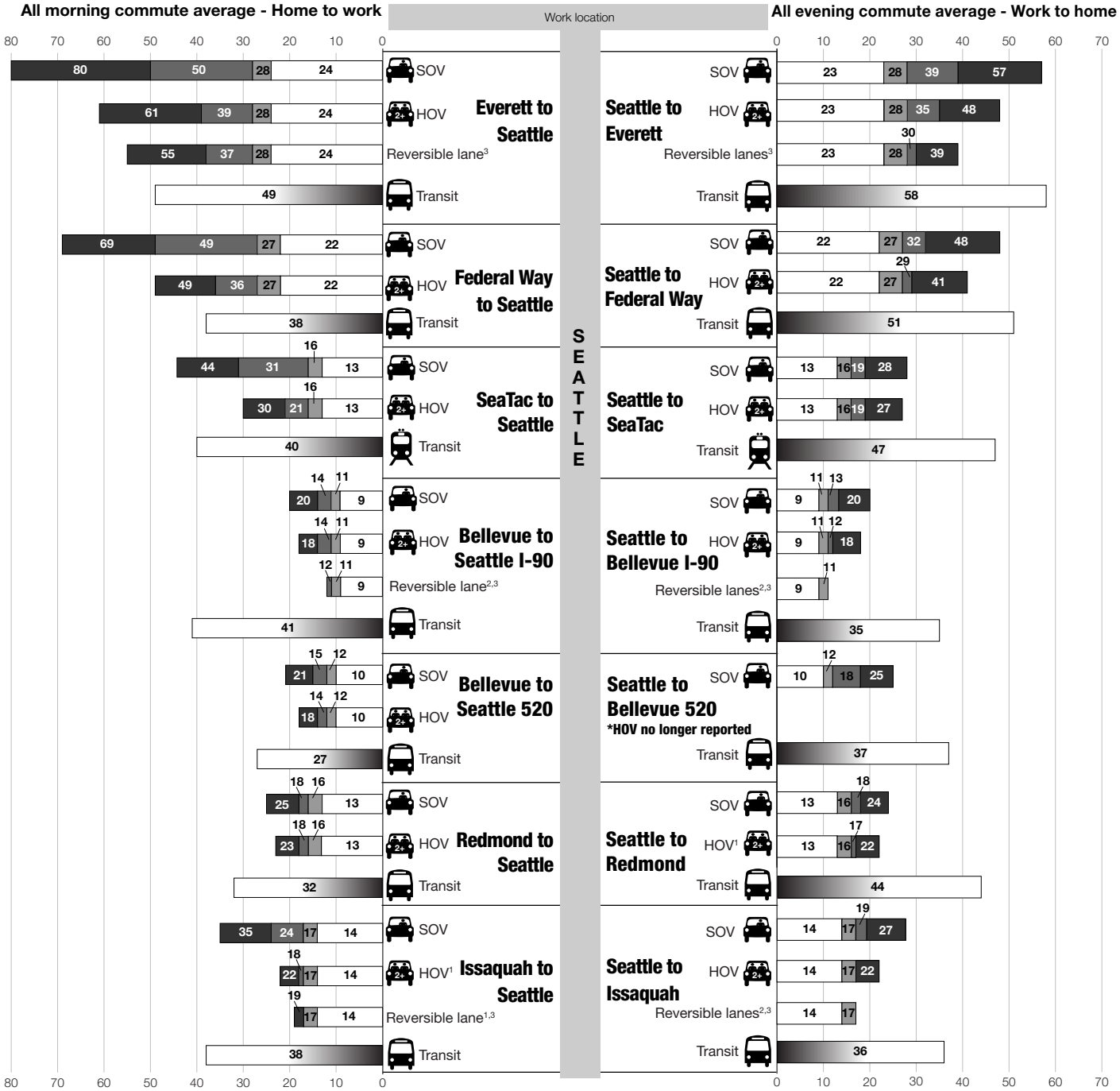
HOV, SOV and transit trip analysis – Seattle

Travel times at posted speeds, maximum throughput speeds, peak travel times and 95th percentile reliable travel times

Morning and evening commutes by work location

2013; Single occupant vehicle (SOV), high occupancy vehicle (HOV) and public transit commutes in the central Puget Sound area; Travel times in minutes





Data source: WSDOT Office of Strategic Assessment and Performance Analysis and the Washington State Transportation Center (TRAC) at the University of Washington.

Notes: 1 Average travel times were equal to or faster than maximum throughput travel times on this route. 2 Average travel times and 95th percentile reliable travel times were equal to or faster than maximum throughput travel times on this route. 3 Monday through Friday reversible lane hours of operation: I-5 Southbound - 5:00 p.m.-11:15 a.m.; Northbound - 12-noon-11:00 p.m.; I-90 Westbound - 1:00 a.m.-12:30 p.m.; Eastbound - 2:00 p.m.-12-midnight. 3 Transit travel times include off-highway travel such as exiting to stop at a transit center and may not be directly comparable to private auto times which only include highway travel.

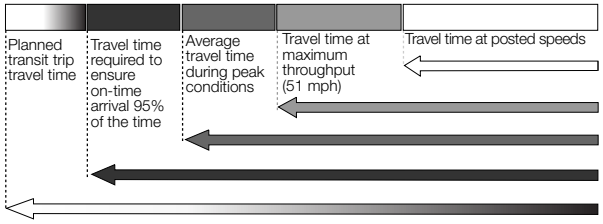
Central Puget Sound Area

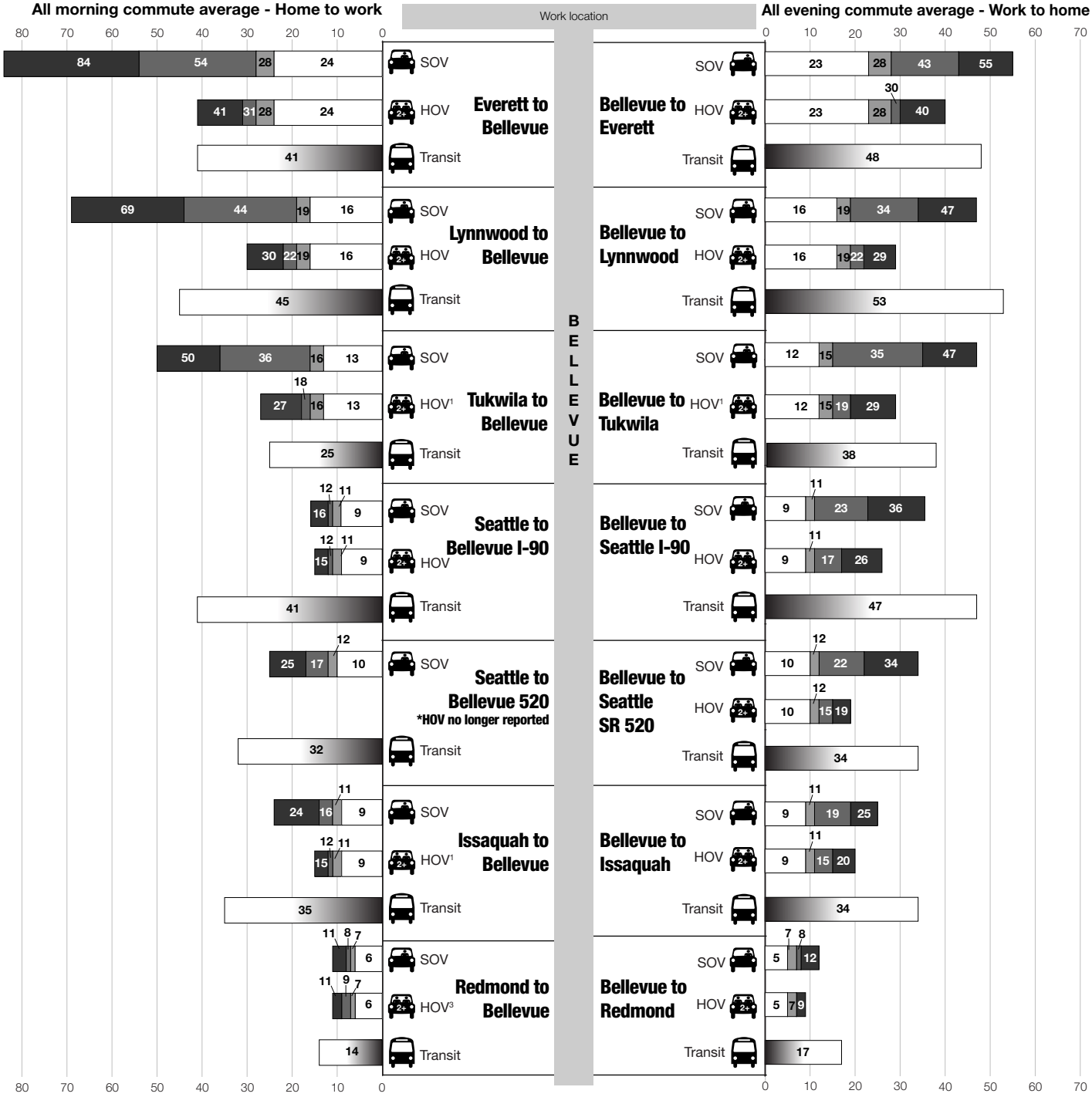
HOV, SOV and transit trip analysis – Bellevue

Travel times at posted speeds, maximum throughput speeds, peak travel times and 95th percentile reliable travel times

Morning and evening commutes by work location

2013; Single occupant vehicle (SOV), high occupancy vehicle (HOV) and public transit commutes in the central Puget Sound area; Travel times in minutes





Data source: WSDOT Office of Strategic Assessment and Performance Analysis and the Washington State Transportation Center (TRAC) at the University of Washington.

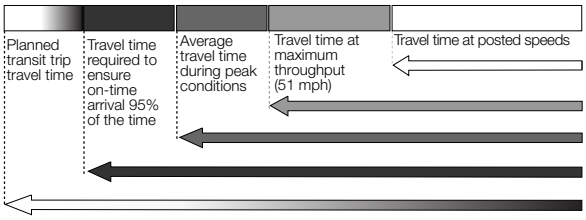
Notes: 1 Average travel times were equal to or faster than maximum throughput travel times on this route. 2 Average travel times and 95th percentile reliable travel times were equal to or faster than maximum throughput travel times on this route. 3 Transit travel times include off-highway travel such as exiting to stop at a transit center and may not be directly comparable to private auto times which only include highway travel.

