

Tolling Interstate 405 Needs a Closer Look

Converting general purpose lanes to toll lanes would improve travel time for payers but reduce service levels for everyone else

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House Bill 2941 was proposed during the current Legislative Session. The bill would authorize the use of express toll lanes on Interstate 405 (I-405).¹ The bill is vague and presumably relies on a study that does not adequately compare toll lanes to a no-build option. The legislature should request a full and complete comparison to a no-build option before authorizing the Washington State Department of Transportation (WSDOT) to build express toll lanes on I-405.

Key Findings on HB 2941

- Defers some major policy decisions to the Executive Branch
- Fails to adequately compare tolled alternative to a no-build option or to the adopted Master Plan for I-405
- Underestimates performance of general purpose lanes
- Likely increases traffic congestion in the non-tolled lanes
- Appears to allow toll revenue collected from drivers to be used for public transit
- Overestimates toll revenue because of the state law to reduce how much people drive
- Jeopardizes the state's ability to bond against toll revenue because of state law to reduce how much people drive

Background on HB 2941

The bill directs the WSDOT to build express toll lanes, also known as High Occupancy Toll (HOT) lanes on I-405, from the I-5 interchange on the north end to NE 6th Street in Bellevue. The bill requires the tolls to fluctuate based on traffic volumes, to guarantee an average vehicle speed above 45 miles per hour in the tolled lanes at least ninety percent of the time during peak hours.

The bill directs the Washington Transportation Commission to set the toll amounts and clarifies that toll revenues would be used as defined by the state's tolling policy found in the Revised Code of Washington (RCW).

HB 2941 also requires the WSDOT to monitor the performance of the managed lanes and to conduct a more detailed traffic, revenue and finance study on extending the express toll lanes continuously throughout the entire 40 mile stretch of both State Route 167 (SR-167) and I-405.

¹ HB 2941, 2009-2010 legislative session, Washington State Legislature, at www.apps.leg.wa.gov/billinfo/summary.aspx?bill=2941&year=2009.

Analysis

The language of HB 2941 is somewhat vague and leaves a number of important details unanswered. The bill does not identify the number of lanes to be tolled or define a start or completion date for the project. The bill also does not define which hours of the day are considered peak times or when tolls would begin or end. The bill also fails to state whether improving mobility for the public or gaining revenue for the state is the primary goal of building express toll lanes.

Presumably, HB 2941 leaves these decisions and others to the WSDOT, which is a cabinet level agency. This means the bill would authorize the governor to answer these policy questions unilaterally, through the implementation process.

Last year, the WSDOT completed an Eastside Corridor Tolling Study that assumed some answers to these and other questions. WSDOT's study evaluated five tolling scenarios along the I-405 and SR-167 corridor. According to state officials, HB 2941 implements part of the first tolling scenario described by this study.²

While it appears HB 2941 implements a portion of the Eastside Corridor Tolling Study, the WSDOT and ultimately the governor are under no legal obligation to follow it. The legislation does not refer to the WSDOT study in any way and therefore leaves a broad amount of power to the executive branch to implement express toll lanes on I-405.

In a separate study adopted in 2002, the I-405 Corridor Master Plan calls for the WSDOT to widen I-405 by up to two lanes in each direction. I-405 carries about 800,000 people per day and once completed, the corridor will be able to carry 1.54 million people each day.³

One of these projects includes fixing the "Kirkland Crawl," a well known chokepoint along I-405 in Kirkland. In 2007, the WSDOT added a new lane between NE 85th street and NE 124th street and in 2009, the agency began its second phase by continuing the additional lane up to SR 522.

If HB 2941 passes and assuming the WSDOT would follow the Eastside Corridor Tolling Study options, the agency would convert this newly created general purpose lane into a HOT lane, extending between State Route 520 and State Route 522.⁴ The WSDOT would also convert the existing HOV lane between downtown Bellevue and the interchange of I-5 and I-405 in each direction.⁵

Overall, this would create two managed toll lanes between Bellevue and SR-522 in each direction, and a single managed toll lane between SR-522 and the I-5 interchange further north in each direction.

As mentioned, the Eastside Corridor Tolling Study evaluates five options for creating express toll lanes on I-405 and SR-167. Yet, the study does not compare these options with a no-build alternative or with the I-405 Corridor Master Plan, which has a record of decision. This means there is no objective baseline to determine whether the driving public would be better or worse off with express toll lanes.

² Based on phone conversations with committee staff in the Washington State House of Representatives and officials from the Washington State Department of Transportation, February, 2010.

³ I-405 Corridor Program, The End Result: Every Trip Faster and Safer, Washington State Department of Transportation, at www.wsdot.wa.gov/projects/I405.

⁴ "Planning Level Traffic and Revenue Study," Appendix 2b, Final Draft, I-405/SR 167 Express Toll Lanes, Washington State Department of Transportation, December, 2009, at www.wsdot.wa.gov/NR/rdonlyres/EBD4BC88-9606-4388-92BA-B862AA566CEC/64574/App2b_WSA_I405SR167ExpressTollLanesPreliminaryTraf.pdf.

⁵ Ibid.

