

I-405/SR 167 Corridor

Executive Advisory Group

Meeting #2

Bellevue City Hall

July 18, 2016

Introductions

Roger Millar, P.E., AICP
Acting Secretary of Transportation

Agenda

- Introductions
- I-405 Partner Program Updates
 - Sound Transit
 - King County Parks
 - WSDOT
- Public Comment
- Wrap-up and next steps

I-405 Master Plan

Regional Consensus

- EIS Record of Decision, 2002

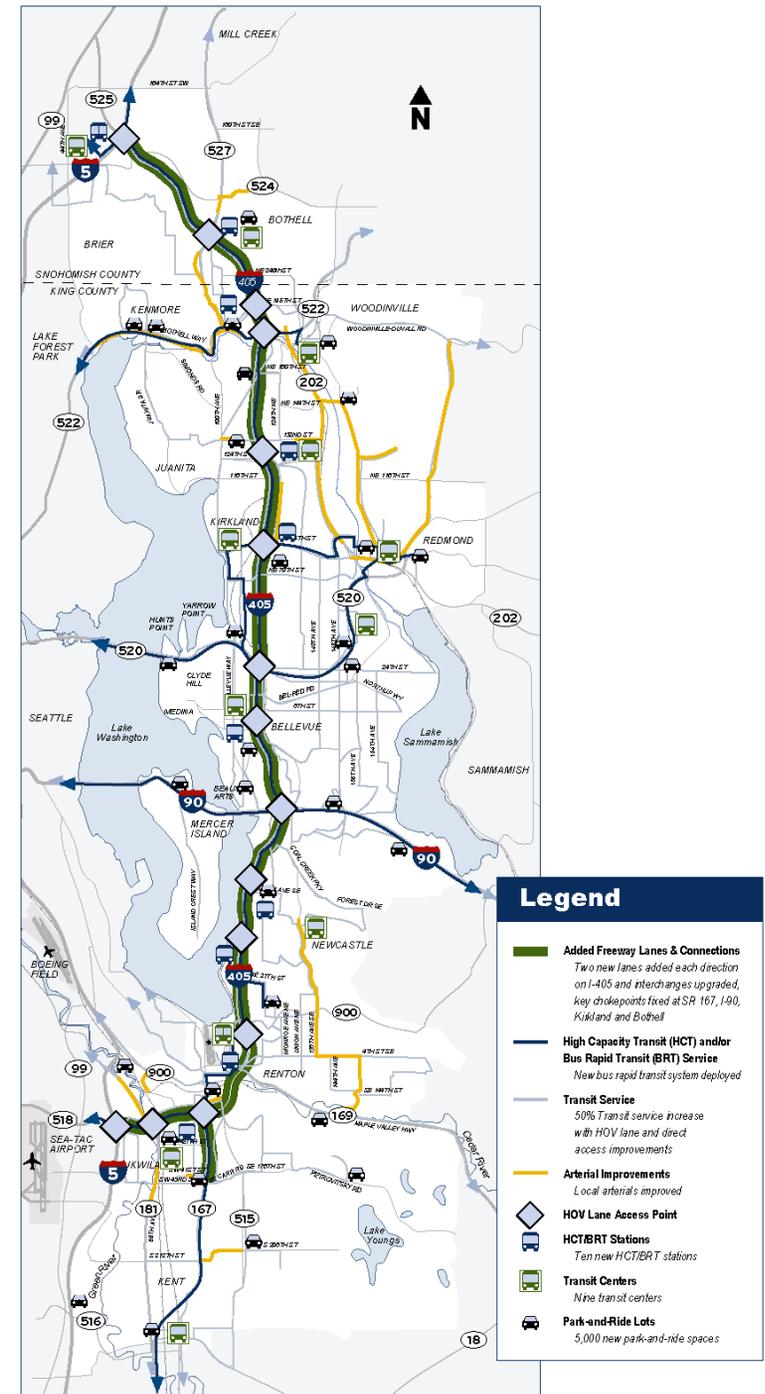
Roadways

- 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





I-405/SR 167 Executive Advisory Group meeting

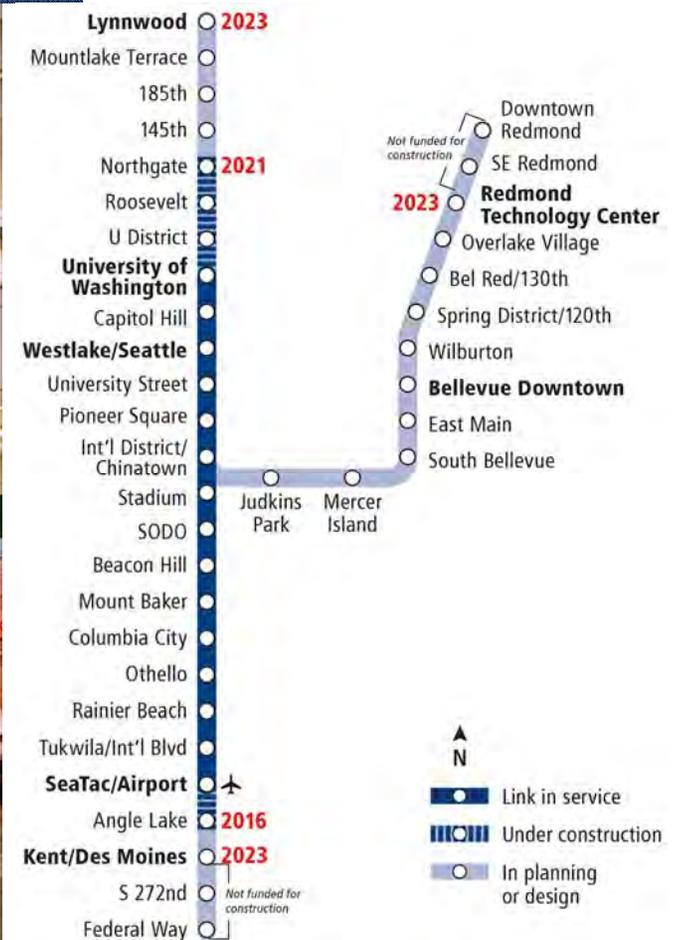
Ric Ilgenfritz, Executive Director, Planning, Environmental & Project Development
July 18, 2016



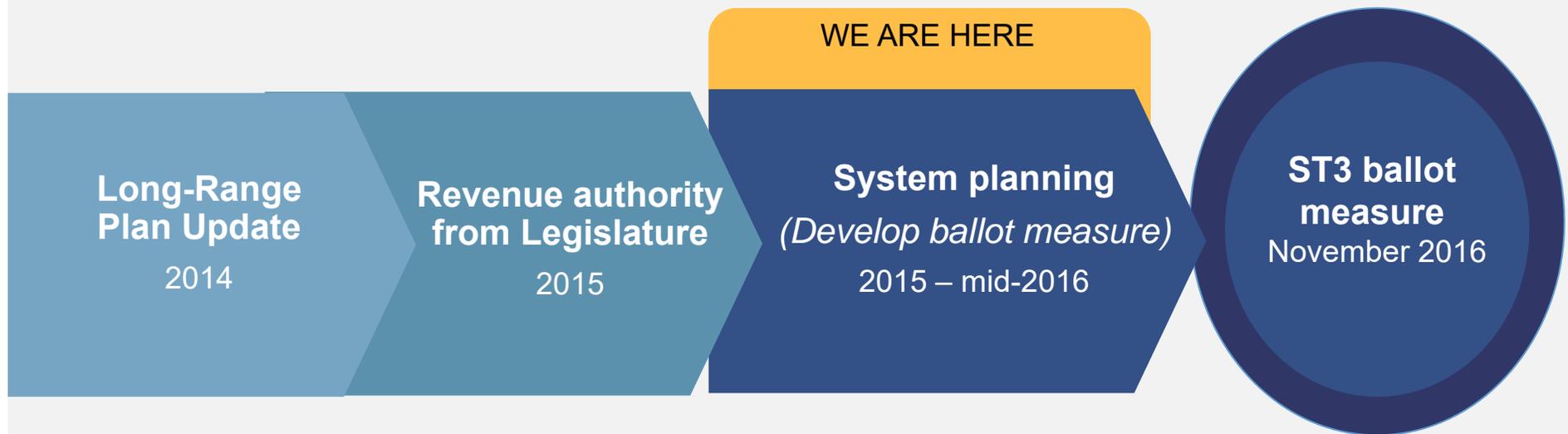
Regional Link Light Rail Expansion



By 2023, Puget Sound will have 50+ miles of light rail, with 30+ stations, directly connecting 11 cities



ST3 Timeline



ST3 Adopted Plan Eastside Projects

Light Rail

- Redmond Technology Center to Downtown Redmond (~~2028~~) (2024)
- ~~Bellevue~~ South Kirkland to Issaquah

BRT

- I-405:
 - Central Kirkland freeway station and bus-only lanes on NE 85th Street
 - South Renton transit center and parking garage
 - Bus only lanes from TIBS to Burien transit center on SR 518
- SR 522

Other

- Bothell to Bellevue Environmental Study
- HCT study: Northern Lake Washington

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Light Rail

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- ~~Bellevue~~ **South Kirkland** to Issaquah

BRT

- I-405:
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 - **NE 44th Street freeway station, direct access ramps and surface parking**
- SR 522

Other

- Bothell to Bellevue Environmental Study
- HCT study: Northern Lake Washington

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Other

- Bothell to Bellevue Environmental Study: examine multiple north/south corridor options
- HCT study: Northern Lake Washington

ST3 Adopted Plan Eastside Projects

Light Rail

- Redmond Technology Center to Downtown Redmond (2028) (2024)
- ~~Bellevue~~ **South Kirkland** to Issaquah

BRT

- I-405:
 - Central Kirkland freeway station and bus-only lanes on NE 85th Street
 - South Renton transit center and parking garage
 - Bus only lanes from TIBS to Burien transit center on SR 518
 - **NE 44th Street freeway station, direct access ramps and surface parking**
- SR 522

Other

- Bothell to Bellevue Environmental Study: **examine multiple north/south corridor options including the Eastside Rail Corridor and I-405**
- HCT study: Northern Lake Washington
- **North Sammamish park and ride**

ST3 Adopted Plan Eastside Projects



- Overlake to Downtown Redmond LRT
- South Kirkland to Bellevue to Issaquah LRT
- I-405 BRT
- SR 522 BRT
- Bothell-Bellevue HCT Study
- North Sammamish park & ride

Eastside Cities Served



Bus Rapid Transit I-405 & SR 522

- Bellevue (1 station)
- Bothell (6 stations)
- Kenmore (2 stations)
- Kirkland (2 stations)
- Renton (2 stations)

13 stations

Light Rail

- Bellevue (8 stations)
- Issaquah (1 station)
- Kirkland (1 station)
- Mercer Island (1 station)
- Redmond (4 stations)

15 stations

Express Bus/Parking

- Sammamish
- Woodinville

*includes ST2 & ST3 project

I-405 BRT- Candidate Projects

ST3 CANDIDATE PROJECT:

I-405 BUS RAPID TRANSIT

Corridor Options

- Bus operates in I-405 Express Toll Lanes



MAP KEY

- LOWER CAPITAL OPTION
- INTENSIVE CAPITAL OPTION
- BRT STATION
- EXISTING FACILITY

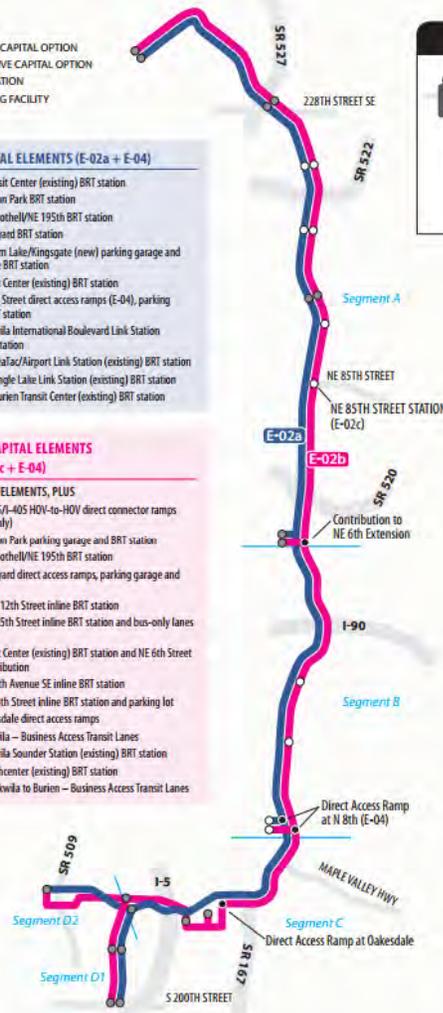
LOWER CAPITAL ELEMENTS (E-02a + E-04)

- Lynnwood Transit Center (existing) BRT station
- Bothell – Canyon Park BRT station
- Bothell – UW Bothell/NE 195th BRT station
- Bothell – Brickyard BRT station
- Kirkland – Totem Lake/Kingsgate (new) parking garage and (existing) inline BRT station
- Bellevue Transit Center (existing) BRT station
- Renton – N 8th Street direct access ramps (E-04), parking garage and BRT station
- Tukwila – Tukwila International Boulevard Link Station (existing) BRT station
- Segment D1: Sea-Tac/Airport Link Station (existing) BRT station
- Segment D1: Angle Lake Link Station (existing) BRT station
- Segment D2: Burien Transit Center (existing) BRT station

INTENSIVE CAPITAL ELEMENTS (E-02b + E-02c + E-04)

