I-405/SR 167 Corridor
Executive Advisory Group

Meeting #3, Bothell City Hall
Oct. 17, 2017
INTRODUCTIONS & AGENDA

- WSDOT update
- Transit agency updates
- Public comment
- Wrap-up and next steps
Key Discussion Questions for Meeting 3

- What trends are we seeing in Bellevue to Lynnwood express toll lanes performance near the end of two years of operations?
- How do I-405 freeway sections with express toll lanes compare with other similar cross sections on I-5?
- What are potential funding approaches for the I-405 north end improvements?
I-405 MASTER PLAN

Regional Consensus
- EIS Record of Decision, 2002
- *Multimodal, multiagency plan*

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
WSDOT UPDATE

Kim Henry, P.E.
Program Administrator
I-405/SR 167 Corridor Program

Ed Barry, P.E.
Director
WSDOT Toll Division

Bruce Brown, Ph.D.
Director of Research, PRR

Karl Westby, Ph.D.
Traffic Manager
I-405/SR 167 Corridor Program
Executive Advisory Group History:
2010 endorsement of 40-mile express toll lane system
Executive Advisory Group History: 2013 express toll lane policy/phasing recommendations

- Express toll lane carpool policy: 3+ Carpool Free Peak 2+ Carpool Free Off-peak

- Funding and phasing for the Renton to Bellevue segment (Phase 2): Preferred High Traditional Funding scenario ($1,175 million from traditional sources). However, understanding competing statewide needs, the EAG endorsed the Medium Funding scenario ($960 million from traditional sources, $215 million from toll revenue)
The existing I-405 express toll lanes between Bellevue and Lynnwood are part of a planned 40-mile corridor that will ultimately extend south to the Pierce County line. This system will provide drivers with an option for a faster, more reliable trip. Immediate next steps include:

**I-405 Bellevue to Lynnwood Express Toll Lanes**
- Opened September 2015

**SR 167 HOT Lane Extension**
- Opened December 2016

**I-405/SR 167 Direct Connector**
- Under construction
- Open to traffic in 2019

**Renton to Bellevue Widening and Express Toll Lanes**
- Construction to begin in 2019
- Open to traffic in 2024

**I-405 North End Improvements**
- Legislature authorized $5 million toward preliminary engineering
I-405 Delivery Schedule: Current Funding

Contract 1: I-405/SR 167 Interchange Direct Connector
- 2015: Award design/build contract
- 2016: Construction
- 2017: Open Direct Connector to traffic

Contract 2: Renton to Bellevue Widening & Express Toll Lanes
- 2015: Award design/build contract
- 2016: Construction
- 2017: Open to traffic

Contract 3: Interchange & Capacity Improvements
- 2018: Construction

- Early completion of sections of Eastside Rail Corridor trail

I-405 Renton to Bellevue Widening & Express Toll Lanes
$1.22 billion

I-405/NE 132nd Interchange
$75 million

SR 520/NE 124th Interchange
$40.9 million

SR 520 to I-5 NB Peak-Use Shoulder Lane
$11.5 million

SR 520 to NE 70th St NB Auxiliary Lane
$15 million

NE 85th Street Inline Station

King County

Sound Transit
Scheduled opening of I-405 Bus Rapid Transit

WSDOT
I-405/SR 167 Direct Connector: Summer construction progress

Noise wall relocation

Mass excavation

Talbot bridge girders
I-405/SR 167 Direct Connector: Ongoing construction work

Southbound SR 167 paving

Flyover ramp foundations

I-405 pavement rehabilitation
I-405 is one of the most congested corridors in the state.

- The previous HOV lanes were often as congested as general purpose lanes during peak periods.

The Puget Sound region is growing rapidly. By 2040, an additional 1 million people are expected to be living in this region.

Since the express toll lanes opened in September 2015, the region has gained more than 168,000 residents and almost 148,000 new drivers*.