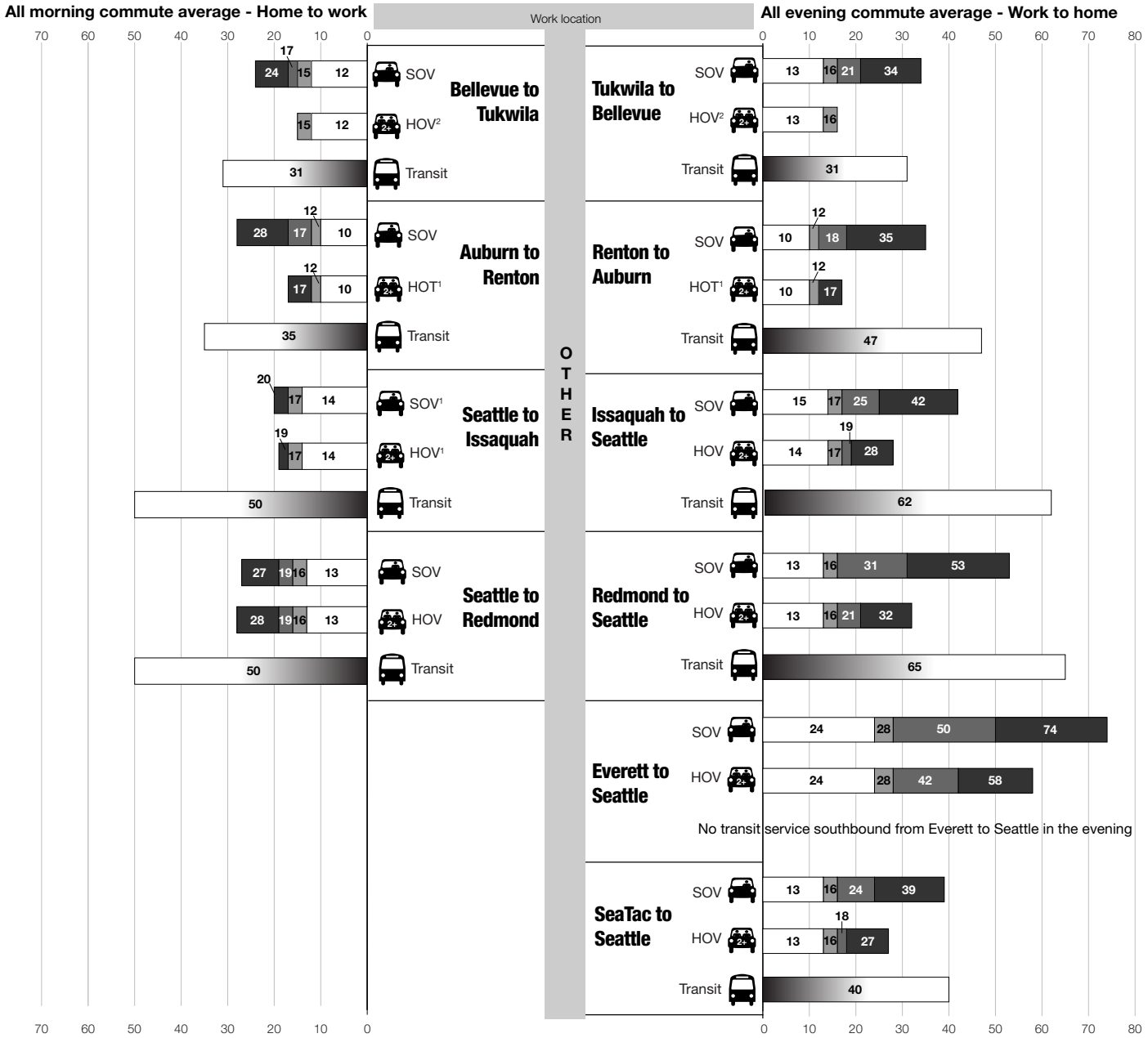
HOV, SOV and transit trip analysis – Other locations

Travel times at posted speeds, maximum throughput speeds, peak travel times and 95th percentile reliable travel times

Morning and evening commutes by work location

2013; Single occupant vehicle (SOV), high occupancy vehicle (HOV) and public transit commutes in the central Puget Sound area; Travel times in minutes





Data source: WSDOT Office of Strategic Assessment and Performance Analysis and the Washington State Transportation Center (TRAC) at the University of Washington.

Notes: 1 Average travel times were equal to or faster than maximum throughput travel times on this route. 2 Average travel times and 95th percentile reliable travel times were equal to or faster than maximum throughput travel times on this route. 3 Transit travel times include off-highway travel such as exiting to stop at a transit center and may not be directly comparable to private auto times which only include highway travel.

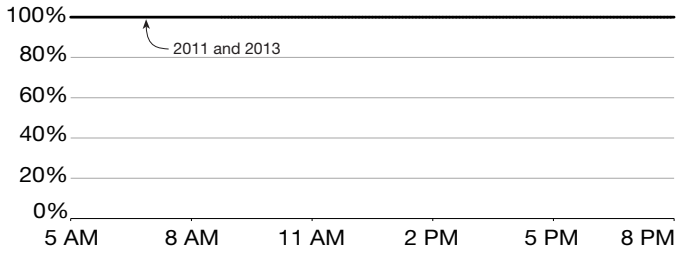
Throughput productivity

Throughput productivity at select south Puget Sound area freeway locations by commute direction

2011 and 2013; Based on the highest observed 5-minute (min.) flow rates; Vehicles per hour per lane (vphpl) at specific mileposts (MP)

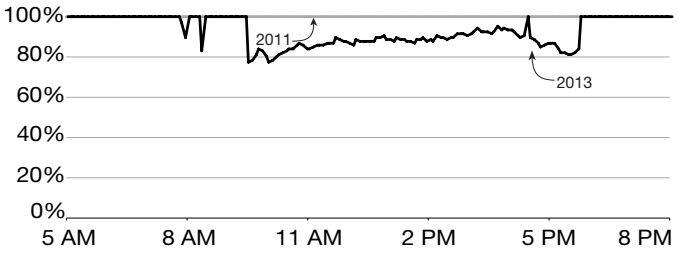
Northbound I-5 in Olympia at 14th Avenue (MP 105.5)

Based on the highest observed 5 min. flow rate of 1,480 vphpl = 100%



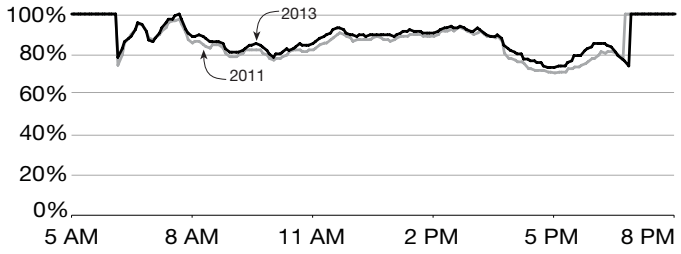
Southbound I-5 in Olympia at 14th Avenue (MP 105.5)

Based on the highest observed 5 min. flow rate of 1,350 vphpl = 100%



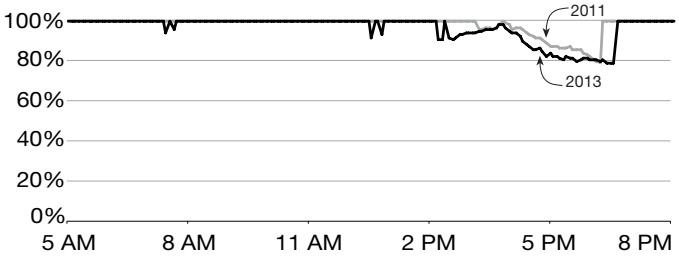
Northbound I-5 at JBLM (MP 122.5)

Based on the highest observed 5 min. flow rate of 1,540 vphpl = 100%



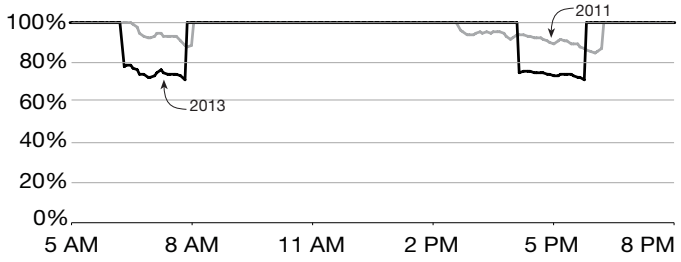
Southbound I-5 at JBLM (MP 122.5)

Based on the highest observed 5 min. flow rate of 1,300 vphpl = 100%



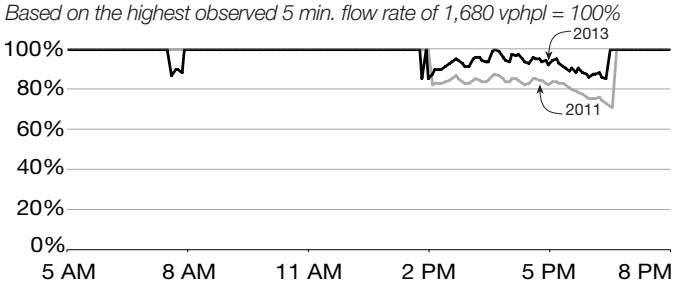
Norhtbound I-5 at Tacoma Dome (MP 133.5)

Based on the highest observed 5 min. flow rate of 1,330 vphpl = 100%



Southbound I-5 at Tacoma Dome (MP 133.5)

