

# I-405 Express Toll Lanes Performance Update



**Patty Rubstello, P.E.**  
Assistant Secretary, Toll Division

**Kim Henry, P.E.**  
I-405 Project Director

**Bellevue City Council**  
January 25, 2015

# Our direction from RCW 47.56.880

*(as amended by EHB 1382 in 2011)*

- (4) The department shall monitor the express toll lanes project and shall annually report to the transportation commission and the legislature on the impacts from the project on the following performance measures:
- (a) Whether the express toll lanes maintain speeds of forty-five miles per hour at least ninety percent of the time during peak periods;
  - (b) Whether the average traffic speed changed in the general purpose lanes;
  - (c) Whether transit ridership changed;
  - (d) Whether the actual use of the express toll lanes is consistent with the projected use;
  - (e) Whether the express toll lanes generated sufficient revenue to pay for all Interstate 405 express toll lane-related operating costs;
  - (f) Whether travel times and volumes have increased or decreased on adjacent local streets and state highways; and
  - (g) Whether the actual gross revenues are consistent with projected gross revenues as identified in the fiscal note for Engrossed House Bill No. 1382 distributed by the office of financial management on March 15, 2011.
- (5) If after two years of operation of the express toll lanes on Interstate 405 performance measures listed in subsection (4)(a) and (e) of this section are not being met, the express toll lanes project must be terminated as soon as practicable.

# Key takeaways

- ✓ **Express toll lane usage initially is higher than expected.** Over one million monthly trips in the express toll lanes. Volumes in the express toll lanes are closer to those anticipated after two years of operation.
- ✓ **Carpool use is lower than expected, but has been increasing steadily.** While the ramp-up for tolled customers has been faster than expected, there is a be a ramp-up for carpoolers who must have three people during peak periods and a Flex Pass to travel toll-free.
- ✓ **Southbound traffic performance is better than before.** Volumes and travel times are improved for both general purpose and express toll lane customers.
- ✓ **Northbound traffic is better in some places, but not in others.** There are two key areas of concern that WSDOT is focusing on, both related to traffic capacity and operation rather than tolling:
  - **Merging traffic at SR 520 interchange**
  - **Bottleneck at SR 527 due to limited capacity**
- ✓ **Higher maximum toll rates have occurred more than predicted.** This is only true in segments where there is only a single express toll lane. Maximum rates occurred sooner than expected which is driven by higher initial use.
- ✓ **Weekend congestion has increased between Bothell and Lynnwood.** Express toll lane use is lower than previous HOV lane use on weekends. Speeds in the regular lanes are 4 minutes slower than last year. WSDOT is monitoring and considering solutions including additional outreach.

# Express toll lanes by the numbers

**1**  **Million+**

**trips** in  
express toll lanes each  
month since Sept, 2015

**600,000+**  
**unique users**  
**chose** to use the  
express toll lanes  
for **a faster trip**

**Flex Pass carpools**

**24%** weekdays

**45%** weekends

**experiencing faster  
commutes**



**14 minutes average  
time savings**

for drivers in express toll lanes



**7 minutes southbound  
travel time savings**

in the regular lanes

**92%** ETL users  
pay **\$4 or less**

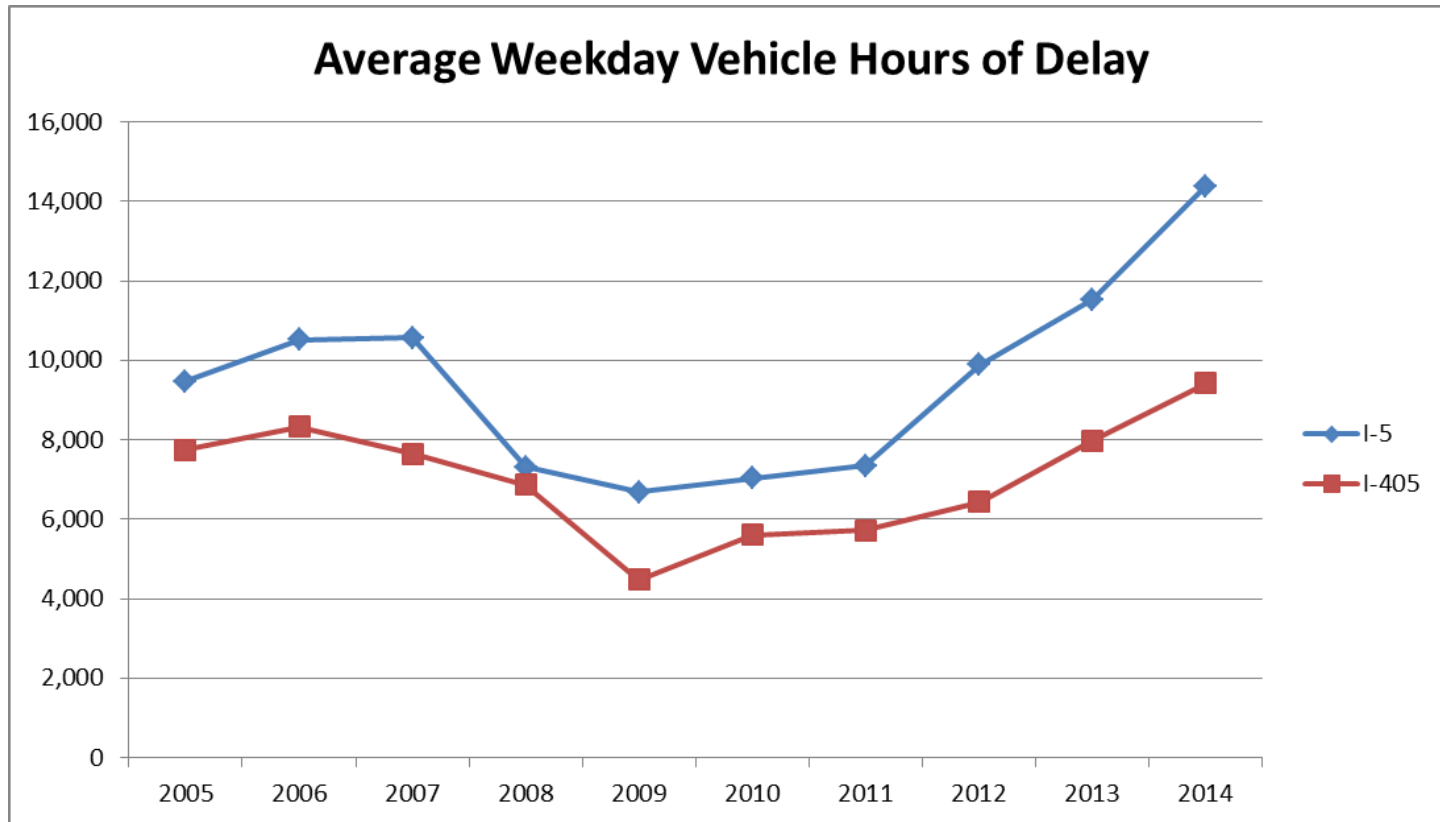
**75%** users  
pay **minimum rate  
of 75¢**

