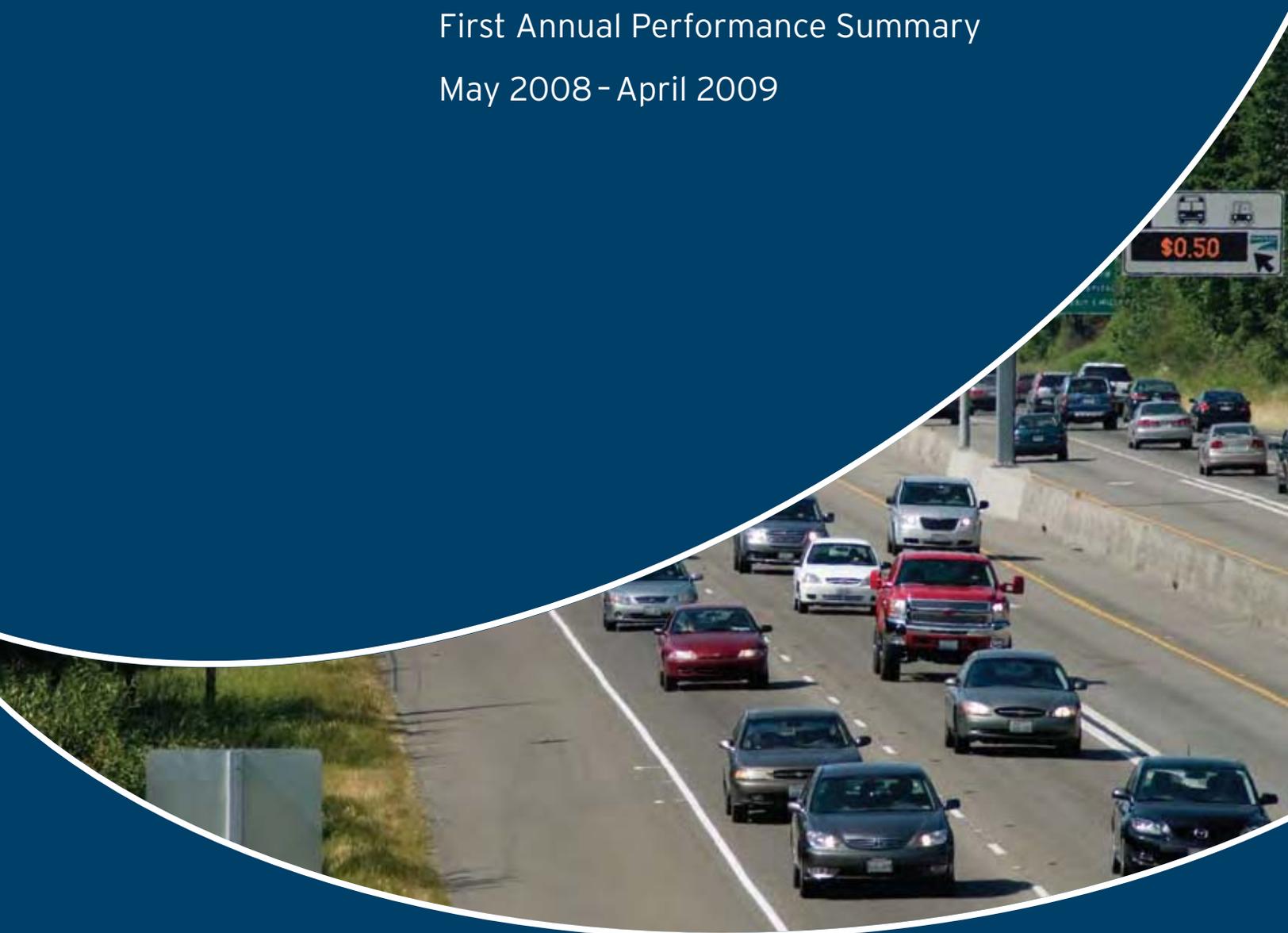


# SR 167

## HOT Lanes Pilot Project

First Annual Performance Summary

May 2008 - April 2009



Washington State  
Department of Transportation

## HOT lanes: year one

A year after WSDOT launched the SR 167 HOT Lanes Pilot Project, Brandi Dorsett of Puyallup says she saves about 30 minutes by driving in the HOT lane to and from Bellevue, where she works in the city's parks department. A HOT lanes user from day one, Dorsett said her 30-mile commute used to take up to 90 minutes. By paying a toll to drive in the HOT lane, her commute now typically takes about an hour.



“I find myself using the HOT lanes a lot more than I used to,” she said. “Traffic has gotten heavier in the regular lanes, but the HOT lanes still get me to work and back home a whole lot faster. ...It’s the best \$1.25 I’ve ever spent.”

Like Dorsett, some commuters choose to use HOT lanes on a daily basis. Others pay the toll only when they can't afford to be late. Even as the popularity of HOT lanes continues to increase with each new month, carpool commuters and bus riders still enjoy the same fast, toll-free trip they counted on in the high occupancy vehicle (HOV) lanes.

The first year of operation is now behind us, and HOT lanes are working. HOT lanes save people time, provide commuters with more choices and get the most efficient use of SR 167. This report provides elected officials, transportation professionals, and the public with a detailed review of the first year's operations and performance.

# Executive Summary

The first year of HOT lane operation on State Route 167 demonstrated that variable tolling can make better use of carpool lanes and improve traffic flow in the corridor without affecting service for carpools and buses. Traffic conditions on SR 167 in both the general purpose and HOT lanes have improved. In both directions, vehicle speeds and overall volumes have increased during the peak-periods.

## Performance

- Comparing traffic conditions between April 2009 and April 2007 (2008 omitted due to construction) during the peak-periods in the peak-direction, the following improvements resulted:
  - General purpose lane speeds increased 10%; volumes increased 3%–4%
  - HOT lane speeds increased 7%–8%; volumes increased 1%–3%
  - Results for March are similar
- More than 30,000 *Good To Go!* drivers paid to use the HOT lane.
- The average number of total tolled trips continues to increase–1,050 trips per weekday in May 2008 compared to 1,710 trips per weekday in April 2009.
- The average number of peak-hour tolled trips continues to increase–140 northbound trips in May 2008, compared to 270 trips in April 2009, and 100 southbound trips in May 2008, compared to 160 trips in April 2009.
- The average peak-hour travel time for carpools and transit held steady at approximately 11 minutes northbound and eight minutes southbound.
- Transit ridership within the corridor increased 16 percent from the same time period last year.
- The average toll paid was \$1 per trip.
- In June and July 2008 the highest toll paid reached \$9. After WSDOT refined the price-setting variables, the highest toll paid dropped to \$2.75 in April 2009.
- During the peak-hours, the HOT lanes meet or exceed the minimum speed requirement established by FHWA and the Washington State Legislature 99.2 percent of the time.