Based on the highest observed 5 min. flow rate of 1,680 vphpl = 100%

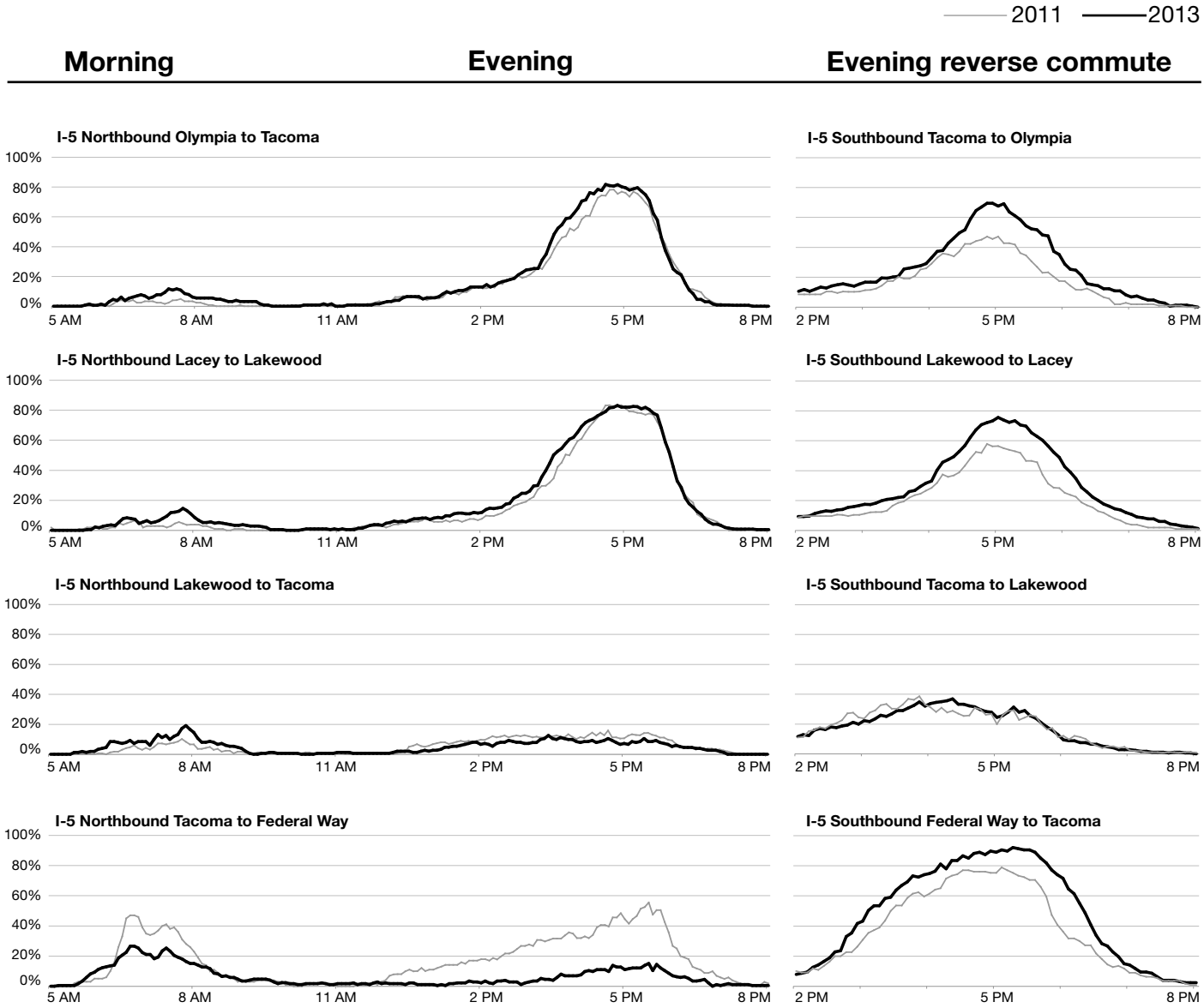


Data source: WSDOT Southwest Region Traffic Office.

Note: See p. 3 for throughput definitions and how to read these graphs.

Stamp graphs and routinely congested segments

Stamp graphs of congestion by time of day on south Puget Sound area freeways
2011 and 2013 weekdays; Percent of days the average speed was slower than 45 mph



Data source: WSDOT Office of Strategic Assessment and Performance Analysis.
Note: See p. 3 for congestion definitions and how to read these graphs.

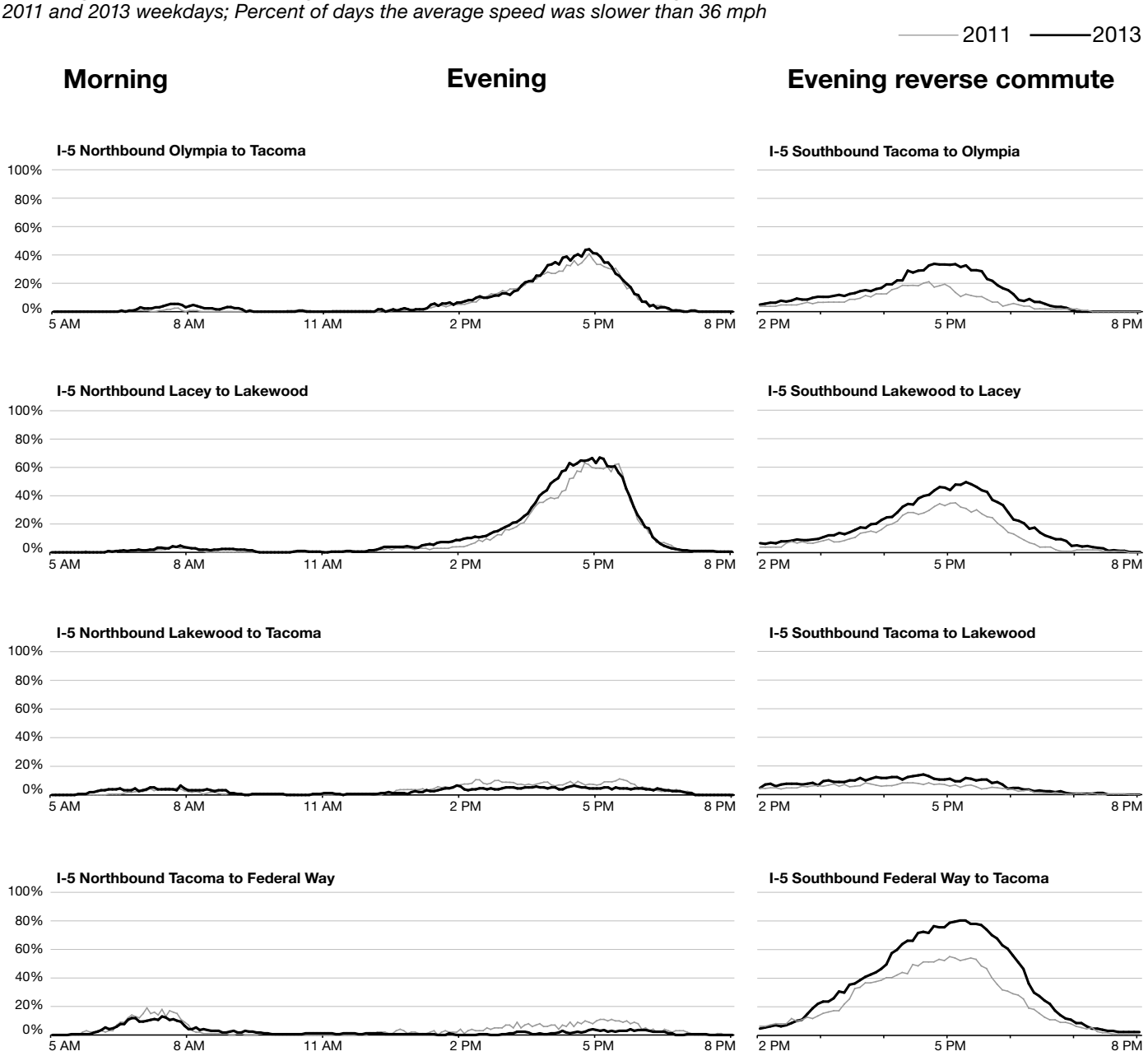
South Puget Sound area routinely congested segments of I-5
2013 weekdays; Length of congestion in miles; Duration of congestion in hours:minutes

Route and direction	Peak period	Begin and end milepost	Length of congestion	Duration of congestion
I-5 northbound[1]	Morning (7:45-7:55 a.m.)	130.5-131.0	0.5	0:10
I-5 northbound	Morning (6:35-7:35 a.m.)	134.0-134.5	0.5	1:00
I-5 southbound	Evening (2:45-6:35 p.m.)	141.0-135.5	5.5	3:50
I-5 southbound	Evening (3:35-5:40 p.m.)	134.5-132.5	2.0	2:05
I-5 southbound	Evening (3:55-6:05 p.m.)	124.5-119.5	5.0	2:10
I-5 northbound	Evening (3:20-6:10 p.m.)	119.0-123.5	4.5	2:50

Data source: WSDOT Olympic Region Traffic Office.
Notes: 1 Not reported on routinely congested segments map or narrative in main report due to duration of less than 50 minutes.

Stamp graphs: Frequency, duration of severe congestion

Stamp graphs of severe congestion by time of day on south Puget Sound area freeways
2011 and 2013 weekdays; Percent of days the average speed was slower than 36 mph



Data source: WSDOT Office of Strategic Assessment and Performance Analysis.
Note: See p. 3 for congestion definitions and how to read these graphs.

Commute trip analysis

Morning commutes: Changes in travel time performance, congestion, reliability, emissions and transit performance for 10 evening high-demand commute trips in the south Puget Sound area

2011 and 2013; Morning peak (5-10 a.m.) for an annualized average weekday; 5-minute peak of commuter rush (individual peak times vary); Length of route in miles; All travel times in minutes; Peak of commuter rush and duration of congestion expressed in hours and minutes; Cost of congestion in dollars; Emissions in pounds of carbon dioxide equivalents (CO_2e); Average transit ridership, average load, and emissions avoided based on the average maximum load during the peak period

