

I-405 Express Toll Lanes Operational Options



Washington State Transportation Commission

March 15, 2016

Recap: Early operations

Early successes

- ✓ Initial express toll lane usage is higher than expected
- ✓ Transit, vanpools and carpools have a more reliable trip in both directions
- ✓ I-405 is moving more vehicles during peak commutes
- ✓ Southbound traffic is better in general purpose and express toll lanes
- ✓ Northbound express toll lane traffic has improved overall compared to HOV
- ✓ Long and medium trips are receiving faster travel times

Challenges

- ✓ Northbound general purpose traffic is more congested in some locations
- ✓ Weekend congestion has developed in spots along corridor
- ✓ Some shorter trips are not seeing the same travel time benefits as longer trips

Continuing to Monitor

- ✓ Initial weekday carpool use was lower than projected, but has been steadily increasing
- ✓ Toll rates have been reaching the maximum toll rate

Operations Options Considered

Weekday hours of express toll lane operation

- 5:00 am to 7:00 pm
- 5:00 am to 8:00 pm

Nighttime operation options

- Static “Open to All”
- Dynamic “\$0 Toll”

Weekends operation options

- Static “Open to All”
- “HOV 2+, No Pass Required”
- Dynamic “\$0 Toll”

Holidays to be treated same as weekends

- Six major Federal holidays (same as current WAC)
- Ten holidays (Federal)

Ramp Access - Note

Direct Access ramps at NE 6th St. in Bellevue and NE 128th St. in Kirkland require special rules.

- Both direct access ramps were approved by FHWA as managed facilities through either occupancy designation or pricing.
- The NE 128th ramps were funded by Sound Transit (ST) using Federal Transit Administration (FTA) funds
 - Agreement with ST and FTA restricts use of NE 128th ramp by general purpose traffic, although tolled vehicles are allowed.
 - Agreement requires ramps to be restricted to HOV-only when non-tolled general purpose traffic is using the express toll lanes

