Interstate BRIDGE Replacement Program

Community Advisory Group Meeting

April 14, 2022

Interstate BRIDGE Replacement Program

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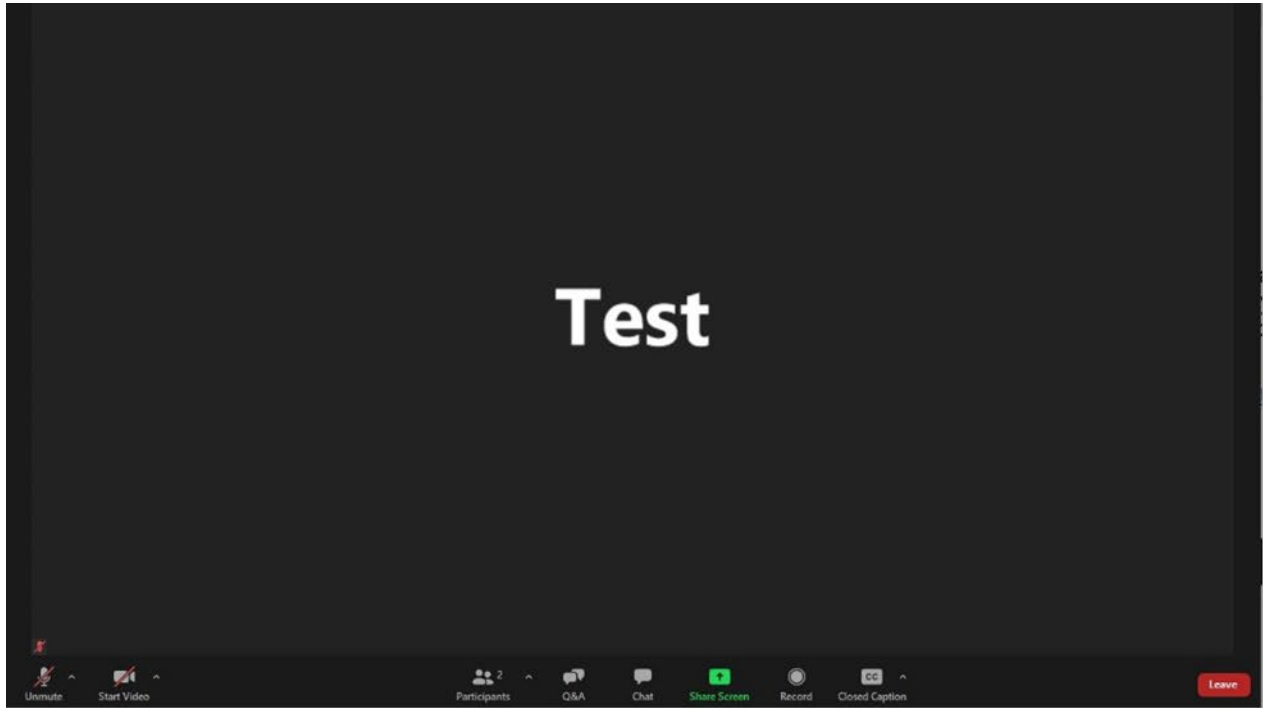

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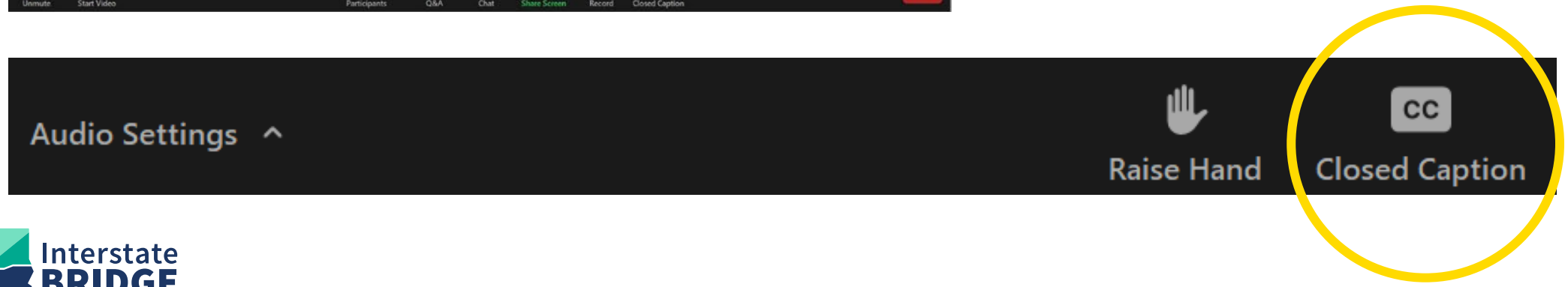
2. Then click on the "CC" icon and a separate window with captions will appear.