**170,000**

**Flex Passes distributed**  
since March 2015 launch

# Traffic volumes are increasing regionally

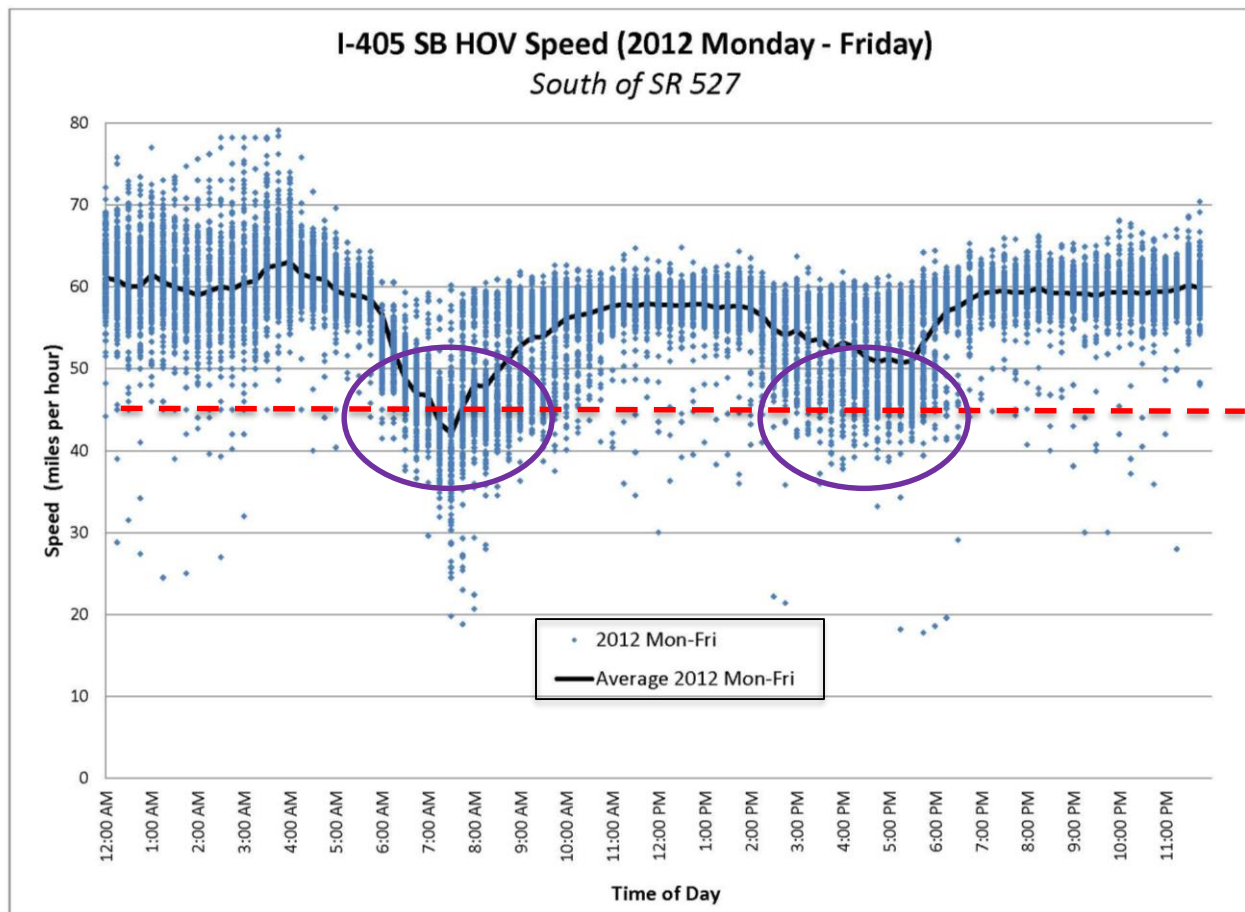
- As the economy has rebounded, we have seen increases in traffic volumes throughout Puget Sound and the I-405 corridor including the area south of the express toll lanes.
- The annual vehicle delay increased 46% between 2012 and 2014.





# Previous HOV system performance

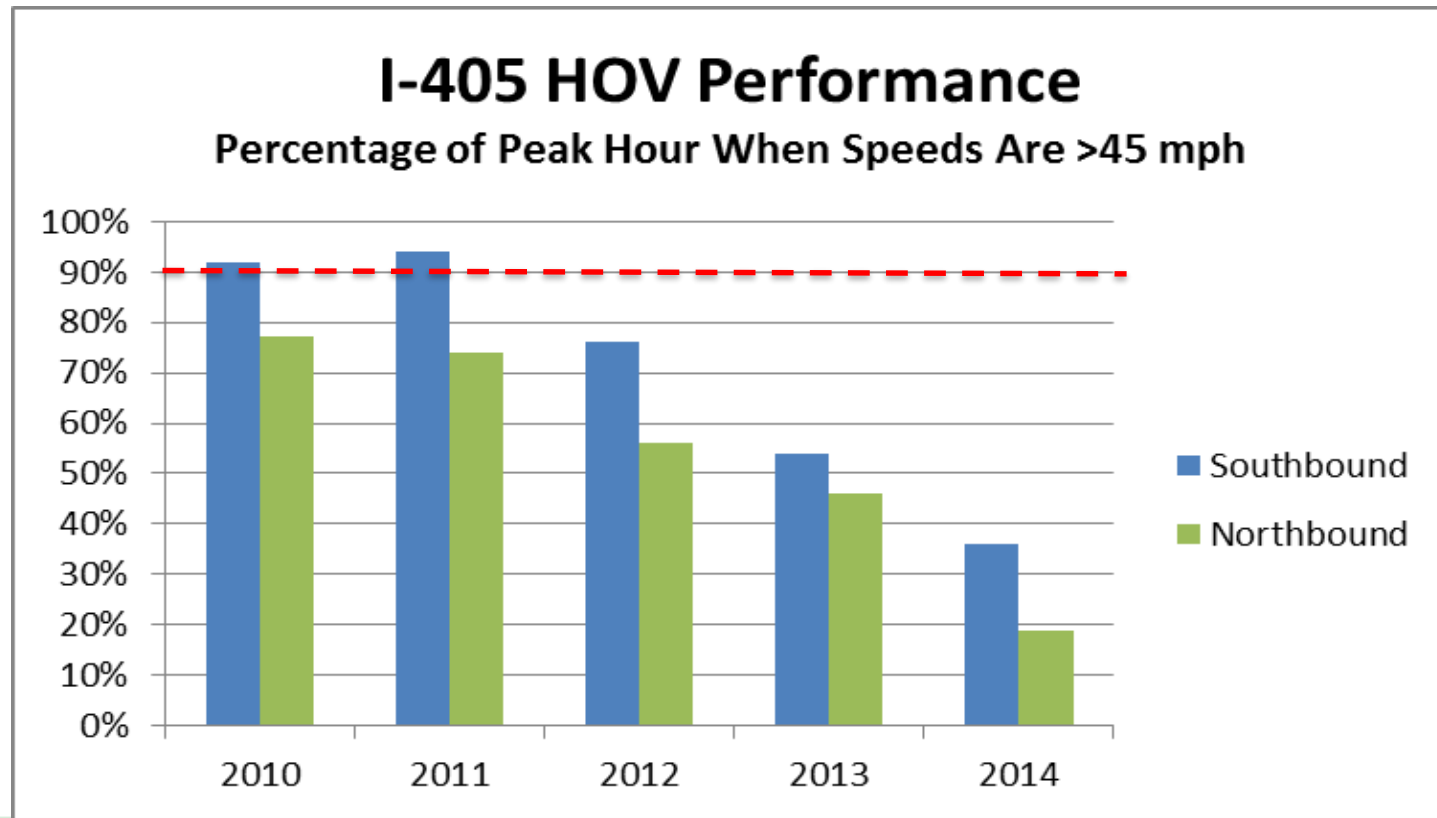
*This graph demonstrates that the previous **HOV lanes with the 2+ HOV requirement** were congested during peak travel times since **2012**.*



- Speeds were measured and plotted at 15 minute intervals for 2012
- Carpool lane speed degradation in both peak periods
- 200+ days below 45 m.p.h.