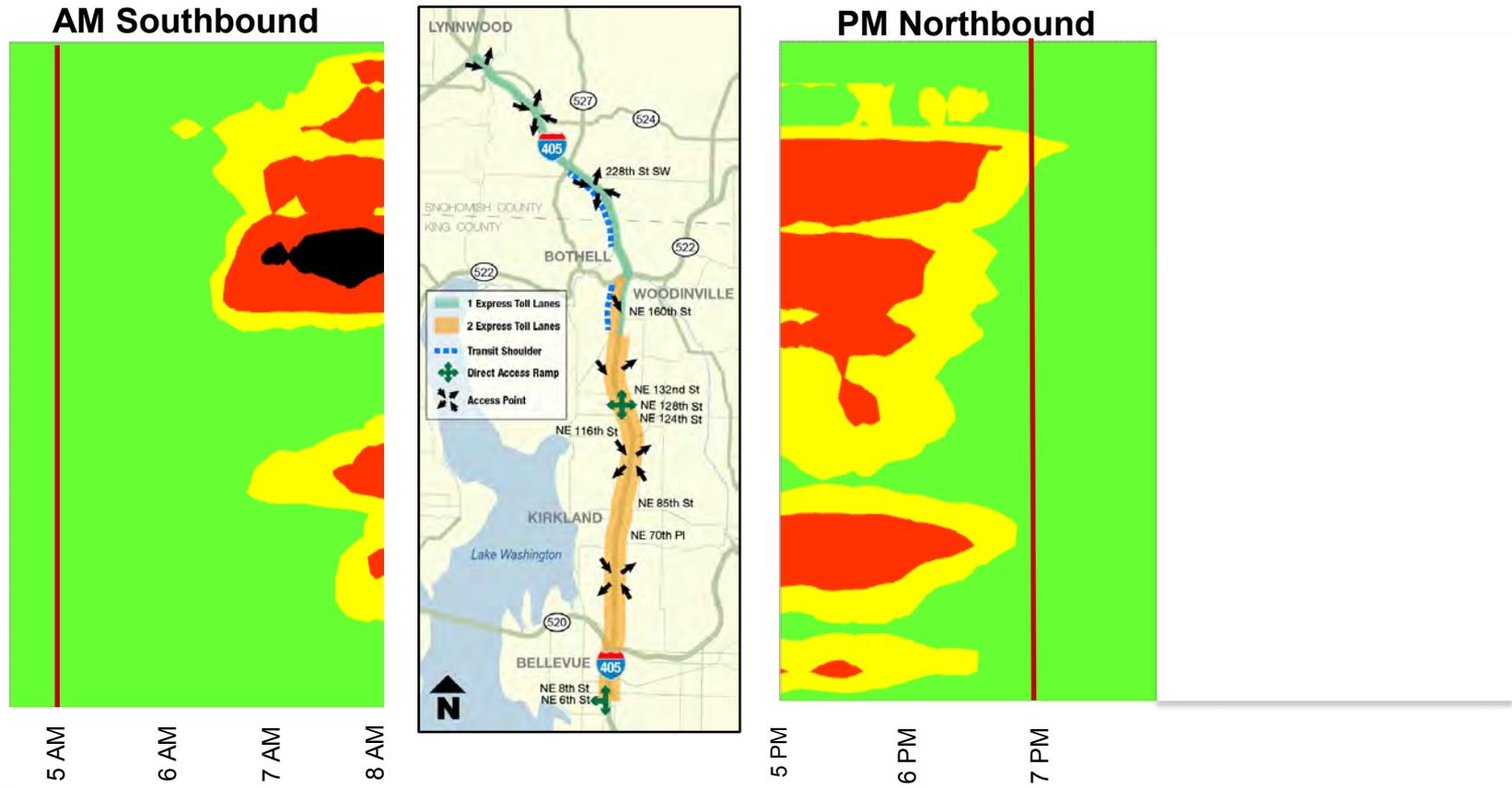


Weekday Express Toll Lane Hours of Operation

Nighttime Hours Data - Congestion

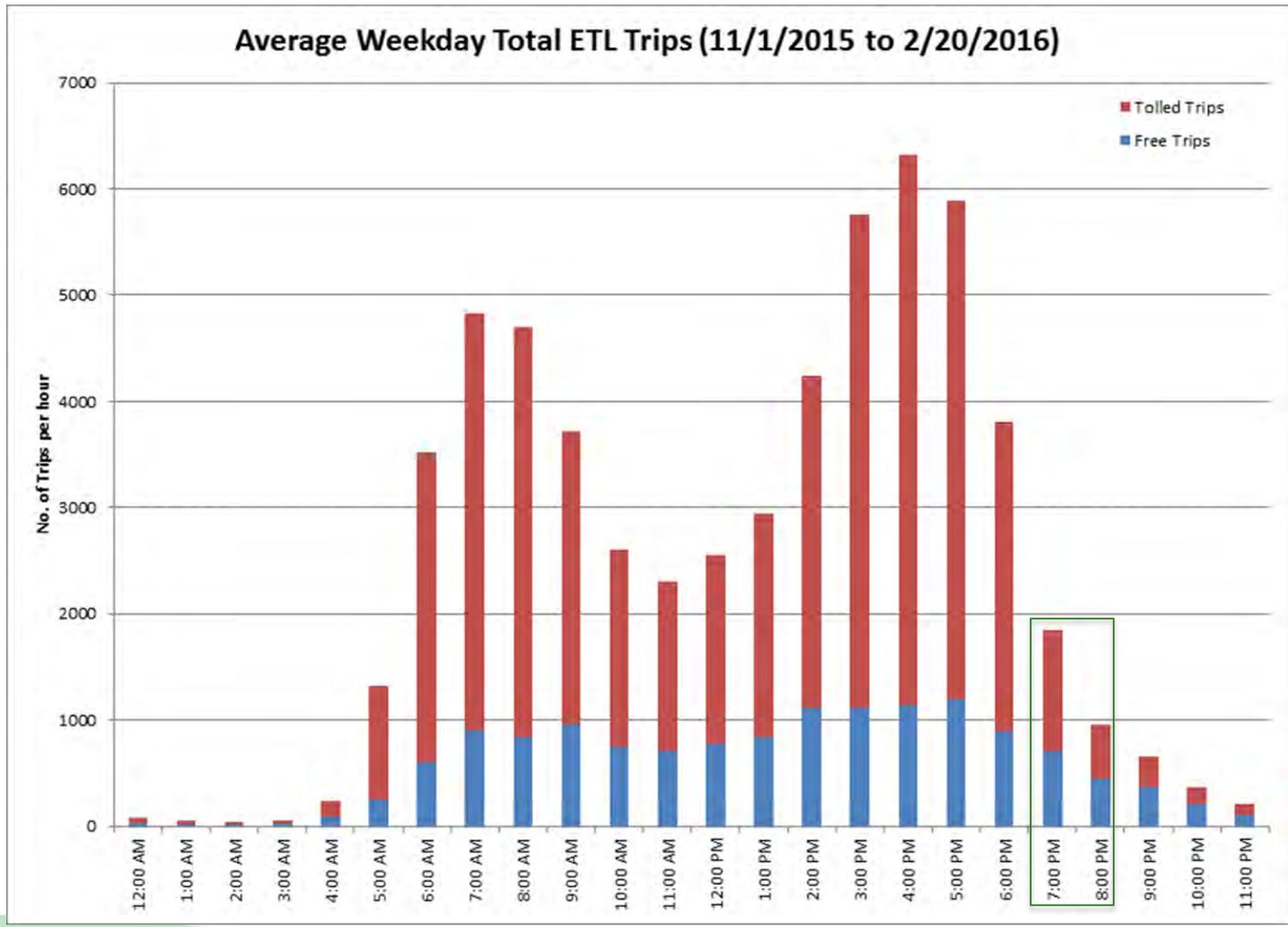
General purpose lane performance – Nov. 2015 – Feb. 2016

