



WSDOT projects benefit travelers

Before and After case studies (2009-2012)

WSDOT continues to deliver the largest capital construction program in the state's history

WSDOT is delivering hundreds of projects funded by the 2003 Nickel and 2005 Transportation Partnership Account (TPA) gas tax packages, including many projects that reduce congestion.



Project delivery

In the 2009 - 2011 biennium, WSDOT was near the peak of delivering the Nickel and TPA capital construction program, completing 90 projects valued at \$1.6 billion. As of September 30, 2012, WSDOT has completed 336 of 421 (80%) Nickel and TPA funded projects valued at \$5.2 billion. Another 32 projects valued at \$9.8 billion are under construction and four projects valued at \$29.5 million will be advertised in the next six months.

By the end of 2012, 88% of Nickel and TPA funded projects valued at \$15 billion will be complete or under construction.

Nickel and TPA funded mobility projects

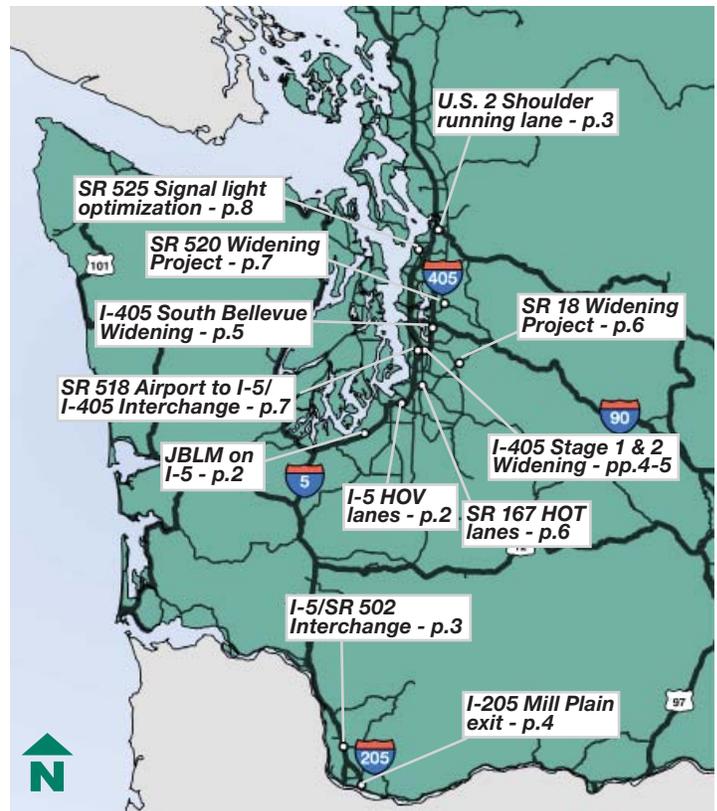
The Nickel and TPA gas tax packages funded 126 mobility projects of which 87 have been completed as of September 30, 2012. These 87 projects are valued at \$3.5 billion, and have generated an estimated average 4,700 jobs (direct, indirect, and induced) annually between FY2004 and FY2013. WSDOT publishes "Before and After" (B&A) results of mobility projects annually to report on the effectiveness of WSDOT investments in addressing transportation system needs.

"Before and After" case studies are designed to evaluate the effects of projects that were completed to address a known problem in the project area. Data is collected before any construction has begun in order to quantify the problem. After construction is complete, WSDOT collects data measuring the same factors (travel times, speeds, traffic volumes, vehicle occupancy, etc). Comparing these data sets illustrates the effects of the project.

How WSDOT is moving Washington forward

Effective transportation is critical to maintaining Washington's economy, quality of life, and environment. *Moving Washington* is WSDOT's foundational strategy and framework for making transparent, cost-effective decisions that keep people and goods moving. The heart of *Moving Washington* and the target of investments is to safely maintain and preserve Washington's transportation infrastructure. *Moving Washington* integrates efficiencies, commute options, and new capacity to address

Mobility project Before & After studies in this report



congestion head-on and improve the performance of the state's transportation system.

Investment principles

Four principles guide WSDOT's responsible and sustainable decision-making through *Moving Washington*:

- **Maintaining and keeping safe** – WSDOT's highest priority is maintaining and preserving the safe and long-lasting performance of existing infrastructure, facilities, and services.
- **Operating efficiently** – This approach uses traffic-management tools to optimize the flow of traffic and maximize available capacity.
- **Managing demand** – Whether shifting travel time, using public transportation, or reducing the need to travel altogether, managing demand on overburdened routes allows the entire system to function better.
- **Adding capacity strategically** – As funding allows, WSDOT targets critical system gaps and the worst bottlenecks that constrain traffic flow by adding highway capacity.

I-5 corridor

Using *Moving Washington* to relieve congestion on I-5 approaching Joint Base Lewis-McChord

The I-5 northbound commute between Lacey and Lakewood ground to a halt following Labor Day 2010. Backups stretched for 11 miles. The typical 15 to 30 minute straight-shot morning commute took 45 to 90 minutes to navigate. Traffic inched along at 15 mph, a 75% reduction from the typical speeds.