*Driver's view of a HOT lane toll rate sign*

## Safety

- The project does not appear to have an adverse effect on safety, but additional data is needed.
- WSDOT engineers continue to closely monitor safety.

## Customer service

- During the first 12 months, customers opened about 1,500 new *Good To Go!* accounts per month.
- The number of SR 167-related phone calls to the *Good To Go!* customer service center decreased dramatically from nearly 1,200 calls in May 2008 to fewer than 60 calls in April 2009.

## Revenue

- HOT lanes generated \$316,600 in gross revenue from May 3, 2008 through April 30, 2009.
- From May 2008 through December 2008, revenues averaged \$25,500 per month.
- From January 2009 through April 2009 the average revenue grew to \$28,200 per month.

## Enforcement

- Since opening day, the Washington State Patrol (WSP) has conducted more than 4,300 HOT lane-related traffic stops.
- WSP cited more than 2,000 drivers for HOV/HOT violations and more than 300 drivers for crossing the double white line that separates the HOT lane from the general purpose lanes.
- WSP officials are pleased that the compliance rate is estimated at 95–97 percent.

# The Pilot Project

On May 3, 2008 Washington state's first-ever HOT lanes opened to drivers on SR 167. This four-year pilot project, located approximately 12 miles southeast of downtown Seattle, provides another option for solo drivers on SR 167 (see Figure 1).

For the project, WSDOT converted pre-existing HOV lanes on SR 167 to HOT lanes. SR 167 now offers solo drivers the option to pay a variable, electronic toll for a faster trip in the HOT lane when space is available. There are no toll booths.

The HOT lanes run northbound and southbound on SR 167 between Renton and Auburn. The highway's two general purpose (GP) lanes in each direction remain toll-free and open to all traffic. The HOT lane is separated by a solid double white line, which is illegal to cross. Access in and out of the HOT lane is restricted to access zones identified by a dashed line. There are six northbound and four southbound access zones.

Carpools of two or more people, vanpools, buses and motorcycles use the HOT lane toll-free, just as they did in the HOV lanes, and they do not need a transponder. HOT lane tolls operate daily 5 a.m. to 7 p.m.

## Variable tolling

Variable tolling is a tolling structure where the price changes over time according to certain criteria. The SR 167 HOT lane project is a type of variable tolling where the toll rate adjusts dynamically based on real-time traffic data. The data, collected by sensors embedded in the roadway, combine vehicle speed and volume. Toll rates increase when traffic is heavy and decrease when traffic is light—the law of supply and demand.

On SR 167, the variable toll ensures that traffic in the HOT lane always flows smoothly. Every five minutes the system calculates a new toll rate from 50 cents to \$9. HOT lanes are designed to make the most efficient use of HOV lane space while maintaining fast and reliable trips for buses and carpools.

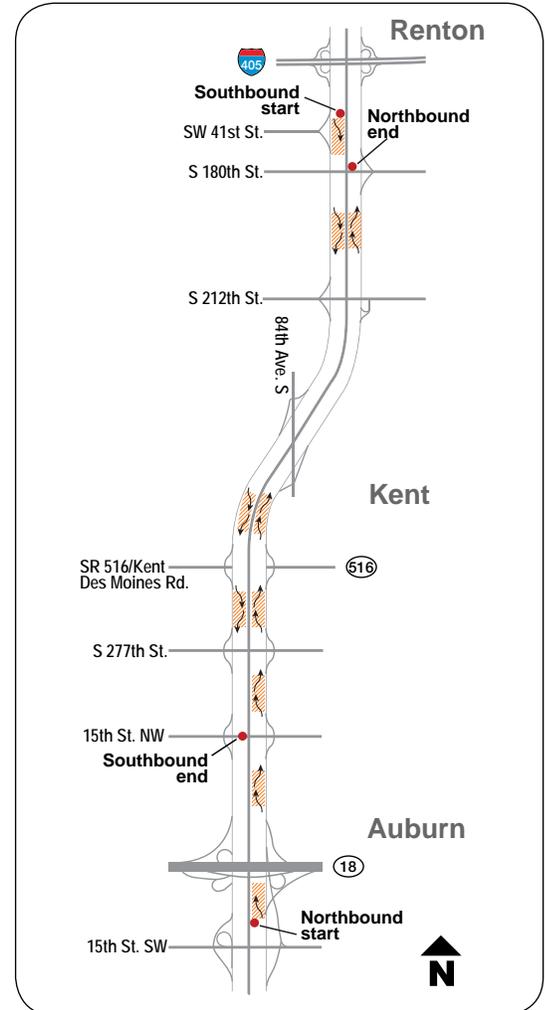


Figure 1: SR 167 HOT lanes pilot project area map and access zones

## HOT lanes across America

To develop this pilot project, WSDOT studied existing HOT lanes facilities in other states that had shown positive results for improving traffic flow and making carpool lanes safer and more efficient (see Figure 2).

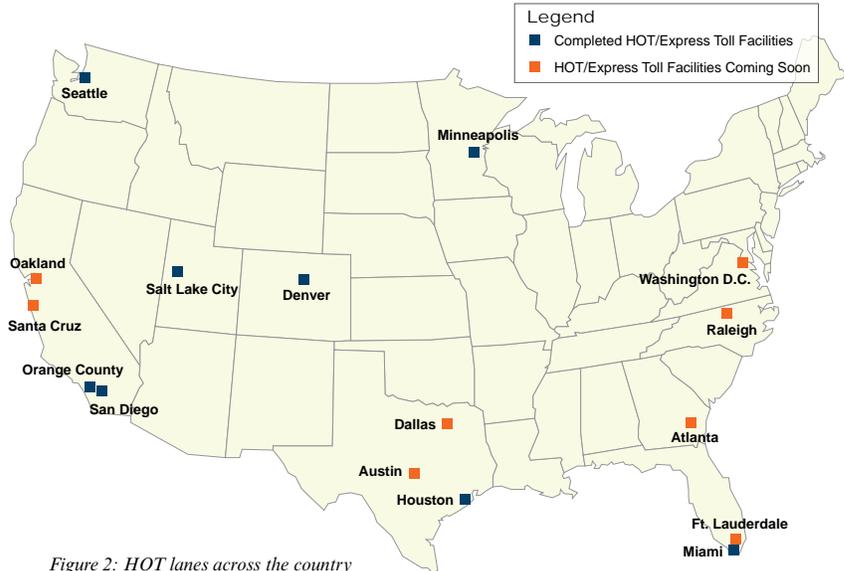


Figure 2: HOT lanes across the country

## Why SR 167?

SR 167 runs north and south, connecting communities between Renton and Tacoma. Additionally, it provides the Puget Sound region with an alternative route to I-5. Unlike most HOV lanes in the region, which operate near capacity during peak periods, the HOV lanes on SR 167 had available capacity during peak periods. Project engineers saw HOT lanes as a tool to increase vehicle throughput without reducing the level of service enjoyed by carpools and bus riders.