Interstate BRIDGE Replacement Program

ASL Interpretation

- In the effort to continue to center equity there is an ASL interpreter in addition to closed captioning.
- To make sure the interpreter is always visible please right click their video and select spotlight video.
- For those watching on YouTube, when we screenshare, you will be able to see the slideshow, closed captioning and the ASL interpreter. You will still be able to hear different people speaking but may not see them.

Webinar Participation Tips

- Thank you for joining us today!
- Please join audio by either phone or computer, not both. We encourage panelists to turn on your video.
- Please keep your audio on mute when not speaking.
- If you experience technical difficulties, please contact program staff at: (360) 329-6744

Public Input Instructions

- **There will be an opportunity to provide brief public input later in the meeting today (around 5:45PM).**
  - To dial in by phone use the following directions:
  - Dial: 1-669-900-6833
  - Meeting ID: 993 5459 6043 Passcode: 674942
  - Dial *9 to raise your hand; After you are invited to speak, dial *6 to unmute yourself.

Public Input Instructions

- **To submit comment after the meeting:**
  - Fill out the comment form on the program website or email your comments to **info@interstatebridge.org** with “CAG Public Comment” in the subject line.
  - Call **360-859-0494** (Washington), **503-897-9218** (Oregon), or **888-503-6735** (toll-free) and state "CAG Public Comment" in your message.
  - Written comments need to explicitly say “**CAG Public Comment**” in the subject line or in the body of the message for them to be identified and distributed to CAG members.
  - All written comments must be received prior to 48 hours in advance of each upcoming meeting in order to be distributed to advisory group members. Comments received after that point will be distributed to members in advance of their next meeting.

CAG member commitments & operating norms

- Put Relationships First
- Keep Focused on Our Common Goal
- Notice Power Dynamics in the Room
- Create a Space for Multiple Truths & Norms
- Be Kind and Brave
- Practice Examining Racially Biased Systems and Processes
- Look for Learning

Meeting Agenda

1. Welcome
2. Program update
3. March 24th CAG Hayden Island/Marine Drive feedback
4. Transit investment winnowing
5. Transit investment discussion & breakout session
6. Auxiliary lanes presentation and discussion
7. What's next, public comment, wrap up

Program update

Greg Johnson, Program Administrator

Locally Preferred Alternative (LPA)

What it is	What it's not

• **Key Milestone**: Early agreement by local agencies
 	
• High-level identification of the **foundational components** of an alternative such as mode, alignment, and other improvements based on conceptual design
	• Fully defined alternative evaluated in the SEIS
	  ○ Conceptual design will integrate the fundamental components into a corridor-wide alternative
	
	• Final design
	  ○ Fundamental concepts will be refined through a stepwise design process (e.g., 30%, 60%, 90%, Issue for Construction)
	
	• The end of technical analyses
	  ○ More analysis and opportunities will shape what gets built
	
	• Final approval
	  ○ More opportunities to develop and approve final program components

Modified LPA for the IBR Program

- High-capacity transit mode and general alignment
- Marine Drive/Hayden Island interchanges configuration
- Number of lanes on the Interstate Bridge
- General statements
  - Replace Interstate Bridge with a new bridge
  - Replace North Portland Harbor bridge
  - Implement variable-rate tolling
  - Advance equity through process and outcomes
  - Reduce the impacts to climate change and enhance climate resiliency
  - Meet the Purpose and Need for multimodal transportation and seismic resiliency
  - Design active transportation facilities for all users and abilities

Interstate BRIDGE Replacement Program

CAG Hayden Island/Marine Drive feedback

CAG facilitators

CAG Hayden Island/Marine Drive feedback

- Continuing to make decisions based on data is important
- The option that reduces traffic congestion the most is what should be built
- Active transportation safety and access should be considered
- Keeping the commercial/freight industry up to date and hearing their concerns should be ongoing
- The size of the bridge footprint over Hayden Island should be considered a major component of the design
  - **Option 5 has a smaller footprint**
  - **Full interchange footprint is a concern**
  - **Ability to access Hayden Island without I-5**

Interstate BRIDGE Replacement Program

IBR Transit Investment–Mode Discussion

April 14, 2022

Interstate BRIDGE Replacement Program

April 14, 2022

IBR Transit Investment

- **Quick Recap - Overview of process to date**
  - Development of representative transit investments
  - Development of transit measures
  - What has changed since 2013 for transit?
- **Draft findings from transit measures**
- **Discussion and feedback regarding transit mode**

Review of Representative Transit Investments

Development of Representative Transit Investments

- **Developed 11 representative transit investments so the program could understand more about how possible projects might perform relative to others:**
  - Relative projects included assumptions about:
    - *Mode*
    - *Alignment*
    - *Terminus*
    - *General station locations*
    - *General park and ride size and locations*
- **After a preferred transit solution is selected project components will be optimized and refined as design advances and benefits and impacts are better understood**