Regional growth and the consolidation of military bases at Joint Base Lewis-McChord (JBLM) pushed the I-5 corridor's capacity to the brink for several years. The convergence of several factors following Labor Day resulted in gridlock.

Leaders from WSDOT, JBLM, Washington State Patrol (WSP), and local municipalities formed the Traffic Circulation Committee to identify and resolve traffic issues. The agencies collaborated and used WSDOT's *Moving Washington* strategies to address these issues on I-5.

Results from the early *Moving Washington* strategies

The *Moving Washington* strategy is proving successful in resolving I-5 JBLM traffic. Opening the JBLM Mounts Road gate to northbound ingress traffic was the most significant move to relieve the morning congestion. It required obtaining approvals and permits from the city and county public works departments, making roadway improvements inside the gate, adding gate personnel, and installing new signing. All of this was accomplished in five days.

- More than 1,000 vehicles use the Mounts Road gate to JBLM during the morning rush hours between 5 and 8 a.m., removing them from I-5 and the DuPont gate.
- Additional personnel assigned to other JBLM gates decreased ingress wait times by more than five minutes.
- Opening the 32nd Street gate for morning ingress decreased wait times by about one minute.

New HOV lanes on I-5 from Port of Tacoma Road to King County line commute improves

This project was part of the Tacoma/Pierce County HOV Program, a series of projects to build 70 high occupancy vehicle (HOV) lane miles on I-5, SR 16, and SR 167 in Pierce County. The project widened nearly three miles of northbound and southbound I-5 between Port of Tacoma Road and the Pierce/King county line, adding six new HOV lane miles. Construction began in August 2009 and the HOV lanes were open to traffic in late 2010.

Data was collected in April 2009 before project construction, and again exactly two years later in April 2011. Data collection included travel times for the morning commute from 6 to 10 a.m., and the evening commute from 2:30 to 6 p.m.

Before and After results

Northbound morning commuters save 3 minutes

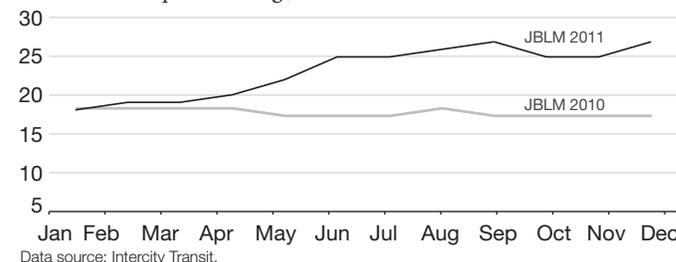
Before construction, travel times along northbound I-5 in the study area began to increase sharply around 6:50 a.m., lasting until just about 9 a.m., and varied between 9 and 11 minutes. After construction, travel times were about 7 to 8 minutes during the morning commute period, and speeds averaged 64 mph.

Within one month of implementing congestion relief strategies, northbound morning speeds improved from 15 mph to 60 mph. The duration of congestion also declined dramatically due to these measures. In early September, congestion lasted 3.5 hours per day; by October 5, 2010, it was reduced to 15 minutes daily.

JBLM administrators helped manage demand by encouraging military personnel's use of transit to the base. Although the results did not occur over night, Intercity Transit's vanpool ridership for vanpools serving JBLM increased 42% in 2011 (77,856) compared to 2010 (54,658), while passenger miles traveled increased 51% from 2010 to 2011.

Number of Intercity Transit vanpools operated

2010 - 2011; Vanpools serving Joint Base Lewis-McChord



Data source: Intercity Transit.

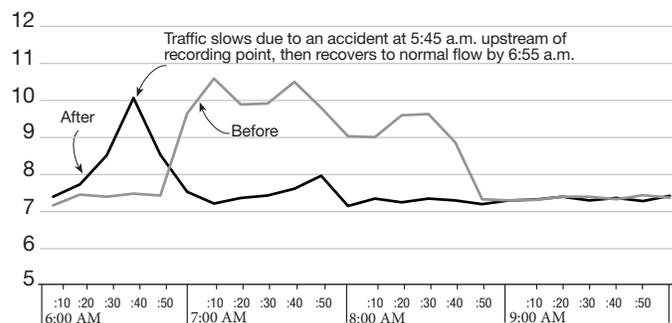
JBLM and WSDOT continue to work toward long-term solutions:

- Installing additional data stations, cameras, and ramp meters for both southbound and northbound ramps: I-5 project advertisement is scheduled for June 2013.
- Completing interchange justification reports for the I-5 corridor between SR 510 and SR 512 to determine future needs.
- Realigning the Center Drive interchange ramps is planned as part of the JBLM 2015-2017 biennium budget. This will improve safety and egress from the Center Drive gate.

For more details, see WSDOT's 2012 *Congestion Report*, pp. 63-65

Morning commute travel times from Port of Tacoma Road to the King County line before and after construction of the northbound HOV lane

April 2009 and 2011; Travel time in minutes



Data source: WSDOT Statewide Traffic and Collision Data Office.

Note: Median travel time for each ten minute interval.