LOWER CAPITAL ELEMENTS, PLUS

- Lynnwood – I-5/I-405 HOV-to-HOV direct connector ramps (SE quadrant only)
- Bothell – Canyon Park parking garage and BRT station
- Bothell – UW Bothell/NE 195th BRT station
- Bothell – Brickyard direct access ramps, parking garage and BRT station
- Kirkland – NE 112th Street inline BRT station
- Kirkland – NE 85th Street inline BRT station and bus-only lanes (E-02c)
- Bellevue Transit Center (existing) BRT station and NE 6th Street Extension contribution
- Bellevue – 112th Avenue SE inline BRT station
- Renton – NE 44th Street inline BRT station and parking lot
- Renton – Oakesdale direct access ramps
- Renton to Tukwila – Business Access Transit Lanes
- Tukwila – Tukwila Sounder Station (existing) BRT station
- Tukwila – Southcenter (existing) BRT station
- Segment D2: Tukwila to Burien – Business Access Transit Lanes



* RELIES ON WSDOT TO MANAGE THE EXPRESS TOLL LANES TO PROVIDE SPEED AND RELIABILITY FOR BUSES

REGIONAL LIGHT RAIL SPINE		NO	NO	NO	NO
	RIDERSHIP (DAILY PROJECT RIDERS)	13,000—18,000	13,000—18,000	13,000—18,000	13,000—18,000
	CAPITAL COST (2014 \$M)	\$317—\$341	\$323—\$348	\$2,174—\$2,326	\$1,961—\$2,099
	ANNUAL O&M COST (2014 \$M)	\$43.02	\$45.58	\$45.68	\$48.24
	TRAVEL TIME (MIN)	100	105	105	110
	RELIABILITY*	MEDIUM	MEDIUM	MEDIUM-HIGH	MEDIUM-HIGH
	SYSTEM INTEGRATION	MEDIUM	MEDIUM	MEDIUM	MEDIUM
	EASE OF NON-MOTORIZED ACCESS	MEDIUM-LOW	MEDIUM-LOW	MEDIUM-LOW	MEDIUM-LOW
	PERCENT OF NON-MOTORIZED ACCESS	20—80%	20—80%	20—80%	20—80%
	CONNECTION TO PSRC-DESIGNATED REGIONAL CENTERS	7 CENTERS	7 CENTERS	7 CENTERS	7 CENTERS
PLANS AND POLICIES		MEDIUM-HIGH	MEDIUM-HIGH	MEDIUM	MEDIUM
MARKET SUPPORT		MEDIUM	MEDIUM	MEDIUM	MEDIUM
	LAND USE AND DEVELOPMENT/TOD POTENTIAL				
	POP PER ACRE (2014/2040)	8 / 13	7 / 12	6 / 10	6 / 10
	EMP PER ACRE (2014/2040)	13 / 22	13 / 22	11 / 18	11 / 18
	POP+EMP PER ACRE (2014/2040)	21 / 35	20 / 34	17 / 28	17 / 28
	MINORITY/LOW-INCOME	39% / 13%	42% / 14%	37% / 11%	40% / 12%
	POPULATION (2014/2040)	34,800 / 57,300	35,700 / 59,600	46,000 / 73,100	46,900 / 75,400
	EMPLOYMENT (2014/2040)	60,000 / 99,200	63,800 / 109,200	78,100 / 127,400	81,900 / 137,400

Alignments and stations shown are representative and are identified for purposes of cost estimating, ridership forecasting and other evaluation measures.

LOWER CAPITAL OPTION		INTENSIVE CAPITAL OPTION	
ST3 Candidate Project E-02a + E-04		ST3 Candidate Project E-02b + E-02c + E-04	
Length: 37.1 Miles	Length: 37.9 Miles	Length: 40.4 Miles	Length: 40.6 Miles
To Burien TC	To Angle Lake	To Burien TC	To Angle Lake
NO	NO	NO	NO
13,000—18,000	13,000—18,000	13,000—18,000	13,000—18,000
\$317—\$341	\$323—\$348	\$2,174—\$2,326	\$1,961—\$2,099
\$43.02	\$45.58	\$45.68	\$48.24
100	105	105	110
MEDIUM	MEDIUM	MEDIUM-HIGH	MEDIUM-HIGH
MEDIUM	MEDIUM	MEDIUM	MEDIUM
MEDIUM-LOW	MEDIUM-LOW	MEDIUM-LOW	MEDIUM-LOW
20—80%	20—80%	20—80%	20—80%
7 CENTERS	7 CENTERS	7 CENTERS	7 CENTERS
MEDIUM-HIGH	MEDIUM-HIGH	MEDIUM	MEDIUM
MEDIUM	MEDIUM	MEDIUM	MEDIUM
8 / 13	7 / 12	6 / 10	6 / 10
13 / 22	13 / 22	11 / 18	11 / 18
21 / 35	20 / 34	17 / 28	17 / 28
39% / 13%	42% / 14%	37% / 11%	40% / 12%
34,800 / 57,300	35,700 / 59,600	46,000 / 73,100	46,900 / 75,400
60,000 / 99,200	63,800 / 109,200	78,100 / 127,400	81,900 / 137,400

SOUND TRANSIT 3

**I-405
BUS RAPID TRANSIT**
I-405 BRT ELEMENTS

- » Lynnwood Transit Center (existing) BRT station
- » Bothell – Canyon Park (existing) BRT station
- » Bothell – UW Bothell/NE 195th (existing) BRT station
- » Bothell – Brickyard (existing) BRT station
- » Kirkland – Totem Lake/Kingsgate (new) parking garage and (existing) inline BRT station
- » Kirkland – NE 85th Street (new) BRT station
- » Kirkland – Bus-only lanes on NE 85th Street from I-405 to 6th Street
- » Bellevue Transit Center (existing) BRT station
- » Renton – NE 44th Street (new) BRT station and direct access ramps with (new) parking lot
- » Renton – South Renton (new) BRT station with transit center and (new) parking garage
- » Tukwila – Tukwila International Boulevard Link Station (existing) BRT station
- » Tukwila to Burien – Bus-only lanes on SR 518 and other transit priority treatments
- » Burien Transit Center (existing) BRT Station

* The I-405 BRT project definition includes separate operating lines north and south connecting in downtown Bellevue and does not double count the transfers between the two lines at Bellevue.

Alignments and stations shown are representative and are identified for purposes of cost estimating, relationship forecasting and other evaluation measures.



I-405 BRT- Adopted Plan Highlights

- 10 minute frequency in peak hours, 15 minute off-peak
- New stations at:
 - NE 85th Street in Kirkland
 - NE 44th Street in north Renton
 - Grady Way/Rainier in South Renton
- Connections at existing transit facilities and with SR 522 BRT
- Sound Transit will coordinate with WSDOT on implementation of the I-405 Master Plan, including additional capital projects to improve bus speed and reliability, should funding become available

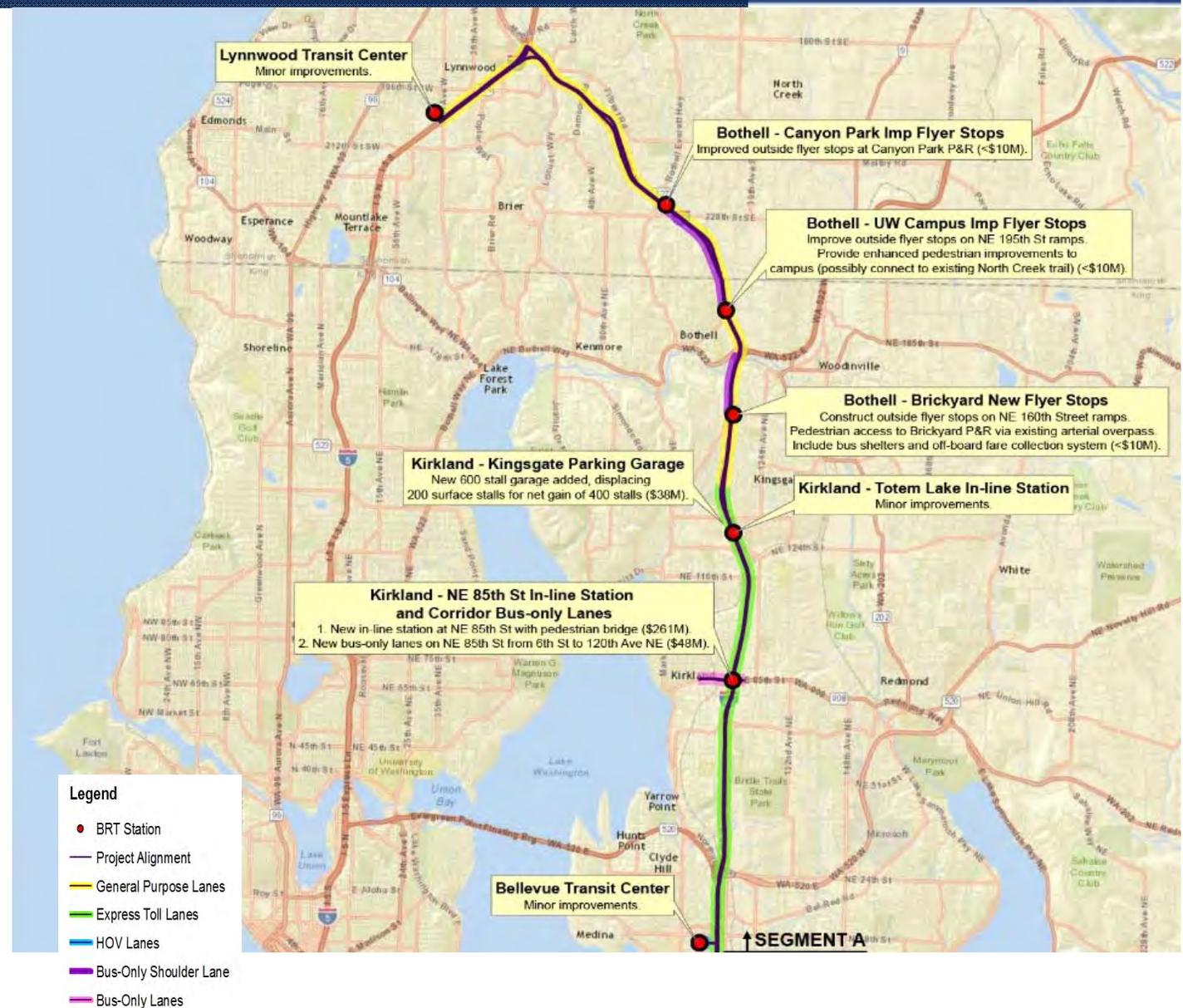
93% ridership potential captured

 LENGTH (MILES)	38
 REGIONAL LIGHT RAIL SPINE	NO
 RIDERSHIP (DAILY PROJECT RIDERS)	15,000—18,000*
 CAPITAL COST (2014 \$ M)	\$812—\$869
 ANNUAL O&M COST (2014 \$ M)	\$26
 TRAVEL TIME (MIN)	87
 RELIABILITY	MEDIUM
 SYSTEM INTEGRATION	MEDIUM
 EASE OF NON-MOTORIZED ACCESS	MEDIUM-LOW
 PERCENT OF NON-MOTORIZED ACCESS	20—85%
 CONNECTION TO PSRC-DESIGNATED REGIONAL CENTERS	7 CENTERS
 LAND USE AND DEVELOPMENT/ TOD POTENTIAL	PLANS AND POLICIES MEDIUM MARKET SUPPORT MEDIUM
 SOCIOECONOMIC BENEFITS	ACTIVITY UNITS POP PER ACRE (2014/2040) 7 / 12 EMP PER ACRE (2014/2040) 12 / 21 POP+EMP PER ACRE (2014/2040) 19 / 33 MINORITY/LOW-INCOME 39% / 12% POPULATION (2014/2040) 37,400 / 65,800 EMPLOYMENT (2014/2040) 66,300 / 111,000

I-405 north BRT

Lynnwood to Bellevue

- In Express Toll Lanes and bus-only shoulder lanes for majority of trip
- In general purpose lanes from Lynnwood to Canyon Park
- Provides connection to SR 522 BRT at 195th/UW Bothell
- Serves Totem Lake
- Serves Central Kirkland



I-405 South/SR 518 BRT

Bellevue to Renton, Tukwila Int'l Blvd station & Burien Transit Center

- In Express Toll Lanes from Bellevue to S Renton
- In HOV lanes from S Renton to SR 518
- In GP lanes to Tukwila Int'l Blvd station (TIBS)
- In bus-only lanes from TIBS to Burien Transit Center





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Discussion: Sound Transit

Facilitated by:
Roger Millar, P.E., AICP
Acting Secretary of Transportation

Eastside Rail Corridor Regional Trail and WSDOT I-405 Project Coordination

I-405/SR 167 Executive Advisory Group Briefing

July 18, 2016

Erica Jacobs, ERC Project Manager, King County Parks

The Wilburton "Gap" – Reconnecting Across I-405



2007



2009



Wilburton Gap Design Workshop

June 8, 2016

▶ Workshop Objectives:

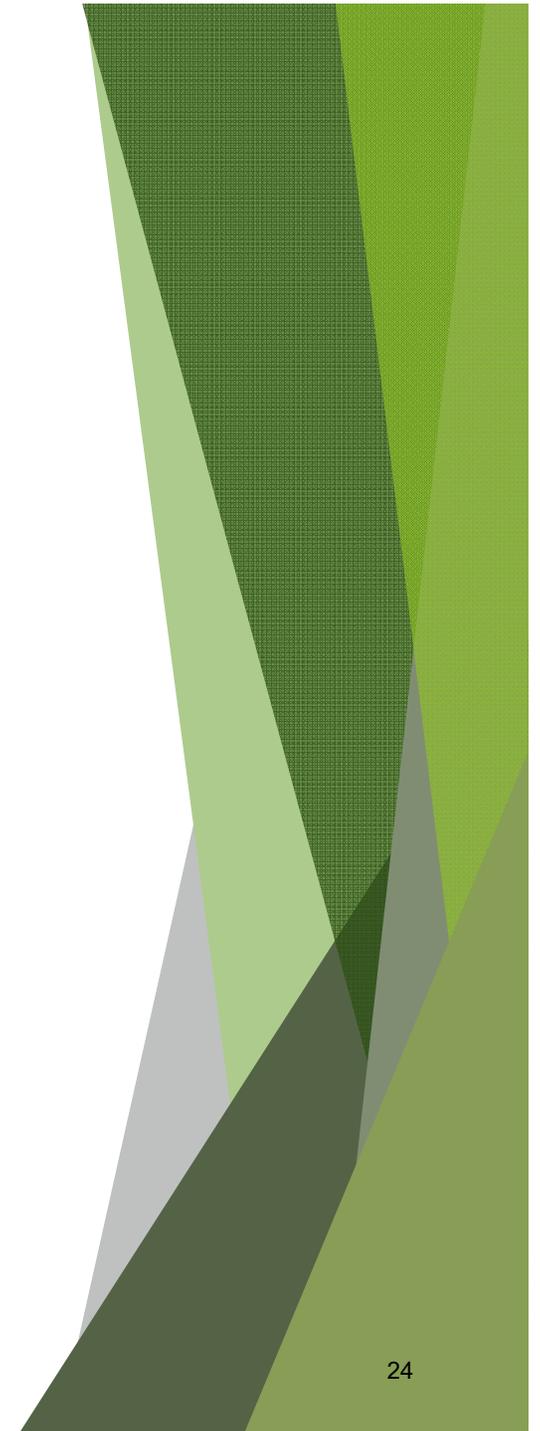
- ▶ Achieve agreement amongst King County, WSDOT, and City of Bellevue on the purpose and functions of the Wilburton crossing over I-405
- ▶ Identify 1-2 design concepts to meet this purpose and these functions

▶ Crossing Objectives

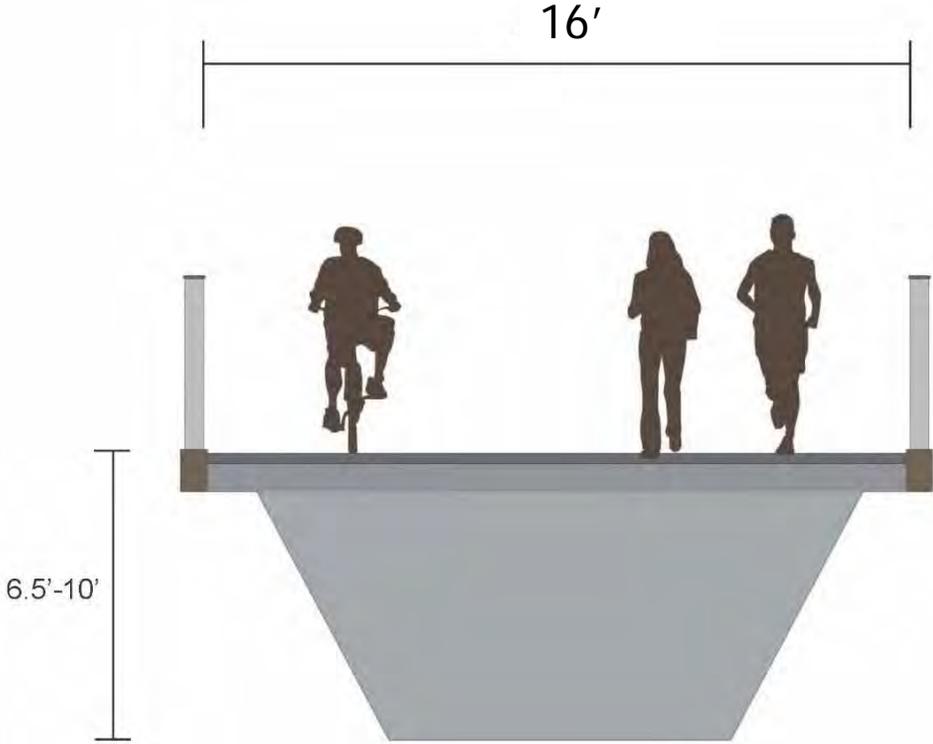
- ▶ Connection for cyclists and pedestrians: Commitment to closing gap in Eastside Rail Corridor regional trail across I-405
- ▶ Possible accommodation of landscaping for wildlife crossing
- ▶ Design/Aesthetics: Meet WSDOT and KC Design Standards
- ▶ Cost: Alignment that balances trail user needs with costs
- ▶ Schedule: Construct bridge during I-405 Renton to Bellevue project (2019-2024) for maximum efficiencies

Bridge Considerations

- ▶ Bridge Structure Types
- ▶ Span Length and Skew
- ▶ Functionality and Criteria
 - ▶ Bike/Ped Design Criteria
 - ▶ Wildlife Crossing Concepts
 - ▶ Multi-Use Corridor
 - ▶ Aesthetics
 - ▶ Cost (Construction and Maintenance)



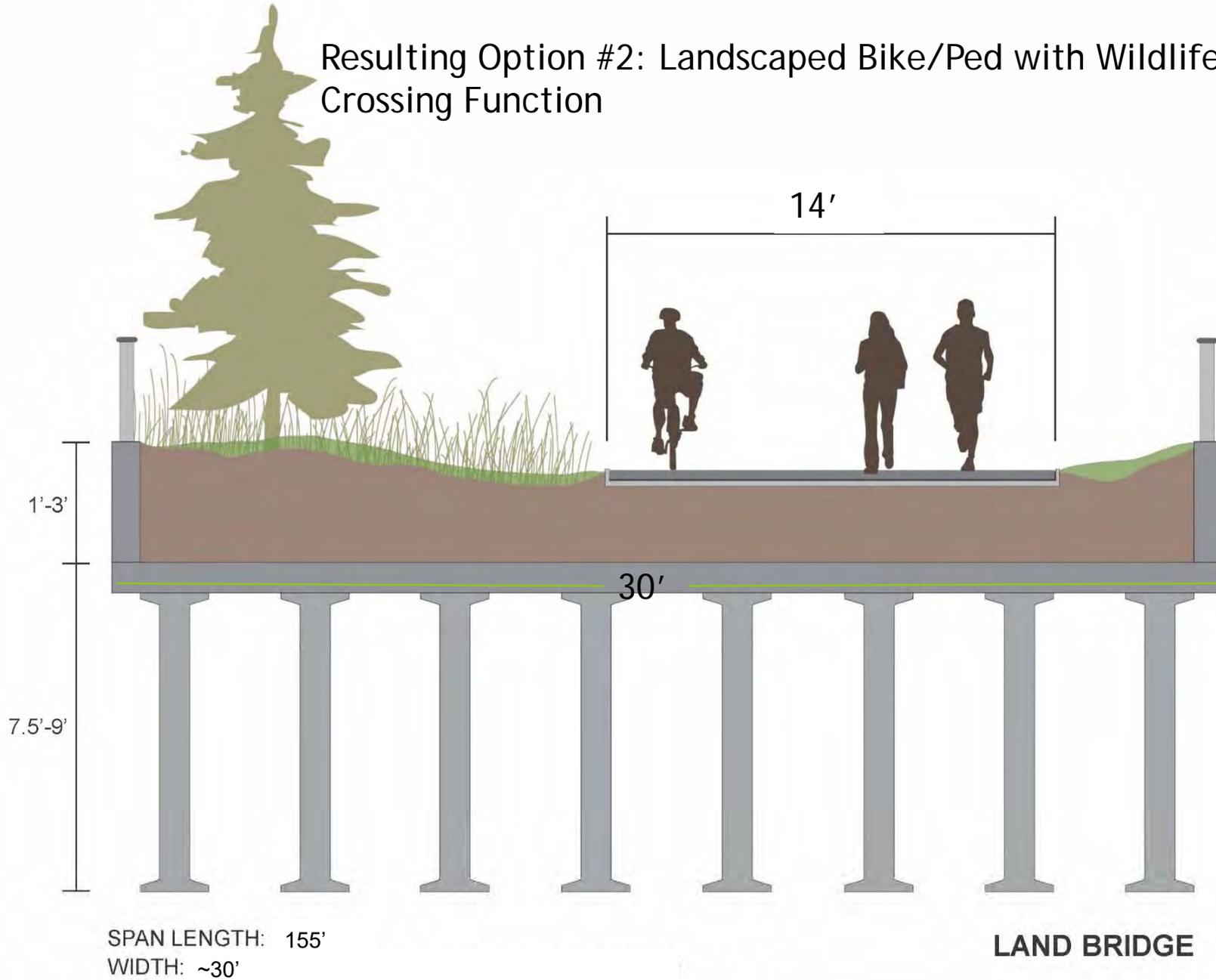
Resulting Option #1: Bike/Ped Trail Bridge on Concrete Girder Structure



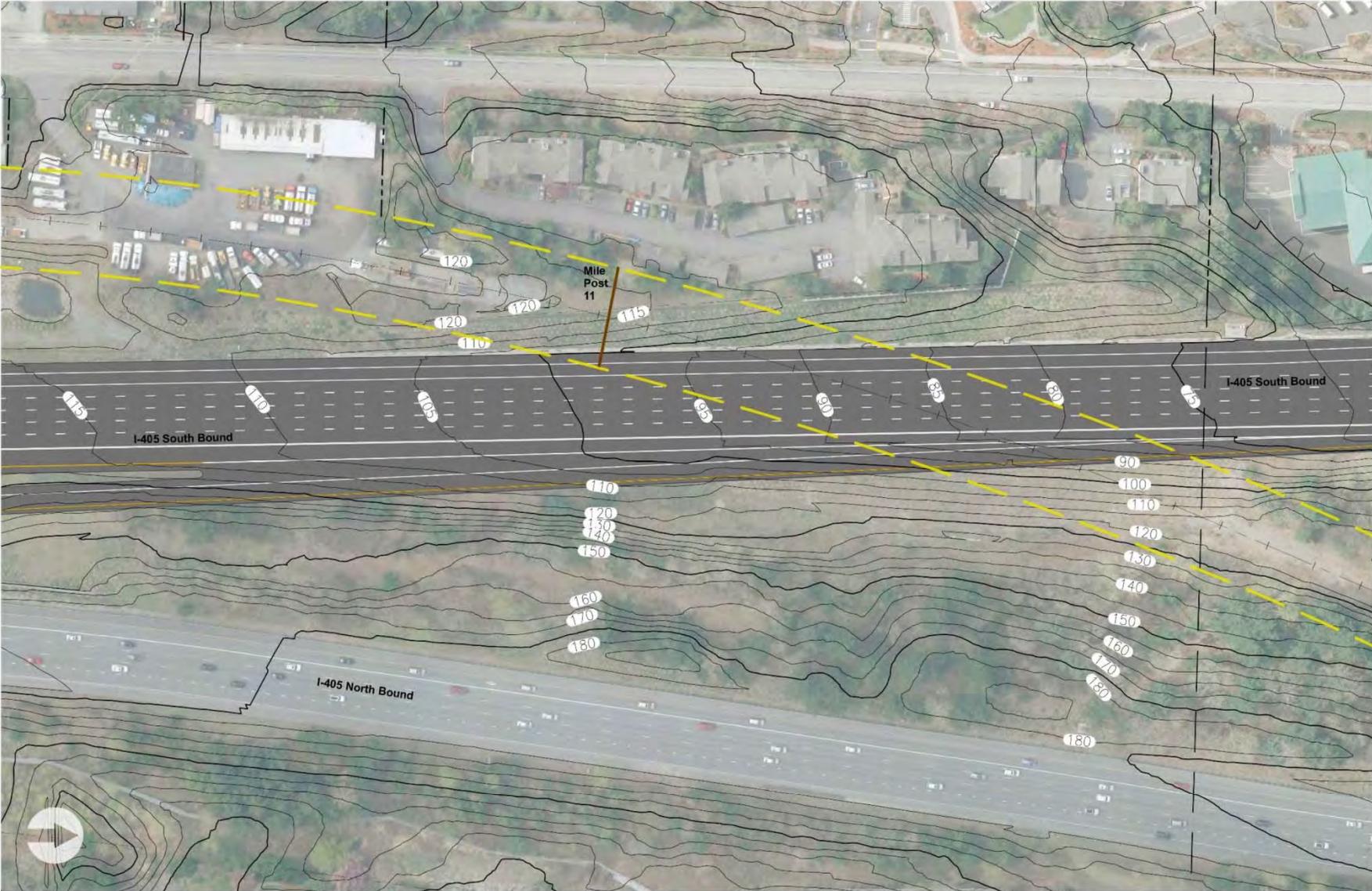
SPAN LENGTH: 155'
WIDTH: 16'