*Out of state drivers issued new licenses in King and Snohomish counties, Oct. 1, 2015-June 30, 2017
EXPRESS TOLL LANE BASICS

- Opened Sept. 27, 2015
- 15 miles of express toll lanes
  - **Dual-lane section:** Two express toll lanes each direction between Bellevue and Bothell
  - **Single-lane section:** One express toll lane each direction between Bothell and Lynnwood
- Operation hours: 5 a.m. to 7 p.m. Mon – Fri
- Tolls and exemptions
  - Single-occupancy vehicles use the lanes for a toll
  - **Transit and vanpools always toll-exempt**
  - Qualifying carpools are toll-exempt

21-month express toll lane data (April-June 2017)
I-405 tolling utilizes dynamic pricing to keep traffic moving.

The tolling algorithm adjusts tolls every five minutes based on congestion in the lanes.

- Tolls range from $0.75 to $10
- As express lanes fill and speeds drop, the toll rate increases.
- Toll rates decrease when lane has capacity to move more vehicles.

Tolled vehicles always pay the toll they see when they enter the lanes.

- Average toll during peak periods: $2.96
- Two-thirds of tolls paid are under $4

21-month express toll lane data (April-June 2017)
Carrying higher traffic volumes than prior to tolling

Moving more vehicles
- Overall, vehicle volumes have increased 4-20%

Moving more people
- Overall, the number of people moving through the corridor has increased 5-30%
Improving speed performance

Between April and September, express toll lanes speeds moved 45 mph or faster 85% of the peak period. Previously, the HOV lane met this standard only 56% of the time (April-August 2015 data).

The peak-use shoulder lane, opened in April 2017, improved speeds in the northbound single lane section.

- NB single lane six months before: 68% of the peak period
- NB single lane six months after: 94% of the peak period

When looking at individual segments, the southbound single-lane section is the only section of the corridor to report under the target of 45 mph or faster 90% of peak periods. This is pulling down the overall average.
Revenue

Total Revenue: $38.6M
Operations Costs: $13.6M
Funds Available for I-405 Improvements: $25M

$11.5M already reinvested in corridor for Peak-Use Shoulder Lane

21-month express toll lane data (April-June 2017)
The express toll lanes marked two years of operations on September 27, 2017. The state Legislature provided two performance standards for the lanes:

- Generate sufficient revenue to cover operations costs
- Move vehicles 45 mph 90 percent of peak periods.

The express toll lanes are generating enough revenue to support operations and to invest in improvements to the corridor. While the lanes are not meeting the speed target, it is primarily the southbound single-lane section which is bringing down the overall average.

Authorizing legislation states that if the lanes fail to meet both standards, they will be closed as soon as practicable.
Independent I-405 express toll lanes study is ongoing

- Joint Transportation Committee study
- Funded by Legislature in summer 2017
- University of Minnesota research team
- The JTC study will: “independently analyze and assess traffic data for the I-405 tolled corridor, including the performance measures described in statute, and to recommend strategies for near-term and long-term improvement of traffic performance in the corridor.”

Schedule
- Dec. 14, 2017: Report out at Joint Transportation Committee meeting
- Jan. 8, 2018: Final report due to JTC
Drivers like having an option

This spring, WSDOT conducted two surveys on public opinion of the I-405 express toll lanes. One survey focused on Good To Go! customers and the other targeted I-405 drivers, including drivers who self reported that they do not use the lanes. Both surveys found that 60% of drivers like having the option of a faster, more reliable trip.

Do you like having the option of using the express toll lanes for faster trip?