# I-405 HOV lanes have not been reliable since 2012

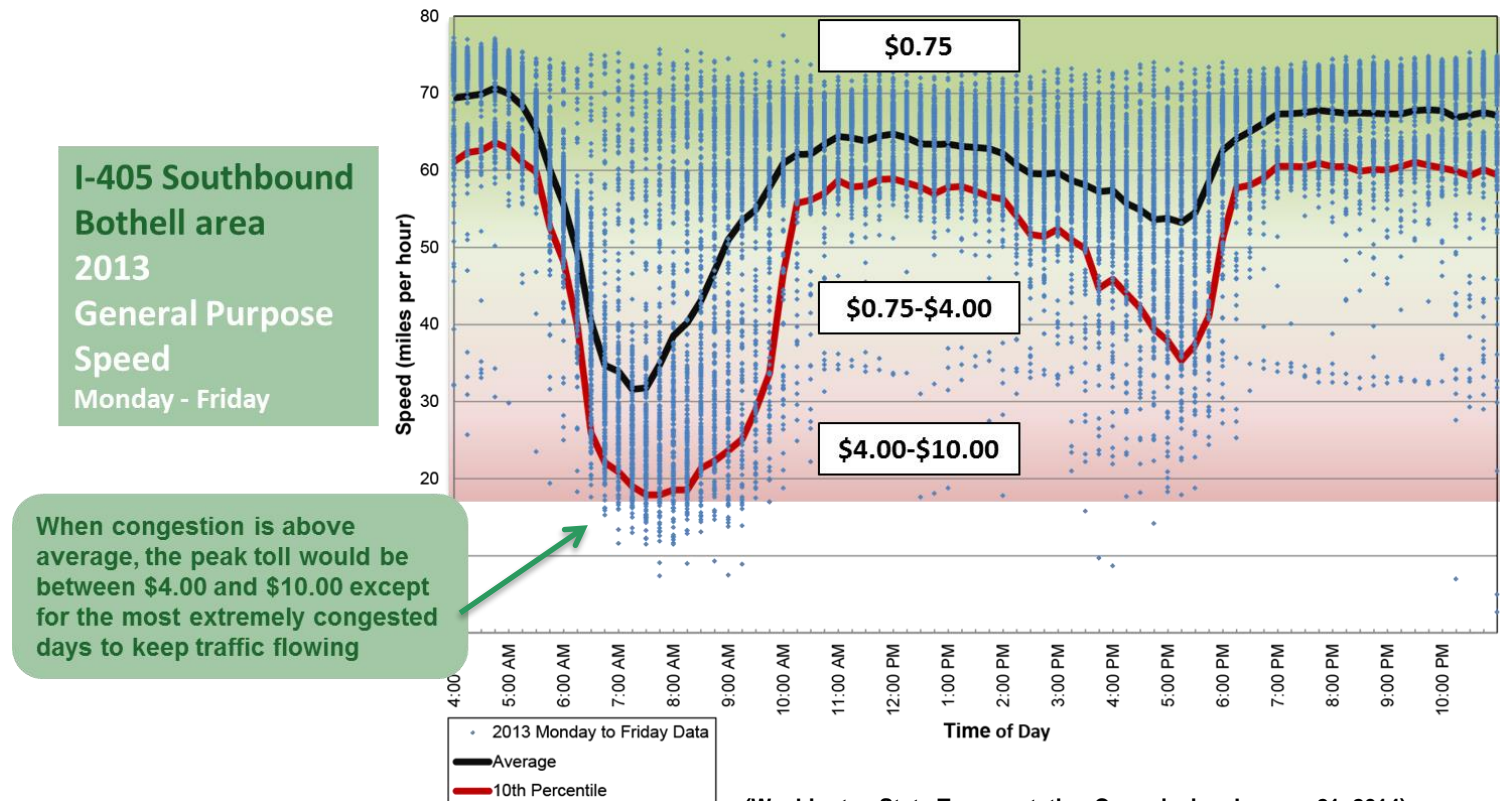
- **Goal:** HOV lanes move traffic at 45 mph or faster, 90% of the time during peak periods.
- **Previous HOV lanes:** The HOV lane between Bellevue and Lynnwood has failed to meet the goal during peak hours in recent years.



# Variability is responsible for highest toll rates

*This graph demonstrates that demand to use the express toll lanes will vary day to day. Outlier days with extreme congestion would occur.*

- General purpose lane congestion increases demand for use of the ETLs
- For initial operation, a typical day would have rates between \$0.75 and \$4.00
- Toll rates not expected to reach highest levels except for rare, extremely congested days

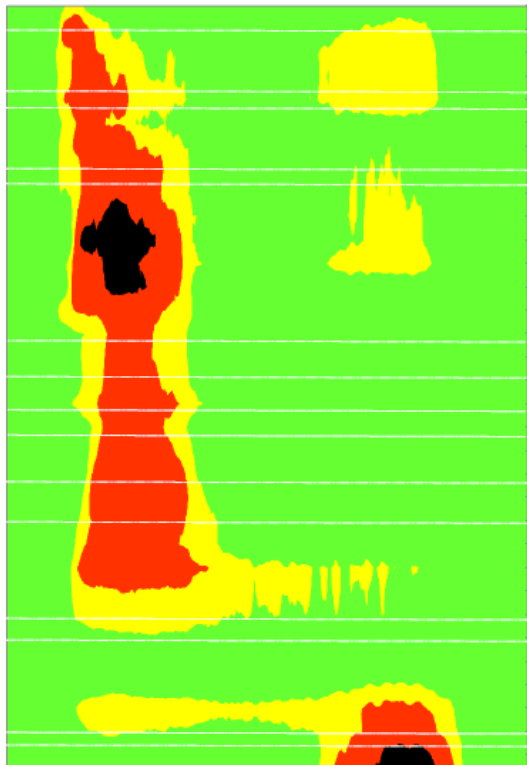


(Washington State Transportation Commission January 21, 2014)