Overview of Transit Investment Measures

Development of Transit Investment Measures

- **The IBR team developed measures with project partners in order to better understand how the representative transit investments would perform relative to each other**
- **Measures included:**
  - Multiple measures of ridership demand in 2045
    - *Includes river crossings by mode*
    - *Ridership by time of day*
    - *Mode of access*
      - Walk access
      - Transfer from existing transit (bus/rail)
      - Park and ride access
  - Access for equity priority communities
  - Relative costs
    - *Capital cost*
    - *Operations and maintenance cost*
  - Potential impacts

What has changed since 2013 that is important to consider when reviewing the representative transit investments?

What has changed for transit since 2013?

- **C-TRAN has developed and begun implementation of the Vine BRT network.**
  - One BRT line in operation, one is construction, and one in planning.
  - The Vine and C-Tran express bus service provide frequent and reliable service within Clark County and to downtown Portland, respectively.
  - Any transit investment should be made with a desire to complement the Vine system, including existing and planned service.
- **City of Vancouver and C-TRAN have designed robust station environments for the Vine system on Broadway and Washington in the Central Business District**
  - With these investments in mind, it is desirable to compliment existing investments with an alignment that does not disrupt the existing landscape and expands access to additional locations.

What has changed for transit since 2013?

- **The City of Vancouver has seen substantial growth in the Waterfront district as planned for in the Waterfront Development Plan**
  - There is a desire to serve this development more directly with a transit investment
- **The population of the region is growing and becoming more diverse. Since 2010 Clark County has added nearly 78,000 people, 76 percent of whom are people of color**

Draft Findings from Transit Measures

Transit Measures– Draft Findings

- All build options substantially improve service over the no build
- Modeling shows demand for cross river transit service is expected to increase
- Capacity, both at the option level and at the system level, are important considerations for selecting a preferred alternative
  - *LRT – Downtown Vancouver, Interstate Ave., Rose Quarter, Steel Bridge, Portland transit mall*
  - *BRT – Downtown Vancouver*
  - *Express bus – Downtown Vancouver and the Portland Transit Mall*
- A transit investment that serves the identified markets and attempts to serve demand, will need to include a combination of BRT, LRT and express bus
- Transfers from other transit vehicles are the highest mode of access for all representative transit investments. This highlights the importance of conveniently connecting the C-TRAN and TriMet system.
- When comparing the same representative alignment, LRT options have higher ridership than BRT options

Transit Measures – Draft Findings

- Modeling shows demand for park and ride access in all representative investment scenarios, with the greatest demand attributed to those that provide the most convenient access from I-5
- Options that include more stations serve more residents within walking distance, including BIPOC and low-income populations
- All transit investments improve access to jobs, including BIPOC and low-income populations. LRT investments improve access to jobs to a greater degree than BRT investments.
- When comparing the same representative alignment, LRT options have higher capital cost and lower operations cost per rider than BRT options.

Getting to a Preferred Transit Investment

GOAL: Understand and discuss transit mode analysis and considerations

- **The representative transit investment development process has taken place over the fall and winter 2021-2022 with the goal of better understanding what type of transit investment would best serve the project corridor and the region.**
- **The process cast a wide net and included many inputs:**
  - Technical analysis (16 measures)
  - A deeper understanding of what has changed both physically and in planning processes since the CRC program ended in 2013.
  - High level conceptual design to better understand how investments might work within the built environment, with further refinement to happen following selection of a Modified Locally Preferred Alternative.

Discussion of Mode

Modes Considered for Program Investment

- Bus on Shoulder
- Bus Rapid Transit (BRT)
- Light Rail Transit (LRT)

Bus on Shoulder

- **A transit investment that serves the identified markets and attempts to serve demand, will need to include a combination of BRT, LRT and express bus**
  - Bus on Shoulder capability is included in all representative transit investments
  - **Remove as a stand-alone option**

BRT & LRT - How do they compare for the cross river connection?

- **When comparing the same representative alignments, LRT options have higher demand than BRT options**
  - Vehicle capacity
    - *LRT - up to 266 passengers accommodated with a two-car train*
    - *BRT – up to 100 passengers accommodated with a bus*
  - Additional transfer needed for BRT options traveling further north/south than Expo
    - *Impacts travel time*
    - *Affects demand for BRT options more when compared to C-TRAN express bus option between downtown Vancouver and Downtown Portland*

2045 Average Weekday Ridership - Mode

- **In 2008 analysis, LRT had 19%-25% more riders than BRT. That delta has increased. Why is that?**
  - All HCT investments connect to the existing MAX Yellow Line at the Expo Center station. That means that **BRT options include an additional transfer** for riders that are traveling further north/south than Expo.
  - This additional transfer has a negative impact on ridership demand for the BRT options in the regional demand model.
  - C-TRAN Express bus options provide a single seat ride from downtown Vancouver to Downtown Portland, as well as points further north to Downtown Portland. **BRT options see more trips moving to this express service,** which is a factor in the lower demand numbers for BRT options in this analysis.