Northbound afternoon commuters see little change

In the afternoon, northbound travel times (in the non-peak direction) changed only slightly after construction resulting in slightly lower travel times and shorter peak duration. For more details, see WSDOT's 2011 *Congestion Report*, p. 58

I-5 corridor (continued)

I-5/SR 502 interchange

This project constructed a new I-5 interchange at SR 502 in Clark County providing a more direct connection from I-5 to SR 502 and the city of Battle Ground. Prior to construction, vehicles exiting from northbound I-5 backed up onto the northbound off ramp of the NE 179th Street interchange, causing afternoon congestion.

Travel time and volume data were collected for two segments (defined in the table below) from Battle Ground to Vancouver during the morning peak period (6 to 10 a.m.), and the reverse from Vancouver to Battle Ground in the evening (2 to 6 p.m.).

Automated license plate reader technology was used to collect travel time data prior to the start of construction (November 2007),

Travel time and volume changes for the I-5/SR 502 interchange project

Southbound morning commute: 6 - 10 a.m. – From: Intersection of SR 502 and NE 10th Avenue. To: I-5 MP 7 (I-5/I-205 interchange).

Volume ¹ (peak period)			Commute length (miles)		Travel times ² (minutes)		Average speed ³ (mph)	
Before	1 month after	7 months after	Before	After	Before	After	Before	After
1,650	2,460	2,510	3.92	5.00	12	5	19.4	54.9

Northbound afternoon commute: 2 - 6 p.m. – From: I-5 MP 7 (I-5/I-205 interchange). To: Intersection of SR 502 and NE 10th Avenue.

Volume ¹ (peak period)			Commute length (miles)		Travel times ² (minutes)		Average speed ³ (mph)	
Before	1 month after	7 months after	Before	After	Before	After	Before	After
1,700	2,790	2,740	3.81	4.20	7	5	32.4	52.3

Data source: WSDOT Statewide Travel and Collision Data Office.

Notes: The project was completed and opened to the public on October 15, 2008. "After" project travel time and volume data were collected one month following project completion. Additional traffic volume data was collected seven months later.

1 Volumes are measured at location on SR 502 east of NE 10th Avenue. 2 Travel times are overall average travel time in minutes for the specified period.

3 Average speed is a calculated speed (in miles per hour (mph)) based on the average travel time and the distance.

U.S. 2 corridor

U.S. 2 hard shoulder running lane relieves congestion

This project added signs and re-striped the U.S. 2 trestle to allow shoulder use during the evening peak period beginning on April 6, 2009. This section of eastbound U.S. 2 is the first peak period shoulder lane in Washington. The roadway was restriped from two 12-foot lanes and a 10-foot shoulder to two 11-foot lanes and a 14-foot shoulder, with the left side shoulder changing from 4 feet to 2 feet. The shoulders on the 1.5-mile section between I-5 and SR 204 are open from 3 to 7 p.m., weekdays. The project cost less than \$100,000.

The Before and After results were originally published in WSDOT's 2009 *Congestion Report* (p. 44). WSDOT's 2011 *Congestion Report* (p. 63) covers a follow-up evaluation over four days in 2011.



This photo, taken from a WSDOT traffic camera, shows cars traveling in the peak period shoulder running lane (the far right lane) on U.S. 2 at Homeacres Road near Everett, Washington.

and one month after construction (November 2008). Traffic volume data was also collected seven months later at select locations.

Before and After results

Average speeds increased in the morning and afternoon

The table below summarizes the travel time and average speed benefits of this project. Prior to the construction, there were peak congested times. After construction, the data did not show any peaks in either direction. The average speed for the morning and afternoon commutes increased from less than 33 mph to over 52 mph, while traffic volumes increased northbound and southbound.

For more details, see WSDOT's 2009 *Congestion Report*, p. 41.

On one of those days, the shoulder lane was closed to allow crews to remove debris under the trestle, which recreated conditions similar to those before the shoulder opened to peak-period traffic.

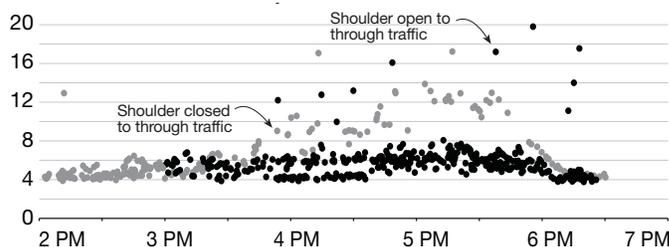
Before and After results

Travel time improvements measured in 2009 and 2011

In 2009, the travel time from I-5 at 41st Street to U.S. 2 at SR 204 (55 mph, two-mile section) dropped from 14 minutes to less than 7 minutes during the afternoon peak. In 2011, travel time reached a maximum of 8 minutes during three days when the shoulder lane was open. On the day when the shoulder was closed for debris removal, travel time increased to 14 minutes, the same as it was before the original opening in 2009.

Travel times on U.S. 2 near Everett with and without peak-hour hard shoulder running

Shoulder closed - March 31, 2011; Shoulder open - April 5, 12, 13, 2011; Travel time in minutes for all lanes



Data source: WSDOT Northwest Region Traffic Office.