While it is near impossible to make an informed judgment on the performance of express toll lanes without an adequate comparison to a no-build option, there are some clues that offer a glimpse of what motorists might expect.

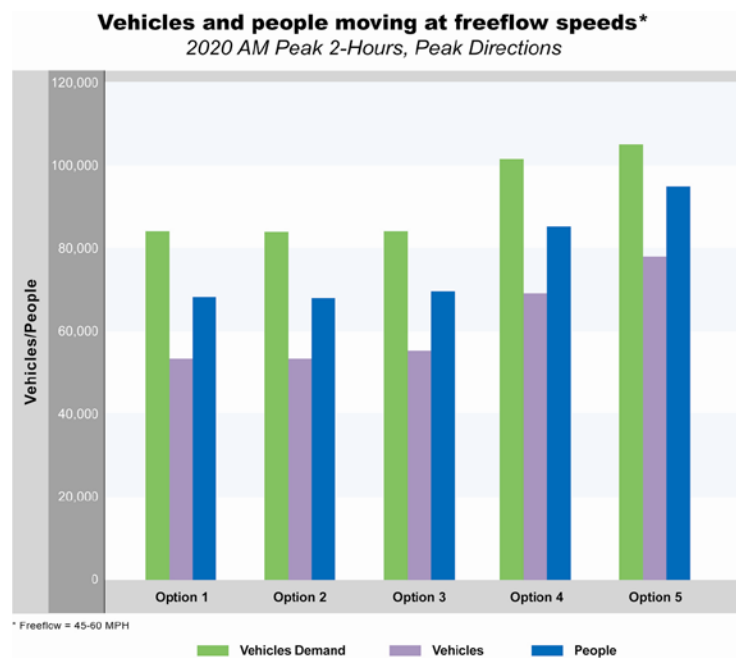
According to the Eastside Corridor Tolling study, the average toll on drivers would be \$3.90 (2008 dollars)⁶ or \$5.25 (2020 dollars)⁷ in each direction by 2020. By comparison, in 2008, the average toll drivers paid on the HOT lane pilot project on State Route 167 was only \$1.00 each way.⁸ The higher average toll amount on I-405 suggests there will be almost four times greater traffic demand in the non-tolled lanes than what drivers currently experience on SR-167.

The WSDOT study does contain some brief references to whether a general purpose configuration would perform better than a tolled system, but they are vague, incomplete and very misleading. The authors casually point to a couple of charts that seem to show creating express toll lanes would carry more vehicles and people (also known as throughput) than keeping the lanes as they currently exist.

According to one of the charts, a non-tolled scenario would only move about 35,000 cars at free flow speeds (45-60mph), compared to about 55,000 cars under the tolled configuration in Option 1.⁹ Yet, the study's analysis completely ignores the vast majority of other drivers traveling through the same corridor at less than 45 miles per hour.

Accounting for all of the vehicles suggests that converting a general purpose lane into a HOT lane would move fewer cars through the corridor, although the remaining cars would travel at higher speeds. It also suggests that converting a general purpose lane into a HOT lane would likely increase congestion in the remaining two un-priced lanes.

The adjacent chart is from the Eastside Corridor Tolling Study and estimates vehicle demand in the corridor as it compares to the portion of cars traveling at free flow speeds under the tolled scenarios.¹⁰



In each case, vehicle demand is greater than the ability of each tolled option to move them at free flow conditions. This means the un-priced general purpose lanes would experience higher vehicle demand and possibly greater traffic congestion.

⁶ Planning Level Traffic and Revenue Study, Appendix 2a, Final Draft, I-405/SR 167 Express Toll Lanes, Washington State Department of Transportation, December, 2009, at www.wsdot.wa.gov/NR/rdonlyres/EBD4BC88-9606-4388-92BA-B862AA566CEC/64573/App2a_Final_TrafficRevenueSummary.pdf.

⁷ The tolling study assumes an inflation rate of 2.5% per year.

⁸ SR 167 HOT Lanes Pilot Project, First Annual Performance Summary, May 2008-April 2009, Washington State Department of Transportation, at www.wsdot.wa.gov/NR/rdonlyres/31FB3D24-79CC-4332-82F7-EBECEBE1CA71/0/HOT-LanesAnnualReport2009.pdf.

⁹ Planning Level Traffic and Revenue Study, Appendix 2a, Final Draft, I-405/SR 167 Express Toll Lanes, Washington State Department of Transportation, Figure 20, December, 2009, at www.wsdot.wa.gov/NR/rdonlyres/EBD4BC88-9606-4388-92BA-B862AA566CEC/64573/App2a_Final_TrafficRevenueSummary.pdf.

¹⁰ Planning Level Traffic and Revenue Study, Appendix 2a, Final Draft, I-405/SR 167 Express Toll Lanes, Washington State Department of Transportation, Figure 19, December, 2009, at www.wsdot.wa.gov/NR/rdonlyres/EBD4BC88-9606-4388-92BA-B862AA566CEC/64573/App2a_Final_TrafficRevenueSummary.pdf.