Transit Mode Considerations

- **When thinking about the specific needs of the HCT investment for the IBR program, these are some considerations we have heard from CAG in the narrowing process**
  - The desire to maximize capacity on transit across the river
  - Opportunity to preserve the C-TRAN Vine current and future system while providing convenient connections to HCT stations
  - Competitive/attractive travel time compared with other choices
  - Competitiveness for FTA discretionary funding
  - Others?

CAG Transit Feedback from March 24th Meeting

- **High –capacity transit**
  - Single seat rides and efficiency are important
  - Reliability
  - Light rail into Vancouver should be a priority
  - A hybrid light rail and bus system should be considered

CAG MEETING BREAK

CAG breakout session

CAG facilitators

Discussion

- **Which transit mode most closely aligns with CAG values and priorities? Why?**

- All modes of transportation to increase capacity of river crossing is essential to effectively & safely move more people, goods, & services
- Congestion relief
- Informed, data-driven decision-making
- Bi-State cooperation
- Economic Empowerment
- Transportation facilities must reflect the needs of all ages & abilities, & remove barriers, including language, to access and ensure availability to transportation choices
- Cost effectiveness (affordability & Future planning
- Centering Equity & avoid further harm
- Cultural & historical heritage & resources protected & honored
- Improve resiliency to global climate change
- Protect natural resources
- Opportunities for meaningful and equitable Community Engagement

Breakout session report out

Interstate BRIDGE Replacement Program

IBR CAG Update on Ramp-to-ramp Connections (Auxiliary Lanes)

April 14, 2022

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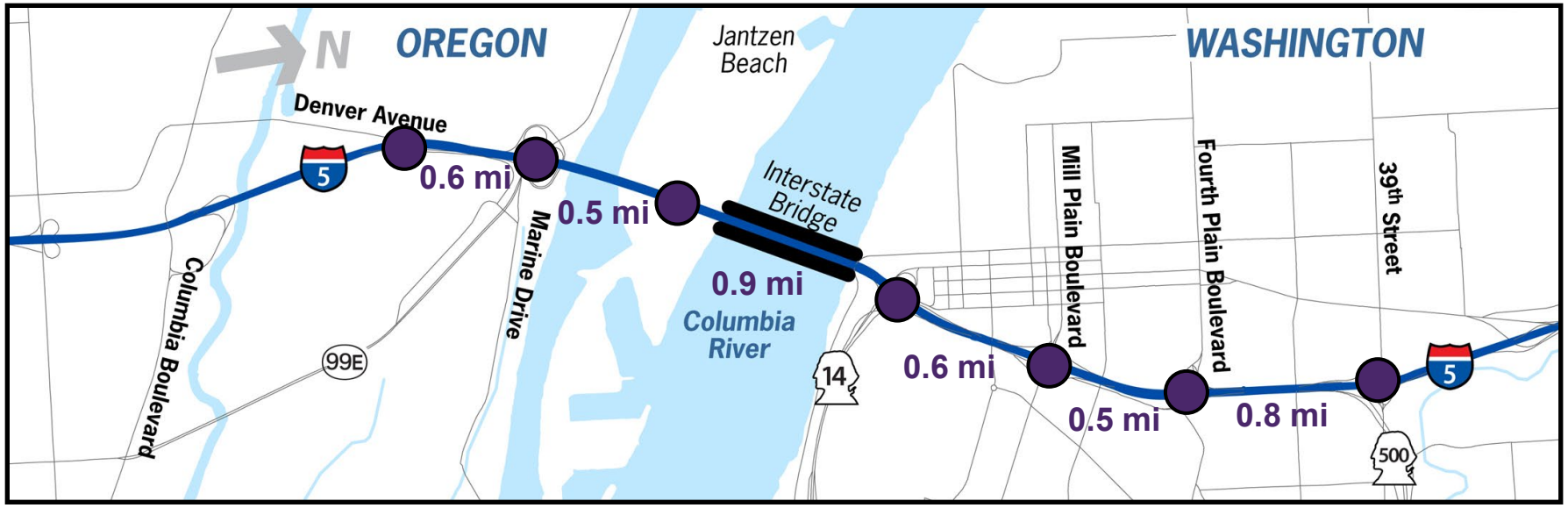
Interstate BRIDGE Replacement Program