Note: Hard shoulder running allowed from 3 to 7 p.m. weekdays.

I-205 corridor

I-205 - Mill Plain exit - 112th Connector Project improves commutes near Vancouver

This project created a direct connection to NE 112th Avenue from the northbound I-205 off-ramp to Mill Plain Boulevard near Vancouver. This connection allows northbound I-205 traffic to bypass Mill Plain Boulevard en route to NE 112th Avenue. Before construction, the travel time varied widely day to day, frequently between 2 and 6 minutes, and occasionally up to 10 minutes (compared to average travel times of 3.0 minutes in the morning and 3.8 minutes in the evening peak periods).

Traffic volume, speed, and travel time data were collected during the morning peak period (6:30 to 9:30 a.m.) and evening peak period (3 to 6 p.m.) in June 2008, before project construction, and again in June 2010, after the project was complete.

Before and After results

Travel time improved while traffic volume increased

The average travel time from I-205 to northbound NE 112th Avenue during the morning peak period improved 37% after construction, from 3.0 to 1.9 minutes. During the evening peak period, travel time improved 50%, from 3.8 to 1.9 minutes, even with an 18% increase in traffic volume on NE 112th Avenue.

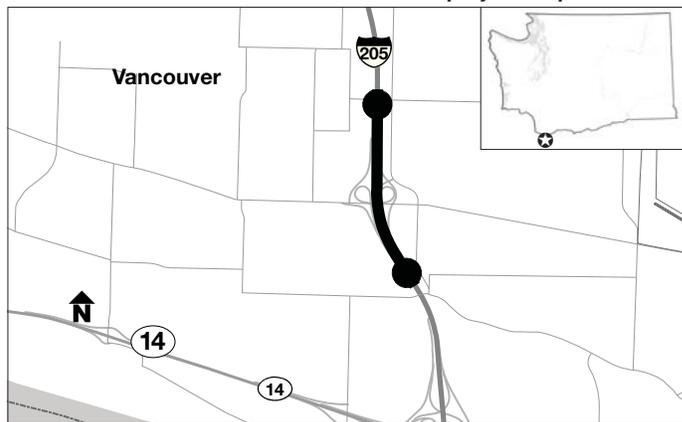
Highway improvements resulted in a more reliable travel time. After construction, the travel time variance improved to about 30 seconds from the average travel time of 1.9 minutes during both peak periods, allowing travelers to better plan their commutes.

Congestion eliminated on eastbound Mill Plain Boulevard

Although travel times during the morning and evening peak periods changed by only 2 or 3 minutes, the overall commute experience along this route improved significantly due to the direct connection between I-205 and NE 112th Avenue. Before construction, Mill Plain Boulevard experienced waves of stop-and-go traffic with travel times reaching over 4 minutes at 4 p.m. and 6.5 minutes by 5:30 p.m. After the project was completed, there were no measurable signs of congestion. Travel time variance for the evening peak period was reduced to one minute.

For details, see WSDOT's 2010 *Congestion Report*, p. 62.

I-205 - Mill Plain Boulevard - 112th Avenue project map



I-405 corridor

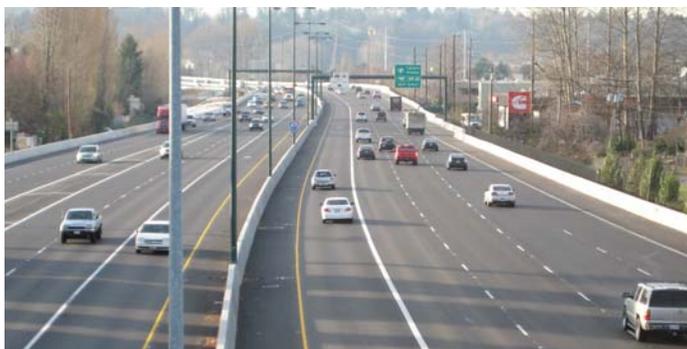
I-405 Master Plan improves capacity, congestion

The I-405 Master Plan, adopted in 2002, outlined a series of projects on the corridor to increase capacity and reduce congestion from Tukwila to Lynnwood. Three of its projects are discussed below.

I-405 widening stage 1: I-5 to SR 167

This project added one lane in each direction on I-405 between I-5 and SR 167, and one lane on southbound SR 167 from I-405 to SW 41st Street. This project also improved merging patterns at the SR 167/I-405 and the I-405/SR 181 interchanges, widened a bridge over BNSF rail tracks, and built a new bridge on I-405 over Oakesdale Avenue SW. The lanes opened to traffic in December 2009.

Weekday travel time and volume were examined from March to May before construction in 2007 and after in 2010.