- Yes: 60%
- No: 40%

Support Increases Over Time

![Graph showing support increases over time from 2013 to 2017](image)
Good To Go! business customer survey

Bruce Brown, Ph.D.
Director of Research, PRR
Summary of survey methodology

• Online survey sent to about 24,000 Good To Go! customers who had business name associated with account

• Have traveled in the I-405 express toll lanes or SR 167 HOT lanes at least once in the last year

• Received 1,020 responses

• Conducted in late August/early September 2017
More than half of business survey respondents mostly or always use toll lanes

When you or your employees make business trips on the express toll lane section of I-405 or the HOT lane section of SR 167 during tolling hours, how often do you use the toll lanes?
Sixty percent of business respondents say they benefit from toll lane option

**Does your company benefit** from having the option of using the express toll lanes and/or HOT lanes?

- 60.3% said Yes
- 28.3% said No
- 11.3% said Unsure

Those more likely to say their company benefits from ETLs and/or HOT lanes were those who:
- Had fewer employees
- Used Auburn to Renton section of SR 167 (67% said Yes)
- Used I-405 between Renton and Bellevue (64% said Yes)
- Used I-405 between Bellevue and Lynnwood (61% said Yes)
- Used toll lanes more days per month for work
Nearly two-thirds of respondents find toll lanes helpful for their work travel

How helpful do you find toll lanes for work purposes?

With 24% “very helpful”

Those more likely to find the toll lanes more helpful were those who used the toll lanes more days per month for work.
Vast majority of business respondents support using toll revenue to fund future improvements

Do you support using toll revenue to fund improvements to SR 167 and I-405 in order to reduce congestion?

- Yes: 79.5%
- No: 20.5%
Pending legislative approval, WSDOT will be directed to extend the express toll lanes south from Bellevue to Renton, connecting them with the HOT lanes on SR 167. **How supportive are you for this extension of the express toll lanes** when you think about your work?

More than half of business respondents support extension of toll lane system

With 27.7% "very supportive"

Those more supportive were those who used:
- Auburn to Renton section of SR 167 (33% very supportive)
- I-405 between Renton and Bellevue (32% very supportive)
- I-405 between Bellevue and Lynnwood (28% very supportive)
- Toll lanes more days per month for work
Traffic analysis

Karl Westby, Ph.D.
Traffic Manager
I-405/SR 167 Corridor Program
Why build express toll lanes?

- Traffic growth has already exceeded 2020 projections in I-405 Master Plan
- Express toll lanes help manage demand for limited roadway space
I-5 HOV and regular lanes experience extremely heavy traffic during rush hour

Northbound I-5 (Northeast 130th Street)

Daily Volume: 105,000

Tuesday, July 12, 2017 4:50 p.m.

Sample commute (five-lane section – 4 GP + 1 HOV)
I-5 HOV and regular lanes experience extremely heavy traffic during rush hour

Northbound I-5 (Northeast 145th Street)

Daily Volume: 89,000

Location

Tuesday, July 11, 2017 5:20 p.m.

Sample commute (five-lane section – 4 GP + 1 HOV)
I-405 express toll lanes offer a more reliable choice during morning rush hour

Southbound I-405 (north of Northeast 85th Street)
Daily Volume: 110,000

Location

Tuesday, July 26, 2017 8:45 a.m.

Sample commute (five-lane section – 3 GP + 2 ETL)
I-405 express toll lanes offer a more reliable choice during afternoon rush hour

Northbound I-405 (north of Northeast 85th Street)
Daily Volume: 107,000

Sample commute (five-lane section – 3 GP + 2 ETL)

Tuesday, July 25, 2017 4:30 p.m.
Comparison of volumes moved in five-lane sections of I-405 and I-5 with similar daily traffic

<table>
<thead>
<tr>
<th>Section</th>
<th>Vehicle Volumes</th>
<th>Person Volumes*</th>
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<tbody>
<tr>
<td>I-5 (NB) NE 145th (4 GP + 1 HOV)</td>
<td>1300</td>
<td>2900</td>
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<td>4800</td>
<td>6250</td>
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<tr>
<td>I-5 (NB) NE 130th (4 GP + 1 HOV)</td>
<td>1250</td>
<td>2800</td>
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<td>5600</td>
<td>7300</td>
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<td>I-405 (SB AM) NE 85th (3 GP + 2 ETL)</td>
<td>3750</td>
<td>5500</td>
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<td></td>
<td>5000</td>
<td>6600</td>
</tr>
<tr>
<td>I-405 (NB PM) NE 85th (3 GP + 2 ETL)</td>
<td>3750</td>
<td>5550</td>
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<tr>
<td></td>
<td>5200</td>
<td>7000</td>
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When demand gets too high, the lanes break down into stop and go conditions with low volumes.