## Three month average: Congestion reduced southbound -*General purpose lanes*

## 2014 Baseline



4:00 AM

7:00 AM

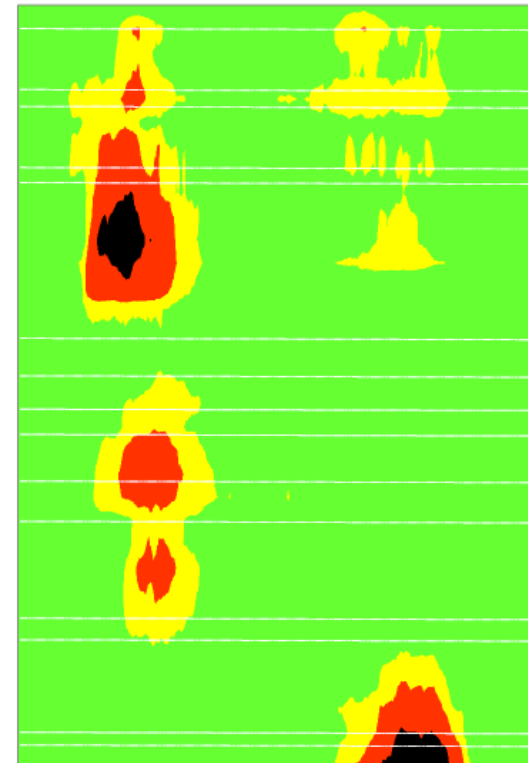
Noon

5:00 PM

9:00 PM



## 2015 with ETL



4:00 AM

7:00 AM

Noon

5:00 PM

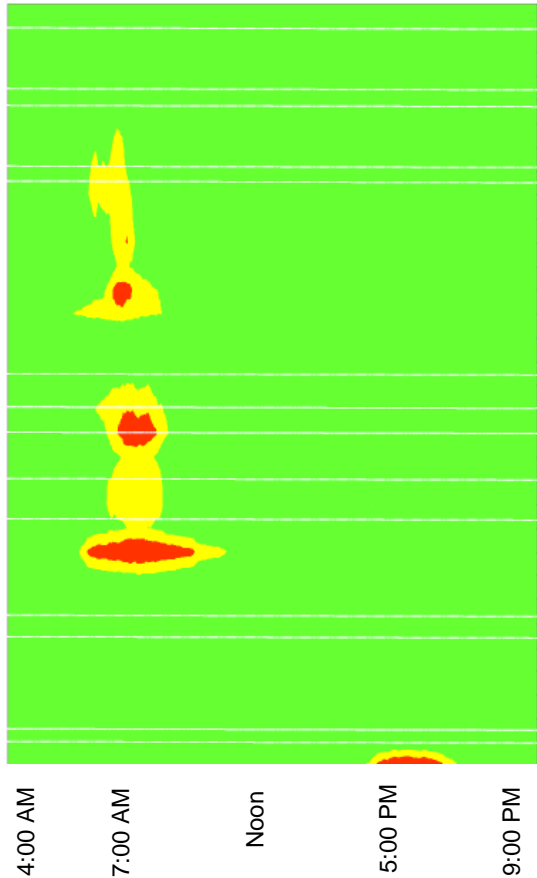
9:00 PM

### Congestion Key

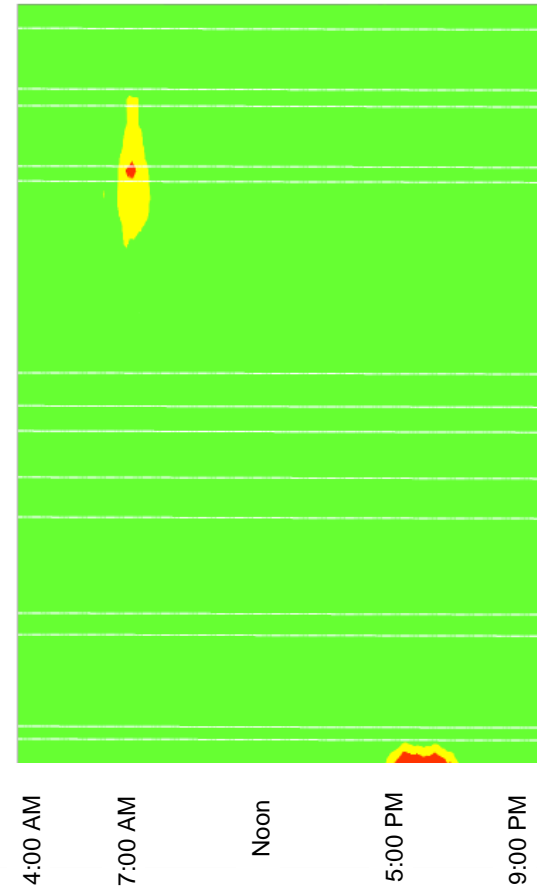
 Moderate
  Free flow
  Heavy
  Stop and go

# Three month average: Congestion reduced southbound – *Express toll lanes*

2014 Baseline



2015 with ETL

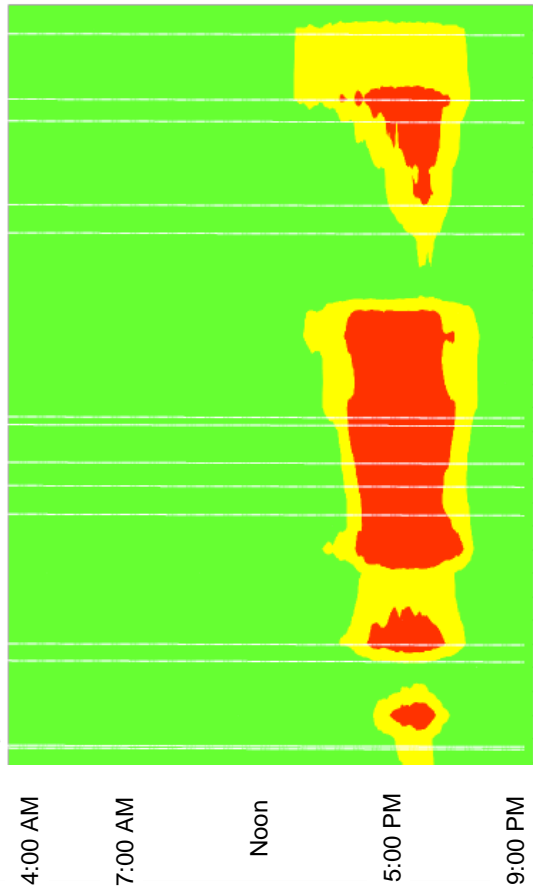


## Congestion Key

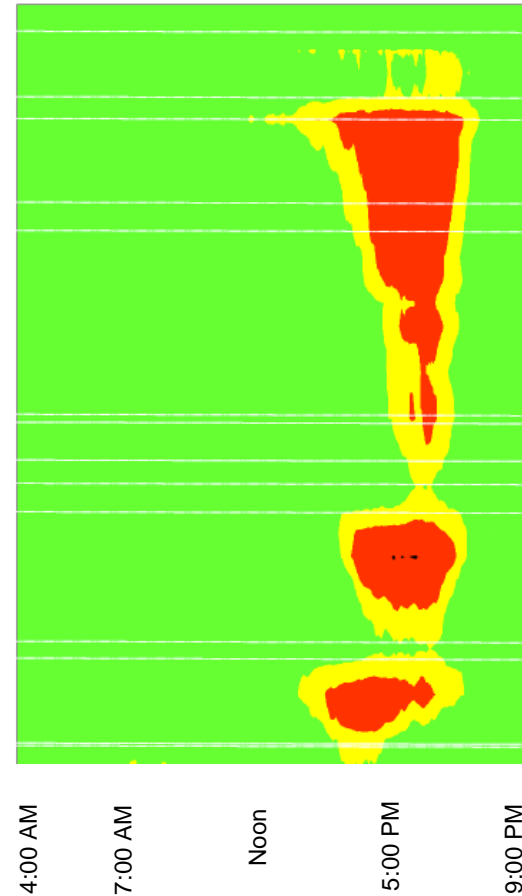
Yellow Moderate Green Free flow Red Heavy Black Stop and go

# Three month average: Congestion reduced northbound - *General purpose lanes*

2014 Baseline



2015 with ETL

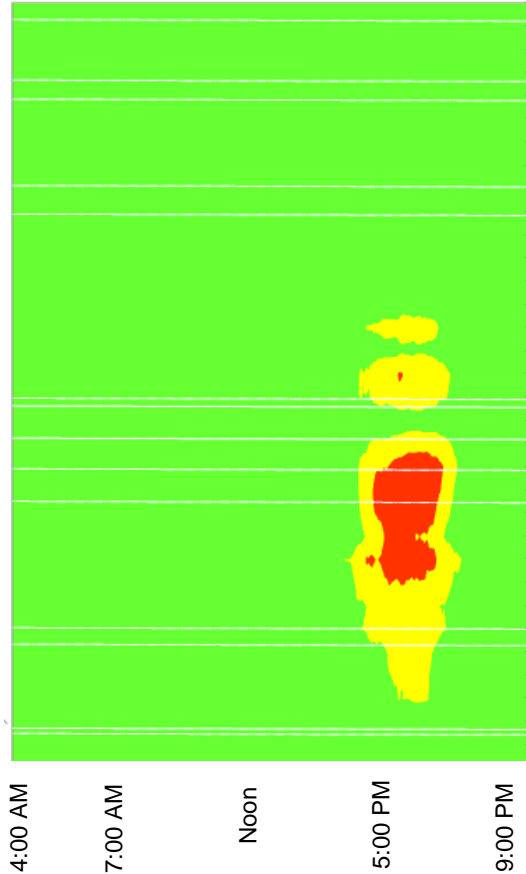


## Congestion Key

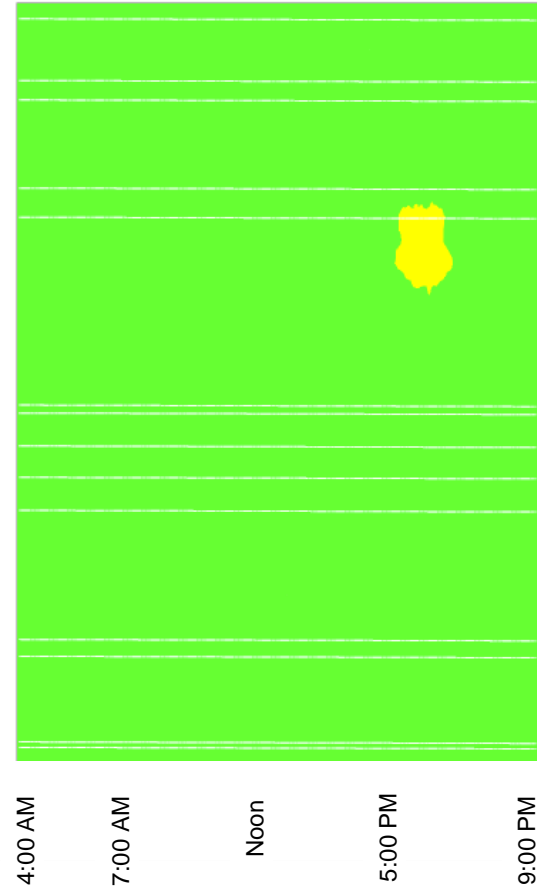
Yellow Moderate Green Free flow Red Heavy Black Stop and go