I-405 widening from I-5 to SR 167 open to traffic

Before and After results

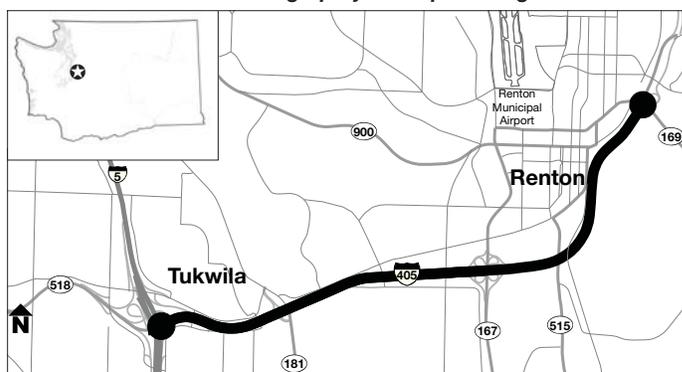
Less congestion on I-405 while volumes increased

Before construction, the northbound general purpose lanes between I-5 and SR 167 on I-405 were congested for most of the day on average weekdays. After the project's completion, congestion on this segment significantly decreased. The added capacity allows an additional 800 vehicles an hour through during peak periods and postponed congested conditions until after 4 p.m.

This expansion helped accommodate a 15% growth in volume between 2007 and 2010. During the evening peak period (2 to 6 p.m.) 2,800 more vehicles pass through compared to 2007.

For more details, see WSDOT's 2010 *Congestion Report*, p. 56.

I-405/I-5 to SR 169 widening - project map for stages 1 and 2



I-405 corridor (continued)

I-405 widening stage 2: new lanes from SR 167 to SR 169 and half-diamond interchange reduce traffic

This project built a new half-diamond interchange on I-405 at SR 515 (Talbot Road) to improve access to downtown Renton and relieve traffic demand on the I-405 interchanges at SR 167 and SR 169. It also built one new lane in each direction on I-405 between SR 167 and SR 169. The new ramps and I-405 lanes opened to traffic in December 2010.

Weekday travel time and volume were examined from March to April before construction in 2007 and after in 2011.

Before and After results

Volume throughput improvements

The additional lane in each direction allows more vehicles to get through on I-405. Northbound volume increased by more than 7,500 vehicles daily; southbound volume by more than 6,500. During peak periods, northbound volume increased by up to 800 vehicles an hour and southbound by up to 900 vehicles an hour.

Travel time improved by 5 minutes

After completion of this project, congestion no longer occurs between NE Park Drive and I-5, and the evening peak travel time for the ten-mile trip from Coal Creek Parkway to I-5 has been reduced from more than 20 minutes to about 15 minutes. For additional details, see WSDOT's 2011 *Congestion Report*, p. 60.

South Bellevue widening project relieves I-405's worst bottleneck

This project helped relieve congestion for travelers south of Bellevue – one I-405's worst bottlenecks. WSDOT added a general purpose lane northbound from 112th Avenue SE to SE 8th Street, and southbound from NE 4th Street to I-90. A southbound HOV lane was also added from SE 8th Street to I-90. The widening required removing the Wilburton Tunnel, widening the bridges over Coal Creek Parkway and SE 8th Street, and building a new southbound bridge over I-90. Construction began in July 2007. The new northbound GP lane from 112th Avenue SE to I-90 opened in January 2009; the section from I-90 to SE 8th Street opened in August 2009.

Before and After results

Reduced travel time on Tukwila to Bellevue route

This segment has seen a 16-minute improvement in travel time following the completion of this project, while having a 16% increase in vehicle miles traveled from 2007 to 2009.

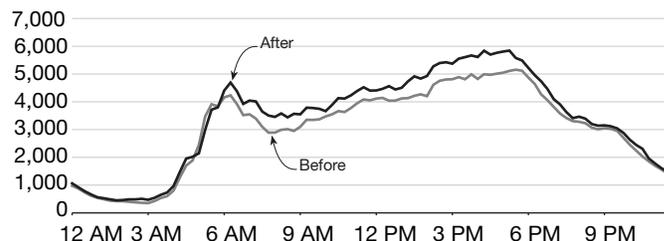
I-405 southbound to I-90 travel time improved 48%

The high volume of drivers merging onto I-90 within the short distance between the Coal Creek Parkway on-ramp and the I-90 off-ramp southbound resulted in recurrent congestion on I-405. The new lane provides more room for the weaving movement at these two interchanges. Since opening in 2009, the maximum travel time for the 10.2-mile commute between Bellevue and Tukwila during the morning peak period improved by 48% from 43 minutes in 2008 to 22 minutes in 2009. The additional capacity in both directions of this section of I-405 can now better handle the over 70,000 vehicles daily.

For additional details, see WSDOT's 2009 and 2010 *Congestion Reports*, p. 43 and p. 57, respectively.

Before and After volume throughput profile on I-405 Northbound between SR 515 and SR 169

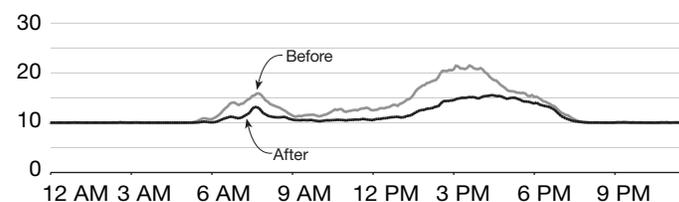
Weekday data for March - April 2007 and 2011
Volume in vehicles per hour



Data source: WSDOT Northwest Region Traffic Office.