Making highways more efficient and managing traffic demand with more commute choices are two of the three primary strategies of *Moving Washington*, WSDOT’s statewide program for improving mobility.



## HOT lanes growing in popularity

**Miami:** In December 2008 HOT lanes began operating on a 7-mile stretch of northbound I-95. The facility features variable, electronic tolling with the SunPass transponder. A southbound HOT lane is scheduled for completion in spring 2010.

**Northern Virginia:** The Capital Beltway, I-495, will have 14 miles of HOT lanes by 2013. The \$1.4 billion public-private partnership ultimately will expand the HOT lanes to 56 miles.

**Minneapolis:** Having launched its first HOT facility in 2005, Minnesota DOT plans to complete a second MnPASS facility on I-35 in October, connecting southern communities with downtown Minneapolis. An extension should be complete in late 2010.

**San Diego:** HOT lanes have operated on I-15 since 1996. By 2012 the facility will stretch to 20 miles.

**Orange County:** The 10-mile HOT facility on SR 91 will double in length, reaching into Riverside County by 2015.

**Salt Lake City:** Utah DOT is converting its 38-mile HOT facility, I-15 Express Lanes from a \$50 per month subscription service to variable, electronic tolling in fall 2010.

**Houston:** In April 2009 Texas DOT completed converting 10 miles of I-10 to HOT lanes with variable tolling.

# Performance

Tim Leahy knows traffic, especially on SR 167. An outside sales rep living in Bellevue, Leahy works in Auburn and spends most of his day on the road. A savvy business man, he also knows time is money. That is why he is happy to pay a variable toll for a faster commute on SR 167.

According to Leahy, the HOT lane typically reduces his commute to Auburn by 5 or 10 minutes, he said. Over a five day work week, he figures, he saves more than an hour of valuable time. “Sometimes even though it’s closer to use I-5, I’ll slide over to SR 167 and still get there faster,” Leahy remarked.

Leahy is one of numerous SR 167 commuters who have found both value and efficiency in the HOT lane. Despite an economic downturn and last year’s high gas prices, an increasing number of solo drivers are paying for a faster commute.

Meanwhile, carpools and bus riders lost no time in their daily commutes. Even as HOT lanes has grown in popularity, available capacity in the HOT lane remains and traffic has continued to flow with virtually no effect on carpools or buses.

## Volume

Average daily traffic volumes on SR 167 declined roughly 2 percent in the first year of HOT lanes operations (excluding December snow-related effects). Contributing factors to this decline likely included rising gas prices, the economic downturn, and an increase in transit ridership. Declining roadway volumes are consistent with regional and national trends, however traffic volumes in April 2009 returned to April 2008 levels (see Figure 3).

The data presented in Figures 3 and 4 was measured just south of S. 277th Street in Kent. The drop in December traffic volumes (and tolled trips) is likely due to reduced travel associated with multiple year-end storms.



“Sometimes even though it’s closer to use I-5, I’ll slide over to SR 167 (to use the HOT lane) and still get there faster.”

Tim Leahy  
SR 167 HOT lanes commuter

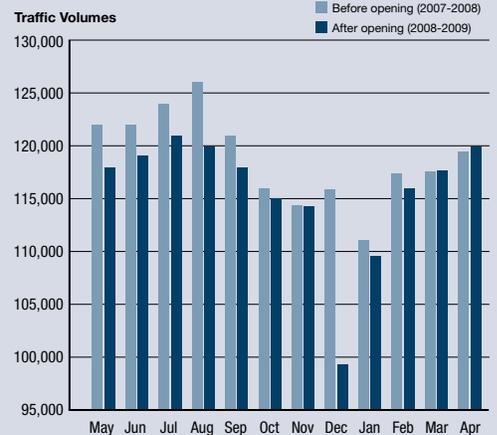


Figure 3: Average Daily Traffic on SR 167  
Data Source: NW Region Traffic, Tuesday–Thursday\*

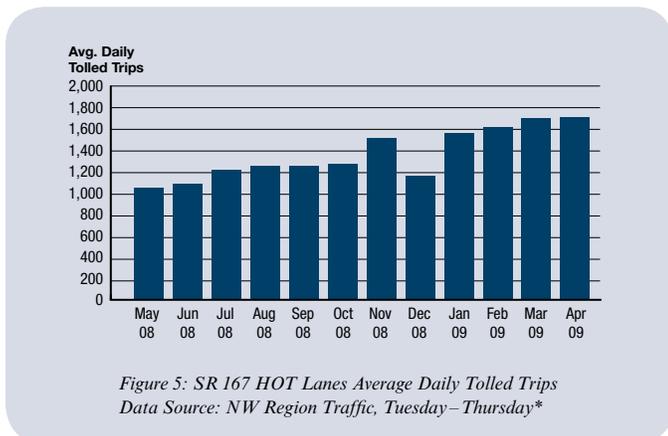
## Performance averages by month

	May 08	Jun 08	Jul 08	Aug 08	Sep 08	Oct 08	Nov 08	Dec 08	Jan 09	Feb 09	Mar 09	Apr 09
<b>Average toll paid</b>	\$1	\$1.25	\$1	\$1	\$1	\$0.75	\$1	\$0.75	\$1	\$0.75	\$0.75	\$0.75
<b>Highest toll paid</b>	\$5.75	\$9	\$9	\$8.50	\$4.25	\$3.50	\$6	\$4	\$6.50	\$3	\$3.25	\$2.75
<b>Average number of daily tolled trips</b>	1,050	1,080	1,210	1,250	1,250	1,270	1,510	1,160	1,560	1,610	1,700	1,710
<b>Highest number of daily tolled trips</b>	1,220	1,260	1,390	1,460	1,390	1,555	1,740	1,910	1,850	1,820	1,880	1,860
<b>Average peak-hour northbound tolled trips</b>	140	140	160	180	180	190	200	160	230	250	250	270
<b>Average peak-hour southbound tolled trips</b>	100	100	120	110	120	120	140	100	150	150	160	160
<b>Max. peak-hour tolled trips</b>	170	210	180	240	230	240	260	260	260	280	310	310

Figure 4: Performance measures: SR 167 HOT lanes  
Data Source: NW Region Traffic, Tuesday–Thursday\*

The average number of daily (Tuesday through Thursday\*) tolled trips is increasing (Figure 4). Aside from the snow events during December 2008, the number of tolled trips continues to increase from month to month. During the northbound peak-hour (7 a.m.–8 a.m.), the average number of tolled trips increased from 140 in May 2008 to 270 in April 2009, an increase of nearly 90 percent. The number of tolled trips in the southbound direction during the peak-hour increased by almost 60 percent during the afternoon peak-hour (4 p.m.–5 p.m.).