IBR Background Traffic/Design Information

Interstate BRIDGE Replacement Program

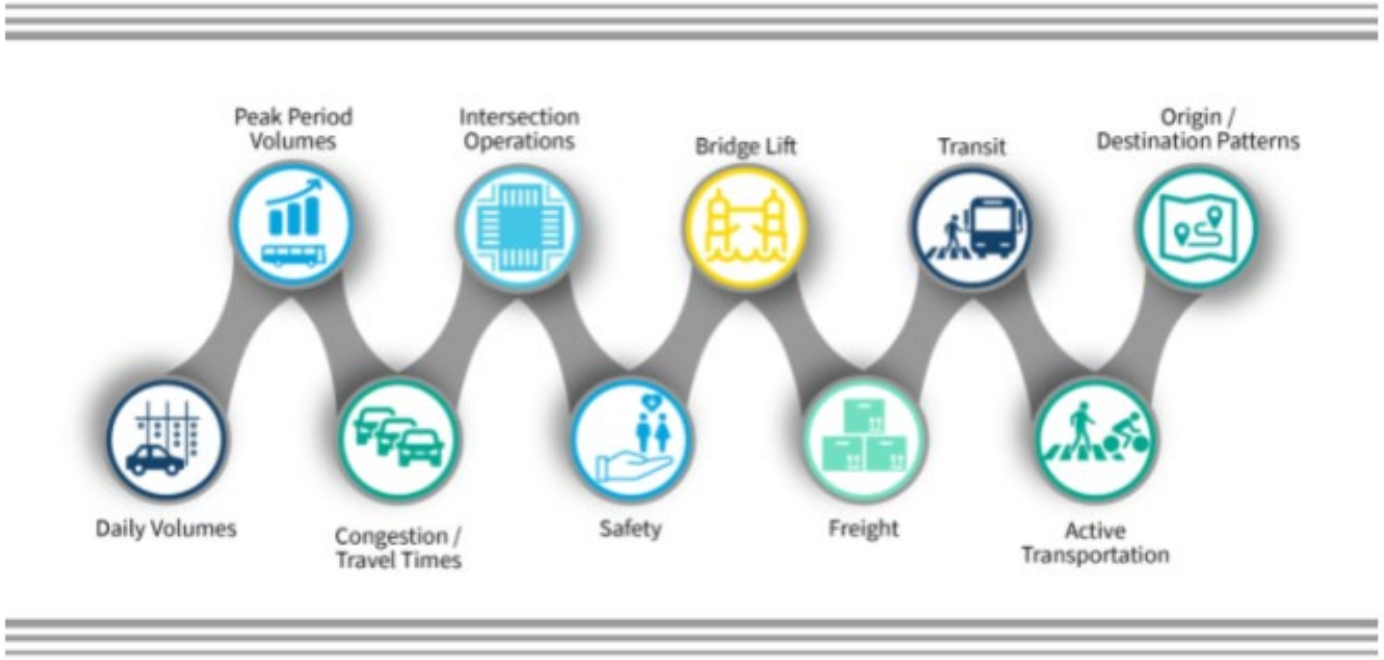
Seven Closely Spaced Interchanges



Standard Spacing: Desirable = 2 Miles
Minimum = 1 Mile

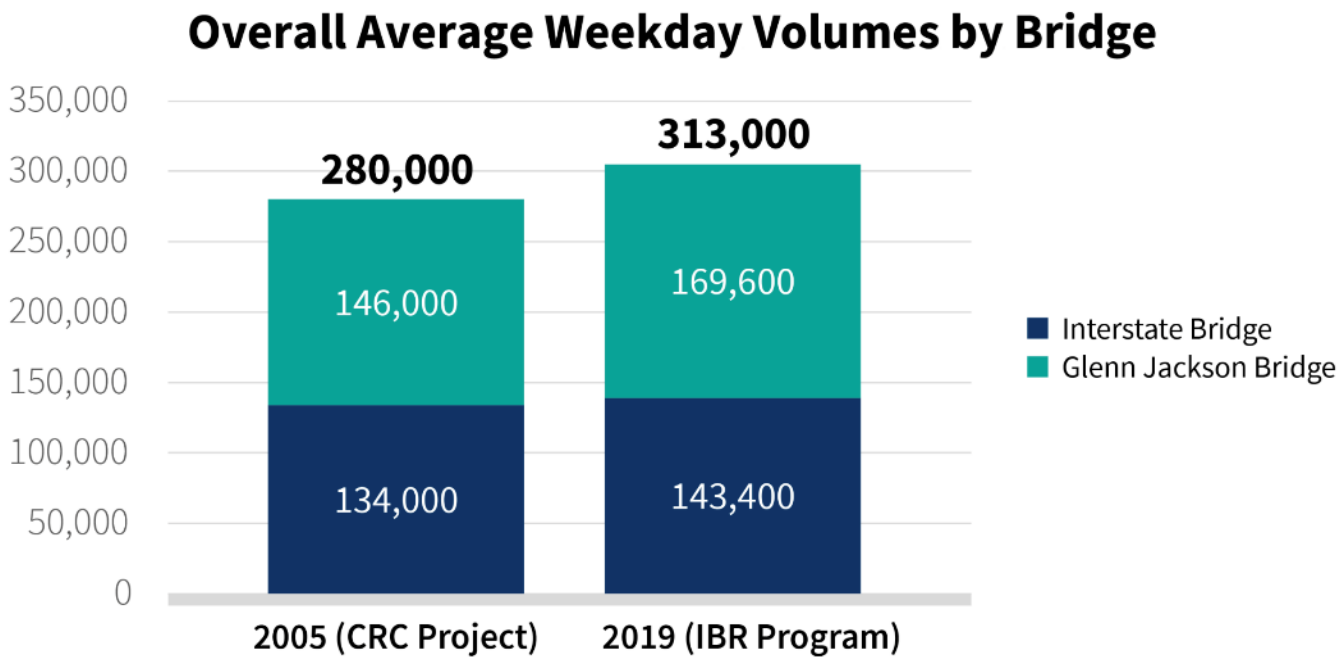
Existing Counts

- Started with current data/counts from 2019