- Southbound general purpose congestion starts after 5 am
- Northbound general purpose congestion rarely continues after 7 pm
- Opening general purpose capacity at 7 pm dissipates traffic congestion



Nighttime Hours Data – ETL Volumes by Hour

Total System Volumes Nov. 2015 – Feb. 2016



Evaluation of Hours of Operation Options

Options Considered

5:00 am to 7:00 pm – has potential to reduce extent of afternoon peak period

5:00 am to 8:00 pm – could maximize transit reliability on severely congested days

- Traffic Impacts:

- 7:00 opening has slight potential for minor congestion reduction in GP, helping dissipate congestion in the single-lane segment north of Bothell
- 8:00 opening is unlikely to affect traffic or enhance reliability

- System Consistency:

- 5am to 7pm is consistent with I-405 HOV lanes and SR 167 HOT Lane hours

- Transit Considerations:

- Current transit service is limited to peak periods, and service beyond 7pm is scarce

- Revenue Impacts:

- Little difference between options

- Implementation Cost/Timeframe:

- Little to no difference between options

WSDOT Recommendation:

Operating hours of 5:00 am to 7:00 pm

Night-time Operations

Nighttime Operations: Open to All

Description

ETLs would be open to all outside of tolling hours of operation, with no pass required.

- Traffic Impacts:
 - Potential for reduced general purpose congestion in the 7:00 pm hour
 - Potential for increased northbound congestion in single lane ETL after 7:00 pm
- Implications to Existing Systems:
 - Consistent with I-405 HOV lanes and existing SR 167 HOT Lane hours
- Customer Expectations:
 - Customers are accustomed to the change in operations during the nighttime hours
- Revenue Impacts:
 - Estimated gross revenue reduction of 3 percent or \$600,000 annually
- Implementation Cost/Timeframe:
 - Minor system changes required to implement, low cost

Nighttime Operations: \$0 Minimum Toll

Description

Operate ETLs overnight with a \$0 toll rate that could increase to manage operations if conditions warrant. A \$0.00 rate would be displayed, along with a message saying that a toll pass is not required at a \$0 rate.

- Traffic Impacts:
 - Night congestion is usually incident-related. Switching from \$0.00 to \$0.75 at these times could significantly worsen GP congestion
- Implications to Existing Systems:
 - Inconsistent with the existing SR 167 HOT Lane operations
- Customer Expectations:
 - “\$0 Toll” would be a new message that has not been used in the region
 - Challenging to communicate if some segments are tolled and others are not
 - Could prompt requests to lower minimum toll at other times
- Revenue Impacts:
 - Estimated gross revenue reduction of 3 percent or \$600,000, annually
- Implementation Cost/Timeframe:
 - Up to 6 weeks to develop/test/implement system changes at a cost of \$30,000
 - Requires increased communication explain to drivers

Nighttime Operations: Open to All

Description

ETLs would be open to all outside of tolling hours of operation, with no pass required.