\* Monday and Friday excluded due to inconsistent traffic volumes.



## Speeds

The enabling authorization passed by the Legislature requires that the HOT lane maintain average traffic speeds during the peak-hours (7 a.m.–8 a.m. and 4 p.m.–5 p.m.) of at least 45 mph 90 percent of the time. The HOT lanes exceeded this requirement, achieving the required speed 99.2 percent of the time.

### Highlights from April

Speeds and volumes increased during the peak-periods in both the general purpose lanes and the HOT lanes. When April 2009 weekday data was compared with April 2007 (2008 data was omitted due to construction), the following results were found:

#### Northbound peak-period (5 a.m.–9 a.m.)

GP lanes volume increased 3%, speed increased 10%  
HOT lane volume increased 3%, speed increased 7%

#### Southbound peak-period (2 p.m.–6 p.m.)

GP lanes volume increased 4%, speed increased 10%  
HOT lane volume increased 1%, speed increased 8%

## HOT lane travel times

The project team measured travel times in the HOT and GP lanes northbound from SR 18 in Auburn to S. 34th Street in Renton and southbound from S. 34th Street in Auburn to 43rd Street NW. The HOT lane is approximately 11 miles northbound and 9 miles southbound.

Throughout the first year, HOT lane traffic consistently flowed freely during all hours of the day. The northbound peak-hour (7 a.m. – 8 a.m.) travel time in the HOT lane was 11 minutes on average. The 95th percentile travel time (a reliability measure) was 11 minutes as well. The two travel-time measures indicate that the HOT lanes successfully delivered reliable travel times and maintained traffic speeds, even on some of the most congested days.

Travel time results are similar during the southbound peak-hour (4 p.m. – 5 p.m.); the HOT lane travel time was eight minutes, and the 95th percentile travel time was eight minutes, as well. Again, the equivalent travel time measures confirm that the HOT lanes successfully delivered reliable travel times and maintained traffic speeds, despite the bottleneck caused by the lane drop at the south end of the southbound HOT lane.

## General purpose lane travel times

The average weekday northbound peak-hour travel time was 19 minutes, and a 95th percentile travel time of 26 minutes. The average weekday southbound peak-hour travel time was 12 minutes. The 95th percentile travel time southbound was 19 minutes.

### HOT lane time savings

The northbound HOT lane provided weekday drivers with an average time savings of eight minutes in the peak-hour for an average toll of \$1.

The weekday southbound HOT lane provided drivers with an average savings of four minutes during the peak-hour for an average toll of \$1.

## Toll rates

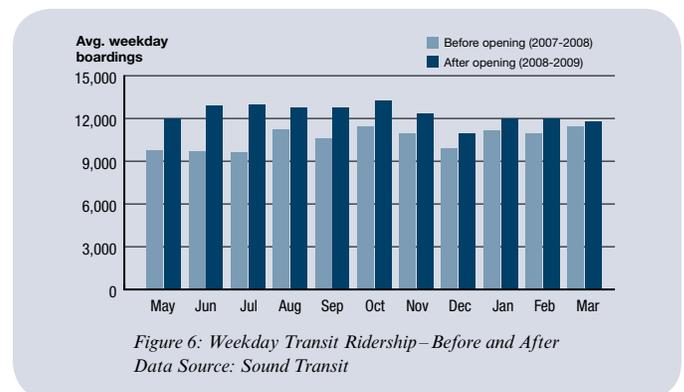
The average toll paid was 96 cents during the first year. Toll rates can range from 50 cents to \$9. The maximum toll rate was reached in June and July 2008, however after adjustments to the dynamic-pricing algorithm by WSDOT engineers, the highest toll paid in April 2009 was \$2.25.

The higher toll rates experienced during the first few months were the intentional result of sensitive pricing algorithm settings. It ensured carpools and buses premium service while traffic adjusted to the new HOT lane system. In late summer and fall 2008, engineers made minor refinements to the algorithm to decrease the sensitivity.

## Transit performance

Sound Transit records indicate that travel times for buses within the corridor, during both peak and non-peak periods, did not change after SR 167's HOV lanes converted to HOT lanes. Ridership on Sound Transit's buses (routes 564 and 565) and on its commuter rail service (the South Sounder) increased 16 percent, from 10,600 weekday riders in 2007–2008 to 12,330 weekday riders in 2008–2009 (see Figure 6 below).

While other factors likely contributed to the increase in transit ridership, the only service change precipitated by the HOT lanes was the slight modification of the two routes. Transit officials fine-tuned the route alignments, directing buses to enter SR 167 at SR 516 instead of 84th Avenue. The adjustment allowed the buses to take better advantage of the HOT lanes' access zones.



# Safety

A year ago, Rollo DeVore would dread his morning commute on SR 167. He would get up at 4:30 a.m. to be on the road by 5:30 a.m. From his home in Lake Tapps to his office at the Federal Aviation Administration in Renton it was a slow grind of cars and trucks jockeying for lane space in stop-and-go traffic, he said.

When he finally got to work 50 minutes after kissing his wife goodbye, his mood was shot. He was already thinking about the afternoon's commute back home, which typically crept even more slowly. He would like to take a bus or join a carpool, he said, but it just is not practical. There always seems to be an errand to run on his way to or from work.

"I've been doing it since day one," DeVore said of choosing to pay the toll in the HOT lane for a safer commute. "Obviously it's less traffic (in the HOT lane). It flows a bit faster. In my opinion it's much safer because you don't have people pulling out in front of you."

When HOT lanes opened in May 2008, DeVore said, he was skeptical. He wondered how letting solo drivers into the carpool lane could help anyone. Now it is clear as day, he said.

Drivers can only enter or exit HOT lanes in access zones marked by dashed lines. Not only does the limited access reduce the times drivers cut too close in front of him, he said, it also makes traffic flow more smoothly with fewer starts and stops.

## Preliminary collision data

It is still too early to definitively conclude the affect of the HOT lanes on safety within the corridor. WSDOT traffic engineers do not recommend evaluating safety performance with less than two years of data since multiple factors can affect the safety record including reduced traffic volumes, roadway surface conditions, changes in weather and a new law requiring the use of hands-free cellular devices.