Furthermore, in analyzing the tolled options in the Eastside Corridor Tolling Study, Dr. Bill Eager, an independent transportation planner with TDA, INC., estimates that in the peak hours, a managed toll lane would carry one third to one half as many vehicles as an adjacent general purpose lane.¹¹ Eager goes further and suggests that converting all lanes to general purpose would improve the freeway's overall level of service.¹²

In part, the WSDOT and the Eastside Corridor Tolling Study relies on the experience of the pilot HOT lane project on SR-167. However, there is a big difference between that project and the I-405 proposal; the WSDOT did not take away an existing general purpose lane on SR-167. Generally, converting an underutilized HOV lane with excess carrying capacity into a HOT lane allows more vehicles to move through a corridor at higher speeds, making everyone better off. But restricting an existing general purpose lane, artificially constrains the available lane capacity for the rest of us, which could lead to higher traffic congestion levels.

Ironically, the SR-167 project also highlights the underperformance of HOT lanes when compared to general purpose lanes. The WSDOT summary shows the GP lanes on SR-167 carries about 1,600 cars per lane during the peak hour.¹³ The same report shows the HOT lane only carries about 960 cars per lane, during the peak hour.¹⁴ In fact, the HOT lane only manages to shift about 160 cars (5 percent) from the two general purpose lanes during the peak hour.¹⁵

More data and an objective comparison with a no-build option should be studied before drawing any conclusions from these results, but all of this raises the question of how to define success: are motorists better or worse off with a two tiered road system that causes service levels on the lower tier to deteriorate? In other words, are motorists better off moving fewer cars at higher speeds or moving more cars at lower speeds?

State officials seem to have decided that moving fewer cars at higher speeds is better. Further, the revenue potential of creating such an express toll system probably had a lot to do with how they arrived at their position.

Either way, the legislature should request a full and complete comparison to a no-build option before authorizing the WSDOT to build express toll lanes on I-405.

HB 2941 would also charge a toll for vehicles with two passengers wanting to use the HOT system. This means only HOV +3 would be able to use the HOT lanes free of charge. Currently, the pilot project on SR-167, the state's only HOT lane system, allows HOV +2 to use the managed lanes without incurring a toll.

The bill also defers decisions on the use of the toll revenue collected from drivers to the state's current tolling policy, found in RCW 47.56.820. The policy states that toll revenue must be used only on the corridor from which it is collected and can be spent on the following:

1. Operating costs, maintenance, preservation, administration and collection enforcement of the toll facility.
2. Debt and interest on the toll facility.
3. Operations of conveyances of people or goods.
4. And any other improvements to the toll facility.

¹¹ Based on research completed by Dr. Bill Eager, TDA, INC., Seattle, Washington.

¹² Ibid.

¹³ SR 167 HOT Lanes Pilot Project Operations Summary, May 3, 2008 – July 31, 2008, Washington Department of Transportation, at www.wsdot.wa.gov/NR/rdonlyres/AE298EDC-653B-44A4-B172-013677EEBBC1/0/SR167HOT3monthRpt.pdf.

¹⁴ Ibid.

¹⁵ Ibid.

It is unclear whether these activities must be funded in this particular order but having the ability to fund the “operations of conveyances of people or goods” indicates that state officials could use toll revenue for public transportation. Using money collected from drivers to fund public transit violates the spirit of the 18th Amendment to the state constitution, which protects gas tax revenues for roads and highway purposes. If drivers are paying the toll, then drivers should receive the benefits. Furthermore, public transit is already publicly subsidized through higher sales taxes.

The Eastside Corridor Tolling Study also makes a faulty assumption, which could impact the results of their findings. The study assumes, “No limiting policy would be in effect to drastically reduce vehicle traffic and/or vehicle usage.”¹⁶ Yet such a policy does exist. In 2008, the legislature passed HB 2815, which creates a statewide goal to reduce how much people drive by 18 percent by 2020, 30 percent by 2035 and 50 percent by 2050.¹⁷

If the state is able to accomplish these targets, the vehicle and revenue projections found within the I-405 tolling study would be significantly lower than the study estimated.

It is neither likely nor desirable for the state to reduce how much people drive but having such a law on the books undermines the reliability of a revenue stream collected from tolls and could shake the confidence of investors looking to purchase bonds against them.

Conclusion

Managing lanes through variable pricing can be a fair and effective method to improve traffic volumes, if done properly. The current bill is vague and presumably relies on a study that does not completely compare any of the tolled scenarios to a no-build option. It is impossible to accurately judge whether motorists would be better or worse off with this particular proposal. The legislature should request a full and complete comparison to a no-build option before authorizing the WSDOT to build express toll lanes on I-405.

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¹⁶ Appendix 2a, Final Draft, I-405/SR 167 Express Toll Lanes, Planning Level Traffic and Revenue Study, Washington State Department of Transportation, December, 2009, at www.wsdot.wa.gov/NR/rdonlyres/EBD4BC88-9606-4388-92BA-B862AA566CEC/64573/App2a_Final_TrafficRevenueSummary.pdf

¹⁷ House Bill 2815, 2007-2008 legislative session, Washington State Legislature, at www.apps.leg.wa.gov/billinfo/summary.aspx?bill=2815&year=2007