# Three month average: Congestion reduced northbound – *Express toll lanes*

2014 Baseline



2015 with ETL



## Congestion Key

Yellow Moderate Green Free flow Red Heavy Black Stop and go

# Moving more vehicles during peak commutes

*Exception is northbound I-405 between SR 522 and I-5*

## Southbound I-405

### SR 527



Peak Period	Peak Hour
+6 percent	+12 percent

### SR 522



Peak Period	Peak Hour
+5 percent	+15 percent

### NE 100th St



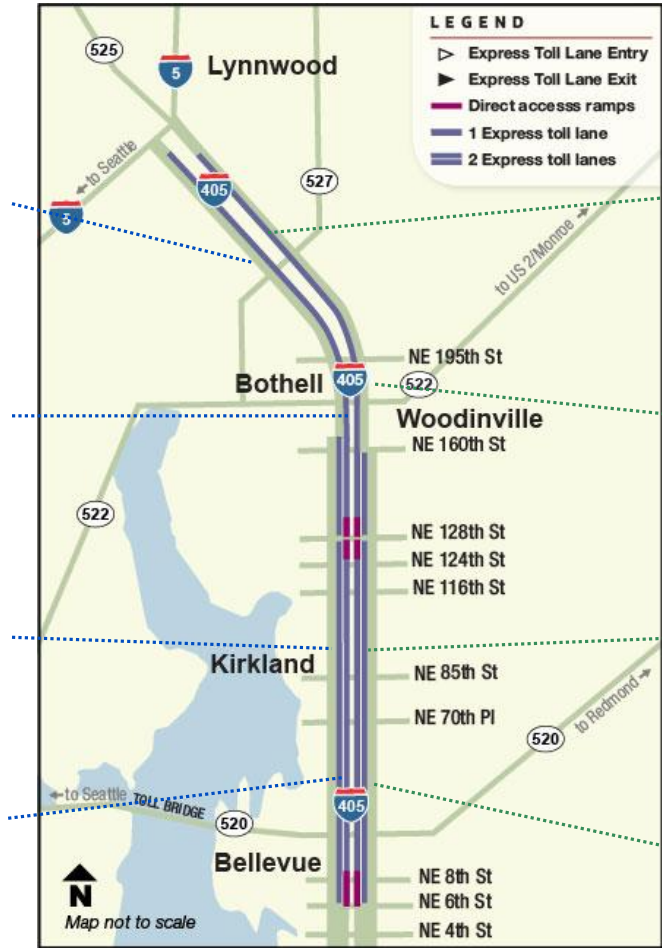
Peak Period	Peak Hour
+9 percent	+18 percent

### NE 53rd St



Peak Period	Peak Hour
+16 percent	+21 percent

Peak period: 5-9 a.m.  
Peak hour: 7:15-8:15 a.m.



## Northbound I-405

### SR 527



Peak Period	Peak Hour
-2 percent	-3 percent

### SR 522



Peak Period	Peak Hour
-3 percent	-7 percent

### NE 100th St



Peak Period	Peak Hour
+4 percent	+10 percent

### NE 53rd St



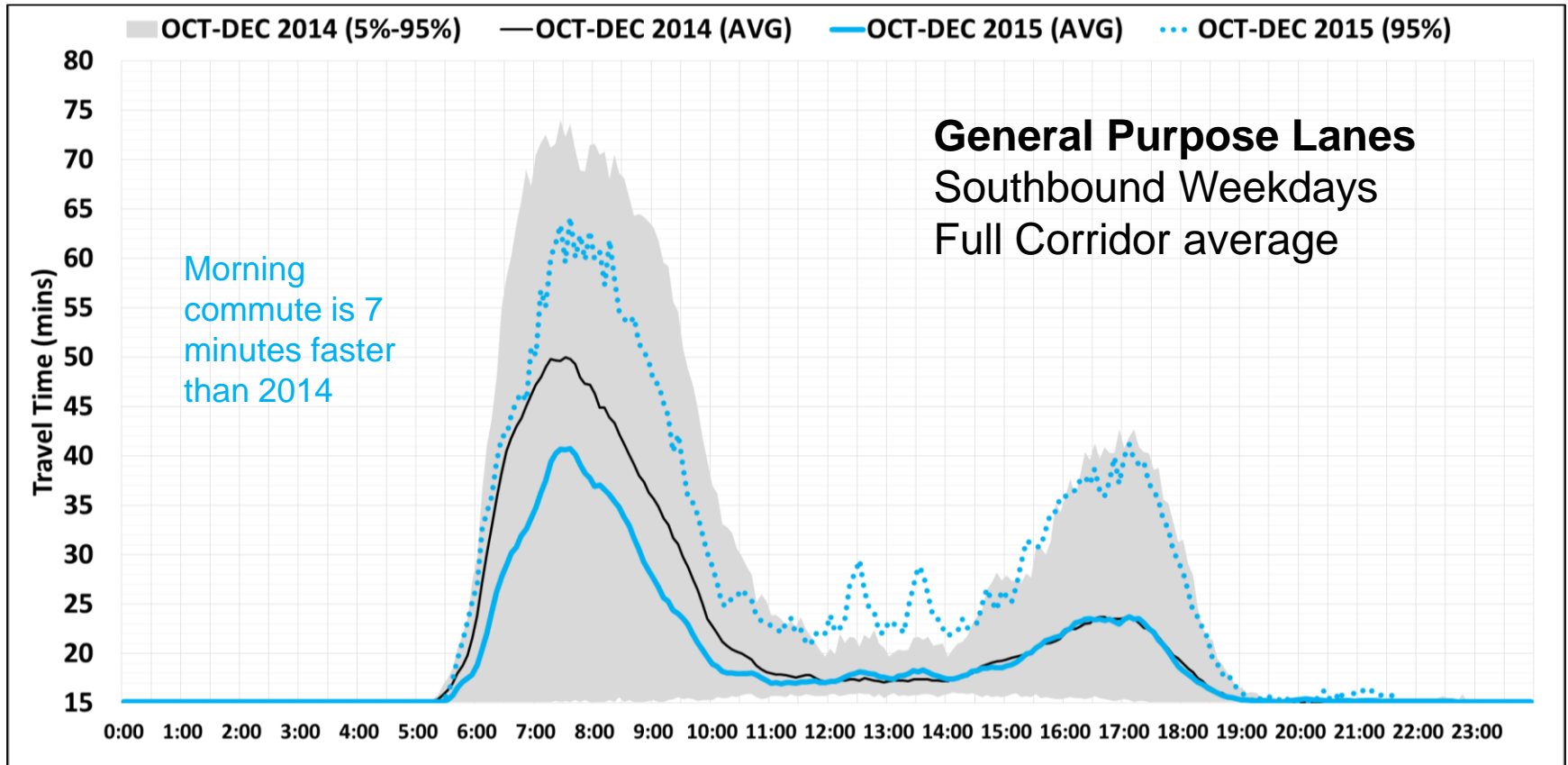
Peak Period	Peak Hour
+11 percent	+22 percent

Peak period: 3-7 p.m.  
Peak hour: 4:25-5:25 p.m.