Speeds start to slow as volume starts to reach maximum lane capacity.

Speeds are high when volumes are lower.
Why two express toll lanes work better than one HOV lane

Northbound I-405 (north of NE 85th St) Speeds and Volumes

In the previous HOV lane, speeds and volumes were breaking down because lane could not be managed
Why two express toll lanes work better than one HOV lane

Northbound I-405 (north of NE 85th St) Speeds and Volumes

In the dual express toll lane system, each express toll lane is moving 300-700 more vehicles per hour than the previous HOV lane
Why two express toll lanes work better than one HOV lane

Northbound I-405 (north of NE 85th St) Speeds and Volumes

Northbound dual express toll lane is operating at 20-30 mph faster than the previous HOV lane

Data Source: WSDOT CDR Loop Data 15-minute data from 2:00 PM to 8:00 PM 2015 Data: 9/29/14 - 9/25/15 weekdays 2016 Data: 9/28/15 - 9/23/16 weekdays
Comparison of traffic congestion with changes to express toll lane system

2017 Morning Commute, Lynnwood to Bellevue (5 to 11 a.m.)

**CURRENT CONFIGURATION**

**CONVERSION TO 2+ HOV LANE**

- **More congestion in HOV lane**
- **Bigger bottleneck at SR 522, reducing traffic throughput**

- **Multiple hours of spillback to I-5, with ~700 vehicles stuck on ramp to I-405 in peak hour**

General purpose lanes

- **Express toll lanes**

Direction of travel

Free Flow (>45 mph)

Moderate (45 mph – 35 mph)

Heavy (35 mph – 20 mph)

Stop and go (<20 mph)
Comparison of traffic congestion with changes to express toll lane system

2017 Morning Commute, Lynnwood to Bellevue (5 to 11 a.m.)

**CURRENT CONFIGURATION**
- General purpose lanes
- Express toll lanes

**CONVERSION TO SINGLE ETL**
- General purpose lanes
- Single express toll lane

**Comparison of traffic congestion with changes to express toll lane system**

- More congestion in express toll lane
- Bigger bottleneck at SR 522, reducing traffic throughput
- Increased express toll lane congestion, higher toll rates throughout corridor

**CURRENT CONFIGURATION**
- Multiple hours of spillback to I-5, with ~600 vehicles stuck on ramp to I-405 in peak hour
- Similar GP congestion

**CONVERSION TO SINGLE ETL**
- More congestion in express toll lane
- Bigger bottleneck at SR 522, reducing traffic throughput
- Increased express toll lane congestion, higher toll rates throughout corridor
Consequences of removing express toll lanes

- **Overall traffic performance degrades**
  - Continued regional growth creating even more demand
  - No choice for a reliable trip without managed lanes

- **Transit reliability suffers**
  - Sound Transit investing $860M in I-405 Bus Rapid Transit system from Lynnwood to Tukwila
  - Improvements achieved in Bellevue to Lynnwood segment would be lost

- **New revenue source disappears**
  - No clear path or timeline for funding additional Master Plan improvements
Renton to Bellevue traffic would continue to worsen without improvements

2025 Morning Commute, Renton to Bellevue (5 to 11 a.m.)

WITHOUT IMPROVEMENTS

WITH IMPROVEMENTS

Direction of travel

HOV Lane
General Purpose Lanes
Express Toll Lanes
General Purpose Lanes

Free Flow (>45 mph)
Moderate (45 mph – 35 mph)
Heavy (35 mph – 20 mph)
Stop and go (<20 mph)
Legislative Direction

RCW 47.56.820
(2) All revenue from an eligible toll facility must be used only to construct, improve, preserve, maintain, manage, or operate the eligible toll facility on or in which the revenue is collected.