Before and After travel time profile on I-405 Southbound between Coal Creek Parkway and I-5

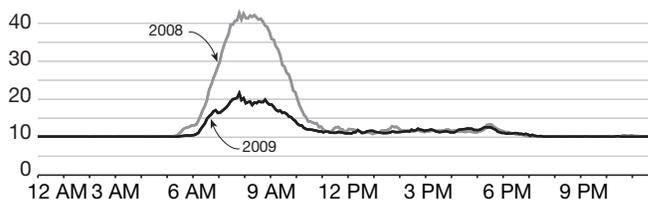
Weekday data for March - April 2007 and 2011
Travel time in minutes; Ten-mile corridor



Data source: WSDOT Northwest Region Traffic Office.

Before and After travel times from capacity additions on I-405 northbound from SR 167 to NE 12th Street

Tuesday - Thursday during October 2008 and 2009
Travel time in minutes; 10.2-mile corridor



Data source: WSDOT Northwest Region Traffic Office.



Widening work at SE 8th and southbound I-405, January 2009.

SR 18 corridor

SR 18 Maple Valley to Issaquah-Hobart Road project doubles highway capacity

SR 18 experienced congestion due to capacity constraints on this undivided two-lane, signalized road. This 2006 project transformed SR 18 into a four-lane, divided highway between Maple Valley and Issaquah. This helped bring SR 18 up to current highway standards with wider shoulders, guardrails, and a median to divide traffic. A new overpass was constructed at SE 200th Street, and a new interchange at 244th Avenue SE and SE 200th Street was built to replace the existing signalized intersection. Construction started in 2006, and was completed by late October that year.

Volume data was collected on an ongoing basis. In addition, travel time data for both the morning and evening peaks were collected in September 2005, and in September 2009.

Before and After results

Capacity and travel time improvements

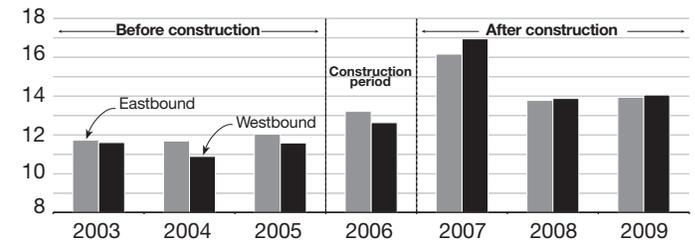
The improvements doubled the highway's capacity, increasing its reliability and eliminating backups through the corridor. This project provided significant travel time benefits to motorists in the area. Before completion, SR 18 just west of Issaquah-Hobart Road served about 24,000 vehicles each weekday in September 2005 (eastbound and westbound combined). As of September 2009, about 28,000 vehicles traveled through this location daily.

The travel time study showed a 15 to 20-minute reduction in travel time westbound during the evening peak and a 6 to 10-minute travel time benefit eastbound during the AM peak.

For more details, see WSDOT's 2010 *Congestion Report*, p. 61.

Eastbound and westbound traffic volumes on SR 18, west of Issaquah-Hobart Road

Monday - Friday, September 2005 and 2009
Average number of vehicles in thousands



Data source: WSDOT Northwest Region Traffic Office.



August 31, 2006 - The first cars drive on the new eastbound roadway.

SR 167 corridor

High occupancy tolling lanes get traffic rolling

In 2008, WSDOT converted existing SR 167 high occupancy vehicle (HOV) lanes to high occupancy tolling (HOT) lanes to make better use of the available space in the HOV lanes. Today, solo drivers with a *Good To Go!* pass can pay a variable, electronic toll for a faster trip in the HOT lane when space is available. The HOT lanes run northbound and southbound on approximately ten miles of SR 167, between Renton and Kent.

Travel time, traffic volumes and average speed are monitored on a daily basis for the SR 167 HOT lanes since opening in 2008.

Before and After results

HOT lanes result in faster travel time

SR 167 HOT lanes have yielded significant results, both for the drivers who access the HOT lanes and for general purpose lane users. Between May 2011 and April 2012, the northbound HOT lane saved weekday drivers an average of 7 minutes of travel time in the peak hour (7 to 8 a.m.). Average travel time in the HOT lane was 12 minutes compared to 19 minutes in the GP lanes. The average toll for single occupant vehicles was \$2. The weekday southbound HOT lane saved drivers 5 minutes during the peak afternoon hour (4 to 5 p.m.), with average travel times of 8 minutes in the HOT lane and 13 minutes in the GP lanes.

Daily volumes consistent with regional trends

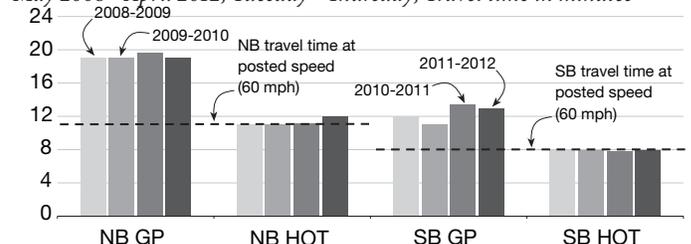
During the fourth year of operation, the average combined daily traffic volumes on SR 167 increased 1% compared to the pre-opening volumes recorded in 2007.