From May 2008 through February 2009, the average number of collisions per month within the project area was 41. This represents a reduction from the same three previous 10-month periods (see Figure 7). WSDOT remains confident that HOT lanes are not adversely impacting driver safety; however, safety engineers continue to closely monitor safety-related performance data.



"I think it's an excellent system. For me, paying 50 or 75 cents or even a dollar to zip by everyone is very valuable."

Rollo DeVore  
SR 167 HOT lanes commuter



Figure 7: Collisions on SR 167  
Data Source: NW Region Traffic

# Operations and Maintenance

WSDOT field technician Allen Mushatt might have the most up-close and personal relationship with HOT lanes on SR 167. Mushatt ensures the system is functioning properly through preventative maintenance, careful monitoring and troubleshooting.

“For the most part the system monitors itself,” Mushatt explained. “When there’s any sort of problem, it automatically sends out a mass e-mail to the entire (operations) team.”

Mushatt spends a portion of his days traveling between the 10 HOT lanes electronic equipment lockers along SR 167. Although most minor errors can be solved remotely, occasionally a visit to the roadside tolling equipment is warranted. The system was designed with redundancies that enable uninterrupted operations if problems occur.

## Traffic management center

At WSDOT’s Northwest Region Headquarters in Shoreline, team members monitor HOT lanes in the traffic management center. Inside this central operations center, team members pay close attention to traffic on SR 167 using remote control cameras and data collected from traffic speed and volume sensors. They monitor the variable toll rate and HOT lane traffic data using software that creates a dashboard displaying all the HOT lane variables, including traffic volumes, lane speed and toll rates. If anything goes awry, they contact Mushatt and other key members of the team to troubleshoot the problem and find a solution. Furthermore, the center is able to manually override the system when roadway emergencies necessitate.



“For the most part the system monitors itself. When there’s any sort of problem it automatically sends out a mass e-mail to the entire (operations) team.”

Allen Mushatt  
WSDOT HOT lanes technician



*Inside the traffic management center engineers monitor the HOT lanes.*

# Revenue

The SR 167 HOT lanes generated \$316,600 in gross revenue from May 3, 2008 through April 30, 2009, making the average monthly gross revenue \$26,380. Typical of HOT lane ramp-up periods, the monthly average is growing. During the first eight months (May–December 2008), the monthly average revenue was \$25,500 (\$1,200 per business day). Over the following four months (January–April 2009) the average grew to \$28,200 per month (\$1,360 per business day), an increase of more than 10 percent (see Figure 8). The project team expects this upward trend will continue.

Figures 8 and 9 demonstrate how the adjustments to the pricing algorithm (discussed on page 6) have successfully lowered the maximum toll rates, despite increases in monthly and peak-hour volumes. Although monthly revenue has increased, the goal of the system is to manage traffic congestion and maintain free-flow traffic conditions in the HOT lane. As drivers grow more comfortable with tolling operations and the economy recovers, engineers expect revenue to gradually increase, especially as transponder ownership within the region becomes more common.

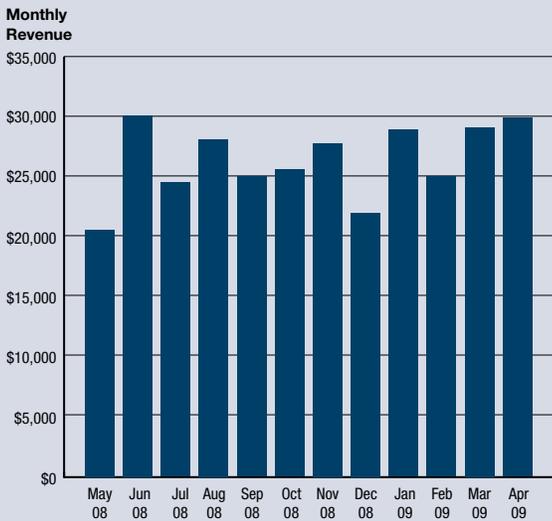


Figure 8: Monthly Revenue Collection  
Data Source: NW Region Traffic and Customer Service Center

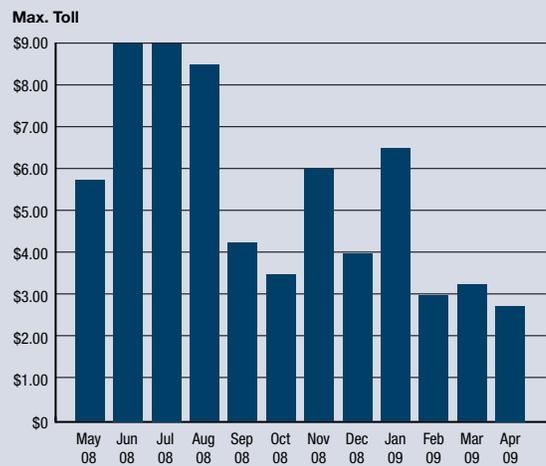


Figure 9: Maximum Toll Rate  
Data Source: NW Region Traffic and Customer Service Center

# Enforcement and Response

## Washington State Patrol

As part of the SR 167 HOT Lanes Pilot Project, the Washington State Patrol (WSP) provides additional enforcement. These emphasis patrols are paid for with HOT lanes operations funding.

Since opening day, WSP has maintained a visible presence in the project area. This effort has resulted in 4,317 traffic stops, yielding 2,054 citations for HOV/HOT violations and 328 citations for crossing the double white line that separates the HOT lanes from the GP lanes. These numbers include both standard and emphasis patrols. WSP officials say they are encouraged by the compliance rate, which is estimated to be 95 to 97 percent.



*The incident response team provides additional assistance on SR 167.*

## HERO

The HERO program was included as an element of the HOT lanes project to provide drivers an opportunity to report improper use of the HOT lanes, just as the HERO program is used for HOV lanes.

The monthly average of SR 167-related reports to the HERO program from May through October 2008 was 58 calls. The same time period in 2007 witnessed an average of 321 calls per month. Possible reasons for this 80 percent reduction in calls include: a legal option for drivers to use the HOT lane and increased law enforcement.