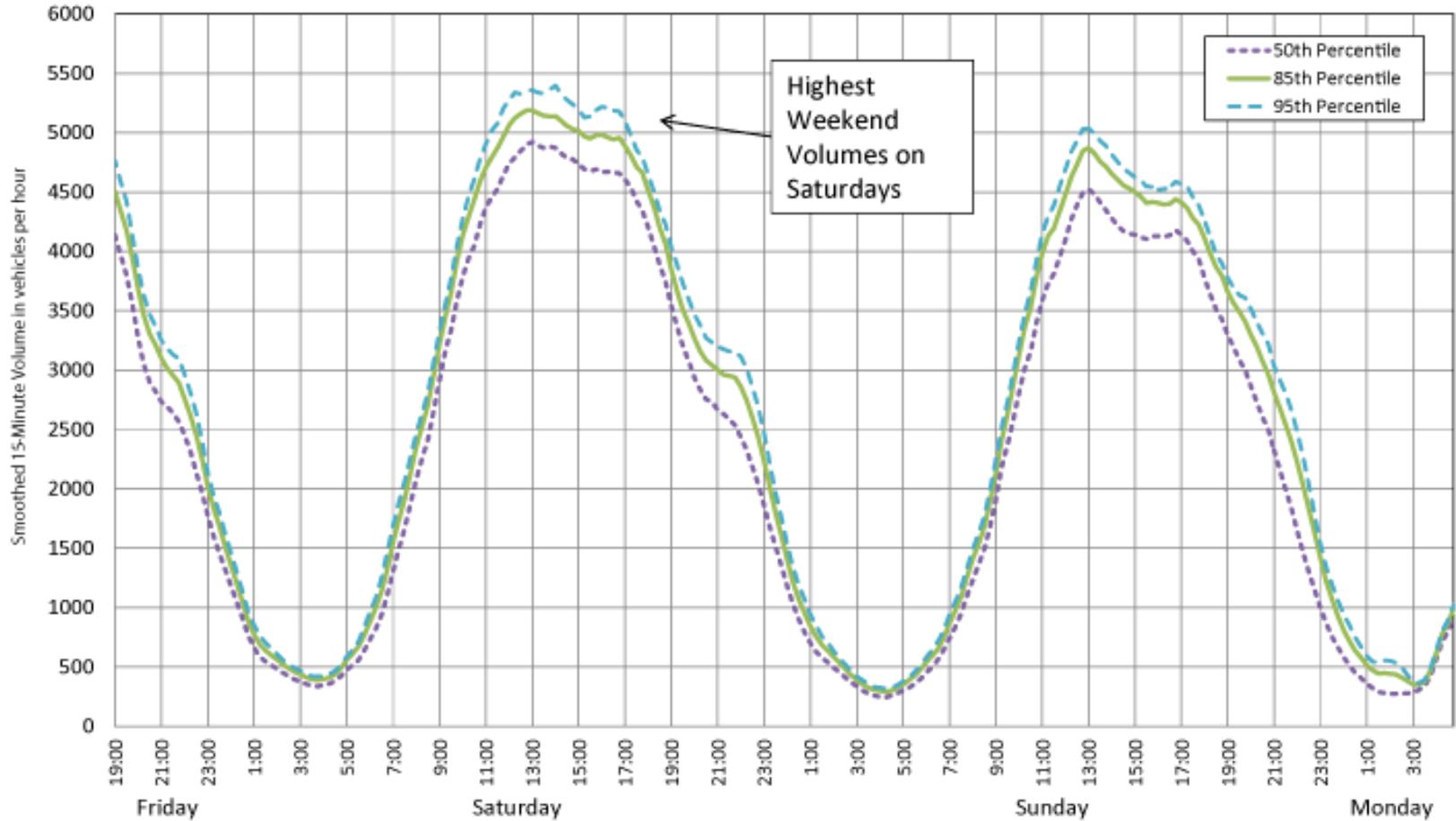
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- Implications to Existing Systems:
 - Consistent with I-405 HOV lanes and existing SR 167 HOT Lane hours
- Customer Expectations:
 - Customers are accustomed to the change in operations during the nighttime hours
- Revenue Impacts:
 - Estimated gross revenue reduction of 3 percent or \$600,000 annually
- Implementation Cost/Timeframe:
 - Minor system changes required to implement, low cost

WSDOT Recommendation:
Open to All 7:00 pm to 5 am

Weekend Operations

Weekend Traffic Volumes

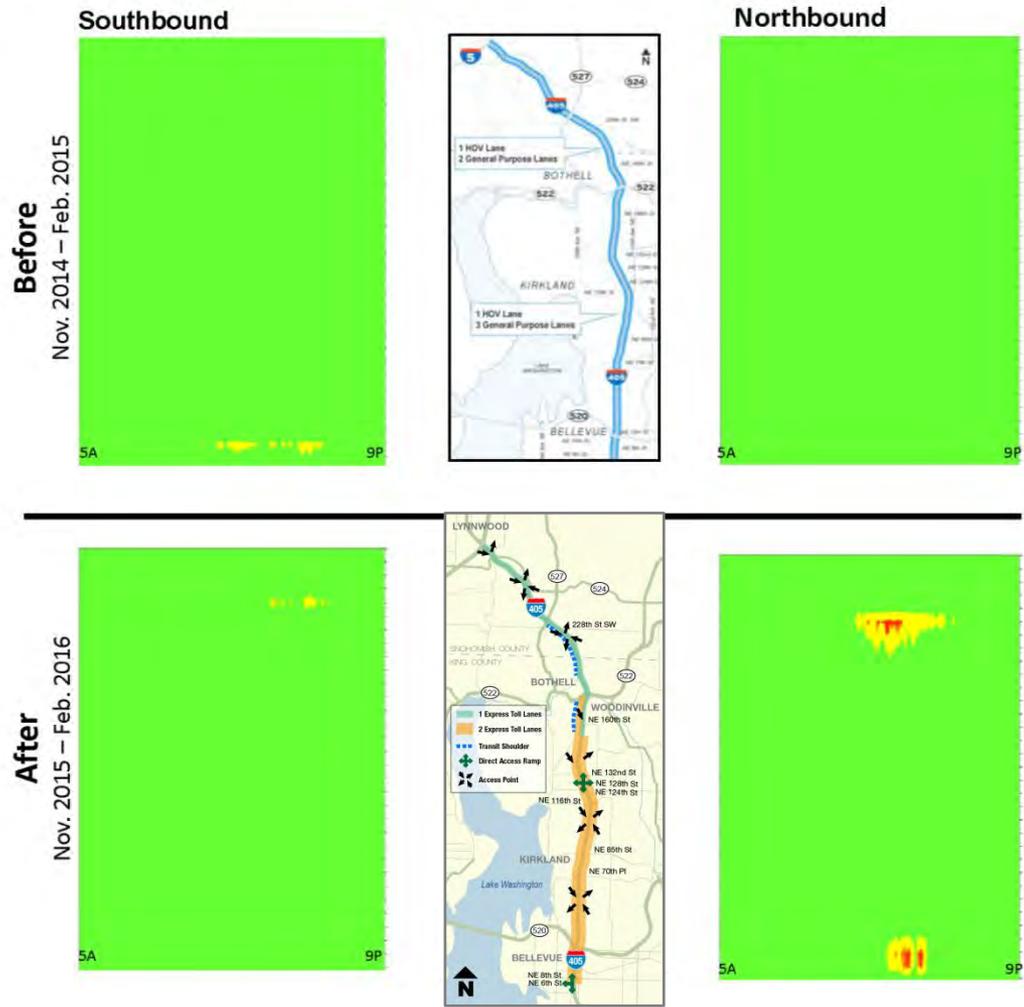
Total Volume Profiles: I-405 Northbound At NE 195th