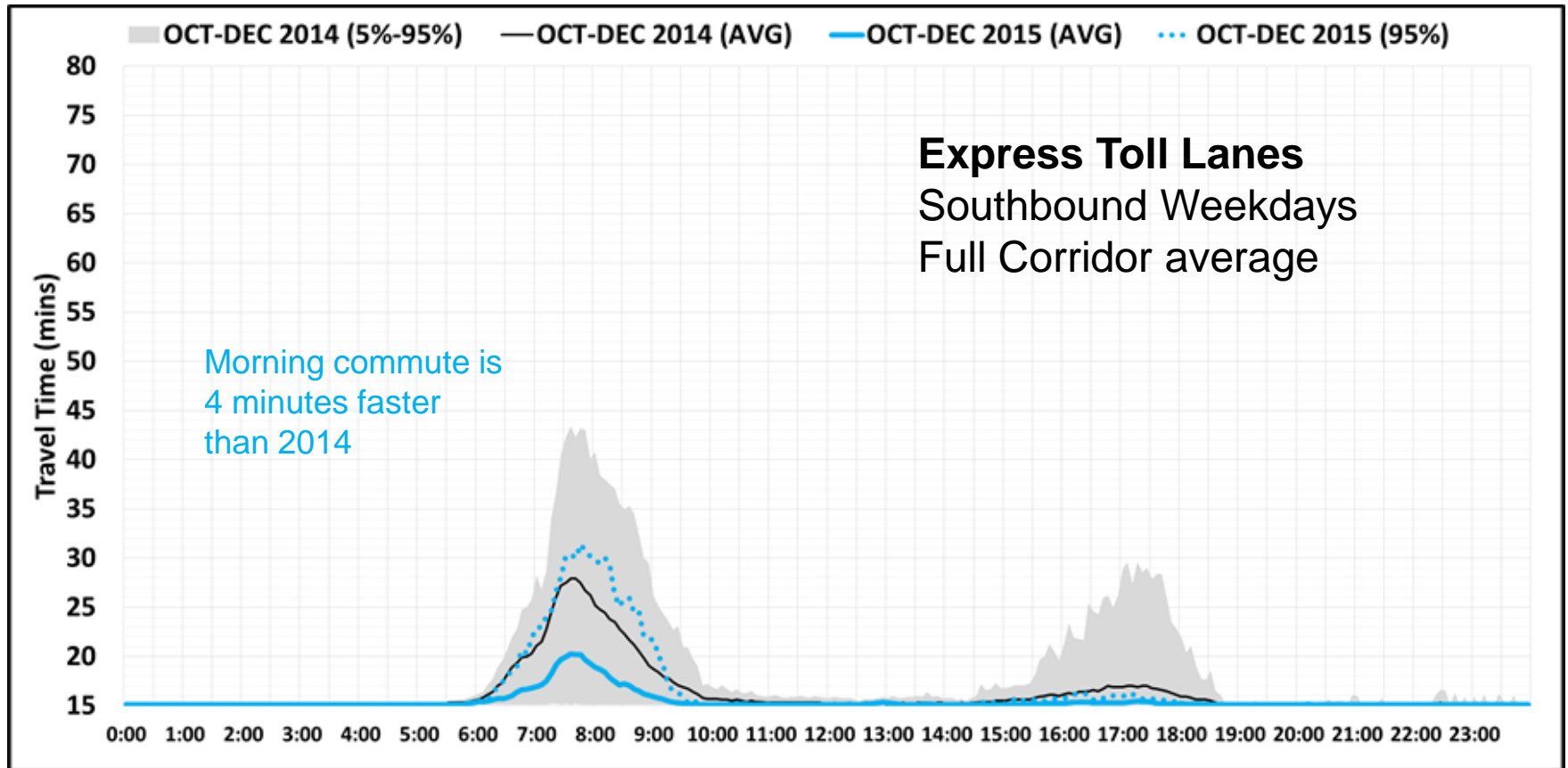
**\* Why have volumes decreased northbound I-405 after SR 522?**  
Capacity was added south of SR 522 and now five lanes now reduce to three lanes between SR 522 and I-5. This is a capacity problem that would exist without express toll lanes.



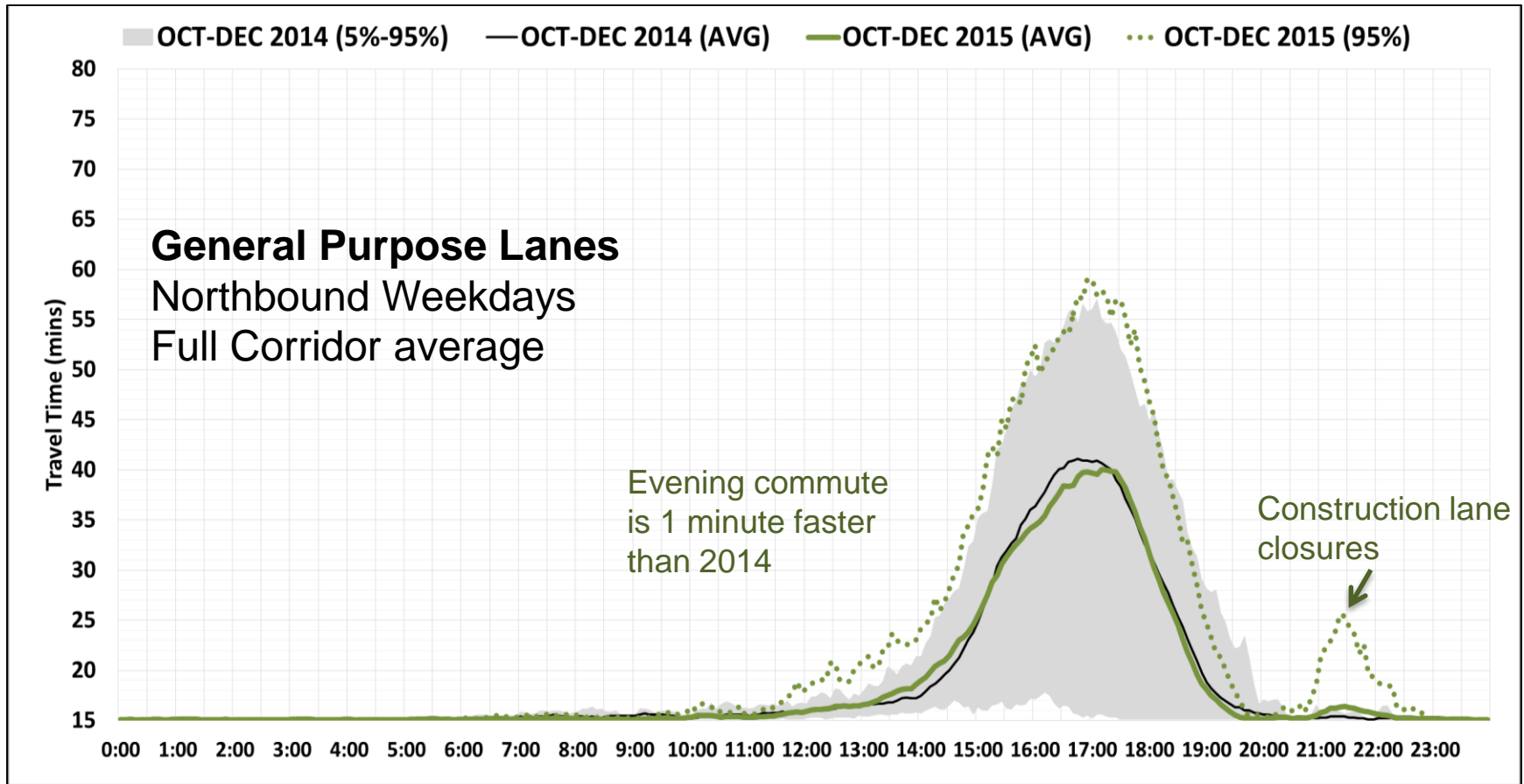
# Three month weekday travel times: Southbound general purpose lanes



