

# I-405 Express Toll Lanes

## 12 Month Performance Update

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Assistant Secretary  
WSDOT Toll Division

November 16, 2016

# Agenda

- Refresh on I-405 Master Plan elements and express toll lane goals
- Review data and observations from first year of operations
- Discuss future improvements



# I-405 Master Plan

## Regional Consensus

- EIS Record of Decision, 2002

## Roadways

- 2 new lanes in each direction
- Local arterial improvements

## Transit & Transportation Choices

- Bus Rapid Transit system
- New transit centers
- 50% transit service increase
- HOV direct access ramps and flyer stops
- Potential managed lanes system
- 5000 new Park & Ride spaces
- 1700 new vanpools

## Environmental Enhancements



# I-405 Master Plan: Multimodal and making progress

**Park and Ride expansions**  
80% complete or funded



**Transit center expansions**  
70% complete



**Bus Rapid Transit stations**  
70% complete



**Local arterial improvements**  
50% complete



**Add 2 lanes in each direction**  
45% complete or funded



**Transit service increase**  
40% complete



**Direct Access**  
12% complete



**Vanpool service increase**  
30% complete



**Pedestrian/bicycle improvements**  
25% complete



# The Puget Sound region is growing

**Since 2000, as planning for the I-405 corridor was underway:**

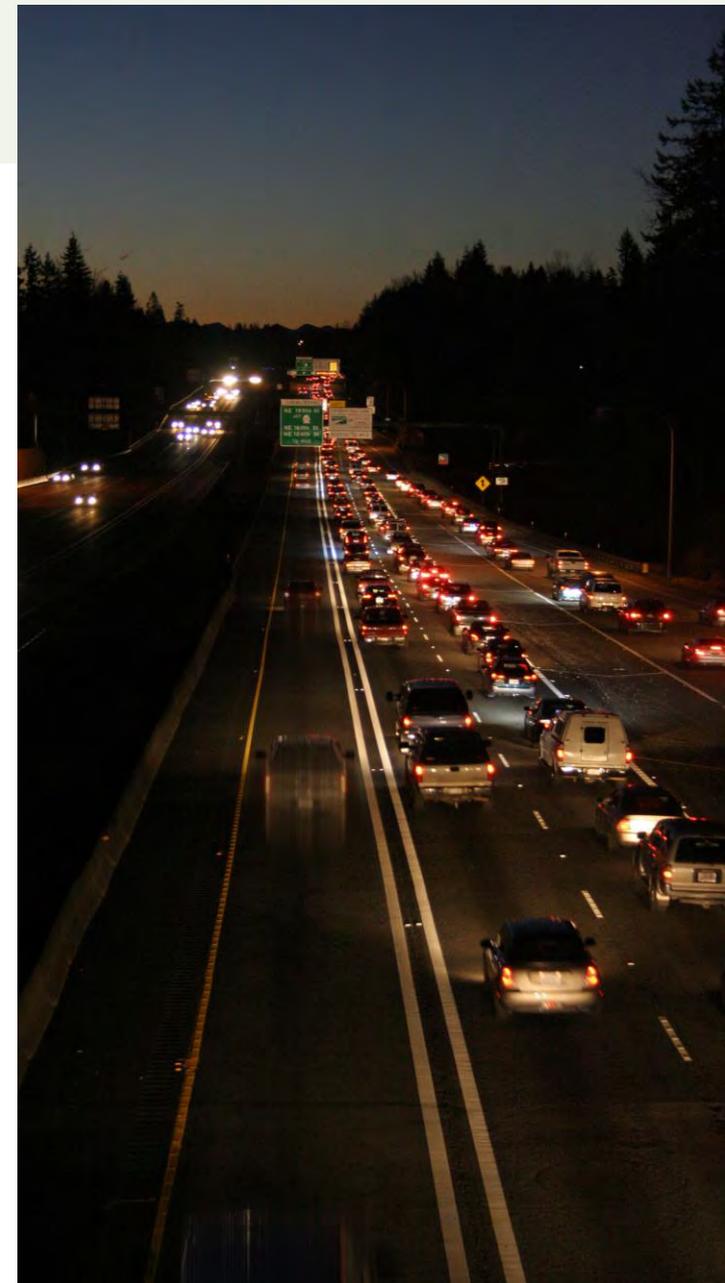
## **Population Growth:**

- **22 percent in King County**
- **27 percent in Snohomish County**

## **Job Growth:**

- **12 percent in King County**
- **33 percent in Snohomish County**

**In the last year, the Puget Sound region grew by 86,000 people and 64,000 jobs.**



Sources:

U.S. Census Bureau, WA State Office of Financial Management.

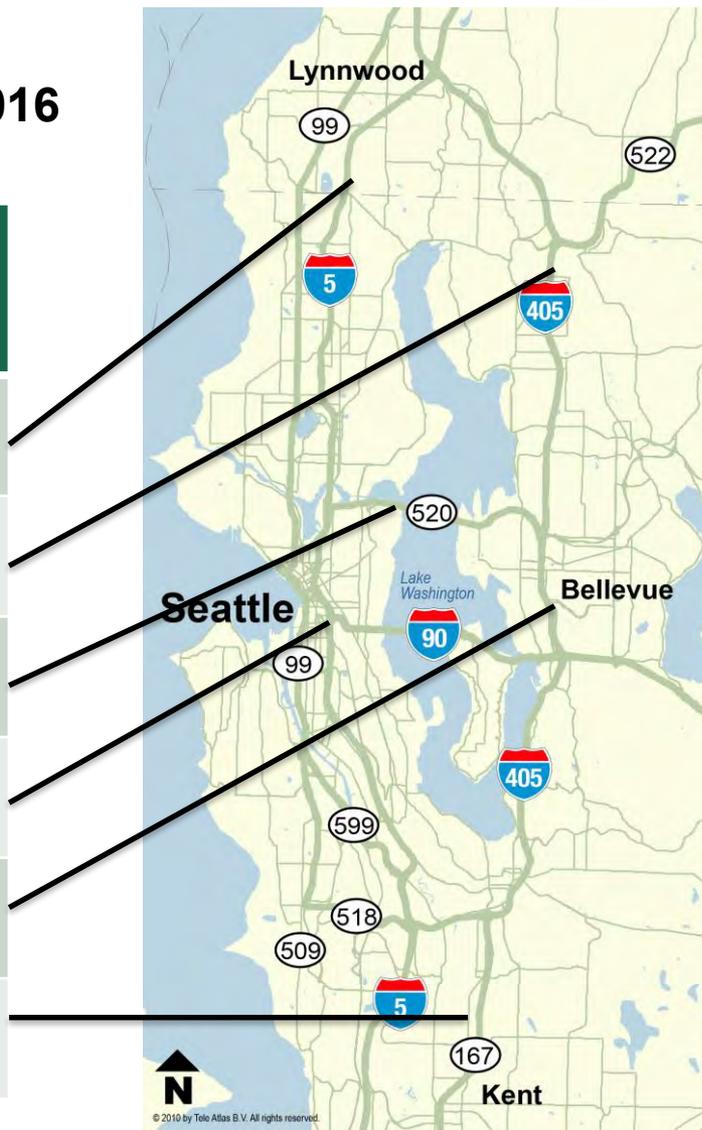
Puget Sound Regional Council.

Job and population data covers 2000-2015.

# Traffic volumes are increasing across the Puget Sound region

## Volume comparisons Oct 2014 – Sept 2015 to Oct 2015 – Sept 2016 Average daily trips

Location	Southbound Volume Comparison	Northbound Volume Comparison
I-5 at 213 <sup>th</sup> St SW	+2%	+2%
I-405 at NE 132nd St	+10%	+9%
SR 520 floating bridge	+3%	+4%
I-5 at Yesler Way	+4%	+1%
I-405 at SE 17th St	+1%	-1%
SR 167 at S 196 <sup>th</sup> St	+3%	+1%



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# Goals of express toll lanes

- 1. Offer drivers a choice**
- 2. Provide a faster and more predictable trip**
- 3. Fund future corridor improvements**



# I-405 express toll lanes

## Quick facts

- **Opened Sept. 27, 2015**
- **17 miles of express toll lanes**
- **Operation hours: 5 a.m. to 7 p.m. Mon – Fri**
- **Toll Rates**
  - Minimum Toll Rate           \$ 0.75
  - Maximum Toll Rate           \$ 10.00
- **Carpool Policy**
  - 3+ carpools with Flex Pass exempt at all times
  - 2+ carpools exempt except 5-9 a.m. and 3-7 p.m. on weekdays