CONCRETE GIRDER

Resulting Option #2: Landscaped Bike/Ped with Wildlife Crossing Function

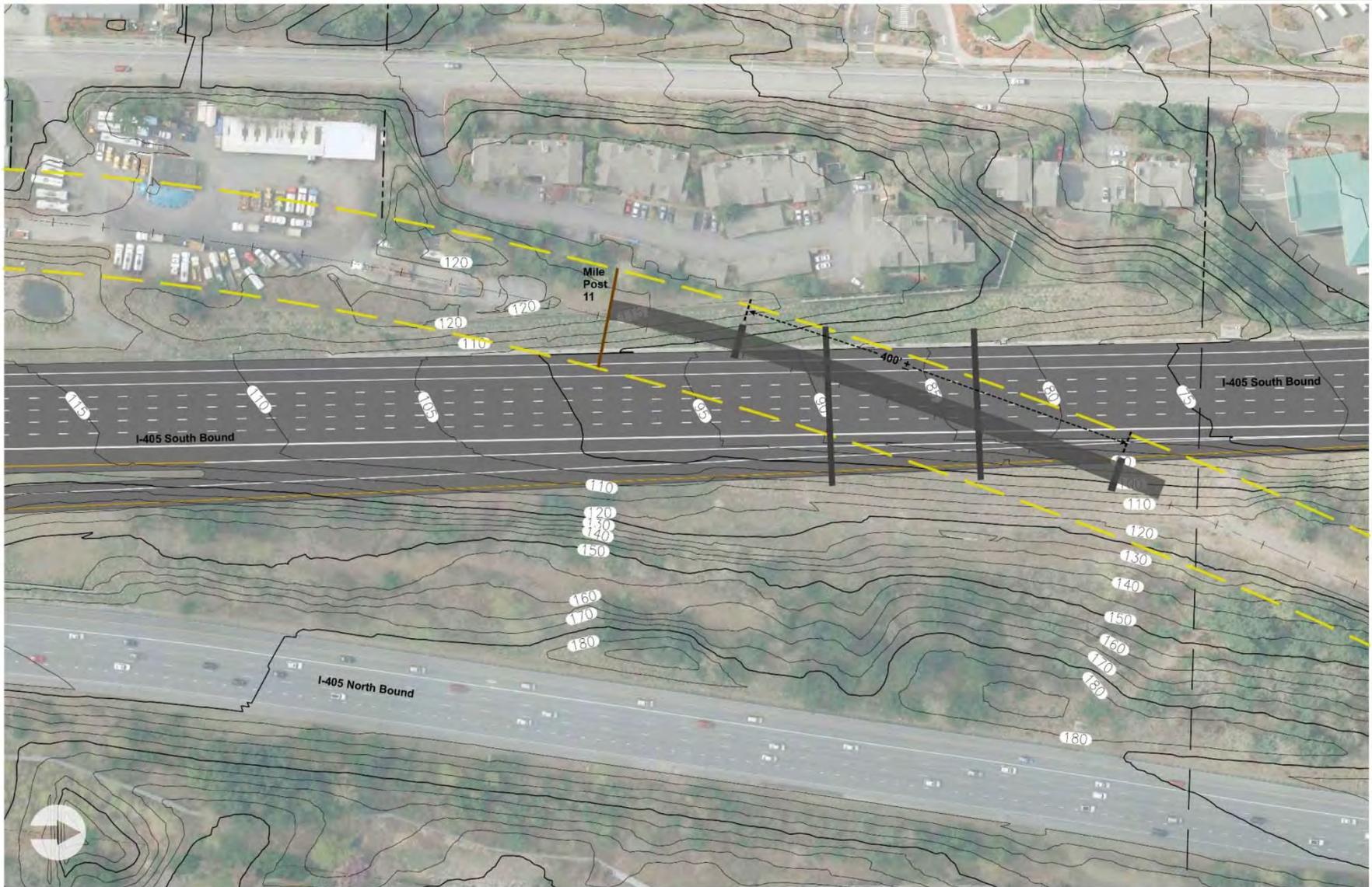


ERC RIGHT OF WAY AND PROPOSED HIGHWAY



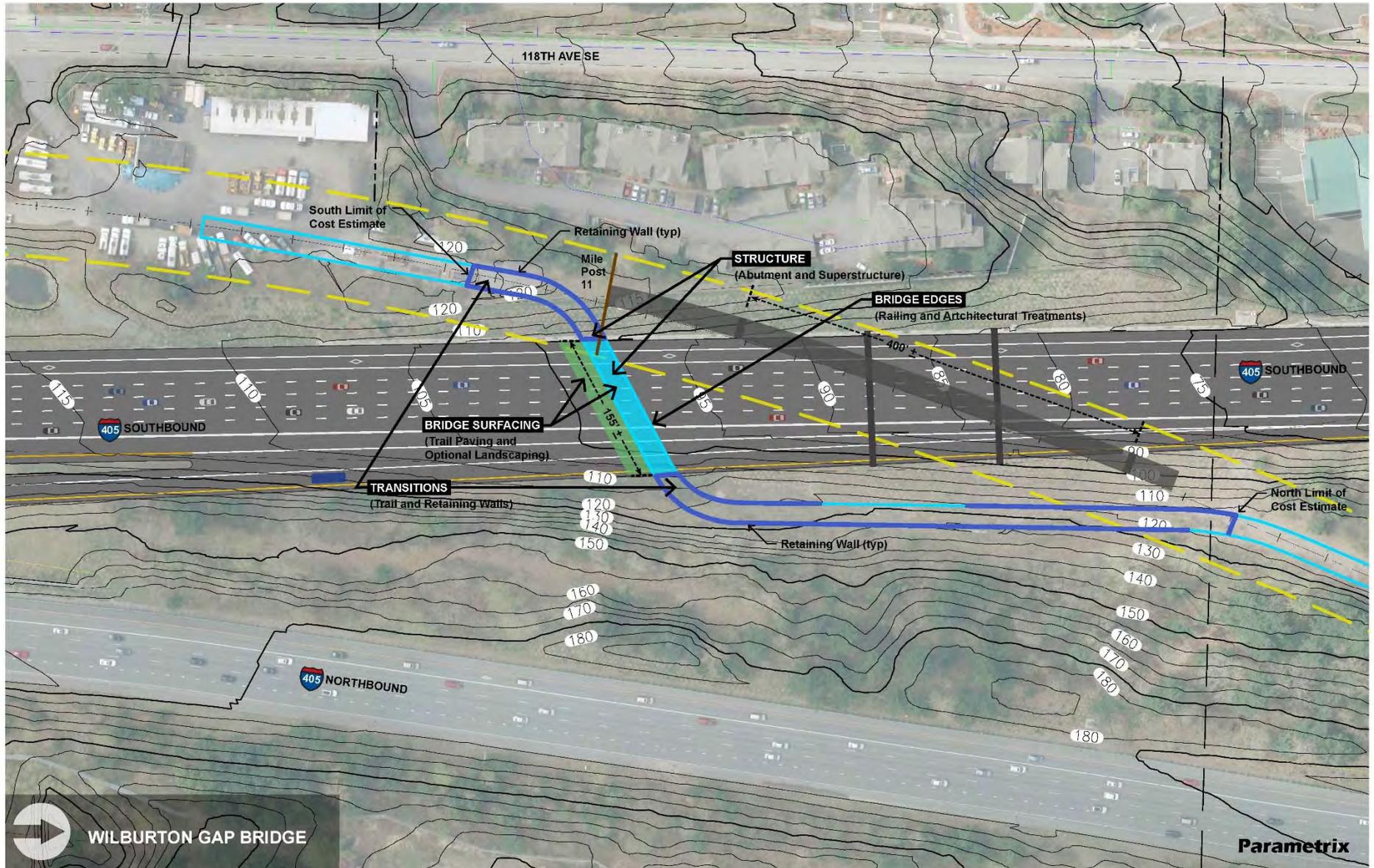
EASTSIDE RAIL CORRIDOR REGIONAL TRAIL MASTER PLAN PROJECT

FUTURE RAIL RESTABLISHMENT

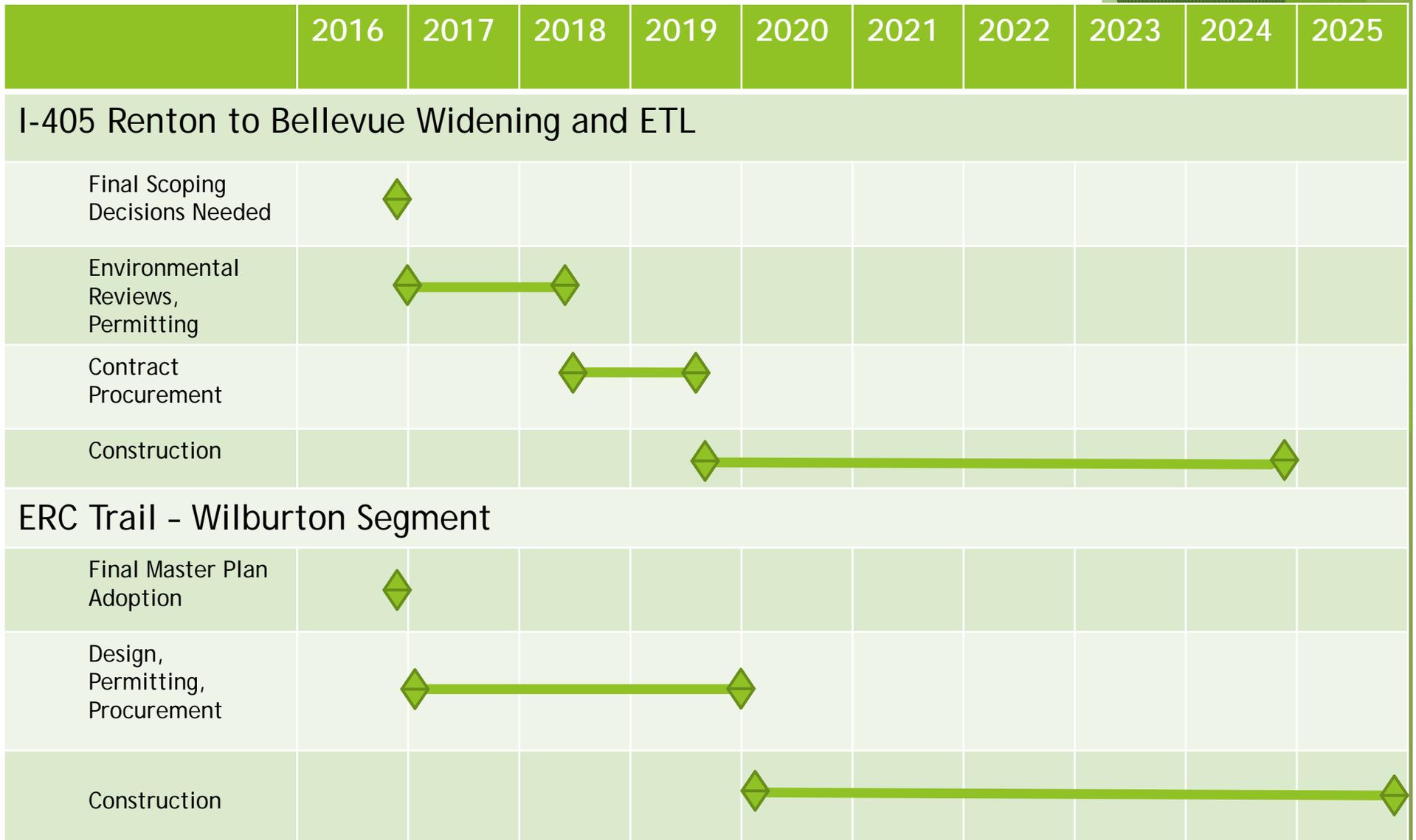


EASTSIDE RAIL CORRIDOR REGIONAL TRAIL MASTER PLAN PROJECT

CONSENSUS: BRIDGE SPAN AND SKEW



Project Schedules



Next Steps

- ▶ Follow-Up Meeting for Decisions: WSDOT, KC, COB (July/August)
 - ▶ Final Bridge Width and Functional Design Concept Decision
 - ▶ Cost Estimates For Two Width/Function Options - King County
 - ▶ Benefits Analysis for Wildlife Crossing - City of Bellevue
 - ▶ Maintenance Implications
 - ▶ Funding
 - ▶ Aesthetic Considerations
 - ▶ Process for Future Coordination and Reviews

Questions?

Erica Jacobs

ERC Project Manager, King County Parks

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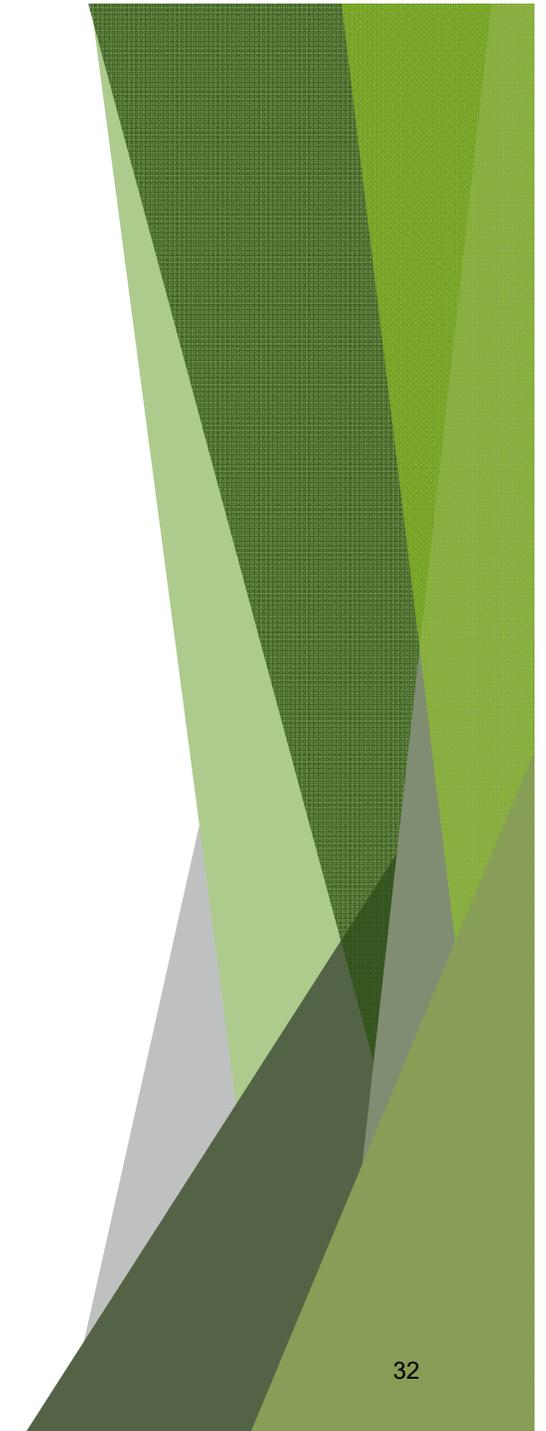
(206) 477-5539

Kim Henry

I-405/SR 167 Program Director, WSDOT

henryk@wsdot.wa.gov

(425) 456-8539



Discussion: King County

Facilitated by:
Roger Millar, P.E., AICP
Acting Secretary of Transportation

WSDOT I-405/SR 167 Update

Patty Rubstello, P.E.