Congestion on Saturdays

Before and after express toll lane implementation

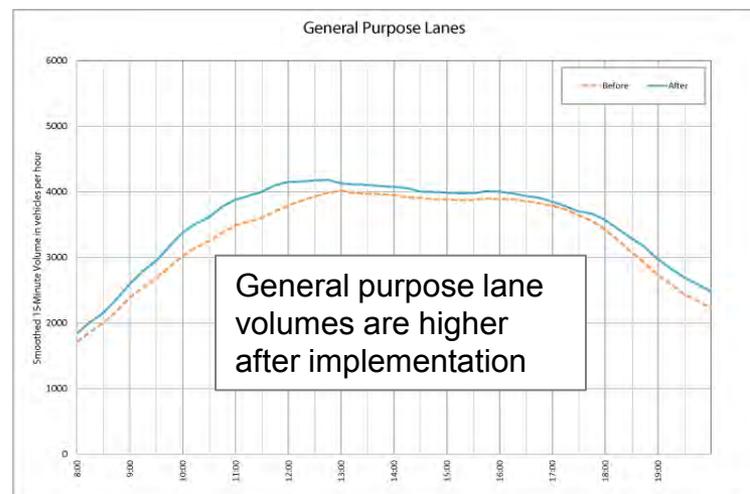
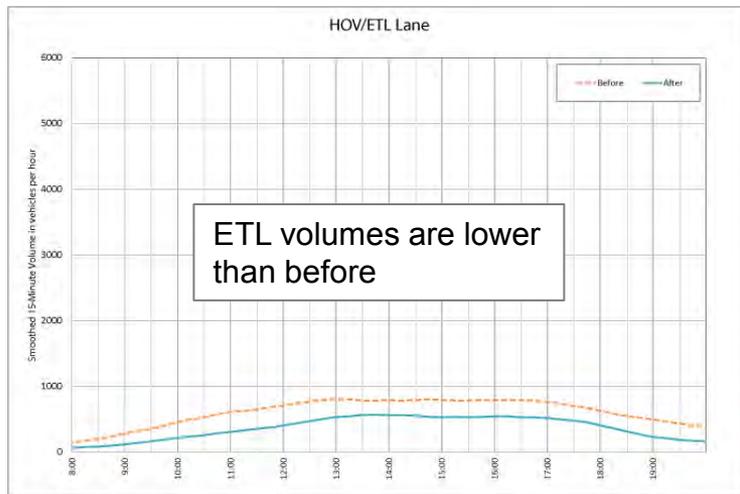
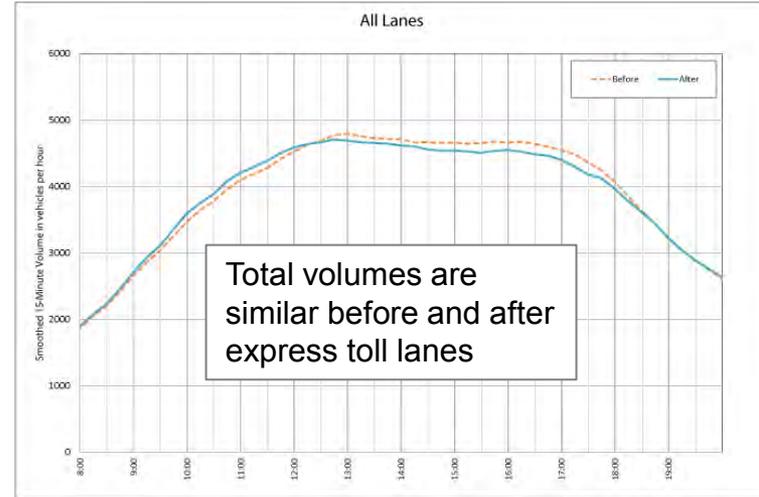
- Congestion occurs on Saturday in the general purpose lanes
- Some increase in traffic congestion, especially on northbound I-405