# Goal #1: Offer drivers a choice

## What we anticipated

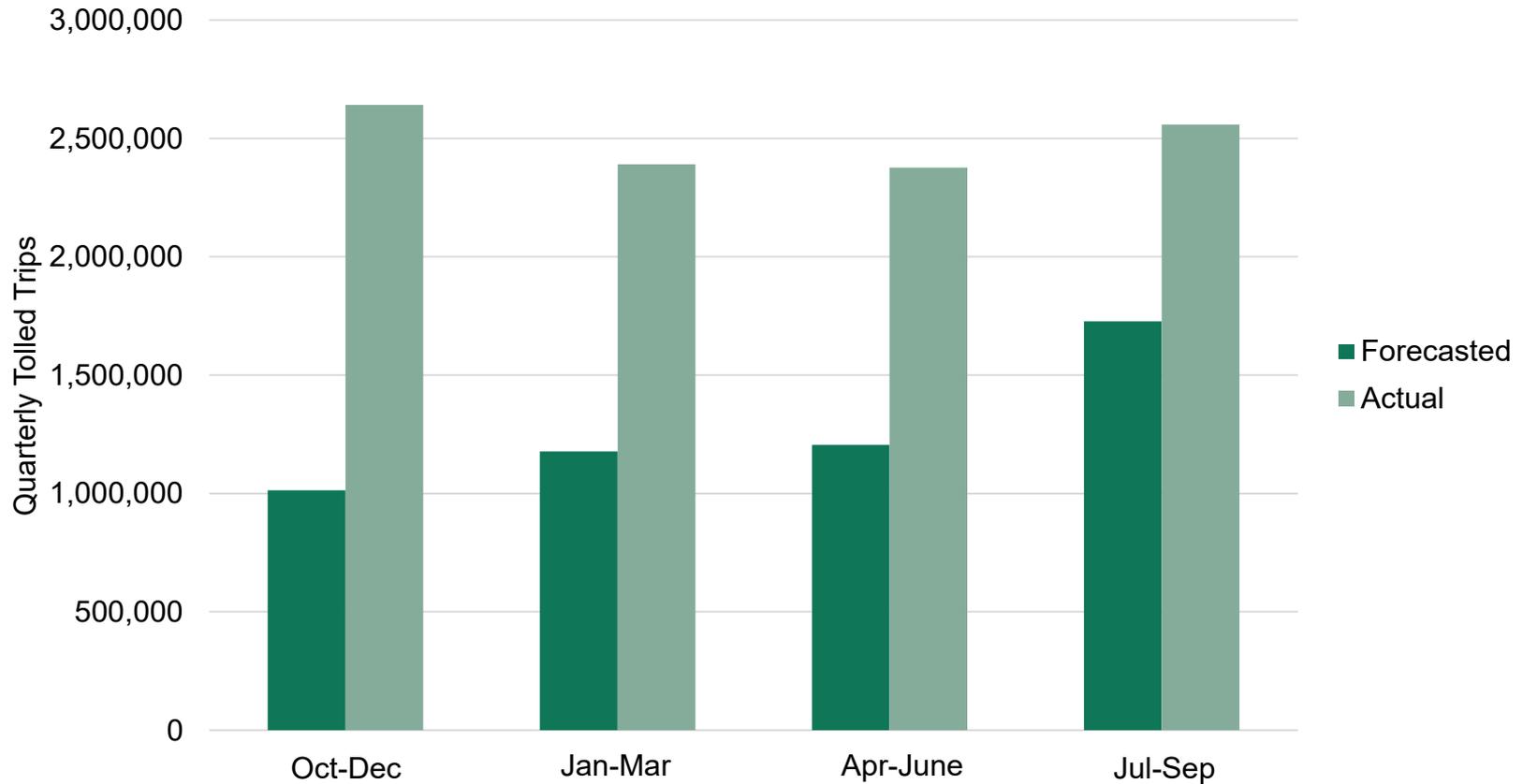
- **Ramp-up:** Total trips projected at 12.1 million in the first year.
  - National experience shows it takes up to a year for drivers to adjust.
- **Choice:** Drivers may not use the express toll lanes everyday, but they offer drivers a choice when they need it most.
- **Toll rates:** Typical rates would range between 75 cents and \$4.

## What we're seeing

- **Ramp-up:** Drivers made a total of 14.5 million trips in the first year.
  - Drivers adjusted much faster than anticipated.
- **Choice:**
  - 70 percent of express toll lane commuters use the lanes between 1 and 5 times a month.
  - Drivers value this choice. Even after one year, 50,000 new vehicles used the express toll lanes for the first time September 2016.
- **Toll rates:** Average peak period, peak direction toll rate is \$2.50.

# What we're seeing: Ramp-up occurred faster than on other U.S. express toll lane facilities

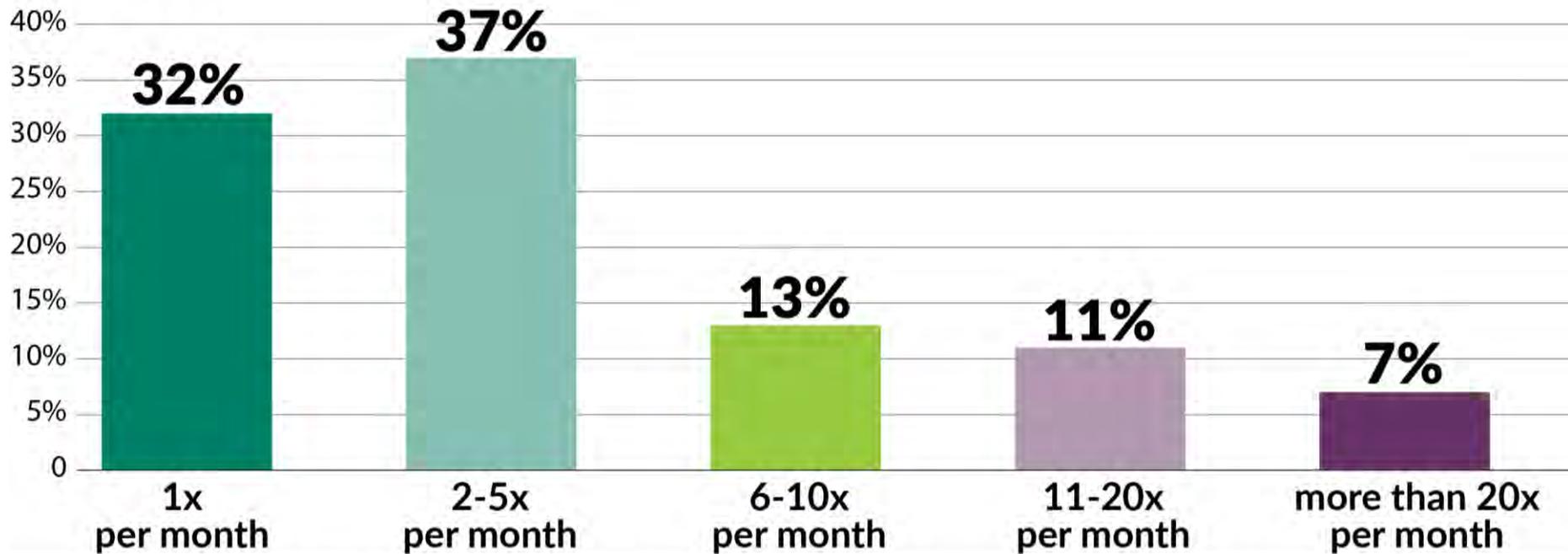
**Total Quarterly Tolled  
Express Toll Lane Trips  
(Oct. 2015-Sept. 2016)**