Increased usage of HOT lanes

The fourth year data continues to indicate that the public understands the benefits of HOT lanes. The average daily number of tolled trips rose to 3,400 in April 2012 compared with 2,150 in 2010. The annual net revenue during the fourth operating year was more than \$100,000. The most recent evaluation of the HOT lanes is covered in greater detail in WSDOT's 2012 *Congestion Report*, p. 66.

Comparing SR 167 HOT and GP lane peak travel times

May 2008 - April 2012; Tuesday - Thursday; Travel time in minutes



Data source: WSDOT Northwest Region Traffic Office.

Note: Dashed lines are travel times during non-peak periods when average speeds are 60 mph. NB = northbound, SB = southbound, GP = general purpose lanes

SR 518 corridor

SR 518 - SeaTac International Airport to I-5/I-405 interchange project reduces congestion

In 2005, SR 518 eastbound congestion typically started around 1 p.m. and ended after 6 p.m. Because this route serves the SeaTac International Airport, congestion also severely affected holiday traffic. To address congestion, this project added a third lane on eastbound SR 518 between the North Airport Expressway and I-5, improved the eastbound connection from SR 99, widened the bridge over 42nd Avenue South, and made safety improvements to the 51st Avenue South off-ramp. All lanes were open by June 2009.

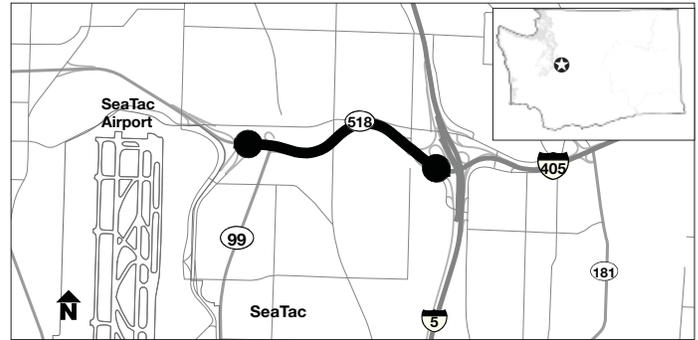
In order to capture holiday peak traffic to and from the airport, travel times were measured by a test vehicle in December 2005, before the project began, and after completion in 2009. Travel times were recorded throughout the day for several days between SR 509 and SR 181, a distance of 4.1 miles.

Before and After results

Project saved commuters up to 10 minutes

After the project was completed, congestion was reduced and traffic moved at the speed limit in the afternoon (1 to 6 p.m.). The graph shows the eastbound travel times in 2005 and 2009. The peak travel time improved from 15 minutes before construction to 5 minutes after the new lane was opened. For more details, see WSDOT's 2011 *Congestion Report*, p. 60.

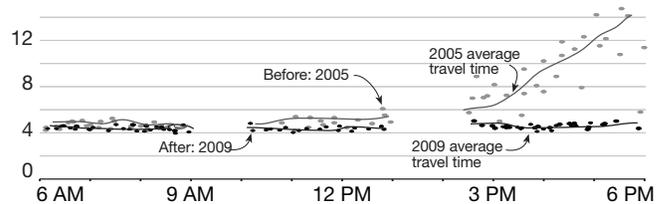
SR 518 - SeaTac to I-5/I-405 interchange map



Before & After travel time results from capacity additions on SR 518 eastbound from SR 509 to SR 181

Weekdays in December 2005 and 2009

Travel times in minutes; Corridor is 4.1 miles



Data source: WSDOT Northwest Region Traffic Office.

Note: Travel times recorded by test vehicle shown for 6 to 9 a.m., 11 a.m. to 1 p.m., and 2 to 6 p.m. peak periods only.

SR 520 corridor

West Lake Sammamish Parkway to SR 202 project cuts congestion by 75%

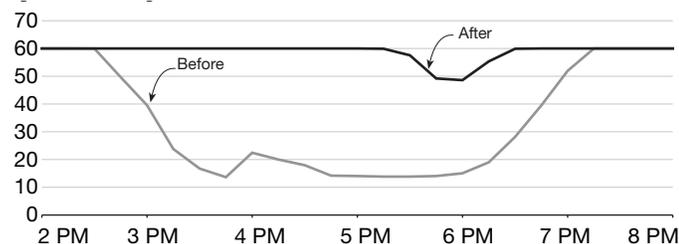
At West Lake Sammamish Parkway near Redmond, Washington, congestion in 2007 occurred on SR 520 in both lanes and lasted about four hours on weekday afternoons.

Stage 1 of this project included a new flyover ramp from westbound SR 202 to westbound SR 520 and was completed in February 2008. Stage 2 widened SR 520 from two lanes to four lanes (in each direction) between West Lake Sammamish Parkway and SR 202. Two additional lanes were added eastbound for another half mile up to the Avondale Road/NE Union Hill Road intersection. All work on this project was completed by February 2011.

Speed and volume data were collected on weekdays from March to April 2007 before construction and in April 2011 after construction.