Assistant Secretary, WSDOT Toll Division

Kim Henry, P.E.

I-405/SR 167 Corridor Program Director

Goals of Express Toll Lanes

- Improve speed and reliability in the HOV lanes
- Offer more choices to drivers
- Fund future corridor improvements



Nine month trends

Since opening the express toll lanes:



- Express toll lanes use continues to increase.
- In most sections, during peak period commutes I-405 is moving more vehicles at faster speeds across all lanes.
- Express toll lanes are moving more vehicles than previous HOV lanes.
- Currently express toll lanes are meeting the performance requirement of maintaining speeds of 45 mph 90 percent of the time during peak periods. However, more drivers are using the lanes, causing toll rates to reach the \$10 maximum more often and for longer durations.



- No impacts to traffic volumes on alternative routes have been found.

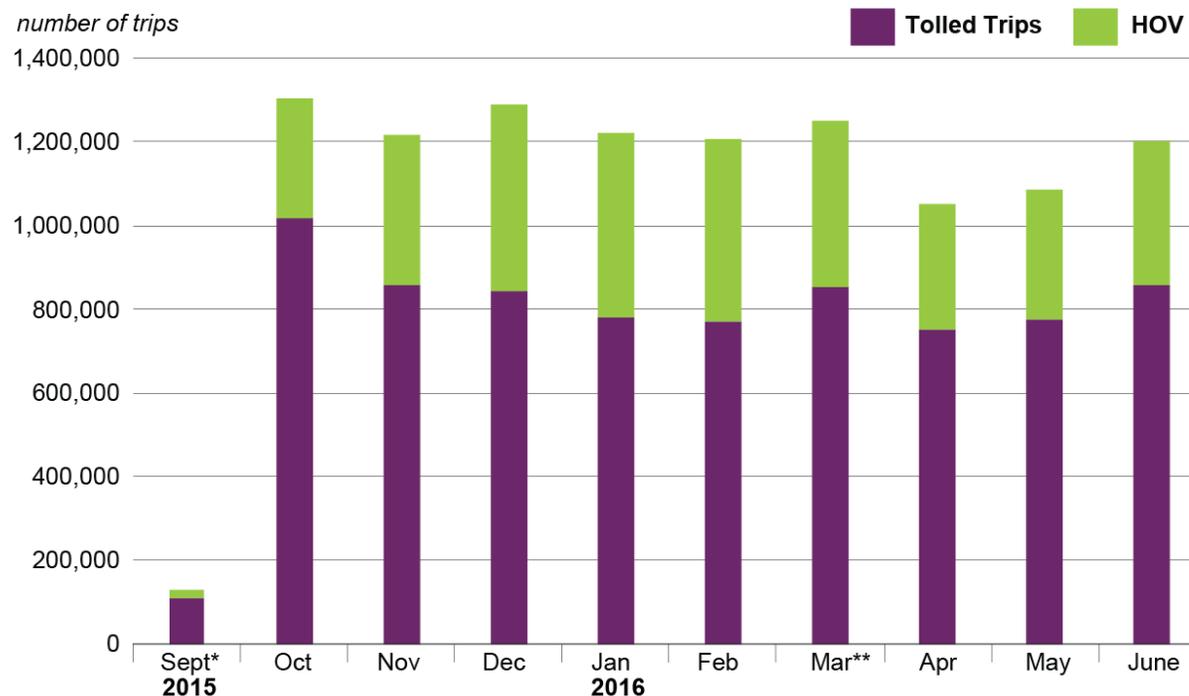


- Northbound through Bothell, general purpose lanes continue to be more congested than prior to express toll lanes.

More drivers are using express toll lanes

- More drivers are using the express toll lanes, following an initial drop with the change in hours of operation mid-March.
- By June, the total trip numbers were back to similar levels prior to the change – even with operating hours reduced by 58 percent.

I-405 express toll lanes total trips since opening



* Opening date: Sept. 27, 2015

** Hours of operation changed March 18, 2016

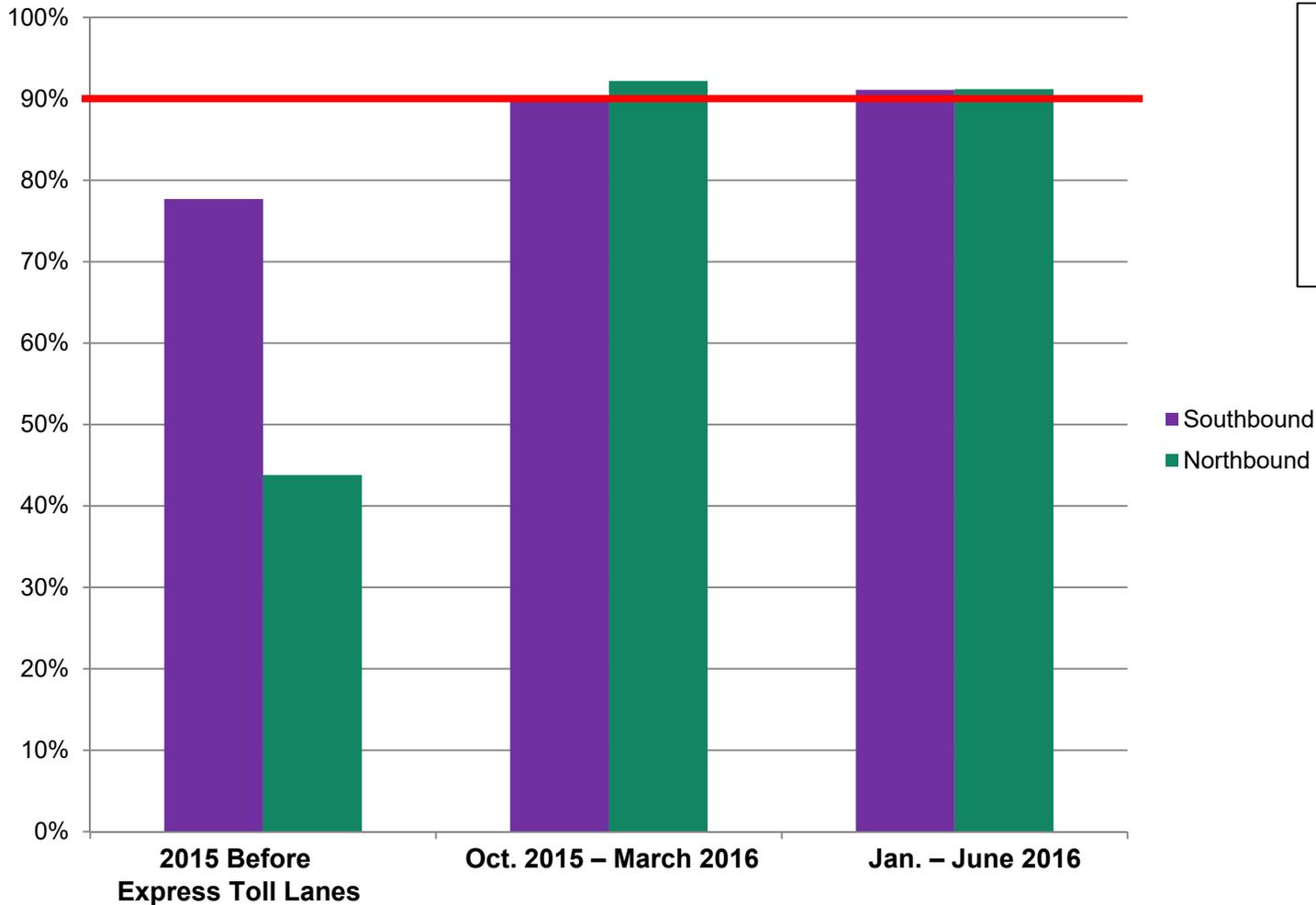
Source: WSDOT Toll Operations

Total of 11 million trips in the express toll lanes

Improved speed and reliability for HOV lanes

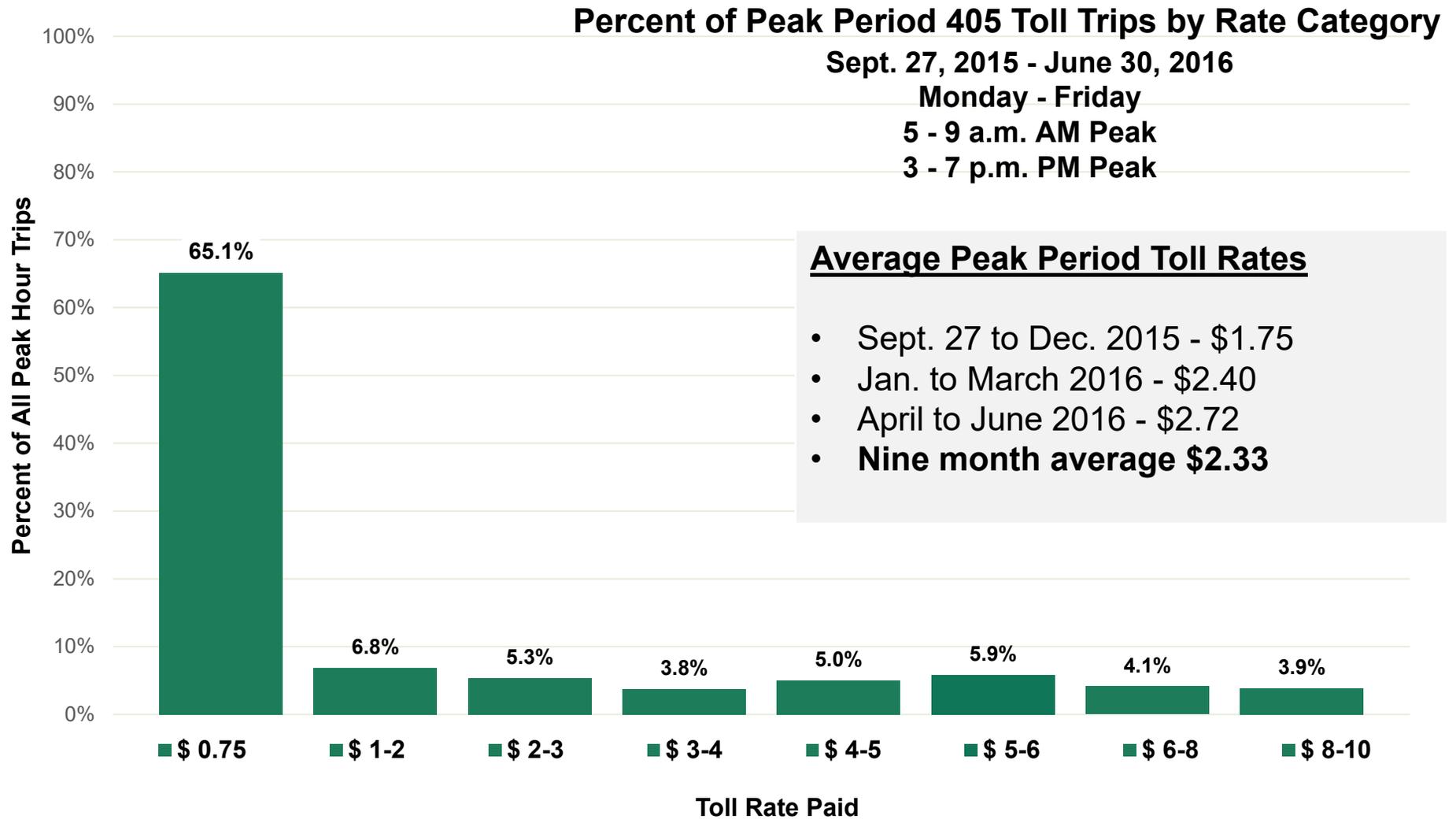
I-405 HOV Performance

Percentage of peak period when speeds are greater than 45 MPH



This metric will be measured in six month intervals over two years.

Increased use of express toll lanes means higher average toll rates



Fund future corridor improvements

Financial Forecasts

- The initial gross toll revenue estimate was \$3.14 million through May 2016. Actual gross toll revenue was \$10.56 million.
- WSDOT updated revenue forecasts in June to reflect the faster than anticipated ramp-up for express toll lanes. New forecasts project an increase of about \$20 million in gross toll revenue and fees in each biennium compared to the initial forecast.
- During the last legislative session, the Legislature assumed increased toll revenue will cover capital investments in the I-405 corridor of \$29 million in the 2017-19 biennium and \$16 million in the 2019-21 biennium.