Morning

Route	Direction of travel	Length of route	Peak commute time	Travel time at posted speed	Travel time at maximum throughput speed	Average travel time at peak of morning commute			Maximum throughput travel time index (MT[3]I)		Peak period %Δ in VMT	Duration of congestion: How long average speed is below 45 mph			Cost of congestion[1] per person[2], per trip			2011 percentiles				2013 percentiles				Δ: 2011 vs. 2013				Greenhouse gas emissions[3] in pounds of CO_2e Emitted during peak period			Emitted per person[2]			Daily ridership	Average daily load[5]	Percent of transit with load ≥ 90%	Transit travel time[6]	Daily emissions avoided[7]
																		Median 50th	80th	90th	95th	Median 50th	80th	90th	95th	Median 50th	80th	90th	95th											
						2011	2013	%Δ	2011	2013		2011	2013	Δ	2011	2013	%Δ													2011	2013	%Δ	2011	2013	%Δ	2013	2013	2013	2013	2013
Northbound[8]																																								
I-5 Olympia to Lacey	NB	6	7:40	6	7	6	6	0%	0.84	0.87	-3%	0:00	0:00	0:00	$0.00	$0.00	N/A	6	6	6	**6**	6	6	6	**6**	0	0	0	**0**	90,329	93,117	3%	5	5	0%	56	21%	0%	0:11	149
I-5 Lacey to Lakewood	NB	16	7:40	16	19	18	19	6%	0.91	0.98	4%	0:00	0:00	0:00	$0.00	$0.00	N/A	17	17	18	**20**	18	20	23	**26**	1	2	5	**6**	295,234	305,698	4%	15	15	0%	118	25%	0%	0:38	881
I-5 Lakewood to Tacoma	NB	5	7:50	5	6	6	7	17%	0.96	1.09	-1%	0:00	0:00	0:00	$0.00	$0.00	N/A	6	6	7	**8**	6	7	8	**9**	1	1	1	**1**	107,002	85,236	-20%	5	4	-20%	212	25%	0%	0:25	443
I-5 Tacoma to Federal Way	NB	11	7:25	11	13	14	14	0%	1.11	1.04	5%	0:05	0:00	-0:05	$0.00	$0.00	N/A	13	17	19	**21**	12	16	20	**24**	-1	-2	1	**3**	236,156	234,886	-1%	9	9	0%	7,344	93%	22%	0:18	45,599
I-5 Olympia to Tacoma	NB	27	7:30	27	33	30	32	7%	0.90	0.97	2%	0:00	0:00	0:00	$0.00	$0.00	N/A	29	30	32	**35**	30	33	38	**43**	1	3	6	**8**	492,274	501,411	2%	24	24	0%	132	32%	0%	1:10	2,212
Southbound[8]																																								
I-5 Lacey to Olympia	SB	6	7:50	6	7	6	6	0%	0.89	0.93	-4%	0:00	0:00	0:00	$0.00	$0.00	N/A	6	6	6	**6**	6	7	7	**7**	0	0	0	**1**	84,615	86,162	2%	5	5	0%	176	51%	11%	0:20	1,007
I-5 Lakewood to Lacey	SB	17	7:35	17	20	18	18	0%	0.88	0.87	-1%	0:00	0:00	0:00	$0.00	$0.00	N/A	17	18	19	**19**	18	18	18	**20**	0	0	0	**1**	251,732	254,182	1%	15	15	0%	212	46%	8%	0:33	2,206
I-5 Tacoma to Lakewood	SB	5	7:45	5	6	6	5	-17%	0.94	0.86	0%	0:00	0:00	0:00	$0.00	$0.00	N/A	6	6	7	**7**	5	5	6	**6**	0	-1	-1	**-1**	93,623	92,495	-1%	4	4	0%	88	20%	0%	0:25	146
I-5 Federal Way to Tacoma	SB	10	7:35	10	12	11	11	0%	0.86	0.91	0%	0:00	0:00	0:00	$0.00	$0.00	N/A	10	11	11	**11**	11	12	12	**13**	1	1	1	**2**	182,610	193,119	6%	9	9	0%	480	17%	0%	0:13	71
I-5 Tacoma to Olympia	SB	28	7:25	28	34	30	30	0%	0.88	0.88	-1%	0:00	0:00	0:00	$0.00	$0.00	N/A	29	30	30	**31**	29	30	30	**32**	0	0	0	**1**	428,135	431,418	1%	25	24	-4%	197	47%	9%	0:58	3,549

Data source: WSDOT Office of Strategic Assessment and Performance Analysis, WSDOT Olympic Region Traffic Office, Washington State Transportation Center (TRAC) at the University of Washington, Intercity Transit and the Puget Sound Regional Council (PSRC).

Notes: The symbol "Δ" is used to denote change in a variable. Commute lengths and travel time values have been rounded to integer values for publication only. MT[3] Index values cannot be reproduced as published using the integer values in the table. 1 Commute congestion cost based on $21.90 for every hour of congested conditions measured when commute speeds are slower than 45 mph, applied to the volume of traffic during the congested conditions on an average annual weekday commute. 2 Per-person metrics were estimated based on vehicle occupancy observed on the freeway in the single occupant vehicle lanes. 3 Greenhouse gas emissions were calculated based on emission factors developed by PSRC for different vehicle types at varying travel speeds for each analysis year. In addition, the emissions used the traffic volume and percent of trucks, the average speeds for every 5-minute interval during the peak period, and the average vehicle occupancy on the freeway. 4 Transit performance: Ridership was reported for the peak transit commute periods (6-9 a.m. and 3-6 p.m.). 5 Average load represents utilization of the available transit capacity based on the average maximum load of each bus or train trip and the total seats on the bus or train. Individual trips could show a load greater than 100% if there was standing-room only. Averaging the load for each commute levels out this variation across multiple trips, and may under-represent the load experienced during the peak utilization of transit. 6 Transit travel times include off-highway travel such as exiting to stop at a transit center and may not be directly comparable to private auto times which only include highway travel. 7 Greenhouse gas emissions avoided by transit use were estimated based on the following factors: a) the average maximum transit load; b) the assumption that for every transit passenger mile traveled, 0.62 miles of single-occupant vehicle travel is avoided; c) the distance traveled on the WSDOT-defined commute trip (not the entire transit trip); d) the average emissions of one pound of CO^2e for every mile traveled; and e) the emissions from transit vehicle operations provided by the transit agencies. 8 Transit services include buses and Sounder commuter trains.

Commute trip analysis

Evening commutes: Changes in travel time performance, congestion, reliability, emissions and transit performance for 10 evening high-demand commute trips in the south Puget Sound area

2011 and 2013; Evening peak (2-8 p.m.) for an annualized average weekday; 5-minute peak of commuter rush (individual peak times vary); Length of route in miles; All travel times in minutes; Peak of commuter rush and duration of congestion expressed in hours and minutes; Cost of congestion in dollars; Emissions in pounds of carbon dioxide equivalents (CO_2e); Average transit ridership, average load, and emissions avoided based on the average maximum load during the peak period

Evening

Route	Direction of travel	Length of route	Peak commute time	Travel time at posted speed	Travel time at maximum throughput speed	Average travel time at peak of morning commute 2011	2013	%Δ	Maximum throughput travel time index (MT[3]I) 2011	2013	Peak period %Δ in VMT	Duration of congestion: How long average speed is below 45 mph 2011	2013	Δ	Cost of congestion[1] Per person[2], per trip 2011	2013	%Δ
Northbound[8]																	
I-5 Olympia to Lacey	NB	6	17:15	6	7	6	6	0%	0.93	0.92	-7%	0:00	0:00	0:00	$0.00	$0.00	N/A
I-5 Lacey to Lakewood	NB	16	16:40	16	19	30	32	7%	1.56	1.64	0%	2:55	3:10	0:15	$2.21	$2.57	16%
I-5 Lakewood to Tacoma	NB	5	15:50	5	6	7	7	0%	1.01	1.02	-7%	0:00	0:00	0:00	$0.00	$0.00	N/A
I-5 Tacoma to Federal Way	NB	11	17:20	11	13	14	13	-7%	1.10	0.98	4%	0:00	0:00	0:00	$0.00	$0.00	N/A
I-5 Olympia to Tacoma	NB	27	16:40	27	33	45	46	2%	1.35	1.41	-2%	2:25	2:40	0:15	$2.58	$3.04	18%
Southbound[8]																	
I-5 Lacey to Olympia	SB	6	17:20	6	7	7	8	14%	1.03	1.11	-3%	0:00	0:00	0:00	$0.00	$0.00	N/A
I-5 Lakewood to Lacey	SB	17	16:50	17	20	26	31	19%	1.28	1.52	-1%	1:40	2:45	1:05	$1.31	$2.11	61%
I-5 Tacoma to Lakewood	SB	5	16:40	5	6	7	7	0%	1.11	1.16	5%	0:00	1:50	1:50	$0.00	$0.27	N/A
I-5 Federal Way to Tacoma	SB	10	17:15	10	12	19	24	26%	1.57	1.96	4%	3:20	3:55	0:35	$1.39	$2.04	47%
I-5 Tacoma to Olympia	SB	28	16:50	28	34	39	45	15%	1.17	1.33	1%	1:05	2:15	1:10	$1.42	$2.49	75%

Route	2011 percentiles Median 50th	80th	90th	95th	2013 percentiles Median 50th	80th	90th	95th	Δ: 2011 vs. 2013 Median 50th	80th	90th	95th	Greenhouse gas emissions[3] in pounds of CO_2e Emitted during peak period 2011	2013	%Δ	Emitted per person[2] 2011	2013	%Δ	Daily ridership 2013	Average daily load[5] 2013	Percent of transit with load ≥ 90% 2013	Transit travel time[6] 2013	Daily emissions avoided[7] 2013
Northbound[8]																							
I-5 Olympia to Lacey	6	6	6	**8**	6	6	6	**7**	0	0	0	**-1**	133,468	128,689	-4%	5	5	0%	204	54%	0%	0:15	1,168
I-5 Lacey to Lakewood	29	38	44	**49**	30	40	46	**51**	2	2	2	**2**	375,860	376,558	0%	16	16	0%	222	53%	0%	0:37	2,054
I-5 Lakewood to Tacoma	6	7	9	**11**	6	7	7	**9**	0	0	-2	**-2**	138,625	128,032	-8%	5	5	0%	171	43%	0%	0:21	641
I-5 Tacoma to Federal Way	15	17	18	**19**	12	14	15	**17**	-3	-3	-3	**-2**	277,775	268,274	-3%	10	9	-10%	745	23%	0%	0:17	94
I-5 Olympia to Tacoma	41	54	61	**65**	44	54	62	**69**	3	0	1	**4**	654,919	635,319	-3%	26	26	0%	223	53%	0%	1:10	4,164
Southbound[8]																							
I-5 Lacey to Olympia	6	8	9	**10**	7	9	11	**13**	0	1	2	**3**	134,058	140,619	5%	5	5	0%	75	33%	0%	0:20	241
I-5 Lakewood to Lacey	23	32	36	**38**	26	41	46	**52**	3	9	9	**14**	401,994	414,426	3%	16	16	0%	131	49%	0%	0:20	1,537
I-5 Tacoma to Lakewood	7	7	8	**9**	6	8	9	**13**	-1	0	1	**4**	151,773	161,125	6%	5	5	0%	162	20%	0%	0:24	105
I-5 Federal Way to Tacoma	18	25	29	**32**	24	30	33	**35**	7	5	4	**3**	329,859	345,561	5%	9	10	11%	7,950	100%	0%	0:18	50,539
I-5 Tacoma to Olympia	36	46	52	**55**	41	55	63	**70**	5	10	11	**15**	685,013	715,116	4%	26	26	0%	143	47%	0%	1:00	2,577

Data source: WSDOT Office of Strategic Assessment and Performance Analysis, WSDOT Olympic Region Traffic Office, Washington State Transportation Center (TRAC) at the University of Washington, Intercity Transit and the Puget Sound Regional Council (PSRC).