# What we're seeing:

Drivers use the lanes when they need them

## Average monthly express toll lane travel frequency for *Good To Go!* pass users (Oct. 2015 – Sept. 2016)

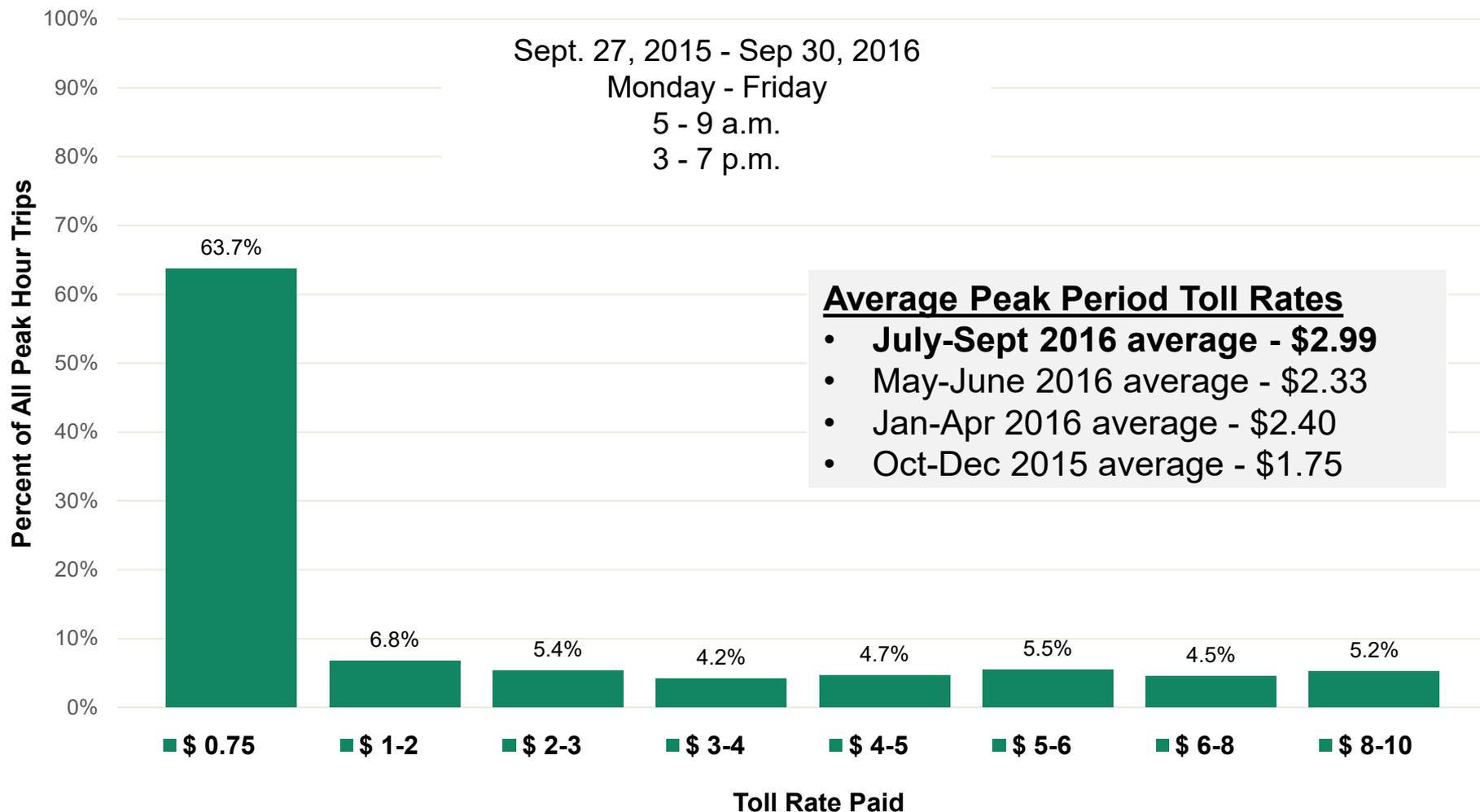


Source: Unique *Good To Go!* passes on I-405  
Weekdays from 5 a.m. to 7 p.m.

# What we're seeing:

## What drivers are choosing to pay

### Percent of Peak Period 405 Toll Trips by Rate Category



# Goal #2: Provide a faster and more predictable trip

## What we anticipated

- **Faster Trip:** Express toll lanes will provide a faster trip.
- **Move More Vehicles and People:** By moving traffic more efficiently, we'll also move people.
- **More Predictable:** The previous HOV lane moved traffic at 45 mph on average 60 percent of the time.

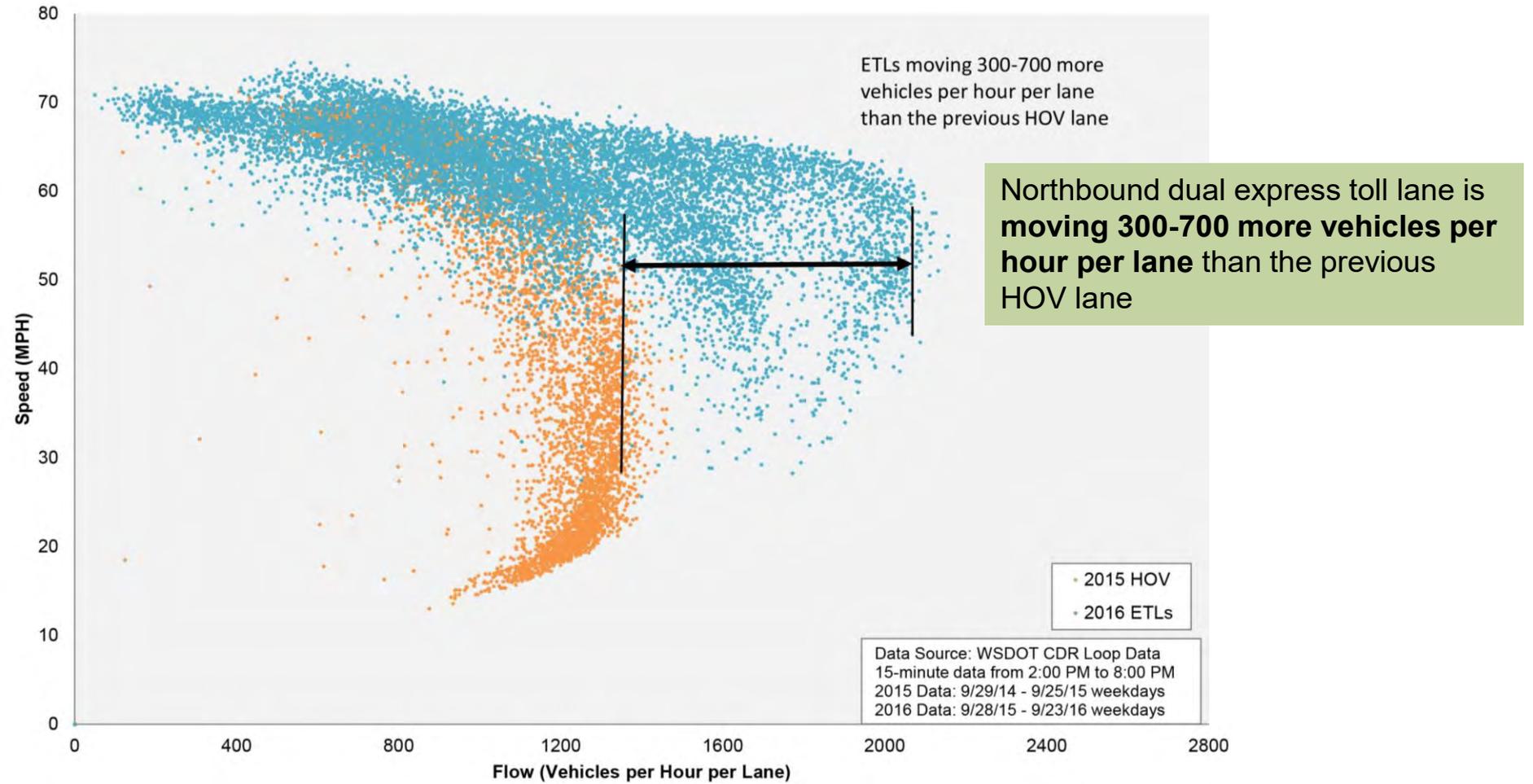
## What we're seeing

- **Faster Trip:** Express toll lanes are saving drivers between 10-15 minutes. Speeds in the general purpose lanes have improved in most areas.
- **Move More Vehicles and People:**
  - Express toll lanes are moving more vehicles per hour, per lane than the previous HOV lane.
  - On average, depending on the location, I-405 is moving 9,000 more people in the peak hour, peak direction; or 8 percent more people than the corridor before tolling.
- **More Predictable:** Express toll lanes keep traffic moving at 45 mph on average 85 percent of the time.

# What we're seeing: Express toll lanes moving more vehicles per hour than previous HOV lanes

Performance of HOV (2015) vs. ETL (2016)