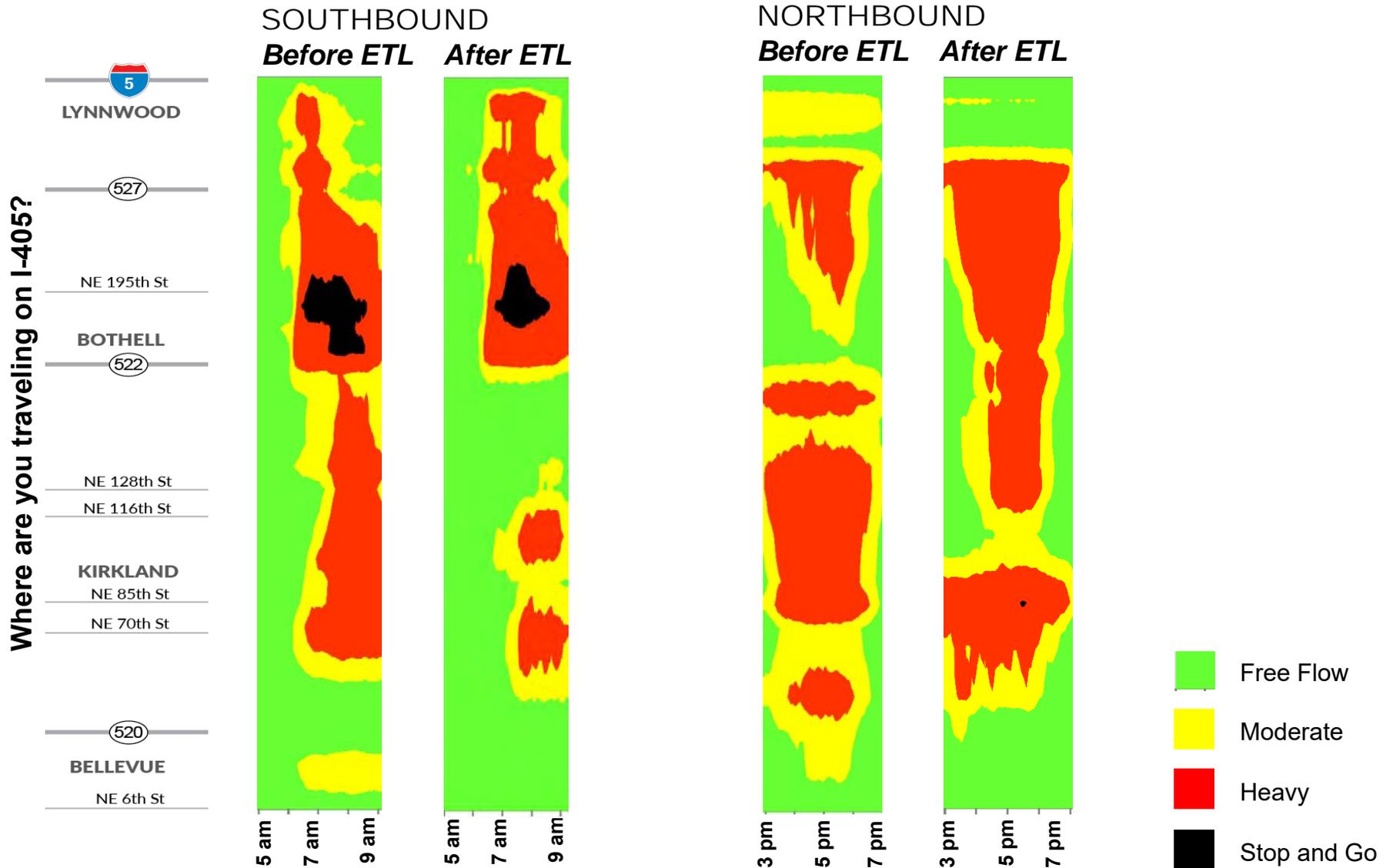
Meeting goals:

- ✓ Covering operating costs
- ✓ Funding future investments

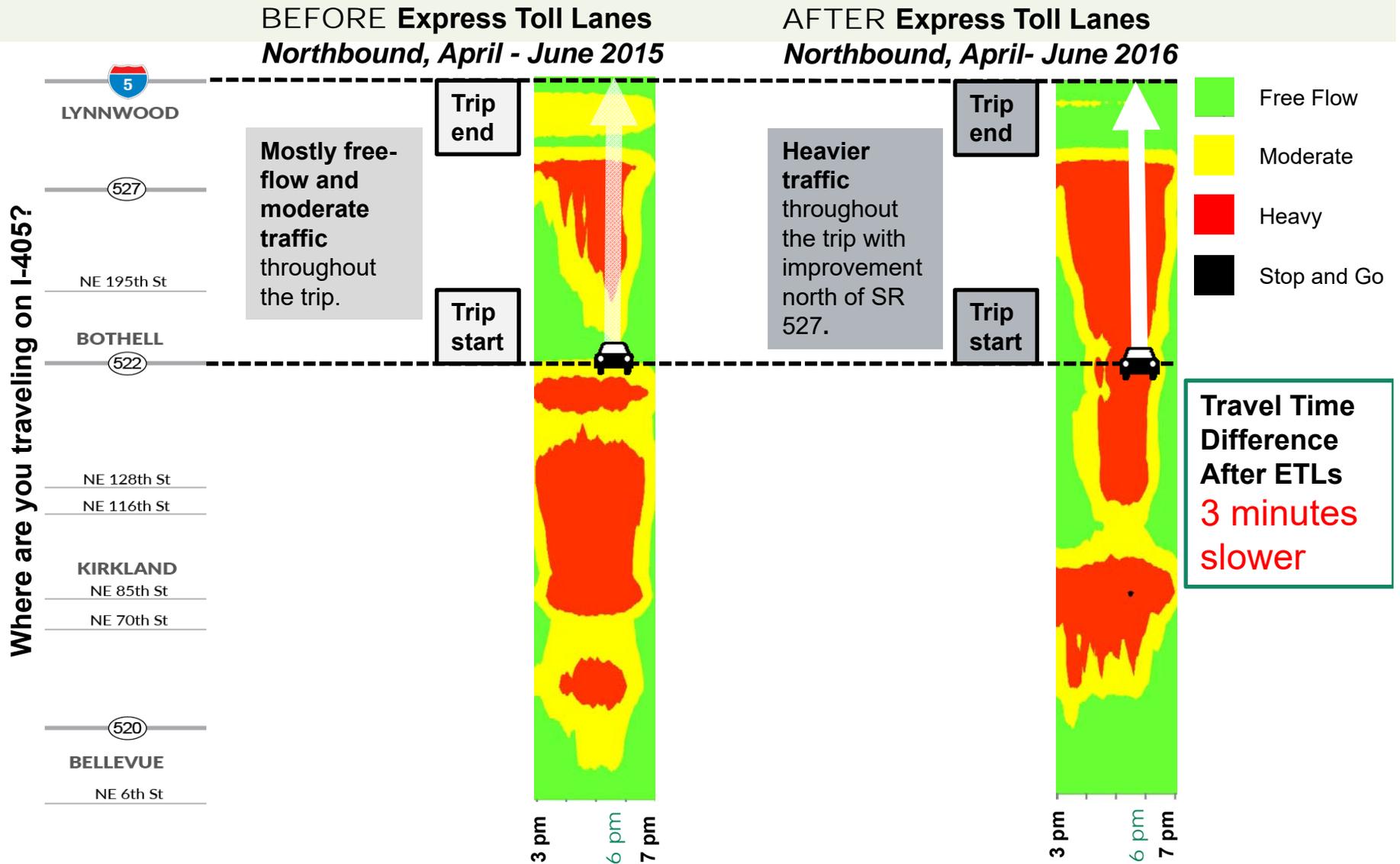
Gross revenue covers operating costs first:

- Customer service
- Toll equipment
- Enforcement
- *Good To Go!* passes
- Pay By Mail printing and postage
- WSDOT and consultant salaries

Peak Period Congestion in the General Purpose Lanes April-June 2015 vs. April-June 2016



Sample Commute: Regular Lanes, Bothell to Lynnwood, 6 p.m.



Change in travel times by segment

Summary

- The Legislature directed WSDOT to report out on travel times for smaller northbound and southbound I-405 segments. We've currently pulled data for these segments:
 - Bellevue to NE 116h St
 - SR 520 to SR 522
 - Bellevue to SR 522
 - Bellevue to SR 527
 - NE 85th to NE 195th

Segment Highlights

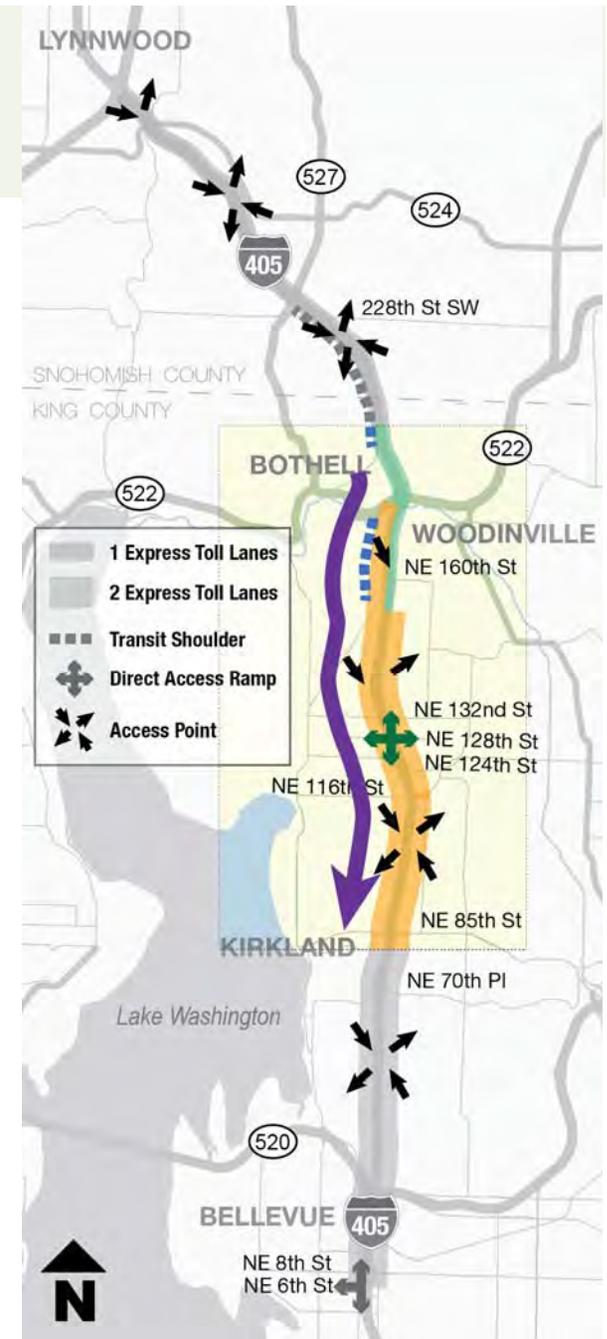
- Speeds are faster in each of the selected segments
- Travel times have improved for all selected segment trips
- 95th percentile demonstrates improved reliability in the selected segments

Change in travel times by segment

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

Timeframe Comparison	Express Toll Lanes	General Purpose Lanes
	Average (95 th Percentile)	Average (95 th Percentile)
October 2014 vs. 2015	6.0 (9.5) Minutes Faster	5.6 (6.3) Minutes Faster
January 2015 vs. 2016	2.3 (4.2) Minutes Faster	4.7 (5.5) Minutes Faster
May 2015 vs. 2016	2.6 (4.4) Minutes Faster	5.3 (6.8) Minutes Faster

The **95th percentile** is a measure of reliability that allows commuters to plan how much time will be required to make a trip and be on time 19 days per month on average and late on one of 20. Ninety-five percent of travel times are shorter than this duration. Faster speeds mean that commuters have more predictability and can plan less time for their commute.

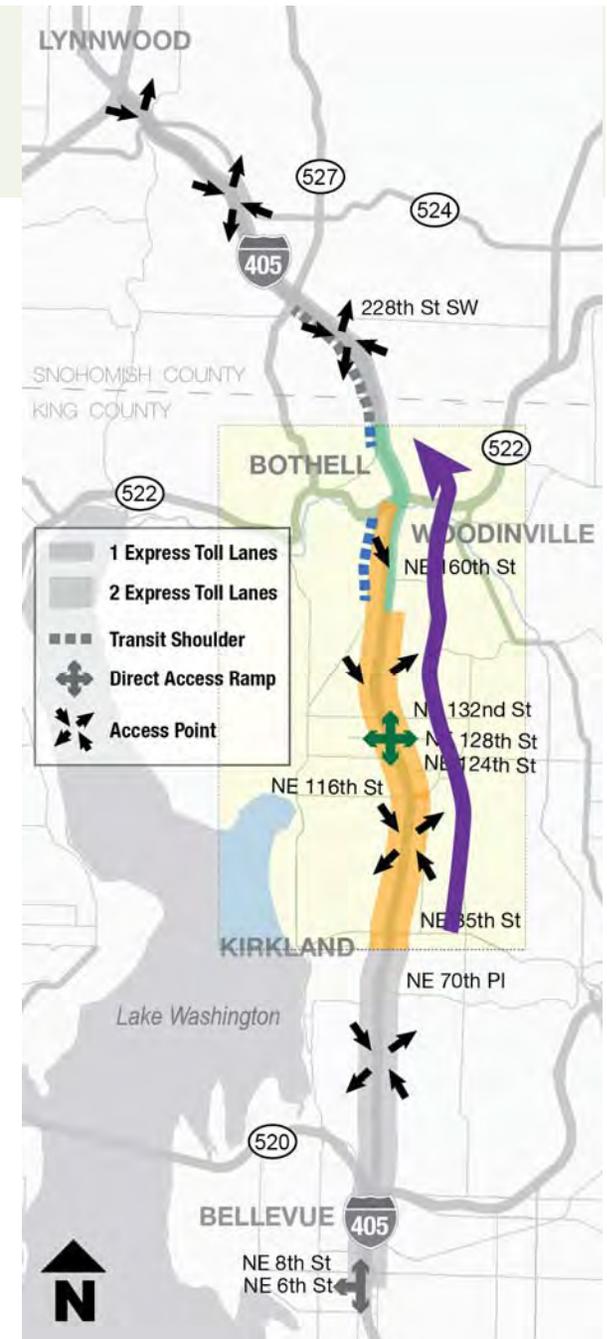


Change in travel times by segment

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

Timeframe Comparison	Express Toll Lanes			General Purpose Lanes		
	Average	(95 th Percentile)		Average	(95 th Percentile)	
October 2014 vs. 2015	3.4	(5.3)	Minutes Faster	2.9	(1.6)	Minutes Faster
January 2015 vs. 2016	2.9	(4.2)	Minutes Faster	2.7	(1.9)	Minutes Faster
May 2015 vs. 2016	2.6	(3.5)	Minutes Faster	1.3	(0.2)	Minutes Faster

The **95th percentile** is a measure of reliability that allows commuters to plan how much time will be required to make a trip and be on time 19 days per month on average and late on one of 20. Ninety-five percent of travel times are shorter than this duration. Faster speeds mean that commuters have more predictability and can plan less time for their commute.