- Collected additional data in 2021 to fill in where counts weren't available
  - *This 2021 data was factored to represent 2019 conditions*



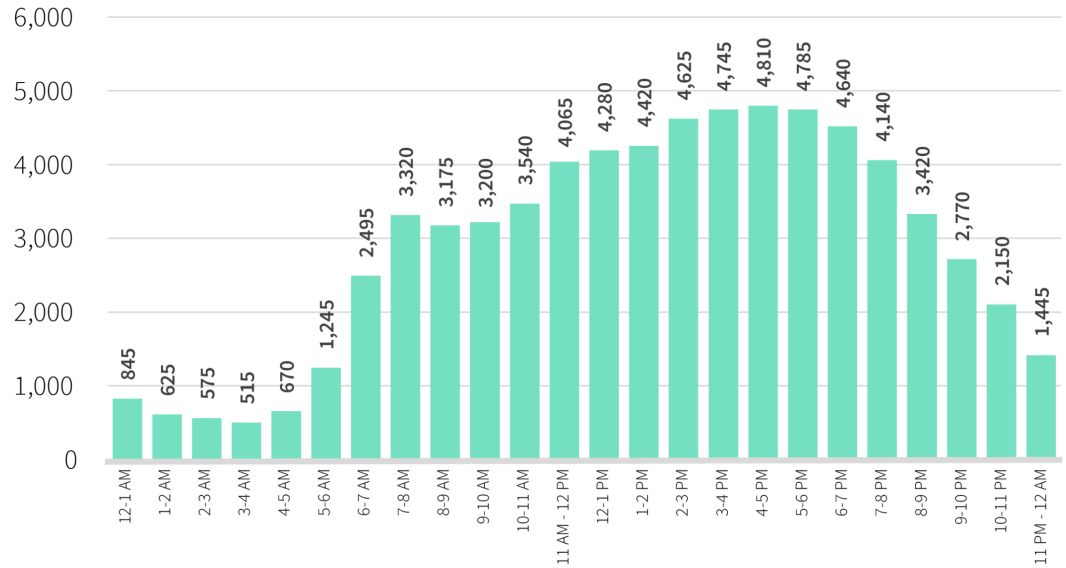
Traffic Growth Rates

- Overall average weekday daily traffic (AWDT) increased 12% between 2005 and 2019.