## Dual Lane Section: Northbound I-405 (north of NE 85th St) Speeds and Volumes



# What we're seeing: I-405 is moving more vehicles at peak periods

## Southbound

Combined volume increase for all lanes

**+4%** at SR 527

**+10%** at SR 522

**+16%** at NE 100<sup>th</sup> St

**+15%** at NE 53<sup>rd</sup> St



## Northbound

Combined volume increase for all lanes

**0%** at SR 527

**+3%** at SR 522

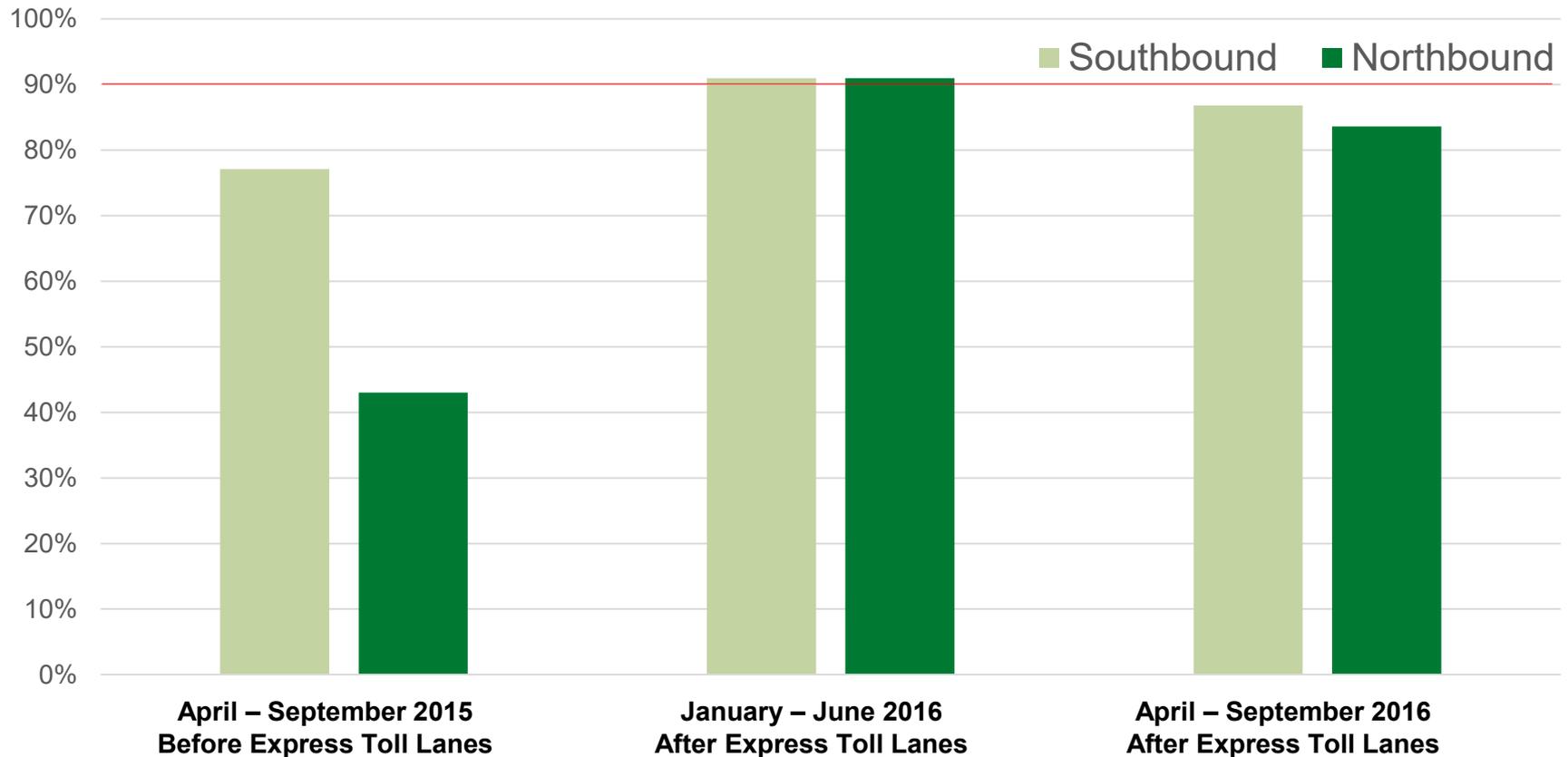
**+18%** at NE 100<sup>th</sup> St

**+14%** at NE 53<sup>rd</sup> St

**What we're seeing:** Speeds and predictability have improved with express toll lanes

## I-405 Performance – Full Corridor

Percentage of Peak Periods When Speeds are Greater Than 45 Miles Per Hour



# What we're seeing:

## Challenges with maintaining 45 mph

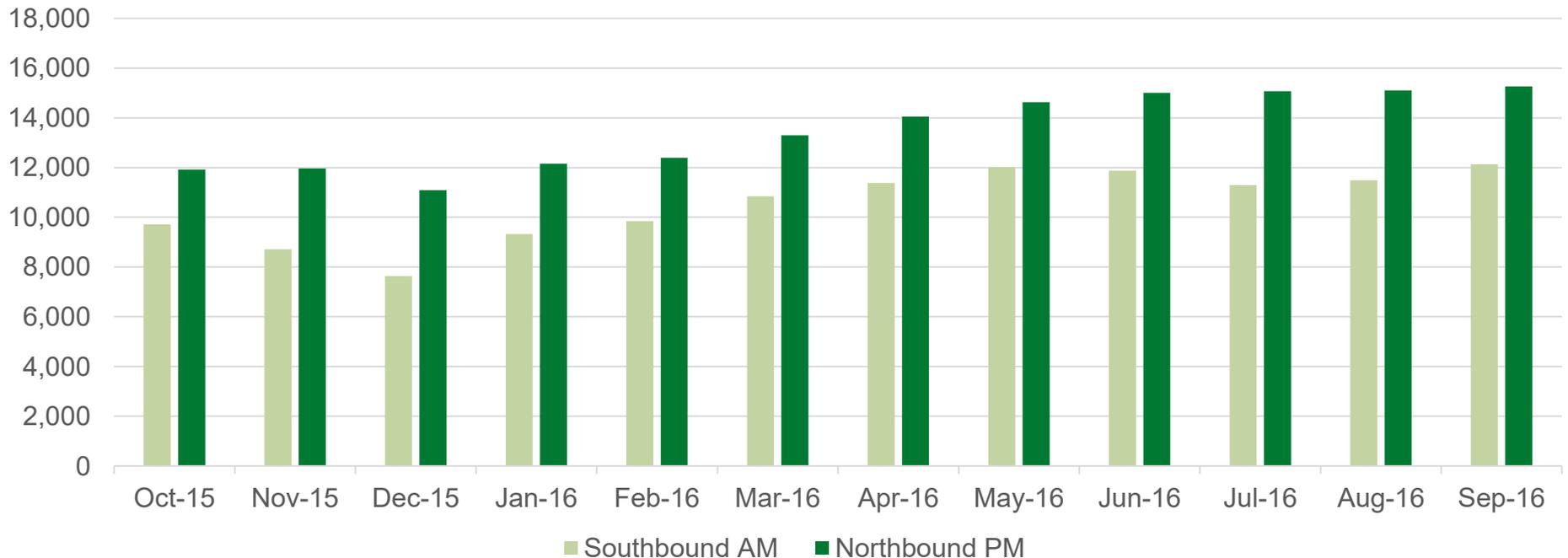
- Express toll lanes have improved the percentage of time speeds are meeting 45 mph by 25 percent compared to the HOV lane in 2015.
- In the last six months the express toll lanes have maintained speeds of 45 mph 85 percent of the time during peak periods, below the goal of 90 percent. This is due to two factors:
  - 1) **Limited capacity.** Capacity was not changed between Bothell and Lynnwood on northbound I-405. The speeds in the single express toll lane dictates whether or not the express toll lanes meet the 45 mph metric.
  - 2) **Increasing demand.** Significant regional growth has led to more drivers choosing to use the express toll lanes, therefore putting more strain on the single lane section.
- WSDOT is looking at a variety of operational improvements to address the capacity constraints on northbound I-405 between Bothell and Lynnwood.

# What we're seeing:

Increasing demand during peak periods

**Drivers made 6,000 more weekday peak period trips in the express toll lanes in September 2016 compared to October 2015.**

Average Weekday Peak Period  
Express Toll Lane Trips by Month  
Southbound 5-9 a.m., Northbound 3-7 p.m.



# What we're seeing:

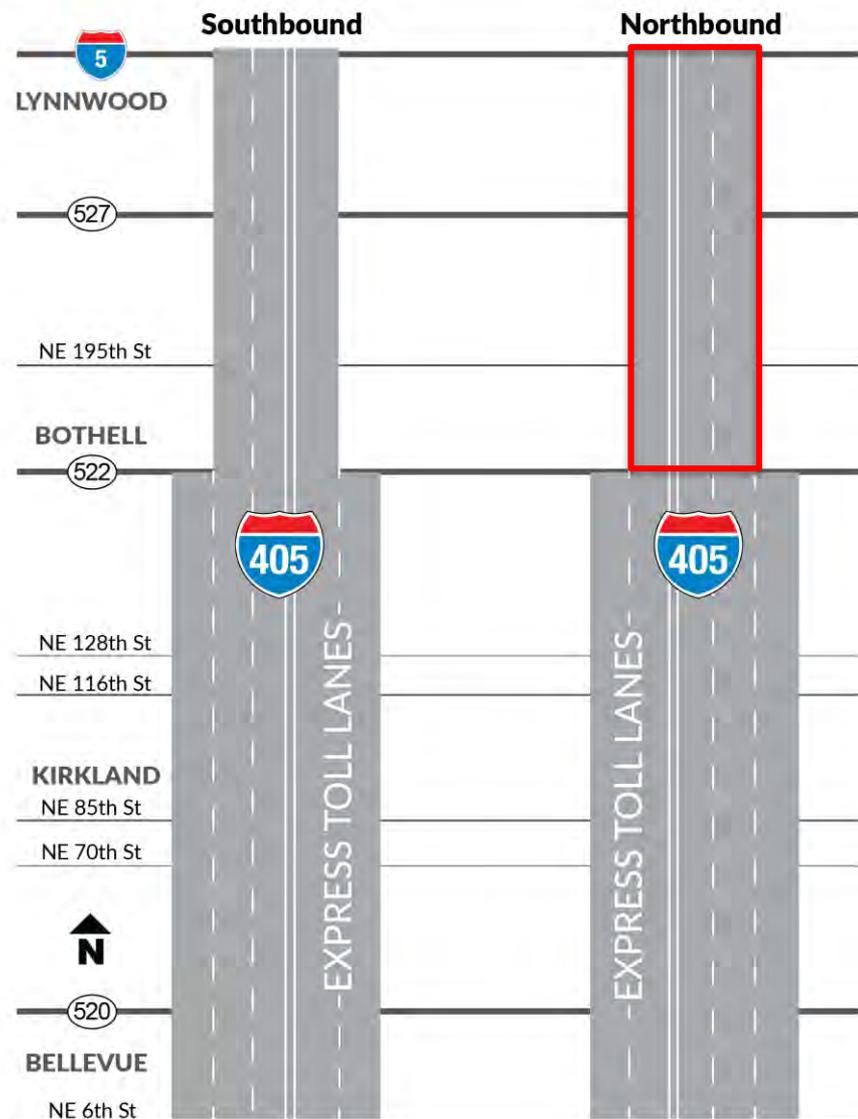
General purpose lane travel times vary

## Highlights

- Most trips have **shorter travel times**
- **Except** for trips on northbound I-405 between SR 522 and I-5 where capacity is limited as 5 lanes convert to 3 creating a bottleneck