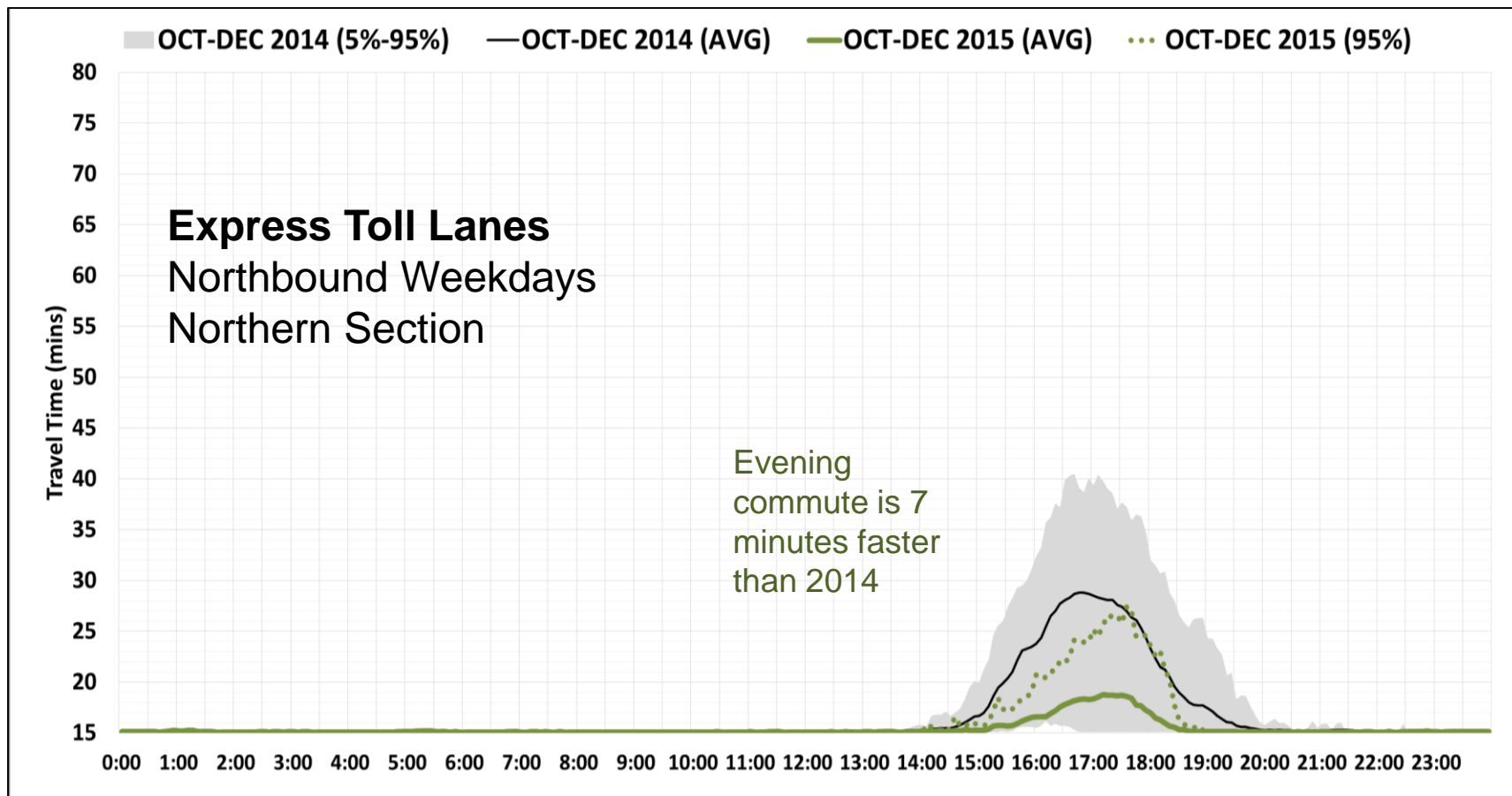
# Three month weekday travel times: Southbound express toll lanes



# Three month weekday travel times: Northbound general purpose lanes

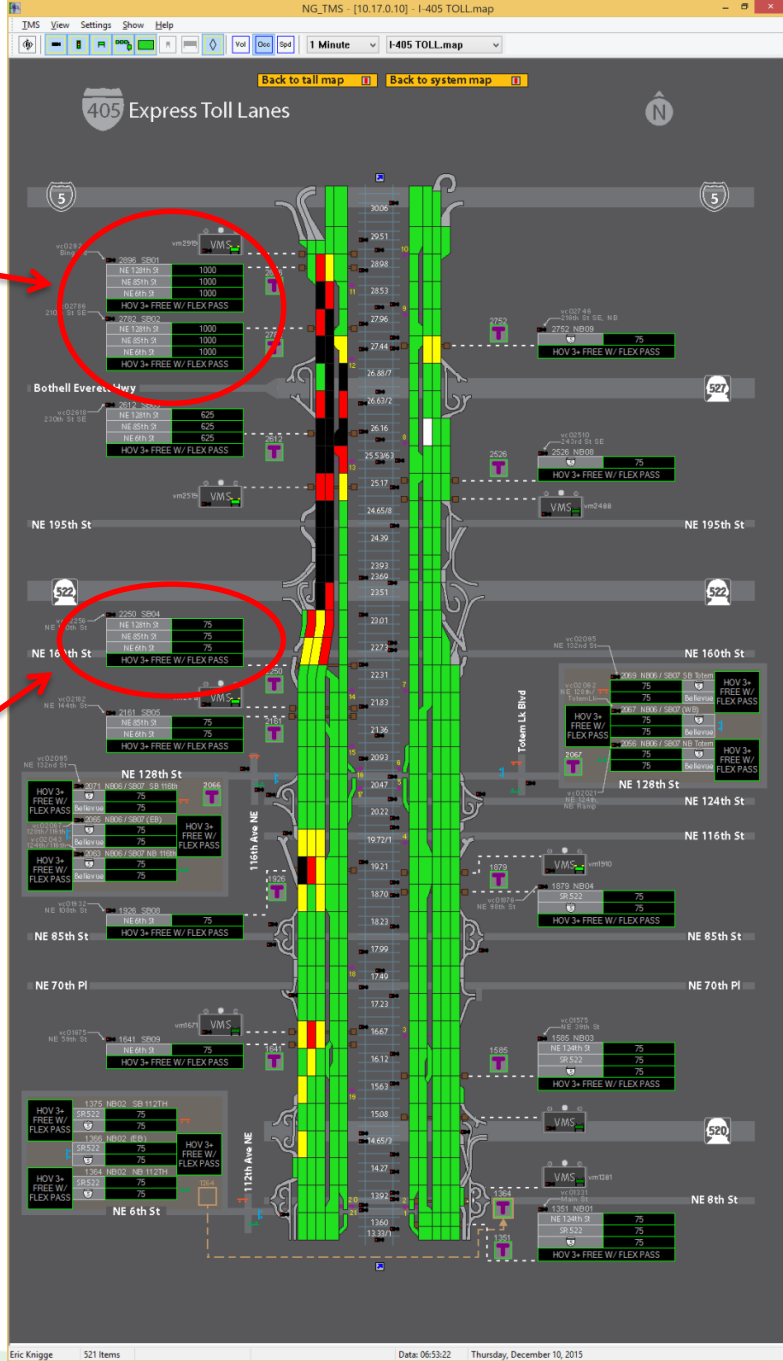
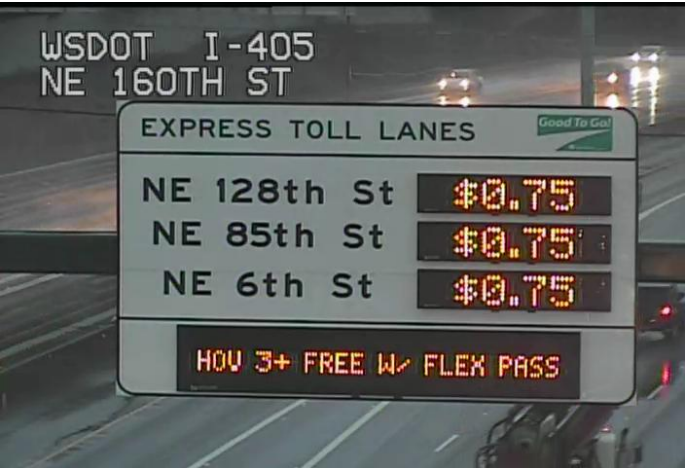