Weekend Traffic Volumes – Saturday

Northbound at NE 195th Street

- Overall volumes are similar before and after express toll lane implementation
- However, volumes shifted from the express toll lanes to the general purpose lanes. This created the weekend congestion.



Survey of I-405 weekend drivers

Methodology:

- Survey was fielded January 2016 to 1,402 King, Pierce, and Snohomish county residents using the ResearchNow Online Panel.
- 682 complete responses from residents who had driven both:
 - On I-405 between Bellevue and Lynnwood
 - On the weekend and within the past month

About the respondents:

- 52 percent of respondents have never used the express toll lanes on the weekend
- Only a portion used express toll lanes once (20 percent) or twice (13 percent)
- Top reasons drivers use I-405 on weekends are for discretionary trips:
 - Errands/shopping
 - Visit family or friends
 - Recreational activities

Survey of I-405 weekend drivers

Barriers to using the express toll lanes

- Perceived cost is the most common barrier. Top responses included:
 - Don't want to pay to use the express toll lanes
 - Don't think it's worth the cost.
 - Would use the express toll lanes if the tolls were less expensive.
 - Didn't know tolls are usually 75 cents on the weekends.
- While 57 percent have a Flex Pass for at least one vehicle, only 40 percent knew that two person carpools ride free on weekends with a Flex Pass.
- Drivers who did not have a Flex Pass cited concerns about the cost and steps involved in getting a Flex Pass. Top responses included:
 - Don't want to pay \$15 for a Flex Pass.
 - Don't want to pay \$30 in prepaid tolls to open *Good To Go!* account.
 - Vehicle is rarely driven on I-405.
 - Didn't know carpoolers travel free with a free Flex Pass.
 - Didn't know they can buy a Flex Pass at a retailer or at a customer service center.

Weekend Operations: Open to All

Description

The ETLs would be open to all to on weekends, no pass required.

- Traffic Impacts:
 - More even distribution of traffic across all lanes likely to reduce congestion
 - Single lane ETL segments may operate below free flow speeds at times
- Implications to Existing Systems:
 - Inconsistent with I-405 HOV lanes and existing SR 167 HOT Lane operations
- Customer Expectations:
 - Assuming nighttime would operate the same, this could provide a more clear message for drivers, the system operates Monday through Friday from 5am to 7pm and is “Open to All” all other hours, even without a pass
- Revenue Impacts:
 - Estimated gross revenue reduction of 10 percent or \$2 million annually
- Implementation Cost/Timeframe:
 - Minor system changes to implement, low cost

Weekend Operations: HOV 2+, No Pass Required

Description

ETLs would be HOV 2+ only (no pass required) on weekends between 5am and 7pm

- Traffic Impacts:
 - During first few months GP congestion would increase as tolled customers move to general purpose lanes, but HOV customers slowly return
 - Limited access points further constrain HOV2 entrance into the system
- Implications to Existing Systems:
 - Consistent with I-405 HOV lanes south between Renton and Bellevue
 - Inconsistent with SR 167 HOT Lane operations and weekday ETL operations
- Customer Expectations:
 - Current toll users lose access to lanes as well as travel time benefit
 - Changing HOV rules could be confusing to users. HOV eligibility to use the lanes would be different on different days and times of day.
 - Customers who obtained the Flex Pass strictly for the weekend HOV free trip may feel their purchase has lost value
- Revenue Impacts:
 - Estimated gross revenue reduction of 10 percent or \$2 million.
- Implementation Cost/Timeframe:
 - Requires additional funding for education and outreach costs requirements.

Weekend Operations: \$0 Minimum Toll

Description

Operate ETL from 5am to 7pm on weekends with a \$0 minimum toll rate to manage operations if conditions warrant. A \$0.00 rate would be displayed, along with a message saying that a toll pass is not required at a \$0 rate.