## Segments examined

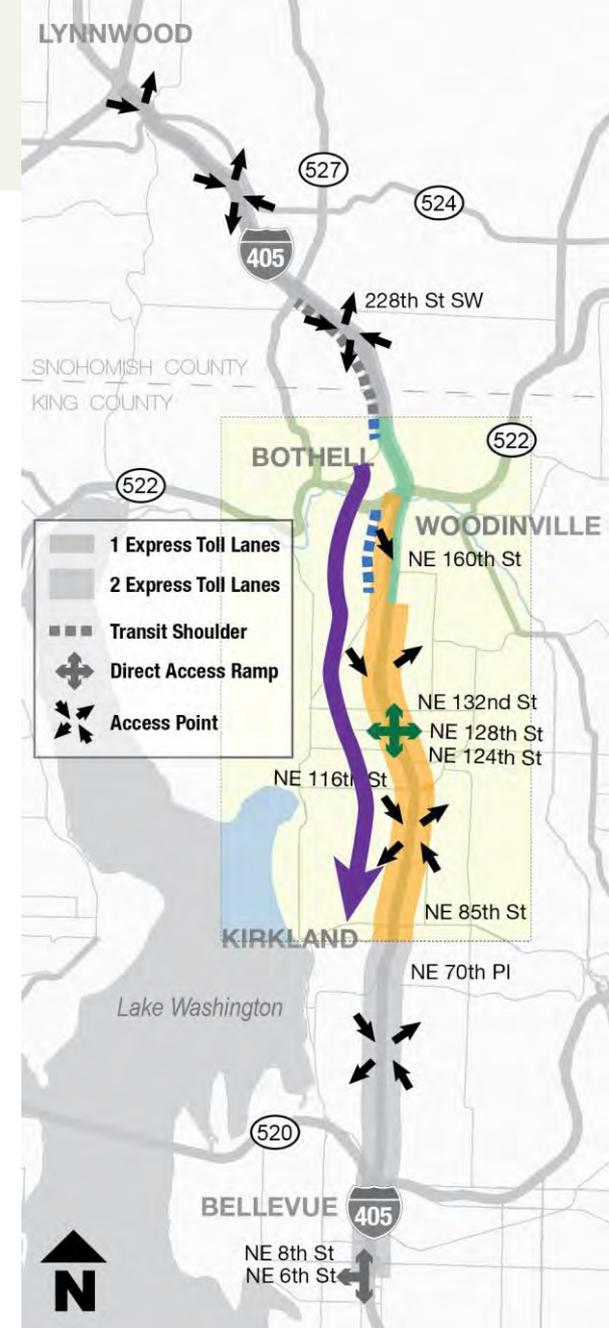
- The Legislature directed WSDOT to report out on travel times for northbound and southbound I-405 segments including:
  - Bellevue to SR 527
  - NE 195th to NE 85th
  - NE 160th St to I-5
  - Bellevue to NE 116th
  - 148th Ave NE to SR 522
  - I-405 from Bellevue to SR 522



I-405 is moving more vehicles at faster speeds in most sections

## Southbound I-405 from NE 195th to NE 85th (AM Peak Period)

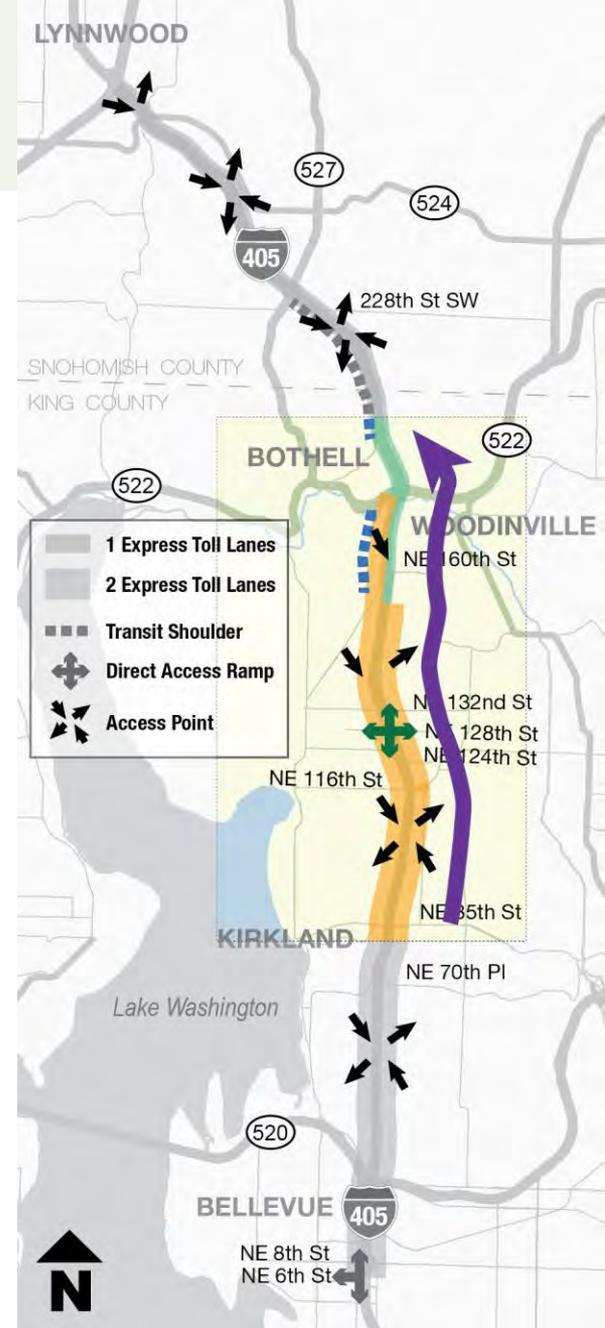
Timeframe Comparison		GP Lane Travel Times in Minutes		Change in Travel Times	
		Average	(95 <sup>th</sup> Percentile)	Average	Reliable
Oct	2014	19	(23)	<b>6 minutes faster</b>	<b>6 minutes faster</b>
	2015	13	(17)		
Jan	2015	16	(20)	<b>5 minutes faster</b>	<b>5 minutes faster</b>
	2016	11	(15)		
May	2015	16	(20)	<b>5 minutes faster</b>	<b>7 minutes faster</b>
	2016	11	(13)		
Aug	2015	15	(19)	<b>4 minutes faster</b>	<b>6 minutes faster</b>
	2016	11	(13)		



# I-405 is moving more vehicles at faster speeds in most sections

## Northbound I-405 from NE 85th to NE 195th (PM Peak Period)

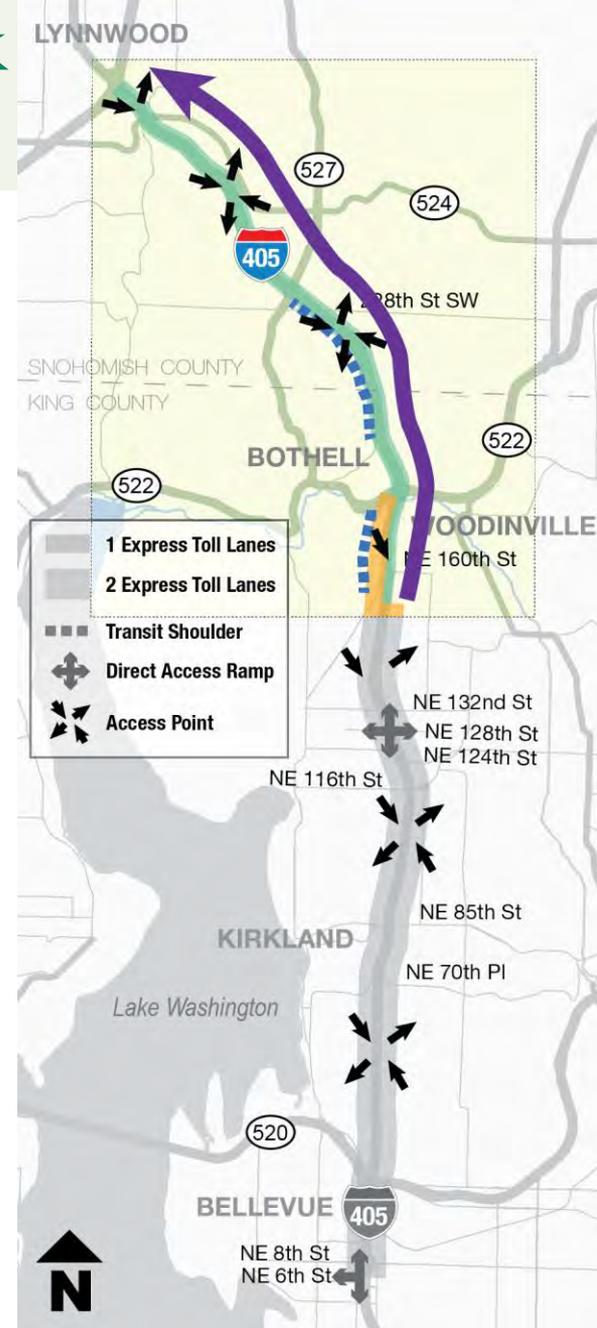
Timeframe Comparison		GP Lane Travel Times in Minutes		Change in Travel Times	
		Average	(95 <sup>th</sup> Percentile)	Average	Reliable
Oct	2014	15	(18)	<b>3 minutes faster</b>	<b>1 minute faster</b>
	2015	12	(17)		
Jan	2015	15	(19)	<b>3 minutes faster</b>	<b>2 minutes faster</b>
	2016	12	(17)		
May	2015	15	(19)	<b>1 minute faster</b>	No change
	2016	14	(19)		
Aug	2015	14	(17)	No change	<b>2 minutes slower</b>
	2016	14	(19)		