Before and After speed profile on eastbound SR 520 at West Lake Sammamish Parkway

Weekday data for March - April 2007 and April 2011;
Speed in miles per hour



Data source: WSDOT Northwest Region Traffic Office.

Note: Speeds are averaged across all the general purpose lanes.

Before and After results

Congestion eliminated in general purpose lanes

The half mile of new lanes in each direction significantly reduced eastbound congestion during the afternoon commute. In 2011, the duration of congestion in the right (HOV) lane approaching the SR 202 exit was reduced to roughly one hour on average weekdays, with no congestion in the left lanes. Some congestion remains due to capacity constraints on SR 202.

Volume and throughput improve in the afternoon

The new lanes increased the number of vehicles able to travel through the corridor per hour (throughput) on eastbound SR 520 by up to 1,500 vehicles per hour, allowing an additional 3,600 vehicles to traverse the corridor between 3 and 7 p.m. Westbound SR 520 also saw an increase in vehicle throughput during the morning peak and continues to have free flow conditions.

For more details, see WSDOT's 2011 *Congestion Report*, p. 62.



The addition of two lanes in each direction on SR 520 near West Lake Sammamish Parkway alleviated four hours of afternoon congestion in the general purpose lanes.

SR 525 corridor

SR 525 signal coordination reduces driver delay

SR 525 is a signalized arterial through Mukilteo, Washington. Poor signal timing was resulting in delay for travelers along this route between Lincoln Way and Paine Field Boulevard. This project implemented the coordination of seven signals on SR 525 through Mukilteo in July 2008, within a 2.7-mile corridor.

Signal coordination helps move vehicles through a series of signalized intersections in the shortest amount of time by timing the signals to work together so vehicles stop less often.

Before and After results

Improved travel time

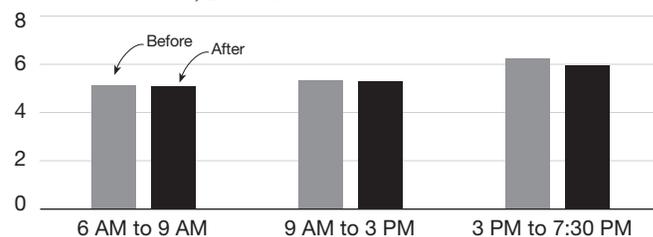
Following implementation, travel time per vehicle decreased an average of 12 seconds throughout the day. This has helped reduce delay by 130 vehicle hours per day and 47,461 vehicle hours per year. For more details, see WSDOT's 2009 *Congestion Report*, p. 46.



Coordinated traffic signals on SR 525 have helped to reduce delay by 130 vehicle hours per day.

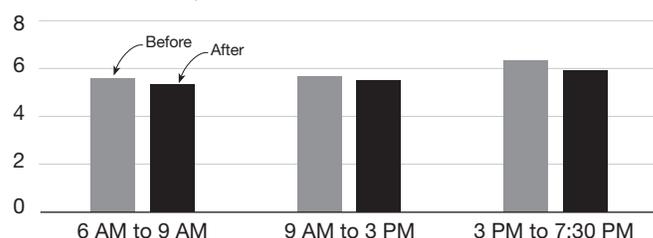
Northbound SR 525 travel times Before and After signal coordination

Travel time in minutes; 2.7-mile corridor



Southbound SR 525 travel times Before and After signal coordination

Travel time in minutes; 2.7-mile corridor



Data source: WSDOT Traffic Office.

Moving Washington strategy in action / Other WSDOT Before and After mobility studies

Additional WSDOT Before and After case studies

2009 – 2012

Project

SR 104 between 244th Street Southwest and Northeast 175th Street (signal coordination)

I-405 – Northeast 195th Street to SR 527 auxiliary lane (Bothell vicinity)

SR 519 – South Seattle intermodal access – Royal Brougham phase 2

I-5 – Blakeslee Junction to Grand Mound and Grand Mound to Maytown expansion projects

I-5 – SR 525/I-405/196th Street Southwest braided ramps (Lynwood vicinity)

I-405 – Northeast 8th Street to SR 520 braided ramps (Bellevue vicinity)

Data source: WSDOT Strategic Assessment Office.

For more information see WSDOT's

2009 *Congestion Report*, p. 46

2010 *Congestion Report*, p. 59 and
2012 *Congestion Report*, p. 78

2011 *Congestion Report*, p. 64

2012 *Congestion Report*, p. 75

2012 *Congestion Report*, p. 77

2012 *Congestion Report*, p. 79

Accountability at WSDOT

WSDOT's accountability challenge is to be a high performance organization, credible and accountable to the Governor, Legislature, taxpayers, and transportation delivery partners across the state. The *Gray Notebook* anchors WSDOT's management philosophy and is the basis for external performance reporting.

The current and previous editions of the *Gray Notebook* and the *Congestion Report* can be viewed and printed from the WSDOT accountability website: www.wsdot.wa.gov/accountability

For more information contact:

Daniela Bremmer, Director
WSDOT Strategic Assessment Office
310 Maple Park Avenue SE
P.O. Box 47374
Olympia, WA 98504-7374
Phone: 360-705-7953
E-mail: daniela.bremmer@wsdot.wa.gov

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