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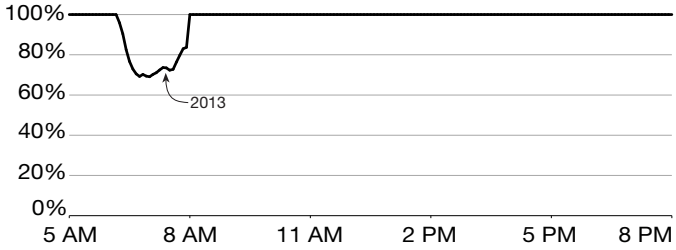
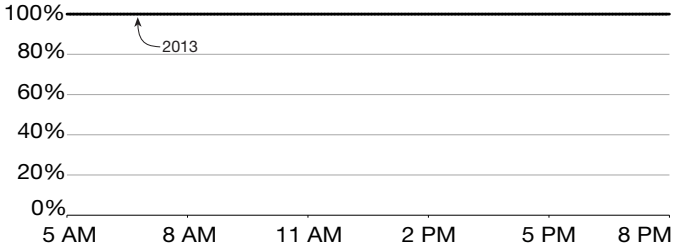
Throughput productivity

Throughput productivity at select Vancouver area freeway locations by commute direction
2013; Based on the highest observed 5-minute (min.) flow rates; Vehicles per hour per lane (vphpl) at specific mileposts (MP)

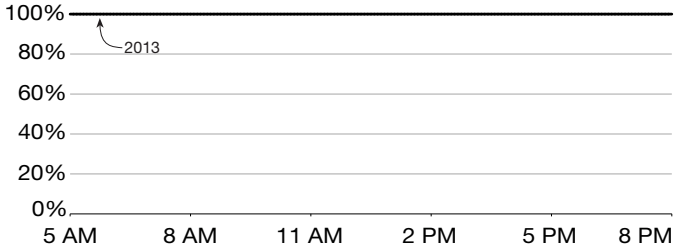
Southbound I-5 near Fourth Plain Boulevard (MP 1.41)
Based on the highest observed 5 min. flow rate of 1,450 vphpl = 100%



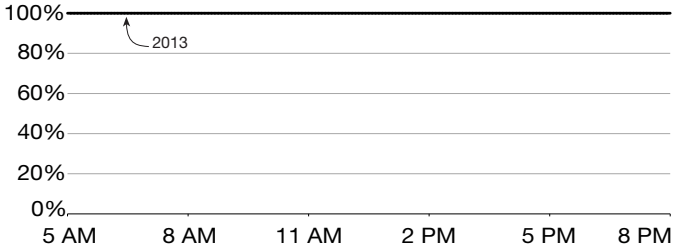
Northbound I-5 near Fourth Plain Boulevard (MP 1.41)
Based on the highest observed 5 min. flow rate of 1,860 vphpl = 100%



Southbound I-205 near 10th Street (MP 27.80)
Based on the highest observed 5 min. flow rate of 1,930 vphpl = 100%



Northbound I-205 near 10th Street (MP 27.80)
Based on the highest observed 5 min. flow rate of 1,580 vphpl = 100%

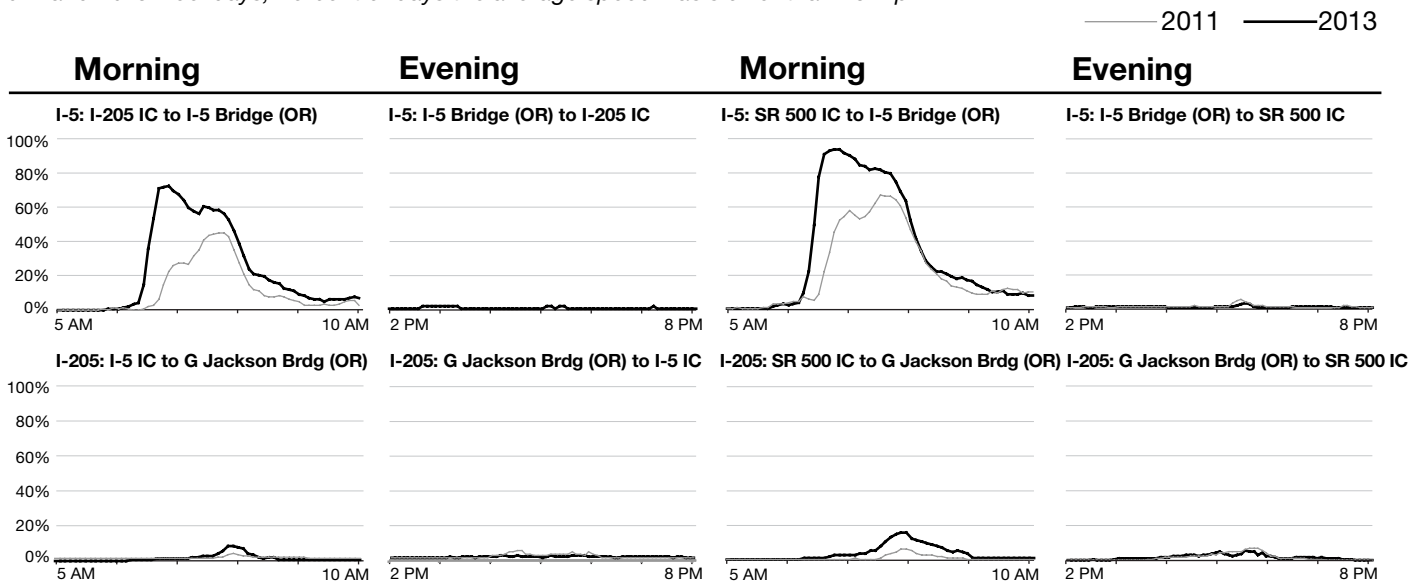


Data source: WSDOT Southwest Region Traffic Office.
Note: See p. 3 for throughput definitions and how to read these graphs.

Stamp graphs and routinely congested segments

Stamp graphs of congestion by time of day on Vancouver area freeways

2011 and 2013 weekdays; Percent of days the average speed was slower than 45 mph

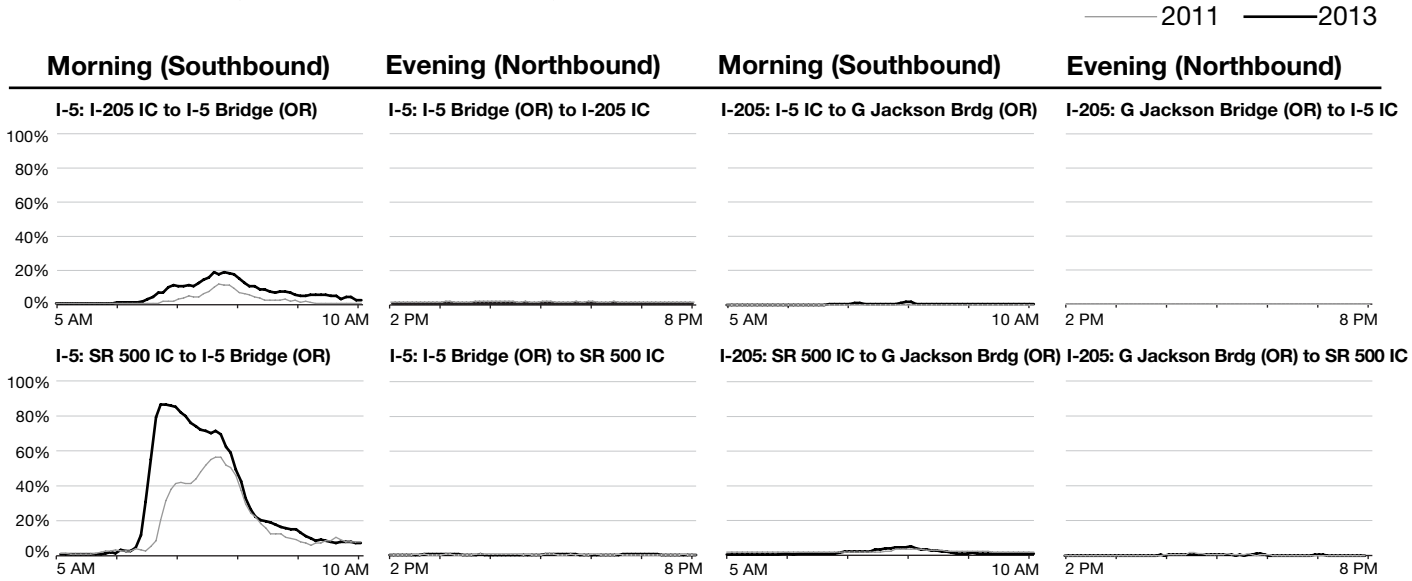


Data source: WSDOT Office of Strategic Assessment and Performance Analysis and private sector speed data.

Notes: IC stands for interchange, OR stands for the Oregon/Washington state border, "G Jackson Brdg" stands for "Glan Jackson Bridge". See p. 3 for congestion definitions and how to read these graphs.

Stamp graphs of severe congestion by time of day on Vancouver area freeways

2011 and 2013 weekdays; Percent of time the average speed was slower than 36 mph



Data source: WSDOT Office of Strategic Assessment and Performance Analysis and private sector speed data.

Notes: IC stands for interchange, OR stands for the Oregon/Washington state border, "G Jackson Brdg" stands for "Glan Jackson Bridge". See p. 3 for congestion definitions and how to read these graphs.

Vancouver area routinely congested segments of I-5

2013 weekdays; Length of congestion in miles; Duration of congestion in hours:minutes

Route and direction	Peak period	Begin and end milepost	Length of congestion	Duration of congestion
I-5 southbound	Morning (5:45-8:45 a.m.)	3.0-0.0	3	3:00
I-5 northbound	Evening (12:45-7:15 p.m.)	0.5-301.0[1]	10	6:30
I-205 northbound	Evening (3:15-6:45 p.m.)	24.0-21.0	3	3:30

Data source: WSDOT Southwest Region Planning Office based on private sector speed data.

Note: 1 Milepost designation changes at the state line so that approximately MP 308 on I-5 in Oregon abuts to MP 0 in Washington state.