# Limited capacity causes bottleneck northbound at NE 160th St

## Northbound I-405 from NE 160th St to I-5 (PM Peak Period)

Timeframe Comparison		GP Lane Travel Times in Minutes		Change in Travel Times	
		Average	(95 <sup>th</sup> Percentile)	Average	Reliable
Oct	2014	13	(19)	<b>3 minutes slower</b>	<b>7 minutes slower</b>
	2015	16	(26)		
Jan	2015	12	(20)	<b>4 minutes slower</b>	<b>6 minutes slower</b>
	2016	16	(26)		
May	2015	13	(19)	<b>3 minutes slower</b>	<b>7 minutes slower</b>
	2016	16	(26)		
Aug	2015	12	(19)	<b>5 minutes slower</b>	<b>6 minutes slower</b>
	2016	17	(25)		



# Peak-Use Shoulder Lane

## Northbound I-405 from SR 527 to I-5

### Scope

- Convert right shoulder to general purpose peak-use shoulder lane on northbound I-405 between SR 527 and I-5
- Build new noise wall for area residents
- Make other spot improvements

### What is a peak-use shoulder lane?

- Traffic management strategy that uses a shoulder as a general purpose lane to provide additional capacity when needed (peak periods)
- Shoulder is preserved when traffic volumes are lower
- Dynamically controlled using overhead electronic signs



### Timeline

- **November 2016:** Design-build contractor selected
  - Graham Contracting Ltd.
  - *Funded with I-405 express toll lane revenue*
- **Winter 2016:** Construction start
- **Spring 2017:** Open to traffic

# Goal #3: Fund future corridor improvements

## What we anticipated

- **Fund future projects:** The Connecting Washington transportation package identified \$200 million in toll revenue for funding I-405 Express Toll Lanes between Bellevue and Renton.

## What we're seeing

- **Fund future projects:** Higher utilization during first year of operation provided sufficient revenue to fund the Peak Use Shoulder Lane project. Toll revenue generation anticipated to support Connecting Washington project funding.

# What we've done

## Completed improvements

- Operational hours
  - Mon-Fri 5 a.m. to 7 p.m.
- Toll rate algorithm adjustments
- Striping and access adjustments at 9 locations
- Additional pavement markings and signage at 3 locations

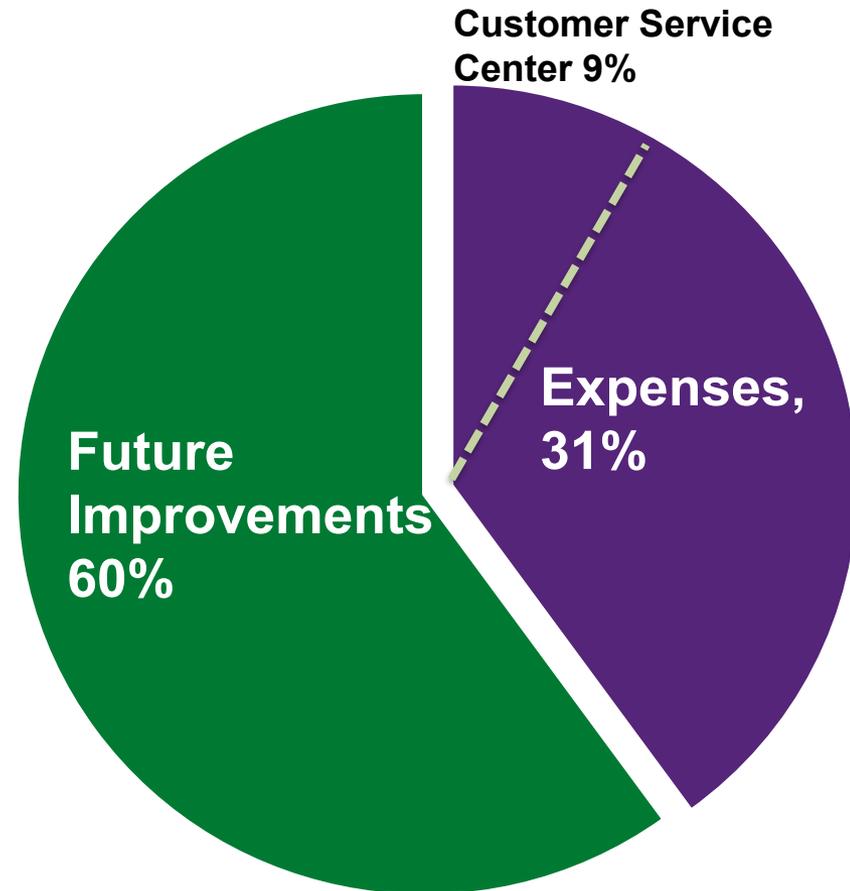


# Myth Busters: “70 percent of toll revenue goes to a company in Texas”

**False.** Our customer service vendor is paid for the work they are contracted and not based on how much toll revenue is generated. All of their staff are Washington state locals.

In the first six months of operations, this vendor received **9 percent** of the total revenue to operate the customer service center.

Use of Funds  
(April – Sept. 2016)



# Key takeaways

## **In the first year of operation, express toll lanes are:**

- Moving more vehicles and more people.
- Providing more predictable travel times.
- Continuing to see express toll lane user base growth.
- With no added capacity, the single express toll lane section struggles to handle the increasing demand from regional growth.
- Generating revenue to fund improvements earlier than anticipated.

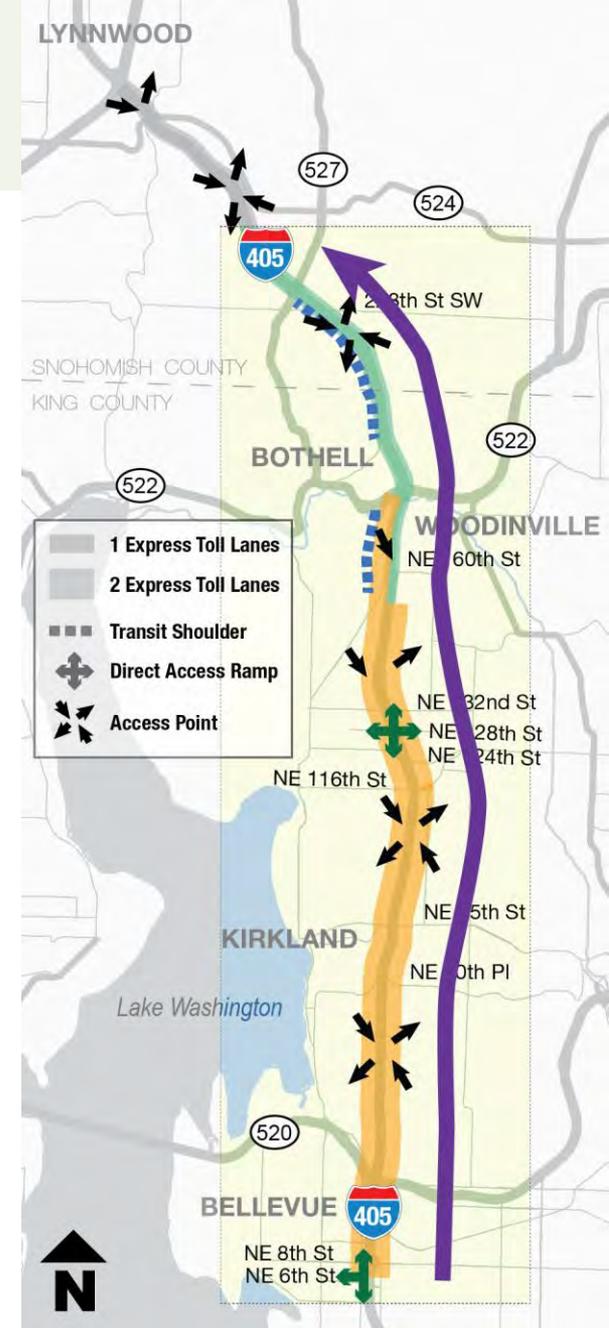
# CONTACT

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# I-405 is moving more vehicles at faster speeds in most sections