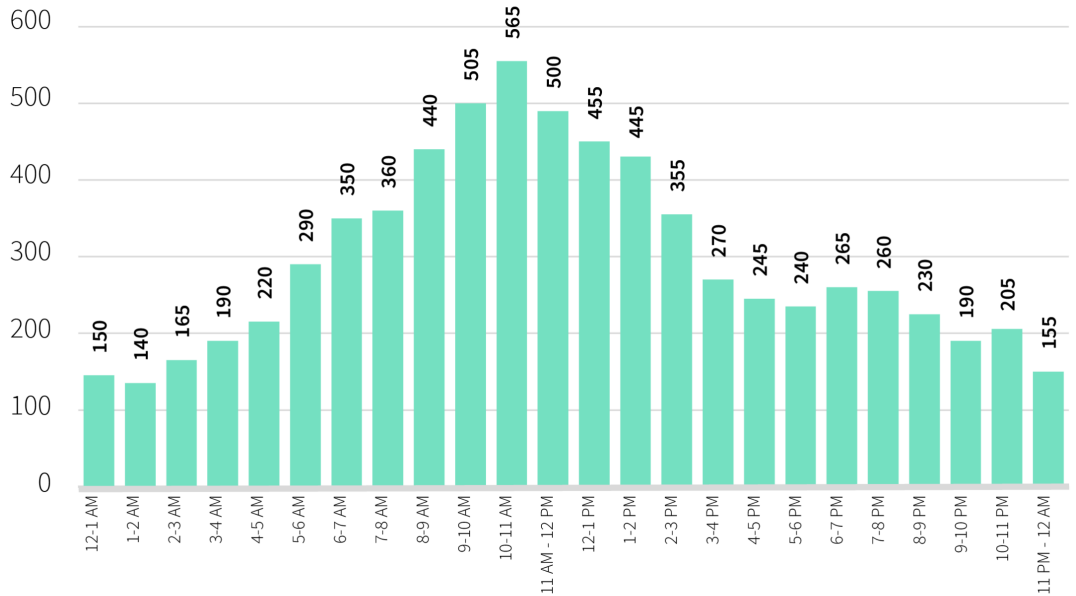


Interstate Bridge Hourly Profiles – Northbound Vehicles and Freight Volumes

Interstate Bridge Hourly Profile - Overall Northbound Weekday Service Volumes



Interstate Bridge Hourly Profile - Northbound Weekday Freight Service Volumes



Freight traffic does not peak during typical commute hours (6-9 AM and 3-6 PM). The highest freight volumes occur during the middle of the day, as freight trucks try to avoid the most congested periods of the day.

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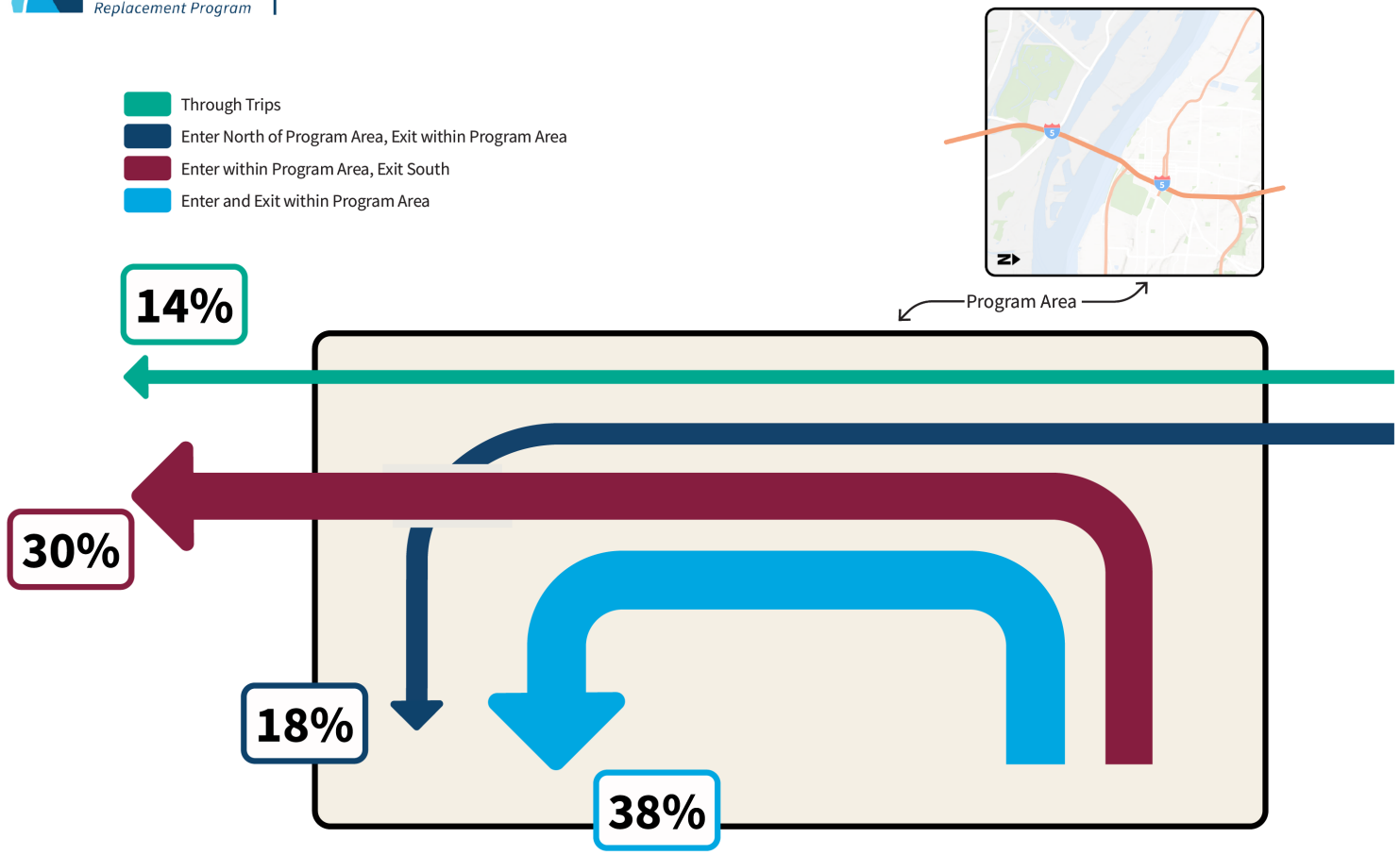
AM Peak Hour – Southbound
85% of Traffic to/from 7 interchanges