## Incident response

An important component of HOT lane operation is the presence of additional incident response team (IRT) vehicles on SR 167 to assist drivers (e.g. change flat tires, supply emergency gas, etc.) and clear traffic-blocking vehicles. Noteworthy outcomes during the first year of HOT lanes operation:

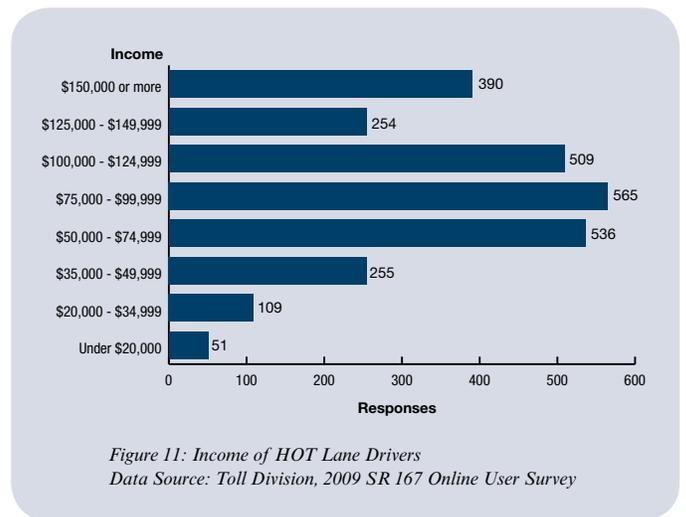
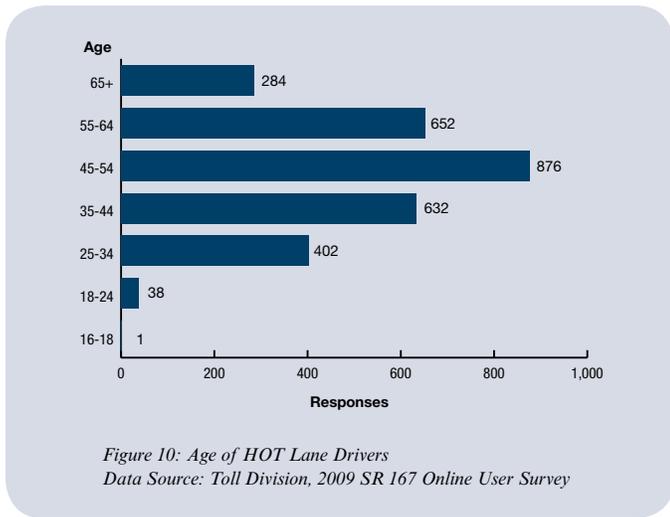
- The number of incidents responded to increased from a monthly average of 130 to 210.
- The average response time for IRT vehicles decreased from an average of 10.3 minutes (February–April 2008) per incident to 9.3 minutes (February–April 2009).

By funding more IRT vehicles to the corridor, the HOT lanes project enabled them to respond to more incidents and respond more quickly. This reduced the congestion and delay caused by these incidents and also minimized associated safety risks.

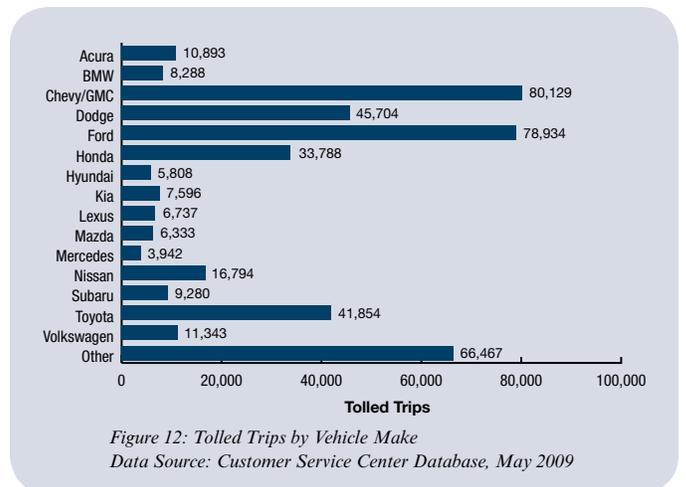
# HOT Lane Drivers

## Who is driving in the HOT lane?

In May 2009 an online survey was sent to all *Good To Go!* account holders who had a valid e-mail address and had driven the SR 167 HOT lanes at least once. Although the survey group was limited, it does provide a sense of who pays to drive in the lanes and is consistent with the findings from the 2005 Baseline Survey Report. As shown in Figures 10 and 11, the majority of HOT lane drivers are between the ages of 35 and 64 years old and have a household income of \$50,000 – \$124,999.



Throughout the country critics deride HOT lanes as “Lexus lanes” suggesting that only the rich can afford to use them. Results from SR 167 suggest otherwise; less than two percent of trips are made by a Lexus (see Figure 12). Drivers of Chevys and Fords use the lane more than anybody else. Additionally, the Baseline Survey found that 1.7 percent of all SR 167 drivers earn less than \$20,000 annually. The 2009 SR 167 User Survey found that 1.9 percent of all *Good To Go!* account holders that use SR 167 earn less than \$20,000 annually. These measurements indicate that lower-income households are benefiting from the project as well.



## Where are they from?

As shown in Figure 13, the majority of tolled HOT lane trips are billed to homes in the southern, southeastern and eastern portions of the SR 167 corridor.

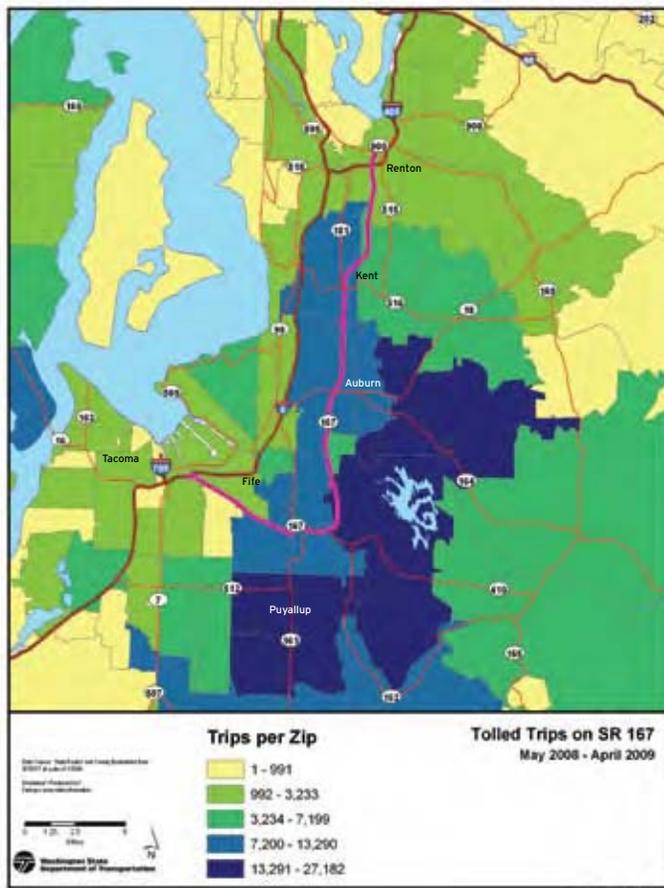


Figure 13: Tolled Trips by Zip Code  
Data Source: Customer Service Center Database, May 2009