Commute trip analysis

Morning and evening commutes: Changes in travel time performance, congestion, reliability, emissions and transit performance for eight high-demand commute trips in the Vancouver area

2011 and 2013; Morning peak (5-10 a.m.) and evening peak (2-8 p.m.) for an annualized average weekday; 5-minute peak of commuter rush (individual peak times vary); Length of route in miles; All travel times in minutes; Peak of commuter rush and duration of congestion expressed in hours and minutes; Cost of congestion in dollars; Emissions in pounds of carbon dioxide equivalents (CO_2e); Average transit ridership, average load, and emissions avoided based on the average maximum load during the peak period

Morning

				Travel Times								Congestion						Reliability												Emissions						Transit[4]				
						Average travel time at peak of morning commute			Maximum throughput travel time index (MT[3])			Duration of congestion How long average speed is below 45 mph			Cost of Congestion[1] Per person[2], per trip			2011 percentiles				2013 percentiles				Δ: 2011 vs. 2013				Greenhouse gas emissions[3] in pounds of CO_2e Emitted during peak period			Greenhouse gas emissions[3] in pounds of CO_2e Emitted per person[2]							
Route	Direction of travel	Length of route	Peak commute time	Travel time at posted speed	Travel time at maximum throughput speed	2011	2013	%Δ	2011	2013	Peak period %Δ in VMT	2011	2013	Δ	2011	2013	%Δ	Median 50th	80th	90th	95th	Median 50th	80th	90th	95th	Median 50th	80th	90th	95th	2011	2013	%Δ	2011	2013	%Δ	2013	2013	2013	2013	2013
Southbound: To Portland Oregon (Washington state line)																																								
I-5 (I-205 interchange to I-5 bridge [Oregon])	SB	8	6:50	8	10	13	14	8%	1.32	1.36	-1%	0:00	0:50	0:50	$0.00	$0.80	N/A	12	17	21	23	15	20	21	23	4	2	1	0	151,575	144,638	-5%	8	8	0%	602	49%	0%	0:14	1,494
I-5 (SR 500 interchange to I-5 bridge [Oregon])	SB	3	6:55	3	3	7	8	14%	2.22	2.40	0%	1:20	1:45	0:25	$0.85	$1.06	25%	6	11	13	15	9	12	13	14	3	1	0	-1	71,140	66,939	-6%	3	3	0%	133	62%	0%	0:10	124
I-205 (I-5 interchange to Glenn Jackson Bridge [Oregon])	SB	12	7:55	12	14	13	13	0%	0.91	0.93	5%	0:00	0:00	0:00	$0.00	$0.00	0%	12	13	15	16	12	14	17	19	0	2	2	3	166,819	172,866	4%	10	10	0%	N/A	N/A	N/A	N/A	N/A
I-205 (SR 500 interchange to Glenn Jackson Bridge [Oregon])	SB	6	7:45	6	7	7	7	0%	0.91	0.95	5%	0:00	0:00	0:00	$0.00	$0.00	0%	6	6	7	9	6	7	8	10	0	1	1	1	100,852	104,895	4%	5	5	0%	448	58%	0%	0:10	100

Evening

Northbound: From Portland, Oregon (Washington state line)																																								
I-5 (I-5 bridge [Oregon] to I-205 interchange)	NB	8	17:10	8	10	9	9	0%	0.88	0.88	3%	0:00	0:00	0:00	$0.00	$0.00	0%	9	9	9	**9**	8	9	9	**9**	0	0	0	**0**	61,191	64,120	5%	7	7	0%	540	48%	0%	0:12	1,315
I-5 (I-5 bridge [Oregon] to SR 500 interchange)	NB	3	17:30	3	3	3	3	0%	1.00	0.97	3%	0:00	0:00	0:00	$0.00	$0.00	0%	3	3	4	**4**	3	3	3	**4**	0	0	0	**0**	25,615	26,927	5%	3	3	0%	490	51%	0%	0:05	168
I-205 (Glenn Jackson Bridge [Oregon] to I-5 interchange)	NB	12	17:35	12	14	13	13	0%	0.93	0.92	1%	0:00	0:00	0:00	$0.00	$0.00	0%	12	15	16	**18**	13	14	15	**16**	0	0	-1	**-2**	97,036	99,501	3%	10	10	0%	N/A	N/A	N/A	N/A	N/A
I-205 (Glenn Jackson Bridge [Oregon] to SR 500 interchange)	NB	6	17:40	6	7	7	7	0%	1.02	1.00	1%	0:00	0:00	0:00	$0.00	$0.00	0%	7	8	9	**10**	7	8	9	**10**	0	0	0	**0**	57,141	58,398	2%	5	5	0%	N/A	N/A	N/A	N/A	N/A

Data source: WSDOT Office of Strategic Assessment and Performance Analysis, WSDOT Southwest Region Traffic Office, private sector speed data, C-Tran and the Puget Sound Regional Council (PSRC).

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Commute trip analysis, stamp graphs and routinely congested segments

Morning and evening commutes: Changes in travel time performance, congestion, reliability, emissions and transit performance for four high-demand commute trips in the Spokane area

2011 and 2013; Morning peak (7-10 a.m.) and evening peak (3-6 p.m.) for an annualized average weekday; 5-minute peak of commuter rush (individual peak times vary); Length of route in miles; All travel times in minutes; Peak of commuter rush and duration of congestion expressed in hours and minutes; Cost of congestion in dollars; Emissions in pounds of carbon dioxide equivalents (CO_2e); Average transit ridership, average load, and emissions avoided based on the average maximum load during the peak period

Morning

Route	Direction of travel	Length of route	Peak commute time	Travel time at posted speed	Travel time at maximum throughput speed	Average travel time at peak of morning commute 2011	2013	%Δ	Maximum throughput travel time index (MT³I) 2011	2013	Peak period %Δ in VMT	Duration of congestion How long average speed is below 45 mph 2011	2013	Δ	Cost of Congestion[1] Per person[2], per trip 2011	2013	%Δ
I-90 Argonne Road to Division Street	WB	7.5	7:50	8	9	9	9	0%	0.98	1.00	16%	0:00	0:00	0:00	N/A	N/A	N/A
I-90 Division Street to Argonne Road	EB	7.5	9:10	8	9	8	8	0%	0.85	0.85	8%	0:00	0:00	0:00	N/A	N/A	N/A

Route	2011 percentiles Median 50th	80th	90th	95th	2013 percentiles Median 50th	80th	90th	95th	Δ: 2011 vs. 2013 Median 50th	80th	90th	95th	Greenhouse gas emissions[3] in pounds of CO_2e Emitted during peak period 2011	2013	%Δ	Emitted per person[2] 2011	2013	%Δ	Daily ridership 2013	Average daily load[5] 2013	Percent of transit with load ≥ 90% 2013	Transit travel time[6] 2013	Daily emissions avoided[7] 2013
I-90 Argonne Road to Division Street	8	9	10	10	8	9	10	10	0	0	0	0	72,379	73,593	2%	7.1	6.1	-14%	580	57%	5%	0:15	1,792
I-90 Division Street to Argonne Road	8	8	8	8	8	8	8	8	0	0	0	0	59,952	57,051	-5%	6.8	6.0	-12%	N/A	N/A	N/A	N/A	N/A

Evening

Route	Direction of travel	Length of route	Peak commute time	Travel time at posted speed	Travel time at maximum throughput speed	Average travel time at peak of morning commute 2011	2013	%Δ	Maximum throughput travel time index (MT³I) 2011	2013	Peak period %Δ in VMT	Duration of congestion How long average speed is below 45 mph 2011	2013	Δ	Cost of Congestion[1] Per person[2], per trip 2011	2013	%Δ
I-90 Argonne Road to Division Street	WB	7.5	17:15	8	9	10	8	-20%	1.07	0.91	17%	0:00	0:00	0:00	N/A	N/A	N/A
I-90 Division Street to Argonne Road	EB	7.5	17:20	8	9	9	8	-11%	1.02	0.94	5%	0:00	0:00	0:00	N/A	N/A	N/A

Route	2011 percentiles Median 50th	80th	90th	95th	2013 percentiles Median 50th	80th	90th	95th	Δ: 2011 vs. 2013 Median 50th	80th	90th	95th	Greenhouse gas emissions[3] in pounds of CO_2e Emitted during peak period 2011	2013	%Δ	Emitted per person[2] 2011	2013	%Δ	Daily ridership 2013	Average daily load[5] 2013	Percent of transit with load ≥ 90% 2013	Transit travel time[6] 2013	Daily emissions avoided[7] 2013
I-90 Argonne Road to Division Street	8	9	11	**12**	8	9	10	**11**	0	0	-1	**-1**	95,632	94,103	-2%	7.2	5.9	-18%	N/A	N/A	N/A	N/A	N/A
I-90 Division Street to Argonne Road	9	10	11	**11**	9	9	10	**10**	0	-1	-1	**-1**	110,581	102,679	-7%	6.8	6.0	-12%	446	65%	0%	0:15	1,451

Data source: WSDOT Office of Strategic Assessment and Performance Analysis, WSDOT Easter Region Traffic Office, Spokane Transit Authority and the Puget Sound Regional Council (PSRC).

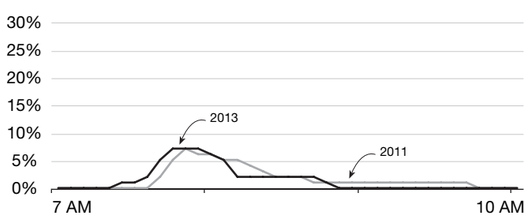
Notes: Data is from August 13 through December 31 for both 2011 and 2013 due to the timing of recalibrating the data collection systems. The symbol "Δ" is used to denote change in a variable. Commute lengths and travel time values have been rounded to integer values for publication only. MT³ Index values cannot be reproduced as published using the integer values in the table. 1 Commute congestion cost based on $21.90 for every hour of congested conditions measured when commute speeds are slower than 45 mph, applied to the volume of traffic during the congested conditions on an average annual weekday commute. 2 Per-person metrics were estimated based on vehicle occupancy observed on the freeway in the single occupant vehicle lanes. 3 Greenhouse gas emissions were calculated based on emission factors developed by PSRC for different vehicle types at varying travel speeds for each analysis year. In addition, the emissions used the traffic volume and percent of trucks, the average speeds for every 5-minute interval during the peak period, and the average vehicle occupancy on the freeway. 4 Transit performance: Ridership was reported for the peak transit commute periods (6-9 a.m. and 3-6 p.m.). 5 Average load represents utilization of the available transit capacity based on the average maximum load of each bus or train trip and the total seats on the bus or train. Individual trips could show a load greater than 100% if there was standing-room only. Averaging the load for each commute levels out this variation across multiple trips, and may under-represent the load experienced during the peak utilization of transit. 6 Transit travel times include off-highway travel such as exiting to stop at a transit center and may not be directly comparable to private auto times which only include highway travel. 7 Greenhouse gas emissions avoided by transit use were estimated based on the following factors: a) the average maximum transit load; b) the assumption that for every transit passenger mile traveled, 0.62 miles of single-occupant vehicle travel is avoided; c) the distance traveled on the WSDOT-defined commute trip (not the entire transit trip); d) the average emissions of one pound of CO^2e for every mile traveled; and e) the emissions from transit vehicle operations provided by the transit agencies.