# Three month weekday travel times: Northbound express toll lanes



# Single lane section drives price

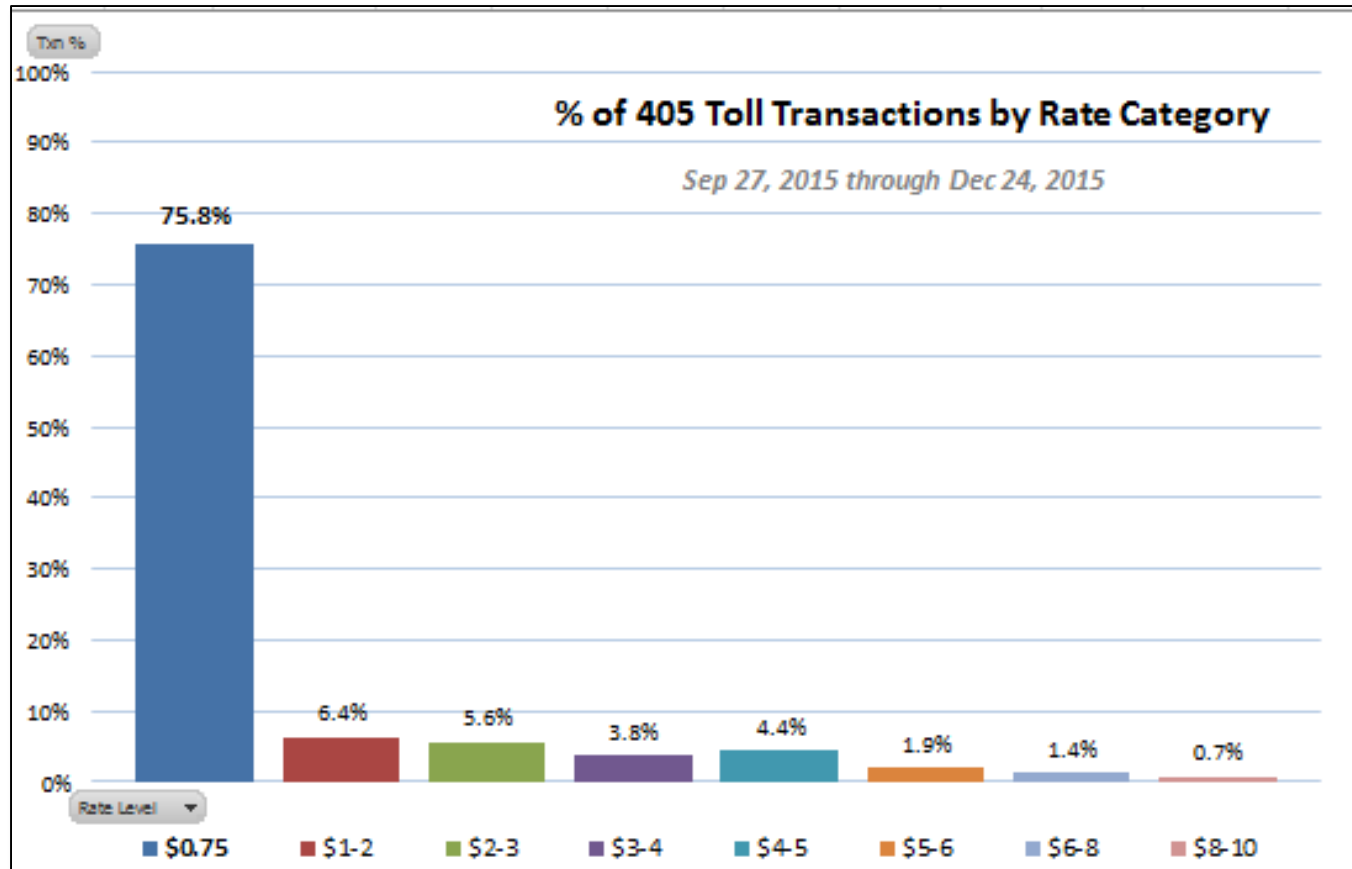
When congestion builds in the single express toll lane, toll rates for the entire corridor are affected.





# The First Three Months- Toll Rates

- 92% of tolls incurred are between \$0.75–\$4.00
- 75% are paying the minimum toll of \$0.75



# Transit benefits: *What we're hearing*

- The I-405 express toll lanes and transit shoulders provide a daily benefit to our routes and riders.
- We are seeing a travel time benefit and advantage by using the express toll lanes.
- Transit ridership has increased so more people are benefiting from a faster commute on our busses.
- This is a positive trend and we need to give it more time to realize the long lasting benefits.

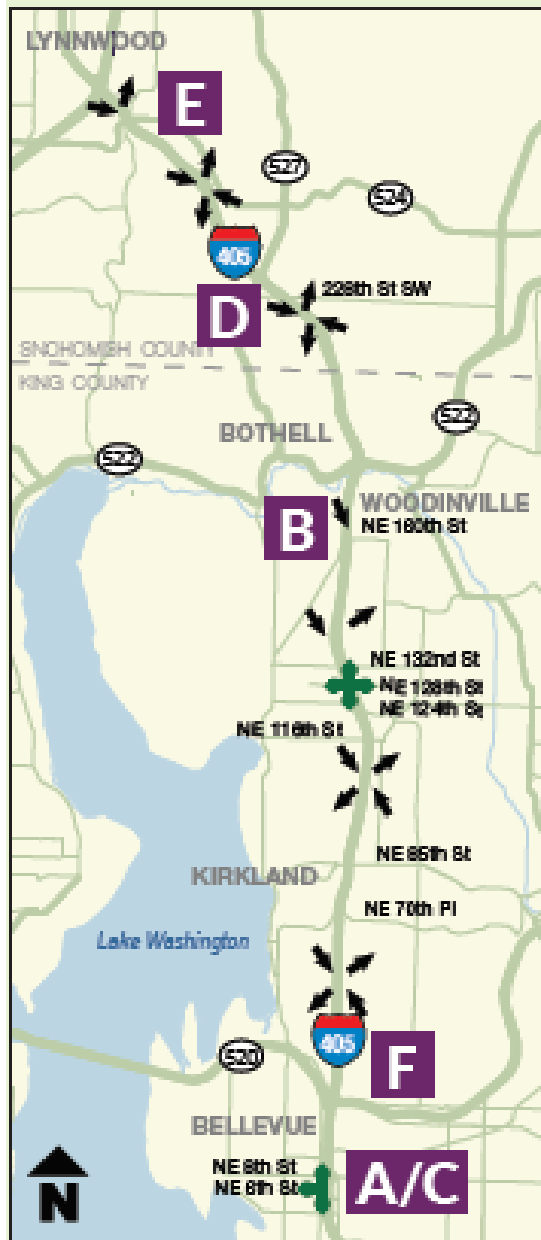
## **Community Transit:**

- All routes on I-405 have seen **improved transit reliability**
- Route 532 that serves Everett to Bellevue commuters
  - AM SB commute savings of 6.7 minutes which is a **9.3% improvement in travel time.**
  - PM NB commute savings of 4.9 minutes which is a **6.5% improvement in travel time.**

## **King County Metro:**

- Increase of **about 6% in peak period ridership** for the October to November 2015 period relative to fall 2014, based on samples of trips.

# Operational enhancements



- **Adjust Algorithm for the single express toll lane**– Adjustments and ongoing tuning started 11/17
- **Added Lane Markers** – Some drivers reported confusion with where the system starts and stops, so WSDOT added additional express toll lane stenciling to the pavement:
  - A. NE 6th St. – Added northbound pavement stencils to provide more notice of the system entrance; and added an Exit Only stencil to the southbound left express toll lane to alert drivers of the need to merge to the right lane to continue south on I-405
  - B. NE 160th St. – Added southbound pavement markings to address driver confusion
- **Extended Access Points** – After drivers suggested more room was needed to enter or exit the express toll lanes at several locations, WSDOT extended the access points to give drivers more room to merge:
  - C. NE 6th St. – Extended the northbound access point to provide additional time to enter the express toll lane
  - D. SR 527 – Extended the north and southbound access points allowing drivers to enter the express toll lane earlier
  - E. I-5 – Extended the northbound access point to give express toll lane drivers additional time to merge over to exit to I-5
- **Modifying Access Points**
  - F. WSDOT will be modifying the point northbound at the SR 520 interchange.
- **Monitoring**
  - Weekend congestion
  - Northbound congestion at SR 520

# Next Steps

- Release financial statement – February
- Continue to gather public and customer input through surveys – January/February
- Continue traffic and collision monitoring, coordination and data collection
- Continue operational enhancements – weather permitting

# For more information

**Patty Rubstello, P.E.**

Assistant Secretary, Toll Division  
206-464-1299 or RubsteP@wsdot.wa.gov

**Kim Henry, P.E.**

I-405 Project Director  
425-456-8579 or HenryK@wsdot.wa.gov