## How are drivers responding?

Many drivers have responded positively to the HOT lanes. In the 2009 SR 167 User Survey, nearly two-thirds of respondents stated they were either very likely or somewhat likely to use HOT lanes in the future. Most claimed that their reason for using HOT lanes was to avoid congestion. Of all the elements of the survey, the open comments are perhaps the most revealing. The following highlights are the four most common response categories with examples:

1. General positive: *"I absolutely love the HOT lanes on 167."*
2. Extend the HOT lanes: *"More HOT lanes please!!! They are fantastic!!!!!"*
3. Shield frustration: *"I felt it was confusing and as stated, resented paying for it without a shield."*
4. Access change: *"The access to the HOT lanes on 167 are not convenient for my exits... I end up crossing the double white line."*

Additionally, WSDOT conducted two focus groups in January 2009. In each session some panel members were unclear about purpose and use of HOT lanes, which highlighted the importance of clearly explaining to the public how HOT lanes work. Once people understand HOT lanes, many realized that this new choice could work to their advantage.

WSDOT continues to closely monitor customer feedback.

# Public Outreach and Communications

Effective communication with the public is critical for the success of the pilot project. Prior to HOT lanes opening, Washington drivers had never experienced variable tolling for congestion management. Tolling had been limited to funding transportation improvements. Both the concept and the rules were new.

## Pre-opening education

During the year leading up to launch, the project team sought out groups and organizations throughout the Central Puget Sound region to offer presentations on HOT lanes and answer questions. The team developed displays, presentation slides, project information folios, pamphlets and a useful Web site to help inform and answer questions. The team also produced an educational video “Rachel’s Drive”, which took viewers on a virtual tour of HOT lanes and explained exactly how they would work. The Transportation Research Board awarded the WSDOT project team for the video’s effective communication. Furthermore, information was available in print, on the radio and on TV. The project team also pro-actively worked with the media to ensure that the public received accurate information.

## Opening

On May 3, 2008 the HOT lanes toll rate signs lit up and the project officially launched with a public event that featured Washington State Department of Transportation Secretary Paula Hammond. All major press outlets in the Seattle area turned out to interview the team and see the first toll rate appear. The television and newspaper coverage was effective in helping SR 167 commuters understand the workings and benefits of HOT lanes.

## Continuing education

During the first few months of operation, it was clear that some drivers were still confused about the rules of HOT lanes. Drivers also expressed frustration over the limited access into and out of HOT lanes and not knowing when to exit the HOT lane in time to use a desired highway off ramp. In addition to improving the HOT lanes Web page with better and easier-to-find information, the HOT lanes communications team also worked closely with *Good To Go!* to reach customers with informative materials included with their billing statements. The team also added signs along the HOT lanes to help drivers better navigate the roadway.

## Promotions

After analyzing data from the first eight months of HOT lanes operation, it was clear to the project team that there was still lane space available in the HOT lanes. To attract more drivers to open *Good To Go!* accounts and use HOT lanes, the communications team developed a promotional campaign that centered on advertisement cards. HOT lane information signs were affixed above 36 gas pumps at stations along the SR 167 corridor. The campaign focuses on HOT lanes as an effective option for making up time when running late. This promotional campaign is ongoing.



*Promotional material has been displayed at area gas stations.*

## Customer service center

The *Good To Go!* program provides all customer service-related to transponder accounts. Monthly account statements are distributed electronically and contain both SR 167 HOT lane and Tacoma Narrows Bridge toll transaction information. Drivers use the same transponder on both facilities.

Performance highlights include the following:

- New accounts were opened at an average monthly rate of 1,500, while new transponders were purchased at a rate of 4,100 per month.
- Of the 2,500 SR 167 HOT lane-related phone calls to the customer service center, only 12 percent occurred after January 1, 2009.
- Disputes regarding use of the transponder disabling devices (shields) remained steady at about 14 per month.
- Of the 22 complaints received via e-mail by the customer service center, only one SR 167 HOT lane-related e-mail was received after January 1, 2009.

## Citizen correspondence

After opening, the HOT lanes project team witnessed a steady decline in public comments (1,200 in May 2008 to fewer than 60 in April 2009). Comments have been both positive and negative. The communications team responded to each e-mail, letter and phone call with thorough information about HOT lanes.



*Helping customers at the Good To Go! customer service center*

# Project Management

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Project funding was provided for a total of \$17.8 million. The final estimated cost of completion for HOT lanes is \$18.7 million. The increase in cost was the result of higher than expected construction-related traffic control expenditures.

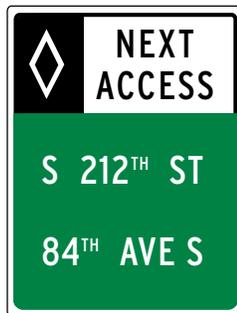
The civil construction component of HOT lanes reached the substantial-completion milestone in May 2008. The toll collection component earned system acceptance in December 2008.

# Problem Solving

This deployment of variable tolling, collected completely electronically, is a four-year pilot project. Throughout the first year, the team encountered numerous obstacles, software bugs, hardware challenges and critical comments from the general public. As part of the philosophy for the pilot project, the team approached each problem as an opportunity to improve the system and make it more responsive to the unique needs of SR 167 and its commuters. Figure 14 contains a summary of the issues and solutions.

Issue	Solution
Driver complaints about restricted lanes	<ul style="list-style-type: none"> <li>- Public outreach messaging explains safety and flow benefits of restricted lanes</li> <li>- Lengthened northbound access point north of Highway 18</li> </ul>
Conservative algorithm caused toll rates to increase too fast and took too long to reduce	<ul style="list-style-type: none"> <li>- Adjusted the toll-rate-calculating algorithm</li> </ul>
Drivers unsure of where to exit HOT lanes in time to catch their highway off ramp	<ul style="list-style-type: none"> <li>- Additional signs now indicate where drivers should leave to catch their highway exit</li> </ul>
Some drivers do not understand HOT lane rules	<ul style="list-style-type: none"> <li>- Public outreach, including the Web, YouTube, media reports and correspondence, now explain the rules more clearly</li> <li>- New signs, "♦ or Good To Go!" helps explain that carpools ride free and solo drivers need a transponder</li> </ul>
Driver complaints about transponder shield cost	<ul style="list-style-type: none"> <li>- Public outreach and correspondence explains why WSDOT could not offer shields free of charge and how this is the most economical option available</li> </ul>
Driver complaints about shield placement	<ul style="list-style-type: none"> <li>- <i>Good To Go!</i> is investigating use of new transponders that can be removed and deactivated</li> </ul>
HOT lanes still have space available for more vehicles	<ul style="list-style-type: none"> <li>- Initiated promotional campaign with advertising at gas stations within HOT lanes corridor</li> <li>- HOT lane information added with an easier phone number to remember</li> </ul>

Figure 14: Issues and Solutions



Access information sign added by WSDOT in response to citizen requests



Informational sign used to inform drivers

## Conclusion

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HOT lanes on SR 167 are working. This technology is redefining the use of tolling on our highways and bridges by demonstrating that it's not only a means for funding infrastructure. Tolling now does what additional lane space alone cannot—it gets people safely to where they need to go when they cannot afford to be late.