ESB 5096 (2017-19 Biennial Transportation Budget)
During this biennium, $5 million of TPA funding “is provided solely for preliminary engineering for adding capacity on Interstate 405 between state route number 522 and Interstate 5. The funding is a transfer from the I-405/Kirkland Vicinity Stage 2 - Widening project due to savings, and will start an additional phase of this I-405 project.”
Long-term toll revenue potential for I-405/SR 167 improvements

- Nearly $500M in I-405 net toll revenue after first five years of Renton to Bellevue opening
- Approximately $1 billion by 2040 assuming current toll policy
- Toll revenue is required to stay in corridor for future improvements
Potential next steps to accelerate north end improvements

- With optimal delivery, and assuming all funding can be identified, all planned improvements between SR 522 and SR 527 could be delivered by 2024.
- With toll revenue only (pay as you go), southbound capacity improvements could be accelerated by staging the project in two construction contracts:
  - **Phase 1A – Southbound Capacity ($225M)**
    - Partially rebuilds SR 522 interchange
    - Second southbound express toll lane between SR 522 and SR 527
  - **Phase 1B – Northbound Capacity and Transit ($225M)***
    - Second northbound express toll lane between SR 522 and SR 527
    - Direct access ramp/Bus Rapid Transit station at SR 527
    - Environmental and transit elements

*Not inflated

<table>
<thead>
<tr>
<th>Year</th>
<th>Phase 1A CN</th>
<th>Phase 1B CN</th>
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<tbody>
<tr>
<td>2017</td>
<td>PE/RW</td>
<td>PE/RW</td>
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<td>2018</td>
<td>Phase 1(A/B) CN</td>
<td>Phase 1(A/B) CN</td>
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<td>2019</td>
<td>Toll Revenue + other sources to be identified</td>
<td>Toll Revenue + other sources to be identified</td>
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<tr>
<td>2020</td>
<td>Toll Revenue only (Pay as you go)</td>
<td>Toll Revenue only (Pay as you go)</td>
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<tr>
<td>2021</td>
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<td>2033</td>
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Earlier Delivery

- **PE/RW**

Phased Delivery

- **PE/RW**
I-405/SR 522 Interchange
Existing conditions
I-405/SR 522 Interchange
Phase 1A

**Dual** southbound express toll lanes on existing northbound structure

**New northbound bridge**
I-405/SR 522 Interchange
Phase 1B

Dual southbound express toll lanes on existing northbound structure

New center express toll lane direct access

Complete northbound capacity
Chris O’Clare
Assistant General Manager, King County Metro

Emmett Heath
CEO, Community Transit

Peter Rogoff
CEO, Sound Transit
Average peak period travel times for King County Metro buses on I-405
2015 (before express toll lanes) vs. 2017

- Routes that travel on I-405 are moving faster since the express toll lanes opened between Bellevue and Lynnwood
- Afternoon trips are experiencing the greatest travel time savings (6 to 10 minutes)

<table>
<thead>
<tr>
<th>Route</th>
<th>AM</th>
<th>PM</th>
<th>AM</th>
<th>PM</th>
<th>2015-2017 Comparison</th>
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<tbody>
<tr>
<td>237 (Woodinville to Bellevue)</td>
<td>22.9</td>
<td>33.0</td>
<td>22.3</td>
<td>23.4</td>
<td>-3%▼ -29%▼</td>
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<tr>
<td>311 (Woodinville to downtown Seattle)</td>
<td>22.7</td>
<td>34.1</td>
<td>21.3</td>
<td>28.2</td>
<td>-6%▼ -17%▼</td>
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<tr>
<td>342 (Shoreline to Renton)</td>
<td>21.5</td>
<td>36.3</td>
<td>19.9</td>
<td>30.8</td>
<td>-7%▼ -15%▼</td>
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</table>
Average peak period travel times for King County Metro buses on I-5
2015 vs. 2017 (for comparison to I-405)