## Northbound I-405 from Bellevue to SR 527 (PM Peak Period)

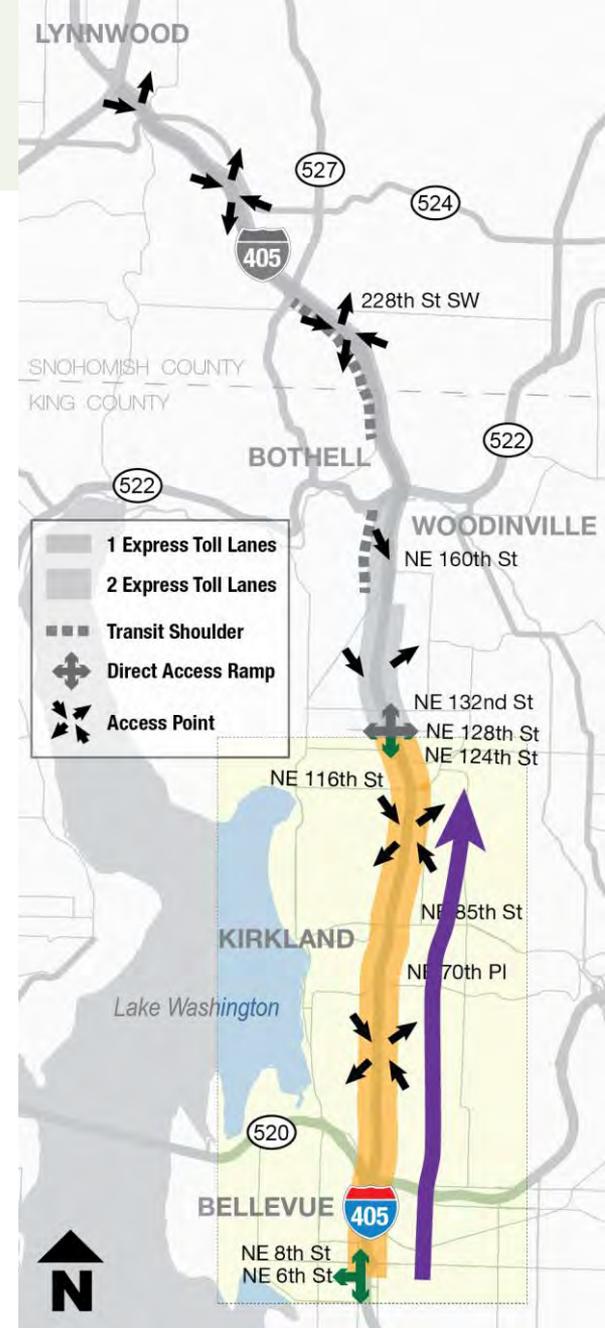
Timeframe Comparison		GP Lane Travel Times in Minutes		Change in Travel Times	
		Average	(95 <sup>th</sup> Percentile)	Average	Reliable
Oct	2014	28	(38)	<b>2 minutes faster</b>	<b>4 minutes faster</b>
	2015	26	(34)		
Jan	2015	28	(36)	<b>3 minutes faster</b>	<b>1 minute faster</b>
	2016	25	(35)		
May	2015	28	(38)	<b>2 minutes faster</b>	<b>4 minutes faster</b>
	2016	26	(34)		
Aug	2015	27	(33)	<b>1 minute slower</b>	<b>1 minute slower</b>
	2016	28	(34)		



I-405 is moving more vehicles at faster speeds in most sections

## Northbound I-405 from Bellevue to NE 116th (PM Peak Period)

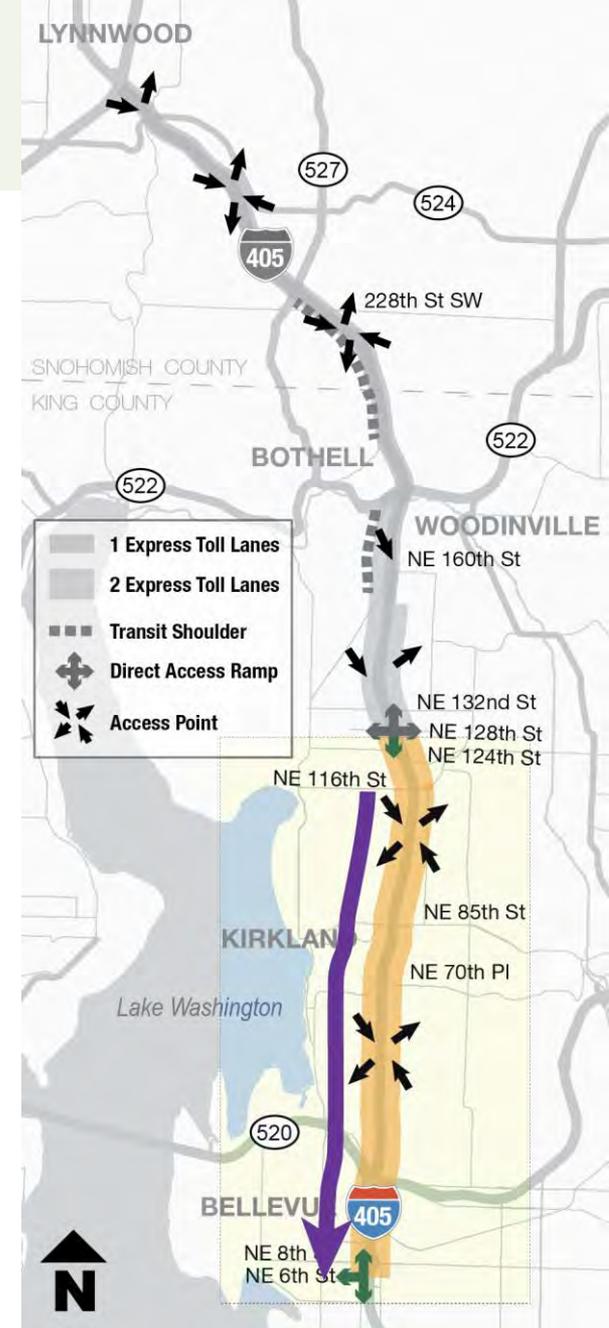
Timeframe Comparison		GP Lane Travel Times in Minutes		Change in Travel Times	
		Average	(95 <sup>th</sup> Percentile)	Average	Reliable
Oct	2014	16	(24)	<b>3 minutes faster</b>	<b>6 minutes faster</b>
	2015	13	(18)		
Jan	2015	16	(22)	<b>4 minutes faster</b>	<b>4 minutes faster</b>
	2016	12	(18)		
May	2015	16	(23)	<b>4 minutes faster</b>	<b>7 minutes faster</b>
	2016	12	(16)		
Aug	2015	16	(21)	<b>3 minutes faster</b>	<b>5 minutes faster</b>
	2016	13	(16)		



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## Southbound I-405 from NE 116th St to Bellevue (AM Peak Period)

Timeframe Comparison		GP Lane Travel Times in Minutes		Change in Travel Times	
		Average	(95 <sup>th</sup> Percentile)	Average	Reliable
Oct	2014	12	(13)	<b>2 minutes faster</b>	<b>2 minutes faster</b>
	2015	10	(11)		
Jan	2015	11	(13)	<b>2 minutes faster</b>	<b>1 minute faster</b>
	2016	9	(12)		
May	2015	11	(13)	<b>2 minutes faster</b>	<b>2 minutes faster</b>
	2016	9	(11)		
Aug	2015	10	(11)	<b>1 minute faster</b>	<b>1 minute faster</b>
	2016	9	(10)		



# I-405 is moving more vehicles at faster speeds in most sections

## Westbound SR 520 at 148th Ave NE to Northbound I-405 at SR 522 (PM Peak Period)

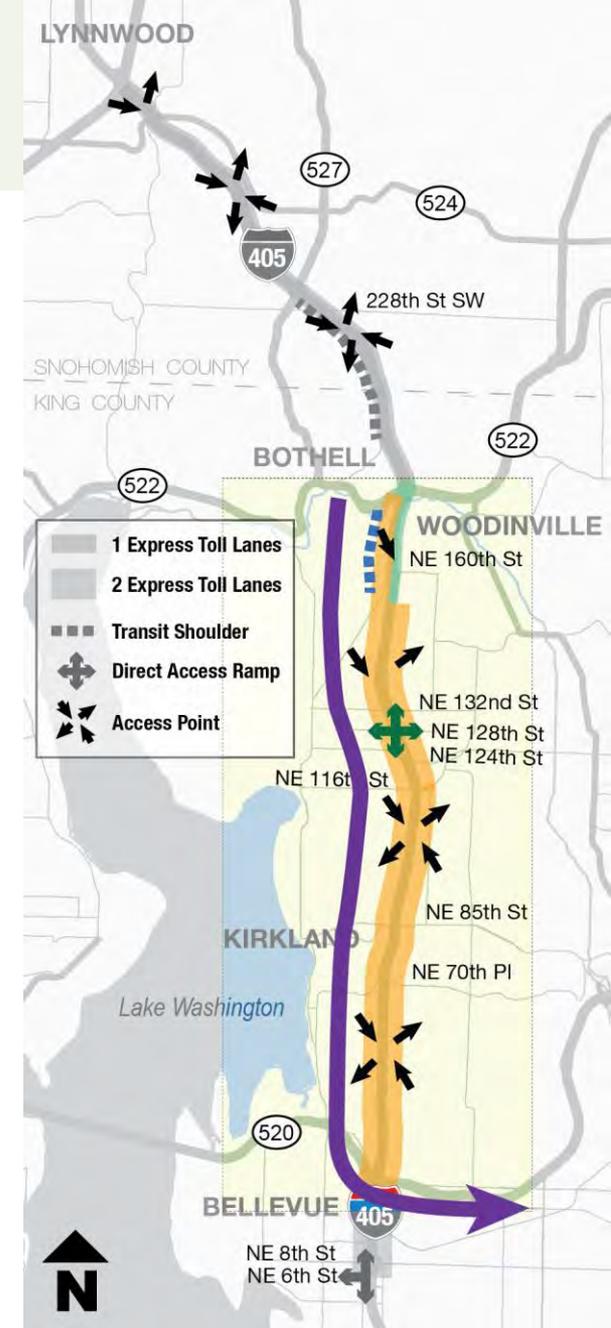
Timeframe Comparison		GP Lane Travel Times in Minutes		Change in Travel Times	
		Average	(95 <sup>th</sup> Percentile)	Average	Reliable
Oct	2014	27	(38)	<b>7 minutes faster</b>	<b>11 minutes faster</b>
	2015	20	(27)		
Jan	2015	26	(32)	<b>6 minutes faster</b>	<b>3 minutes faster</b>
	2016	20	(29)		
May	2015	28	(40)	<b>6 minutes faster</b>	<b>11 minutes faster</b>
	2016	22	(29)		
Aug	2015	24	(30)	<b>1 minute faster</b>	<b>1 minute faster</b>
	2016	23	(29)		