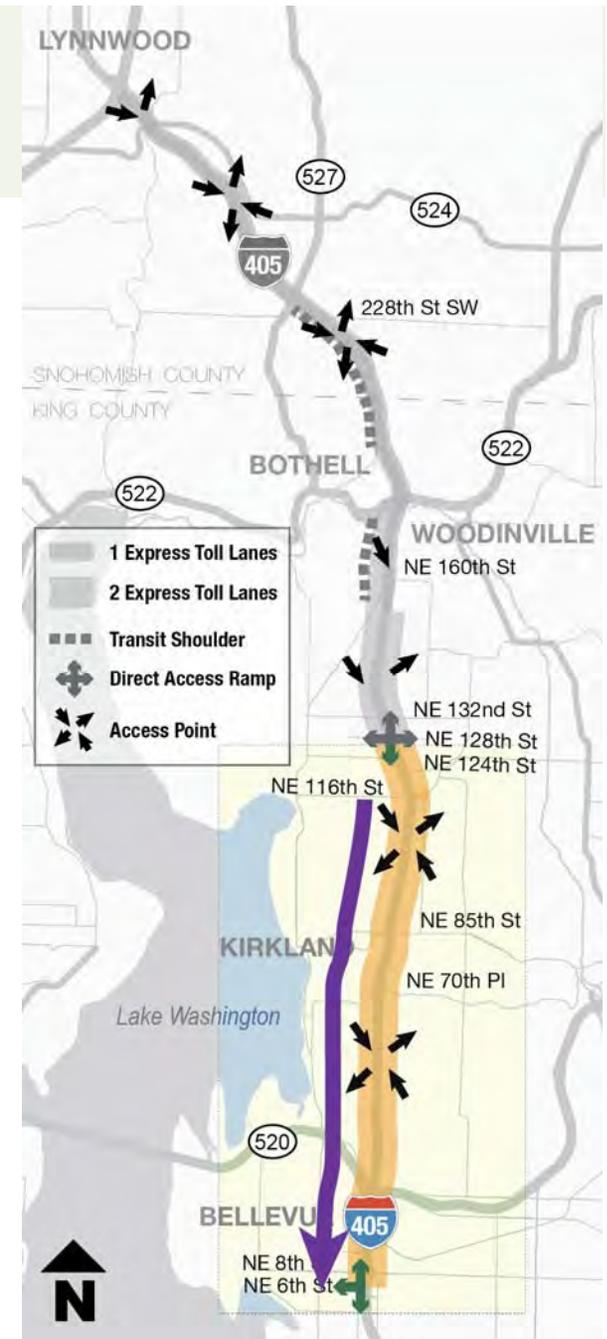


Change in travel times by segment

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

Timeframe Comparison	Express Toll Lanes		General Purpose Lanes	
	Average	(95 th Percentile)	Average	(95 th Percentile)
October 2014 vs. 2015	1.9	(2.9) Minutes Faster	2.3	(2.3) Minutes Faster
January 2015 vs. 2016	1.2	(1.8) Minutes Faster	1.8	(0.9) Minutes Faster
April* 2015 vs. 2016	0.8	(1.5) Minutes Faster	1.6	(1.8) Minutes Faster

The **95th percentile** is a measure of reliability that allows commuters to plan how much time will be required to make a trip and be on time 19 days per month on average and late on one of 20. Ninety-five percent of travel times are shorter than this duration. Faster speeds mean that commuters have more predictability and can plan less time for their commute. *The Data from May 2015-16 is not available in this segment



King County Metro – Spring service period

Key Takeaways

- Ridership increased 8.2 percent
- Average travel savings of 2.1 minutes in the AM and 5.8 minutes in the PM.

Avg. Weekday Boardings			
Route	2015	2016	Change
237	106	125	17%
252	674	687	2%
257	574	592	3%
277	239	271	13%
311	1,032	1,151	12%
342	299	310	4%
952	294	347	18%
Total	3,219	3,483	8.2%

Data comparison:

2015: February 16– June 5, 2015, weekdays

2016: March 28 – May 31, 2016, weekdays

Average Travel Time in Minutes (by route by period)						
Route	Spring 2015		Spring 2016		Change	
	AM	PM	AM	PM	AM	PM
237	22.9	33.0	20.1	23.4	-2.7	-9.6
311	22.7	34.1	20.5	29.0	-2.1	-5.1
342	21.5	36.3	20.7	28.5	-0.9	-7.8
952	37.2	35.4	32.9	35.7	-4.3	0.3
Total	23.2	34.7	21.1	28.9	-2.1	-5.8

Data comparison:

2015: February 16– June 5, 2015, weekdays

2016: March 28 – June 17, 2016, weekdays

Community Transit – Spring service period

Key Takeaways

- Peak period transit ridership increased 3 percent

Summary

- Daily average time savings showed improvements for the majority of routes, with the exception of Route 424 which travels between SR 520 and SR 522.

Data comparison:

2015: April – June, weekdays

2016: April – June, weekdays

Routes

424, 435, 532,

535



Express Toll Lanes

Successes and Challenges

Successes

- + Express toll lanes are heavily used.
- + Commuters have a faster and more reliable trip in the express toll lanes.
- + Pay By Mail use is higher than anticipated.

Challenges

- Limited capacity in the single express toll lane between SR 522 and I-5, combined with heavy demand from drivers, causes:
 - Toll rates to reach the \$10 maximum often to manage demand.
 - Speeds to drop below 45 mph frequently when at maximum toll rate.

General Purpose Lanes

Successes and Challenges

Successes

- + Southbound general purpose peak period travel times and speeds have improved with express toll lane operations.
- + Weekday peak period general purpose travel times are faster in both directions through the section of the corridor with dual express toll lanes.

Challenges

- Limited capacity in the general purpose lanes on northbound I-405 between SR 522 and I-5, due to transition from five to three lanes, has resulted in travel times being three minutes slower for that section.

Peer to Peer Workshop

- **On June 20-22 three agency peers and FHWA provided insights on the implementation of the I-405 express toll lanes, challenges and lessons learned from the experience.**
- **Feedback**
 - WSDOT has identified and adequately addressed operational challenges.
 - Express toll lanes have proven to be desirable and successful.
 - Changing occupancy rates and mandatory pass requirements for carpools were major changes and difficult to implement at the same time.
 - WSDOT should consider a regional concept of operations for how all “managed” capacity will integrate with each other.

PEER AGENCY PANEL

Nick Farber, Colorado
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Kathy McCune, Los
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Lev Pinelis, Transurban

Greg Jones, Federal
Highway Administration

James McCarthy, Federal
Highway Administration

David Ungemah,
Transportation Research
Board Congestion Pricing
Committee

I-405 operations: Adjustments

- **Completed Adjustments**
 - Operational hours
 - Mon-Fri 5 a.m. to 7 p.m.
 - Toll rate algorithm adjustments **6**
 - Striping and access adjustments at 9 locations **1 2 3 4 5 8 9 10 11**
 - Additional pavement markings and signage at 3 locations **2 7 9**



I-405 operations: Future Projects Under Evaluation

- 14 Northbound auxiliary lane between SR 520 and NE 70th Place
- 15 General purpose hard shoulder running on northbound I-405 from SR 527 to I-5
- 16 Address limited capacity in single express toll lane section (SR 522 to I-5)



Plans to address capacity issues

Hard Shoulder Running Northbound I-405 from SR 527 to I-5

What is Hard Shoulder Running (HSR)?

- 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 electronic signs

Timeline

- Initial funding in 2016 Supplemental Transportation Budget
- Construction targeted for 2017
- Estimated project cost: \$11.5 million



Expected Scope

- New northbound general purpose hard shoulder running lane from SR 527 to I-5
- New noise wall for area residents
- Other spot improvements

What are the next priorities?



Completing the 40-mile system

A. Tukwila to Bellevue - \$1,353* million (WSDOT: \$1,215 m; others: \$138 m)			
Benefits • Benefit/Cost: 4.7 • Approximately 50,000 vehicle hours of delay reduced every day which equates to \$276 M in annual travel time savings by drivers.	Renton to Bellevue (Option 4)	\$890m (funded)	• Adds one lane in each direction
	SR 167 Direct Connector	\$325m (funded)	• Builds a flyover ramp connecting the I-405 express toll lanes to the SR 167 HOT lanes
	Local Transit: N 8th St Direct Access	\$78m*	• Builds a direct access ramp at N. 8th St.
	City of Bellevue: NE 8th St Extension Bellevue Share	\$60m*	• Extends NE 6th St. east across I-405 to 120th Ave. NE

B. SR 167 Express Toll Lanes Extension - \$117 million			
Benefits • Benefit/Cost: 2.3 • Increases capacity over 50% and extends the reliability and traffic benefits of the SR 167 HOT lanes.	Stage 4 (SB)	\$82m (Funded)	• Extends the existing southbound HOT lane to the King / Pierce County line.
	Stage 5 (NB)	\$35m	• Starts the northbound HOT lane at the King/Pierce County.

C. Bothell to Lynnwood Dual Express toll Lanes - \$570 million			
Benefits • Benefit/Cost: 1.7 • 36,000 vehicle hours of delay reduced every day (\$211 M annual travel time savings). Provides a new direct access connection between SR 522 and I-405 express toll lanes eliminating weaving and improving operations for the general purpose lanes.	SR 522 Interchange	\$315m	• Builds a new direct access connection to SR 522 and redesigns a new interchange. • Replaces the northbound I-405 bridge over the Sammamish River and SR 522.
	SR 522 to I-5 Dual Express Toll Lanes	\$255m	• Adds a new lane in each direction between SR 522 and I-5 in Lynnwood to be paired with the existing HOT lane to form a dual express toll lane system.

Future I-405 Corridor priorities

D. SR 167 Stage 6 - \$300 m			
Benefits • Benefit/Cost: 2.5 • Reduces vehicle delay by 32,000 vehicles daily. • Project connects regional facilities of SR 410, SR 512, and future SR 167 extension.	SR 167 Stage 6	\$300m	• Extends the SR 167 HOT lanes northbound and southbound to SR 410 / SR 512 interchange.

E. I-405/NE 132nd St. Interchange – Prior TPA project commitment			
Benefits • Benefit/Cost: 1.1 • Provides new access to and from north Kirkland area and complements 118th interchange which has recently been rebuilt.	NE 132nd St. Interchange	\$75m (funded)	• Builds a new half-diamond interchange at NE 132nd St. in Kirkland.

Projects on other corridors with direct benefits to I-405 (system to system connections)

F. I-90/I-405 Interchange Direct Connectors - \$535 million			
Benefits • Benefit/Cost: 1.6 • Reduces daily delay by 22,000 vehicle hours of \$112M in annual travel time savings. Reduces weaving and provides high speed reliable trips between the two interstate systems.	I-405 / I-90 Renton to Issaquah Direct Connector	\$270m	• Builds a new flyover ramp between the express toll lanes on I-405 and the HOV lanes on I-90. • The ramp would connect Renton to Issaquah.
	I-405 / I-90 Bellevue to Issaquah Direct Connector	\$265m	• Builds a new flyover ramp between the express toll lanes on I-405 and the HOV lanes on I-90. • The ramp would connect Bellevue to Issaquah.

G. SR 520/I-405 Interchange and SR 520/124th Ave NE Interchange - \$550 million			
Benefits • Benefit/Cost: 1.6 • Reduces delay by 24,000 vehicle hours daily or \$136 M in annual travel time savings. Provides direct connection between I-405 and SR 520 and eliminates weaving in the general purpose lanes.	SR 520 / 124th Ave NE New Interchange	\$235m	• Rebuilds the SR 520/124th Ave NE interchange to Master Plan configuration (PE/RW funded)
	I-405 / SR 520 Direct Connectors	\$315m	• Builds flyover ramps connecting the express toll lanes on I-405 to the HOV lane on SR 520. Ramps will connect Bellevue to Redmond traffic.