Stamp graphs of congestion by time of day on Spokane area freeways

2011 and 2013 weekdays; Percent of days the average speed was slower than 45 mph

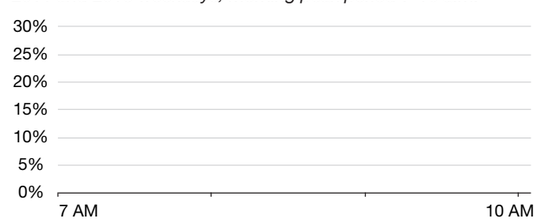
I-90 Westbound morning: Argonne Road to Division Street percent of days with congested conditions

2011 and 2013 weekdays; Morning peak period 7-10 a.m.



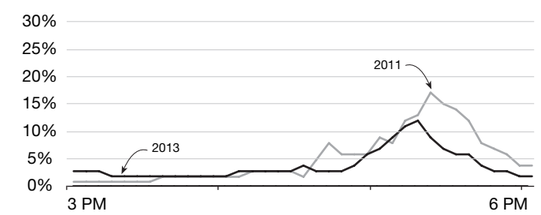
I-90 Eastbound morning: Division Street to Argonne Road percent of days with congested conditions

2011 and 2013 weekdays; Morning peak period 7-10 a.m.



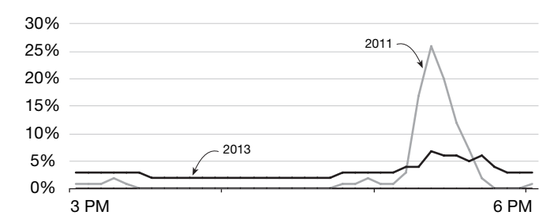
I-90 Westbound evening: Argonne Road to Division Street percent of days with congested conditions

2011 and 2013 weekdays; Evening peak period 3-6 p.m.



I-90 Eastbound evening: Division Street to Argonne Road percent of days with congested conditions

2011 and 2013 weekdays; Evening peak period 3-6 p.m.



Data source: WSDOT Eastern Region Traffic Office.

Notes: Data is from August 13 through December 31 for both 2011 and 2013 due to the timing of recalibrating the data collection systems. No congestion was observed in the morning peak period for 2011 or 2013. Severe congestion (average speeds slower than 36 mph) was observed for no more than 5% of weekdays at all times of day in 2011, and no more than 3% in 2013. See p. 3 for congestion definitions and how to read these graphs.

Spokane area routinely congested segments of I-90

2013 weekdays; Length of congestion in miles; Duration of congestion in hours:minutes

Route and direction	Peak period	Begin and end milepost	Length of congestion	Duration of congestion
I-90 westbound	Morning (7:50-7:55 a.m.)	284.6-284.1	0.5	0:05
I-90 westbound	Morning (7:45-8:00 a.m.)	285.3-284.8	0.5	0:15
I-90 eastbound	Evening (5:15-5:40 p.m.)	283.3-283.8	0.5	0:25

Data source: WSDOT Eastern Region Planning Office.

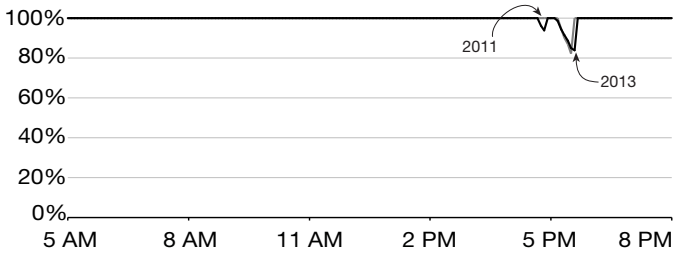
Throughput productivity

Throughput productivity at select Spokane area freeway locations by commute direction

2011 and 2013; Based on the highest observed 5-minute (min.) flow rates; Vehicles per hour per lane (vphpl) at specific mileposts (MP)

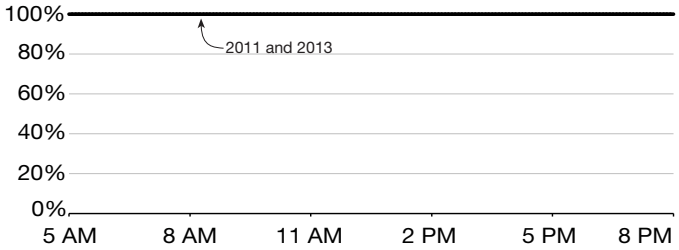
Eastbound I-90 near Freya Street (MP 283.79)

Based on the highest observed 5 min. flow rate of 1,670 vphpl = 100%



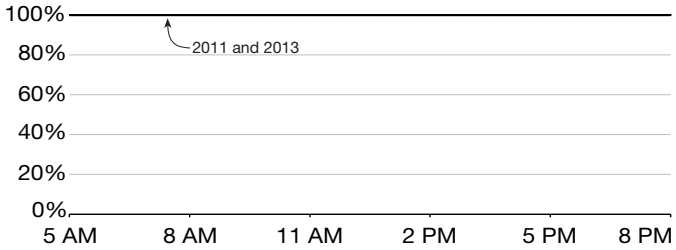
Westbound I-90 near Freya Street (MP 283.79)

Based on the highest observed 5 min. flow rate of 1,520 vphpl = 100%



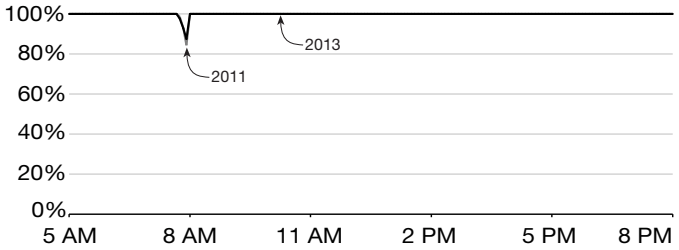
Eastbound I-90 near Custer Street (MP 284.59)

Based on the highest observed 5 min. flow rate of 1,670 vphpl = 100%



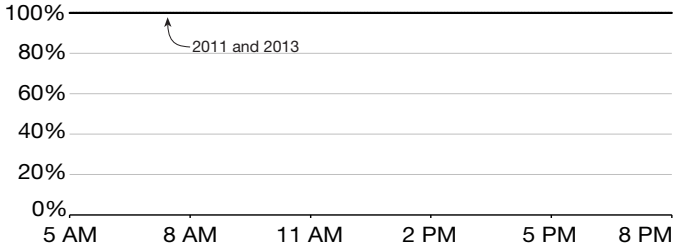
Westbound I-90 near Custer Street (MP 284.59)

Based on the highest observed 5 min. flow rate of 1,950 vphpl = 100%



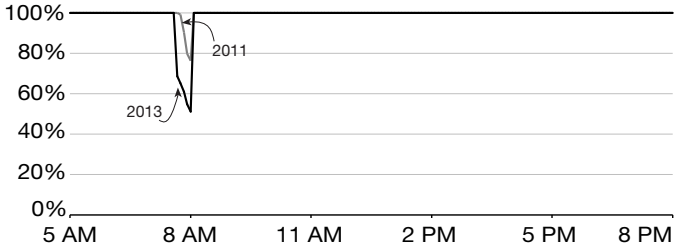
Eastbound I-90 near Fancher Road (MP 285.26)

Based on the highest observed 5 min. flow rate of 1,520 vphpl = 100%



Westbound I-90 near Fancher Road (MP 285.26)

Based on the highest observed 5 min. flow rate of 1,590 vphpl = 100%



Data source: WSDOT Urban Planning Office.

Note: See p. 3 for throughput definitions and how to read these graphs.

Commute trip analysis

Ferry system ridership by route

2011 and 2013; Annual ridership for passengers and vehicles

	Number of passengers			Number of vehicles and drivers			Combined ridership		
	2011	2013	%Δ	2011	2013	%Δ	2011	2013	%Δ
Anacortes - San Juan domestic	895,682	933,842	4%	832,172	868,416	4%	1,727,854	1,802,258	4%
Anacortes - San Juan - Sidney, B.C.	88,183	91,783	4%	47,129	50,051	6%	135,312	141,834	5%
Edmonds - Kingston	1,815,048	1,817,926	0%	2,061,554	2,036,982	-1%	3,876,602	3,854,908	-1%
Fauntleroy - Vashon - Southworth	1,245,348	1,222,993	-2%	1,690,655	1,684,348	0%	2,936,003	2,907,341	-1%
Mukilteo - Clinton	1,712,455	1,787,254	4%	2,067,692	2,119,716	3%	3,780,147	3,906,970	3%
Point Defiance - Tahlequah	267,538	275,714	3%	376,740	406,030	8%	644,278	681,744	6%
Port Townsend - Coupeville (Keystone)	351,421	355,206	1%	310,605	323,416	4%	662,026	678,622	3%
Seattle - Bainbridge Island	4,158,250	4,304,850	4%	1,947,952	1,965,114	1%	6,106,202	6,269,964	3%
Seattle - Bremerton	1,718,744	1,665,013	-3%	642,873	628,375	-2%	2,361,617	2,293,388	-3%
Total	**12,252,669**	**12,454,581**	**2%**	**9,977,372**	**10,082,448**	**1%**	**22,230,041**	**22,537,029**	**1%**

Data source: WSDOT Ferries Division.