- Traffic Impacts:
 - Weekend congestion may be incident-related. Switching from \$0.00 to \$0.75 at these times could worsen GP congestion.
- Implications to Existing Systems:
 - Inconsistent with the existing SR 167 HOT Lane and weekday ETL operations
- Customer Expectations:
 - “\$0 Toll” would be a new message that has not been used in the region
 - Challenging to communicate if some segments are tolled and others are not
 - Could prompt requests to lower minimum toll at other times
- Toll Revenue Impacts:
 - Estimated gross revenue reduction of 10 percent or \$2 million
- Implementation Costs/Timeframe:
 - Up to 6 weeks to develop/test/implement system changes at a cost of \$30,000
 - Additional funding required for education and outreach costs

Weekend Operations: Open to All

Description

The ETLs would be open to all to on weekends, no pass required.

- Traffic Impacts:
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- Implementation Cost/Timeframe:
 - Minor system changes to implement, low cost

WSDOT Recommendation:
Open to All on weekends

Holidays

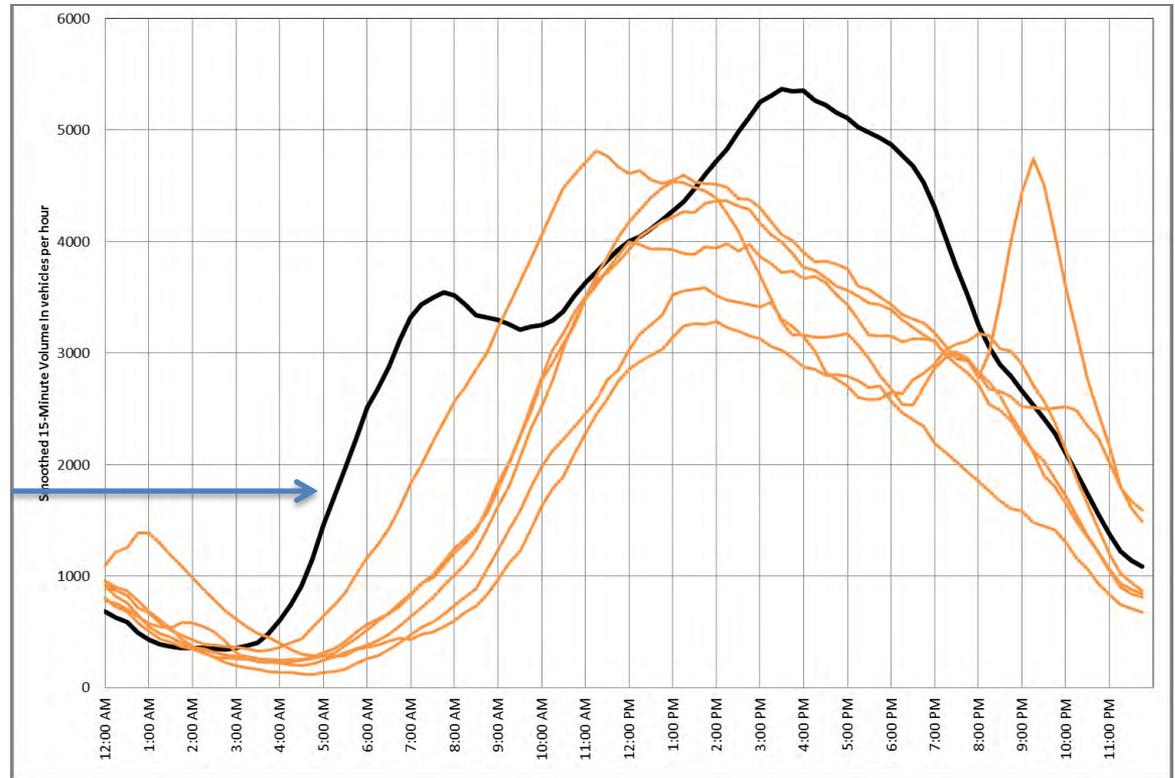
Traffic Volumes on Six Major Federal Holidays

Major Federal holidays include:

- New Year's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day

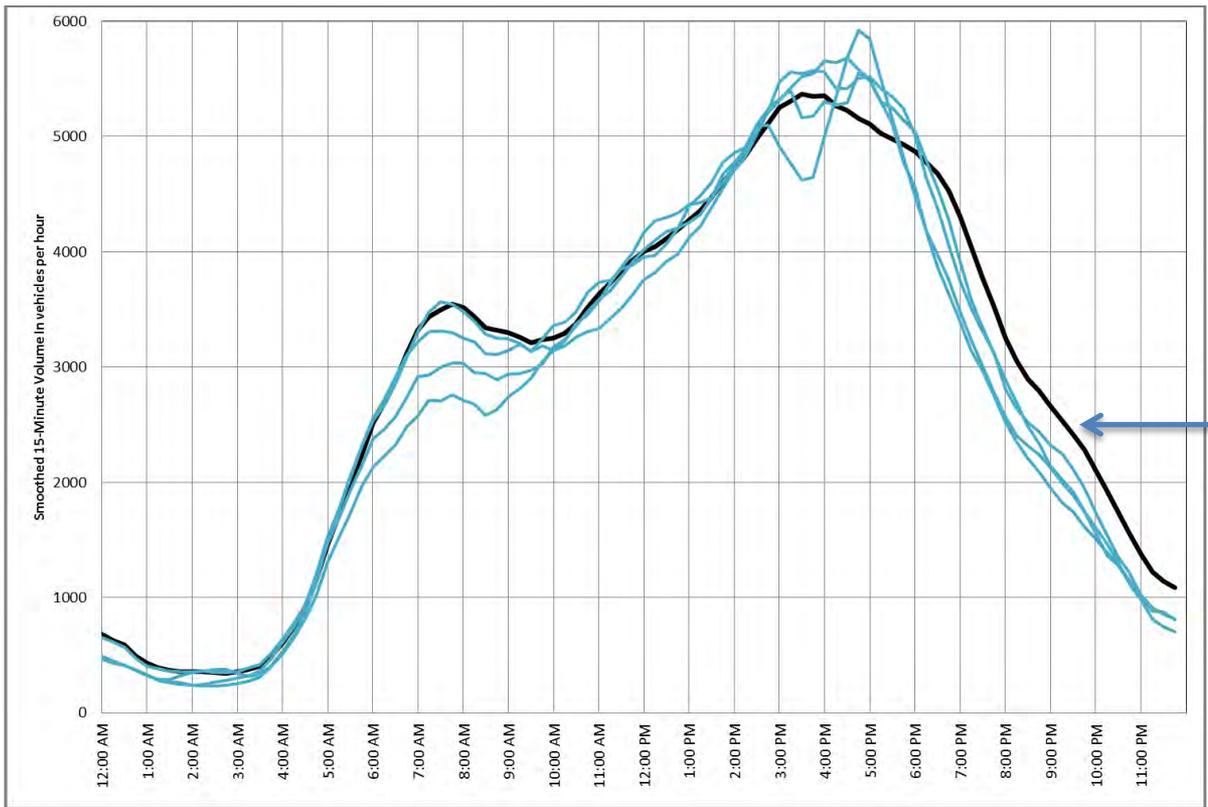
Traffic volumes are generally lighter than on these days

Typical weekday volumes



Traffic Volumes on Four Additional Federal Holidays

Traffic volumes on these days often exceeds average weekdays



← Typical weekday volumes

Holiday Operations: Six Federal Holidays

Description

Current I-405 rate-setting WAC treats observed holidays the same as weekends (providing exemptions for 2+ carpools all day)

- Traffic Impacts:
 - Based on historic traffic volumes NWR Traffic does not feel there would be any negative traffic impacts and no impact to transit operations
- Implications to Existing Systems:
 - Inconsistent with existing SR 167 HOT Lane operations
- Customer Expectations:
 - Drivers will likely expect operations consistent with weekend operations
 - Consistent with holidays for SR 520, and for I-405 2+ exemptions
- Toll Revenue Impacts:
 - Estimated gross revenue reduction of 0.4 percent or \$80,000 annually
- Implementation Cost/Timeframe:
 - No system changes needed

Holiday Operations: Ten Federal Holidays

Description

Operate identically to weekends on all Federal holidays as proposed by some legislators

- Traffic Impacts:
 - Likely to cause congestion on non-Federal holidays, when traffic can exceed normal weekday volumes
 - Transit agencies run full operation for some of these State holidays
- Implications to Existing Systems:
 - Inconsistent with existing SR 167 HOT Lane operations
- Customer Expectations:
 - Less certainty for customers about what days will be treated as holidays
- Toll Revenue Impacts:
 - Estimated gross revenue reduction of \$240,000, \$160,000 higher than federal holidays only
- Implementation Cost/Timeframe:
 - No system changes needed

Holiday Operations: Six Federal Holidays

Description

Current I-405 rate-setting WAC treats observed holidays the same as weekends (providing exemptions for 2+ carpools all day)

- Traffic Impacts:
 - Based on historic traffic volumes NWR Traffic does not feel there would be any negative traffic impacts and no impact to transit operations
- Implications to Existing Systems:
 - Inconsistent with existing SR 167 HOT Lane operations
- Customer Expectations:
 - Drivers will likely expect operations consistent with weekend operations
 - Consistent with holidays for SR 520, and for I-405 2+ exemptions
- Toll Revenue Impacts:
 - Estimated gross revenue reduction of 0.4 percent or \$80,000 annually
- Implementation Cost/Timeframe:
 - No system changes needed

WSDOT Recommendation:
Six Federal holidays

WSDOT Recommendation Summary

Weekday hours

- 5:00 am to 7:00 pm

Nighttime operations

- Static “Open to All”

Weekends operations

- Static “Open to All”

Holidays

- Six major Federal holidays (same as current WAC)

For more information

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