I-405 North End: Existing Conditions



- Two express toll lanes from NE 6th Street to south of SR 522
- Constraints at SR 522 interchange
- No direct access ramps north of Kirkland

I-405 North End: Improvements Under Study



15 Add hard shoulder running on northbound I-405 between SR 527 and I-5

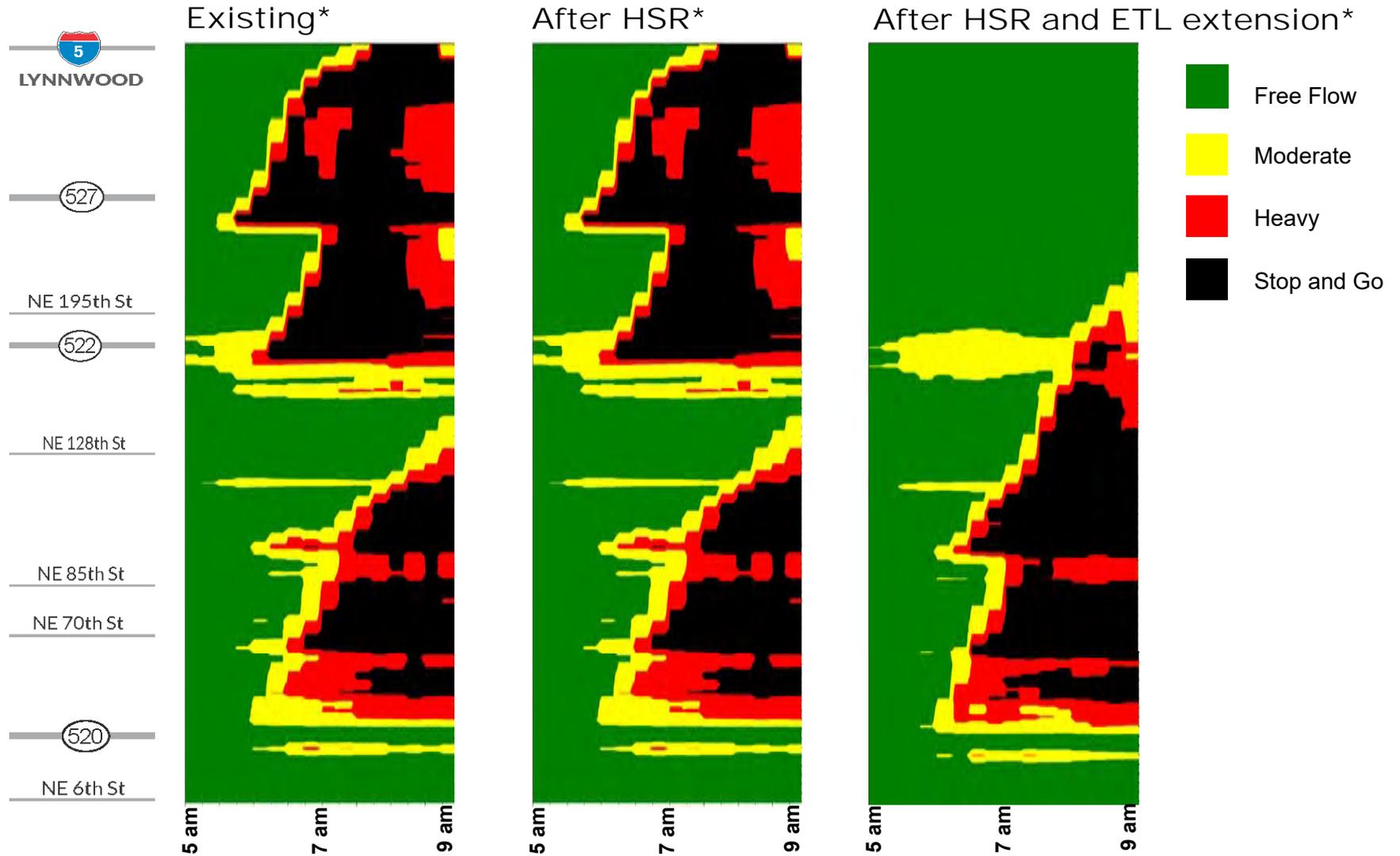
- Improved northbound general purpose lane speeds

16

- Widen SR 522 interchange
- Extend dual express toll lane system north to SR 527 interchange
- Build partial direct access ramp near SR 527

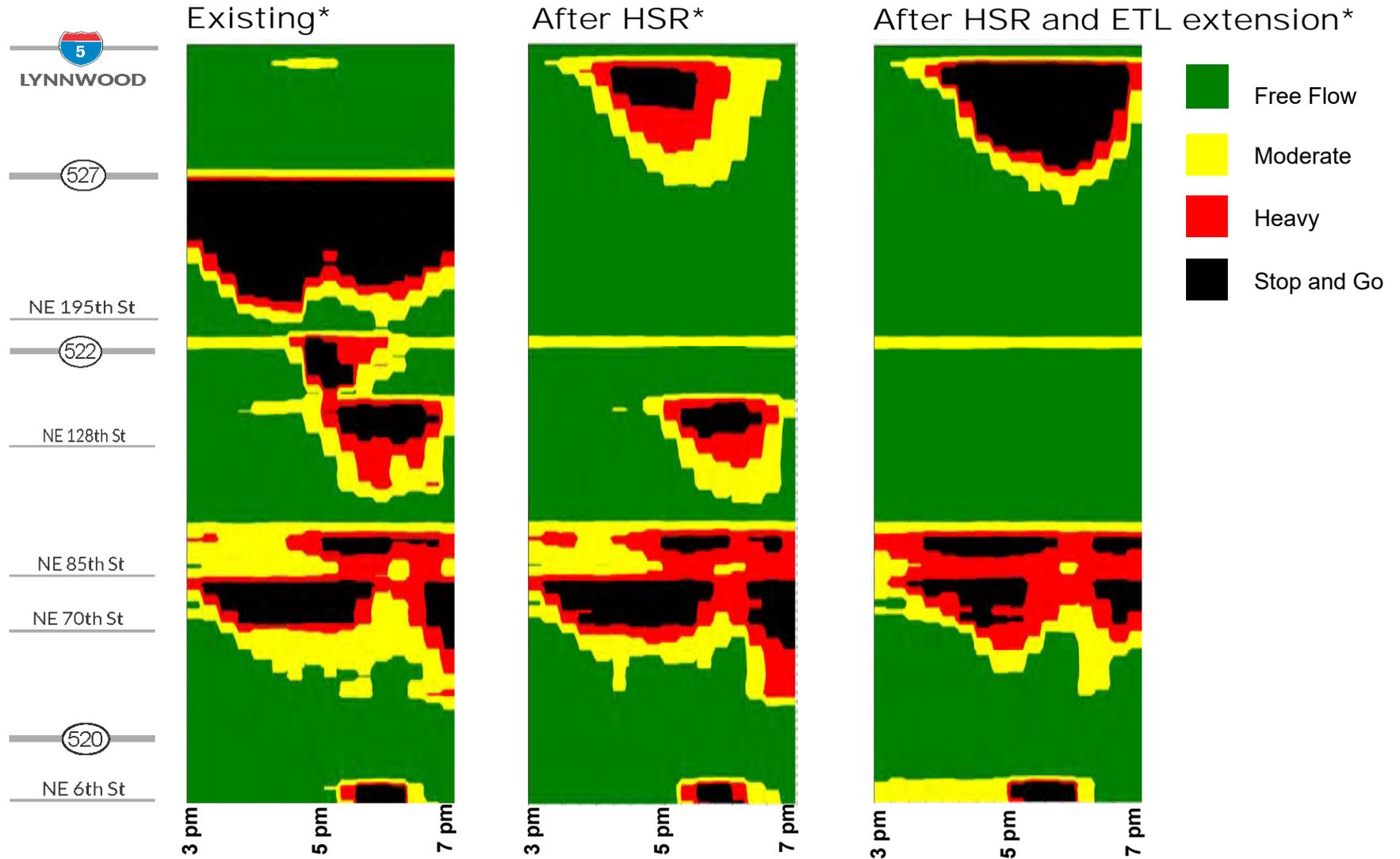
- Improved general purpose lane speeds
- 50-70% increase in express toll lane throughput north of SR 522

I-405 Congestion: Southbound morning peak General purpose lanes – Conceptual Model



*Based on 2016 traffic volumes

I-405 Congestion: Northbound afternoon peak General purpose lanes – Conceptual Model



*Based on 2016 traffic volumes

Immediate Next Steps: I-405 and SR 167

Phase 2: Next steps

Renton to Bellevue Widening and Express Toll Lanes

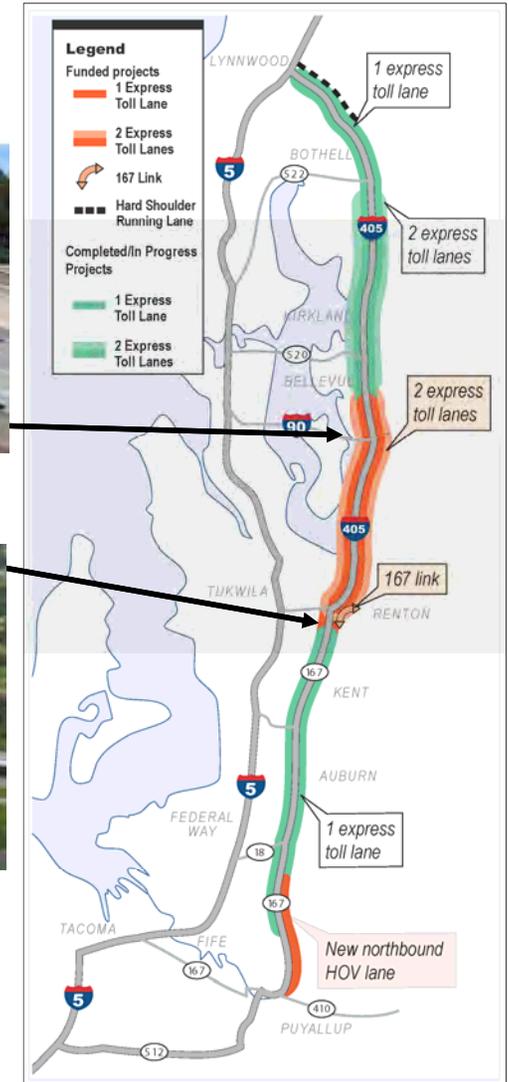
- Benefit/Cost ratio – 4.7
- Open in 2024

I-405/SR 167 Direct Connector

- Contract award in 2016
- Open in 2019

SR 167: SR 410 to SR 18 Northbound HOV Lane Project

- Funded by PSRC grant
- Construction starts in 2018



Stage 1: I-405/SR 167 Direct Connector

Project Description:

Builds a new flyover ramp connecting the SR 167 HOT lanes to the I-405 HOV lanes. Also relocates a noise wall and constructs portions of local streets in the Talbot Hill neighborhood.

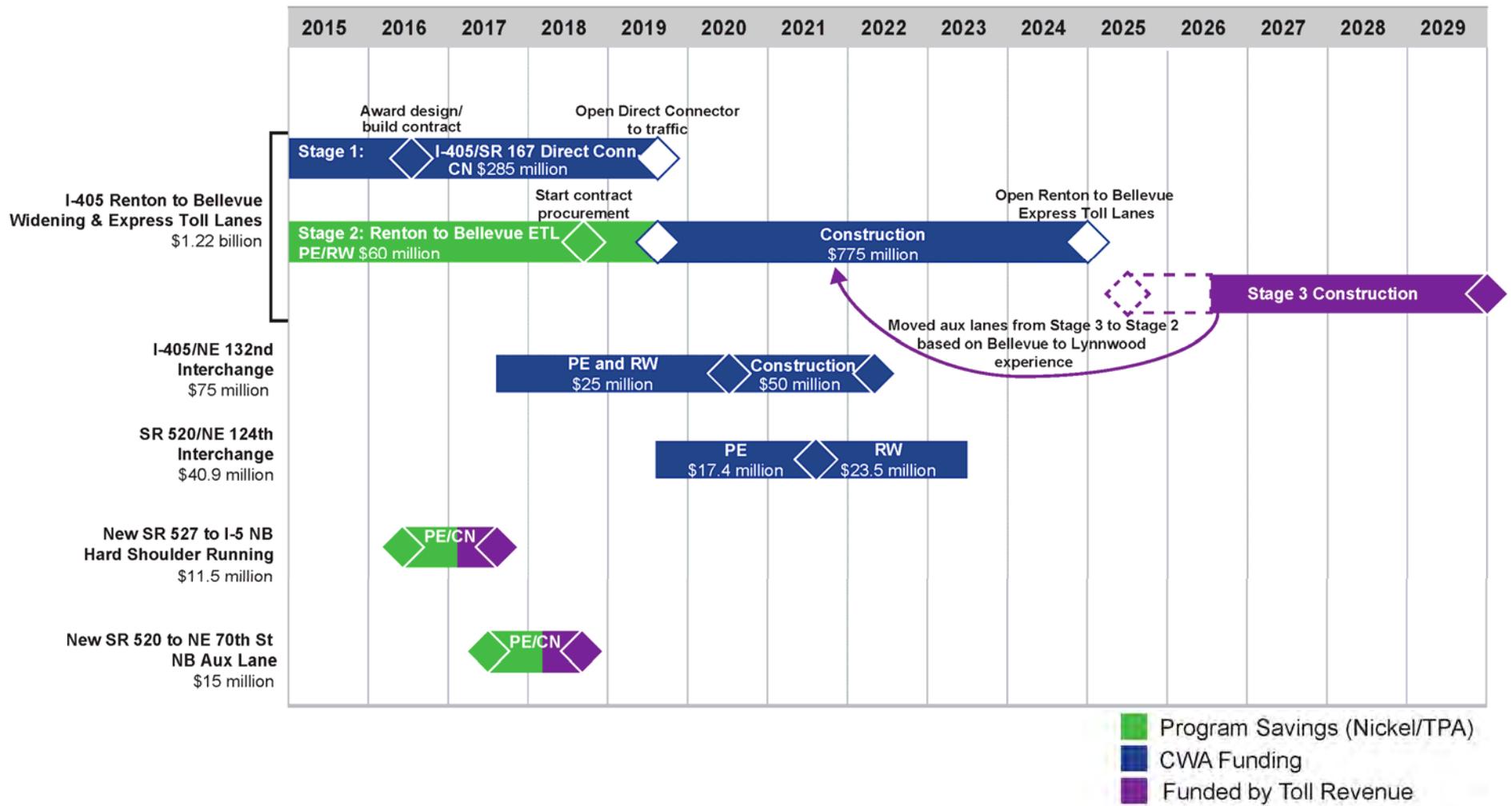
Construction Start:

Late summer/early fall 2016

- Guy F. Atkinson Construction of Renton awarded design-build contract for \$115.9 million
- Sanitary sewer relocation at South 14th Street (Talbot Hill) under way
- Olympic Pipeline relocation expected to start in August



I-405 Delivery Schedule: Current Funding



Discussion: WSDOT Update

Facilitated by:
Roger Millar, P.E., AICP
Acting Secretary of Transportation

Public Comment

Facilitated by:

Anne Broache

I-405/SR 167 Program Communications

Wrap Up

Roger Millar, P.E., AICP
Acting Secretary of Transportation