Ferry system route utilization for people and vehicles by route, and number of vessel trips taken

2011 and 2013; Annual utilization for passengers and vehicles

	Passengers + drivers			Vehicles			Number of trips		
	2011	2013	Δ	2011	2013	Δ	2011	2013	%Δ
Anacortes - San Juan domestic[1]	9%	10%	1%	52%	54%	2%	26,614	26,801	0.7%
Anacortes - San Juan - Sidney, B.C.	17%	18%	1%	52%	57%	5%	758	728	-4.0%
Edmonds - Kingston	11%	10%	-1%	66%	65%	-1%	17,000	17,142	0.8%
Fauntleroy - Vashon - Southworth[2]	9%	9%	0%	64%	64%	0%	41,046	40,917	-0.3%
Mukilteo - Clinton	12%	12%	0%	67%	68%	1%	26,519	26,753	0.9%
Point Defiance - Tahlequah	8%	7%	-1%	55%	47%	-8%	13,825	13,827	0.0%
Port Townsend - Coupeville (Keystone)	11%	11%	0%	65%	65%	0%	8,041	8,484	5.5%
Seattle - Bainbridge Island	15%	15%	0%	61%	61%	0%	16,524	16,527	0.0%
Seattle - Bremerton	12%	13%	1%	41%	43%	2%	10,894	10,853	-0.4%
Total	**12%**	**12%**	**0%**	**60%**	**60%**	**0%**	**161,221**	**162,032**	**0.5%**

Data source: WSDOT Ferries Division.

Notes: 1 Route utilization for the San Juan inter-island route is measured at Anacortes. 2 Route utilization for the Fauntleroy - Vashon - Southworth "triangle route" is measured at Fauntleroy.

Ferry system trip reliability and on-time performance by route

2011 and 2013; System-wide goals are: Reliability = 99% and on-time = 95%

	System-wide reliability			On-time performance		
	2011	2013	Δ	2011	2013	Δ
Anacortes - San Juan Domestic	99.8%	99.6%	-0.2%	90.9%	91.4%	0.5%
Anacortes - San Juan - Sidney, B.C.	100.0%	99.5%	-0.5%	85.0%	88.7%	3.7%
Edmonds - Kingston	99.8%	99.9%	0.1%	98.2%	99.3%	1.1%
Fauntleroy - Vashon - Southworth	99.8%	99.4%	-0.4%	96.4%	93.9%	-2.5%
Mukilteo - Clinton	99.0%	99.8%	0.8%	88.3%	92.9%	4.6%
Point Defiance - Tahlequah	99.7%	99.7%	0.0%	98.5%	99.1%	0.6%
Port Townsend - Coupeville (Keystone)	96.6%	95.8%	-0.8%	97.1%	99.1%	2.0%
Seattle - Bainbridge Island	100.0%	100.0%	0.0%	94.8%	95.3%	0.5%
Seattle - Bremerton	100.0%	99.6%	-0.4%	96.8%	96.6%	-0.2%
Total	**99.5%**	**99.5%**	**0.0%**	**95.5%**	**95.6%**	**0.1%**

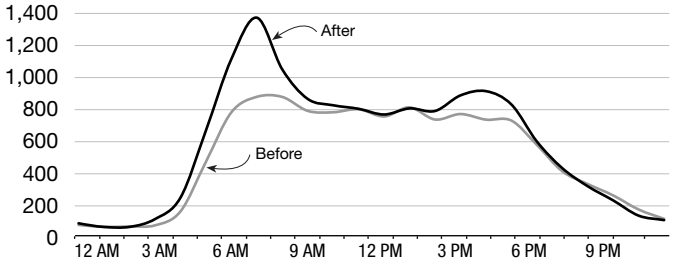
Data source: WSDOT Ferries Division.

Notes: Reliability is the percent of scheduled trips that were made; On-time performance is the percent of trips departing within 10 minutes of the scheduled departure time

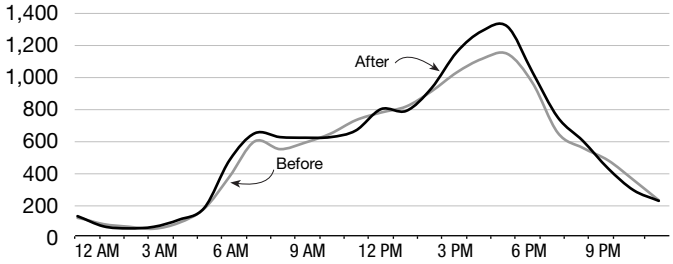
Traffic volumes along SR 14

State Route 14 traffic volumes increase following completion of highway expansion project
August 2009 (before) and September 2013 (after); Traffic volume in vehicles per hour on SR 14 at specified mileposts (MP)

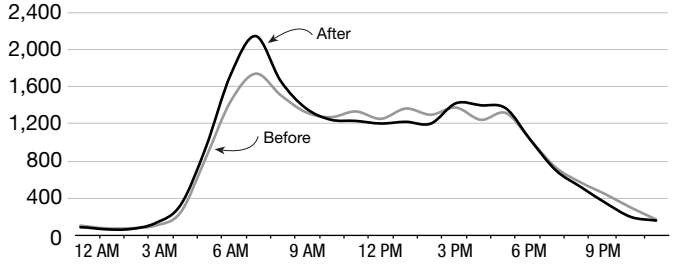
Westbound traffic volumes on SR 14 at Union Street (MP 14.6) increases 40% during morning commute



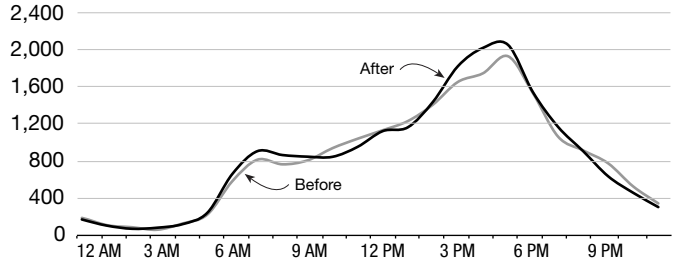
Eastbound traffic volumes on SR 14 at Union Street (MP 14.6) grow during evening peak period



Westbound traffic volumes on SR 14 at Northwest 6th Avenue (MP 12.6) grow slightly



Eastbound traffic volumes on SR 14 at Northwest 6th Street (MP 12.6) grow slightly



Data source: WSDOT Transportation Data and GIS Office.

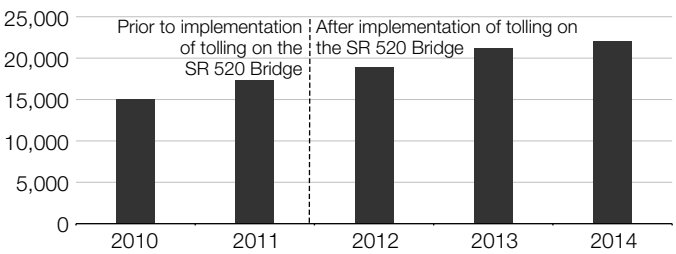
Preliminary before and after collisions data for State Route 14 Camas/Washougal widening project
June 2008 through May 2011 (before) and February 2013 through January 2014 (after); Number of collisions by type

Analysis period	Dates	All types	Fatal	Serious injuries	Other injuries[1]	Property damage only
Before	June 2008 - May 2009	46	1	0	13	32
	June 2009 - May 2010	32	0	1	11	20
	June 2010 - May 2011	44	0	0	16	28
	Average	**41**	0.3	0.3	13	27
After (preliminary)	February 2013 - January 2014	**29**	0	0	7	22
	%Δ	**29%**				

Data source: WSDOT Transportation Data and GIS Office.
Note: 1 Other injuries includes “evident” and “possible” injuries.

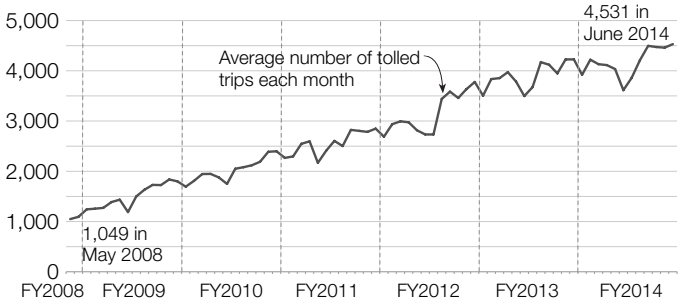
Tolling on state routes SR 520 and SR 167

Weekday transit ridership across the SR 520 Bridge continues to increase
2010 through 2014; Annual transit ridership in person trips



Data source: King County Metro and WSDOT Toll Division.

Number of average daily tolled trips continues to increase in high occupancy toll (HOT) lanes
May 2008 through June 2014; Tuesday through Thursday only



Data source: WSDOT Toll Division.

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Android **iPhone**

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WSDOT's *Annual Corridor Capacity Report Appendix* is prepared by the

Office of Strategic Assessment and Performance Analysis
Washington State Department of Transportation
310 Maple Park Ave SE, Olympia, WA 98504

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List of contributors:

Benton Franklin Council of Governments: Len Pavelka
Community Transit: Roland Behee, Chad Erickson, Bill Kalinowski
C-Tran: Jim Quintana
Intercity Transit: Dennis Bloom, Steve Swan
King County Metro: Katie Chalmers, Rob Coughlin, Rachel VerBoort
Puget Sound Regional Council: Rebecca King, Kelly McGourty
Sound Transit: Corrie Adams, Lisa Enns, Sean Hedgpeth, Jim Moore
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Spokane Transit Authority: Karl Otterstrom, Joel Soden
Thurston Regional Planning Council: Jailyn Brown
Washington State Transportation Center (TRAC): Mark Hallenbeck, John Ishimaru, Duane Wright
WSDOT: John Anderson, Matt Beaulieu, Mike Bjordahl, Bradley Bobbitt, Daniela Bremmer, Ken Burgstahler, Dave Bushnell, Mike Clark, Paula Connelley, Van Do, Dan Davis, Delwar Murshed, Mark Eldridge, Mike Ellis, Vince Fairhurst, Sreenath Gangula, Hien Giang, Paul Gonseth, Manouchehr Goudarzi, Monica Harwood, Joe Irwin, Charlene Kay, Steve Kim, Todd Lamphere, Bill Legg, Tony Leingang, Lizbeth Martin-Mahar, Brian Mann (consultant), Janarthanan Natarajan, T.J. Nedrow, John Nisbet, Kynan Patterson, Tyler Patterson, Charles Prestrud, Trevor Skelton, Tim Sexton, Raymond Shank, Joe St. Charles, Anna St. Martin, Ida van Schalkwyk, Alison Wallingford, Pat Whittaker, Joanne Wearley, Anna Yamada, Shuming Yan, Zoe Zadworny