- Sample routes suggest that travel times have slowed a little
- The biggest slowing is northbound from Federal Way in the morning (2.5 to 3 minutes)

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<tbody>
<tr>
<td>157 (Kent to downtown Seattle)</td>
<td>21.7</td>
<td>24.2</td>
<td>22.5</td>
<td>24.7</td>
<td>4% ▲</td>
</tr>
<tr>
<td>159 (Kent to downtown Seattle)</td>
<td>27.0</td>
<td>31.7</td>
<td>28.1</td>
<td>29.9</td>
<td>4% ▲ -5% ▼</td>
</tr>
<tr>
<td>177 (Federal Way to downtown Seattle)</td>
<td>29.8</td>
<td>28.3</td>
<td>32.4</td>
<td>28.6</td>
<td>9% ▲ 1% ▲</td>
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<tr>
<td>179 (Federal Way to downtown Seattle)</td>
<td>32.2</td>
<td>32.8</td>
<td>35.2</td>
<td>32.7</td>
<td>9% ▲ 0%</td>
</tr>
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</table>
Community Transit – Customer Journey with ETLs

• **Faster, More Reliable Trips**
  – NB travel times improved 7.5% and reliability has improved
  – SB travel times are consistent and arrive early more often

• **Current Services** – Crucial for customers, modest volume
  – DART: 17 trips on I-405 (38 riders/weekday)
  – CT Vanpools: 165 trips on I-405 (2,400 riders/weekday), 18 trips on SR 520 (260 riders/weekday)
  – CT Fixed Route: 18 trips/weekday on I-405 (450 riders/weekday), 4 trips/day on 520 (120 riders/weekday)
  – ST Fixed Route: 79 trips/weekday on I-405 (3,800 riders/weekday)

• **Future Services**
  – Regional connectivity
  – Transit access
  – Additional HCT corridor (BRT Burien to Lynnwood)
Community Transit - I-405 vs. I-5 Performance

- **Investment:** In fall 2015 CT invested $2.6M in Schedule Maintenance on I-5. An annual expense. Running total = $7.8M. No schedule maintenance needed on I-405 since ETLs opened.
- **Speed:** 7.5% improvement on I-405; Continued decline on I-5.
- **Reliability:** I-5 is less reliable, *double* the variability of I-405.
- **Efficiency:** Savings reinvested in additional service for riders.
DISCUSSION

Facilitated by:
Roger Millar, P.E., AICP
Secretary of Transportation
Facilitated by:
Anne Broache
I-405/SR 167 Program Communications
### NEXT EAG MEETING TOPICS/SCHEDULE

<table>
<thead>
<tr>
<th>Meeting 1</th>
<th>Meeting 2</th>
<th>Meeting 3</th>
<th>Meeting 4</th>
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<tbody>
<tr>
<td>- Funded project updates (Renton to Bellevue, peak-use shoulder lane)</td>
<td>- Peak-use shoulder lane update</td>
<td>- 522 to 527 preliminary funding options</td>
<td>- Two-year express toll lane update</td>
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<tr>
<td>- 522 to 527 phasing overview</td>
<td>- Renton to Bellevue update</td>
<td>- Two-year express toll lane milestone</td>
<td>- Position on full-corridor express toll lanes</td>
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<tr>
<td>- ST3 BRT coordination</td>
<td>- ST/King County coordination</td>
<td>- Renton to Bellevue projections</td>
<td>- Next steps for 522 to I-5</td>
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<tr>
<td>- King County ERC trail coordination</td>
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<td>- Direct Connector project update</td>
<td>- ST/King County coordination</td>
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</table>

### Key Discussion Questions for Meeting 4
- What is the EAG’s position on the 40-mile system of express toll lanes on the I-405/SR 167 corridor?
- What are the EAG’s recommendations on next steps for I-405 improvements between SR 522 and I-5?
WRAP UP

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