I-405 is moving more vehicles at faster speeds in most sections

## Southbound I-405 at SR 522 to Eastbound SR 520 at 148th Ave NE (AM Peak Period)

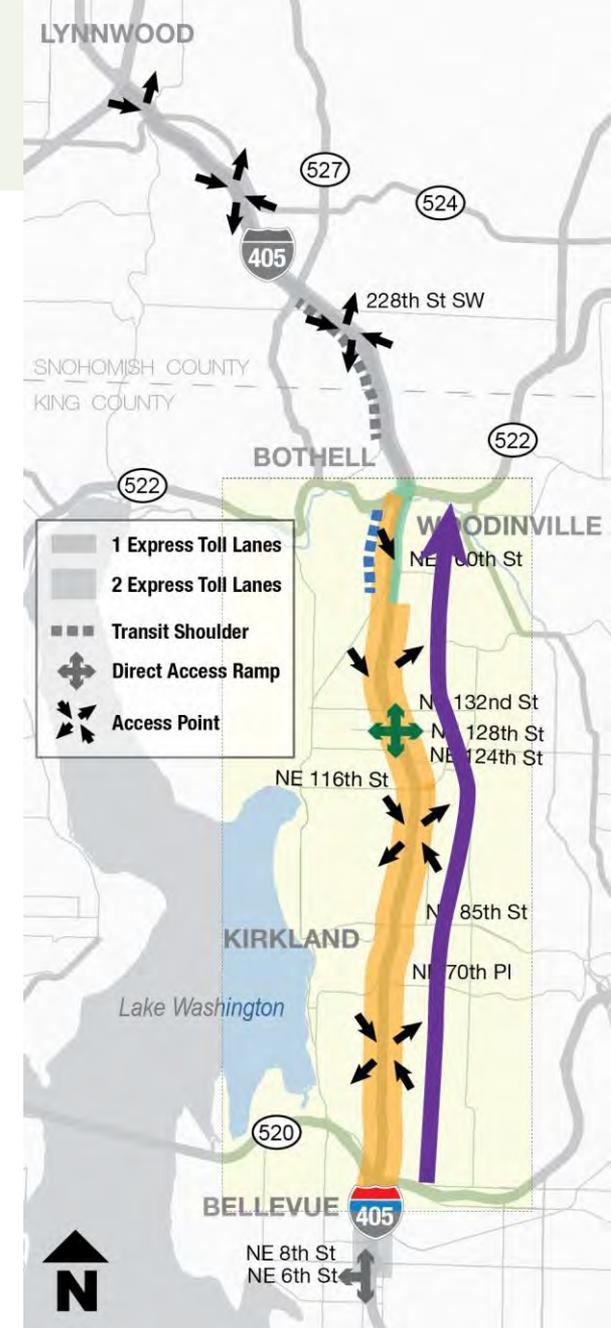
Timeframe Comparison		GP Lane Travel Times in Minutes		Change in Travel Times	
		Average	(95 <sup>th</sup> Percentile)	Average	Reliable
Oct	2014	23	(27)	<b>5 minutes faster</b>	<b>6 minutes faster</b>
	2015	18	(21)		
Jan	2015	21	(25)	<b>5 minutes faster</b>	<b>5 minutes faster</b>
	2016	16	(20)		
May	2015	21	(24)	<b>5 minutes faster</b>	<b>6 minutes faster</b>
	2016	16	(18)		
Aug	2015	20	(23)	<b>5 minutes faster</b>	<b>6 minutes faster</b>
	2016	15	(17)		



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## Northbound I-405 from Bellevue to SR 522 (PM Peak Period)

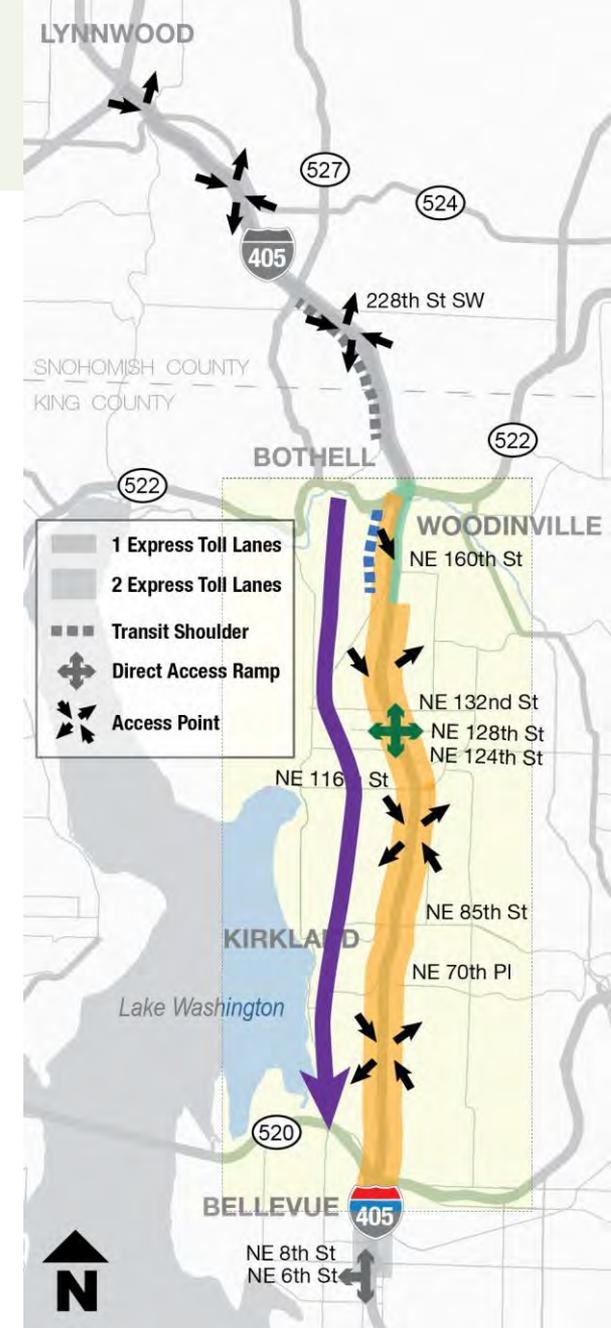
Timeframe Comparison		GP Lane Travel Times in Minutes		Change in Travel Times	
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Oct	2014	24	(23)	<b>3 minutes faster</b>	<b>1 minute faster</b>
	2015	19	(22)		
Jan	2015	24	(31)	<b>3 minutes faster</b>	<b>4 minutes faster</b>
	2016	19	(27)		
May	2015	23	(33)	<b>3 minutes faster</b>	<b>7 minutes faster</b>
	2016	20	(26)		
Aug	2015	23	(30)	<b>3 minutes faster</b>	<b>4 minutes faster</b>
	2016	20	(26)		



I-405 is moving more vehicles at faster speeds in most sections

## Southbound I-405 from SR 522 to Bellevue (AM Peak Period)

Timeframe Comparison		GP Lane Travel Times in Minutes		Change in Travel Times	
		Average	(95 <sup>th</sup> Percentile)	Average	Reliable
Oct	2014	21	(25)	<b>2 minutes faster</b>	<b>3 minutes faster</b>
	2015	19	(22)		
Jan	2015	19	(22)	<b>5 minutes faster</b>	<b>5 minutes faster</b>
	2016	14	(17)		
May	2015	19	(22)	<b>5 minutes faster</b>	<b>6 minutes faster</b>
	2016	14	(16)		
Aug	2015	17	(20)	<b>4 minutes faster</b>	<b>5 minutes faster</b>
	2016	13	(15)		



I-405 is moving more vehicles at faster speeds in most sections

## Southbound I-405 from SR 527 to Bellevue (AM Peak Period)

Timeframe Comparison		GP Lane Travel Times in Minutes		Change in Travel Times	
		Average	(95 <sup>th</sup> Percentile)	Average	Reliable
Oct	2014	33	(40)	<b>9 minutes faster</b>	<b>11 minutes faster</b>
	2015	24	(29)		
Jan	2015	27	(35)	<b>5 minutes faster</b>	<b>6 minutes faster</b>
	2016	22	(29)		
May	2015	28	(34)	<b>7 minutes faster</b>	<b>9 minutes faster</b>
	2016	21	(25)		
Aug	2015	25	(33)	<b>4 minutes faster</b>	<b>9 minutes faster</b>
	2016	21	(24)		