In the first year of the pilot project, the HOT lane made SR 167 smarter and more efficient by opening road space that often went underused as an HOV lane even when the general purpose lanes were heavily congested. The HOT lane effectively manages the flow of additional traffic into the carpool lane when space is available. The system preserves free-flowing traffic conditions for carpools and buses at virtually all times, and smoothes traffic flow through the entire corridor.

## Next Steps

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The purpose of this four-year pilot project is to learn how HOT lanes and other forms of variable tolling could be used in Washington to make highways more efficient at moving people and reducing congestion. After the pilot period concludes in May 2012 it will take legislative action to maintain tolling authority on the SR 167 HOT lanes.

Assuming that the Legislature makes tolling authority permanent on SR 167, the southbound HOT lane will be extended south to 8th St. E. If authority is not granted, an HOV lane will be built instead. This additional work on SR 167 is scheduled to be completed in December 2014.

The pilot project on SR 167 is just one tolling application. Other versions, such as Express Toll Lanes, currently are being studied for use on other major highways in the Central Puget Sound region. The Legislature recently granted authorization for tolling on the SR 520 bridge. Variable tolling on the 520 bridge will use the same *Good To Go!* transponder that functions in the SR 167 HOT lanes and on the Tacoma Narrows Bridge. In addition, tolling on the SR 520 bridge will include license plate identification billing for vehicles not equipped with a transponder. Tolling on the bridge will differ from HOT lanes in that the toll rate will vary on a preset, time-of-day schedule, and all lanes in both directions on the bridge would be tolled. The WSDOT Web site contains updated information on future projects.



*Tolling on the SR 520 bridge (potential design)*

### **For more information**

**SR 167 HOT lanes Web page:**

[www.wsdot.wa.gov/projects/sr167/hotlanes](http://www.wsdot.wa.gov/projects/sr167/hotlanes)

**Tolling Web page:**

[www.wsdot.wa.gov/operations/tolling](http://www.wsdot.wa.gov/operations/tolling)

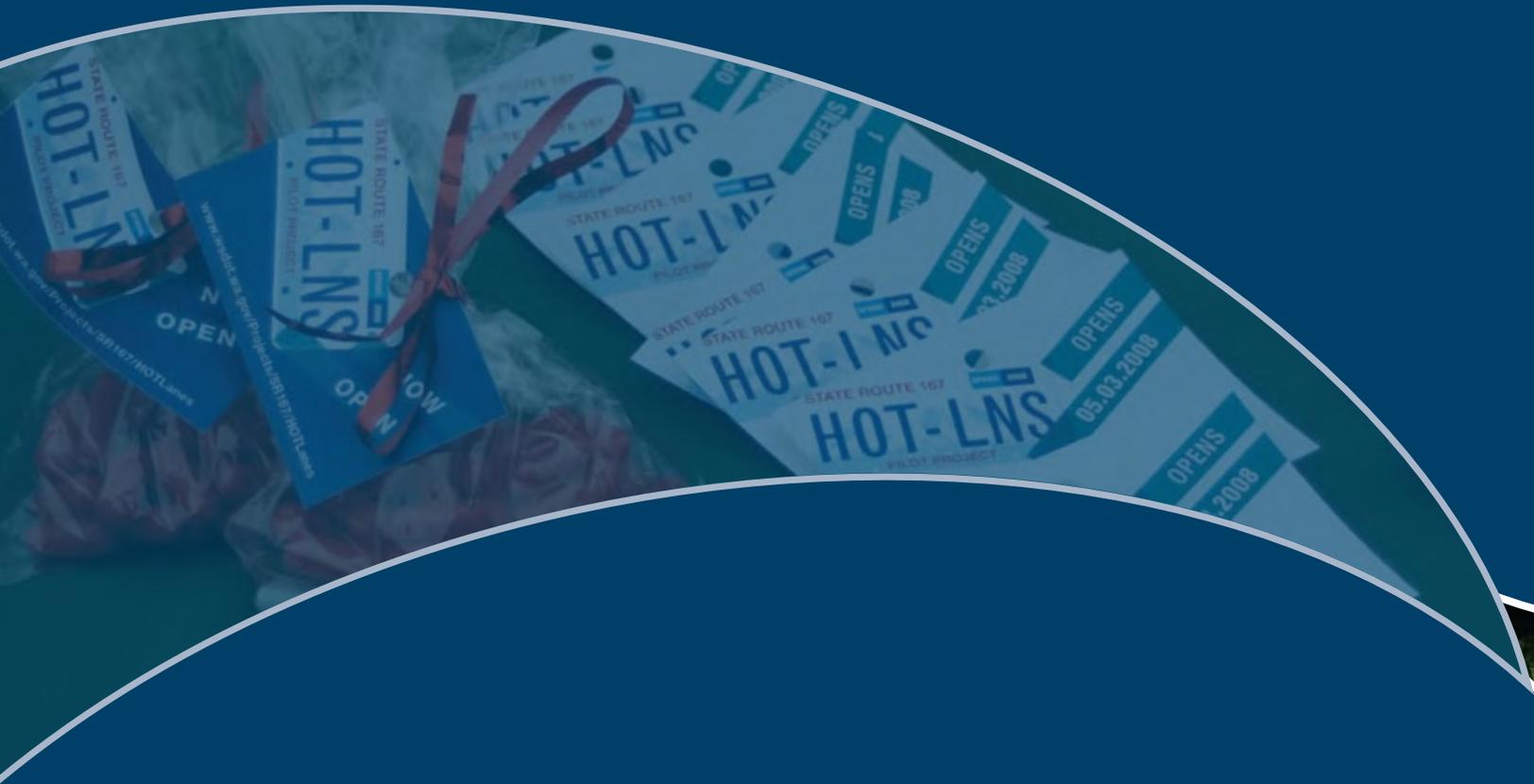
***Good To Go!* Web page and to open an account:**

[www.wsdot.wa.gov/goodtogo](http://www.wsdot.wa.gov/goodtogo)

### **Contact information**

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