Interstate BRIDGE Replacement Program

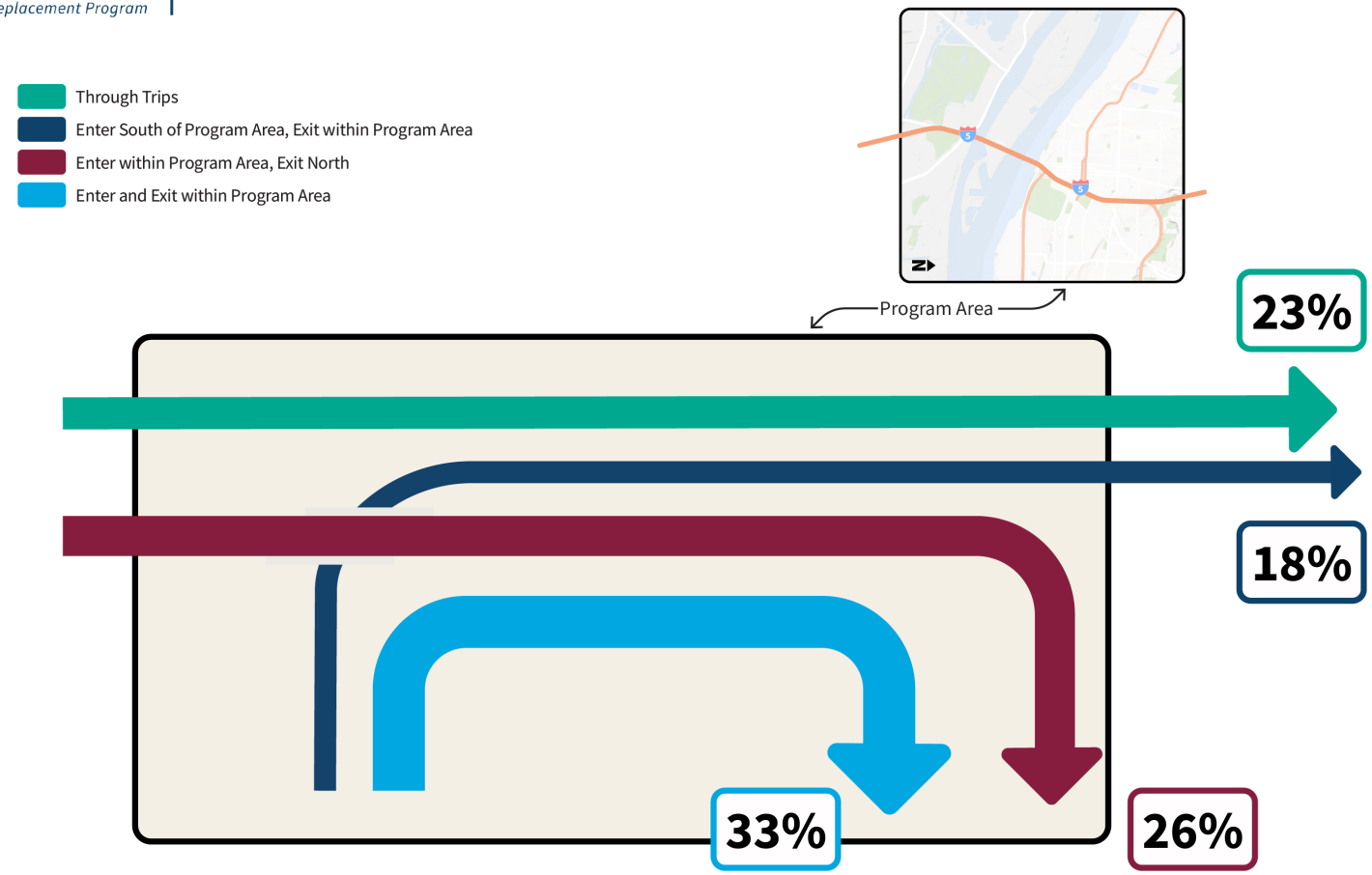
Program Area Peak Travel Patterns Southbound - SR 500 to Victory Blvd



PM Peak Hour - Northbound
75% of Traffic to/from 7 interchanges

Interstate BRIDGE Replacement Program

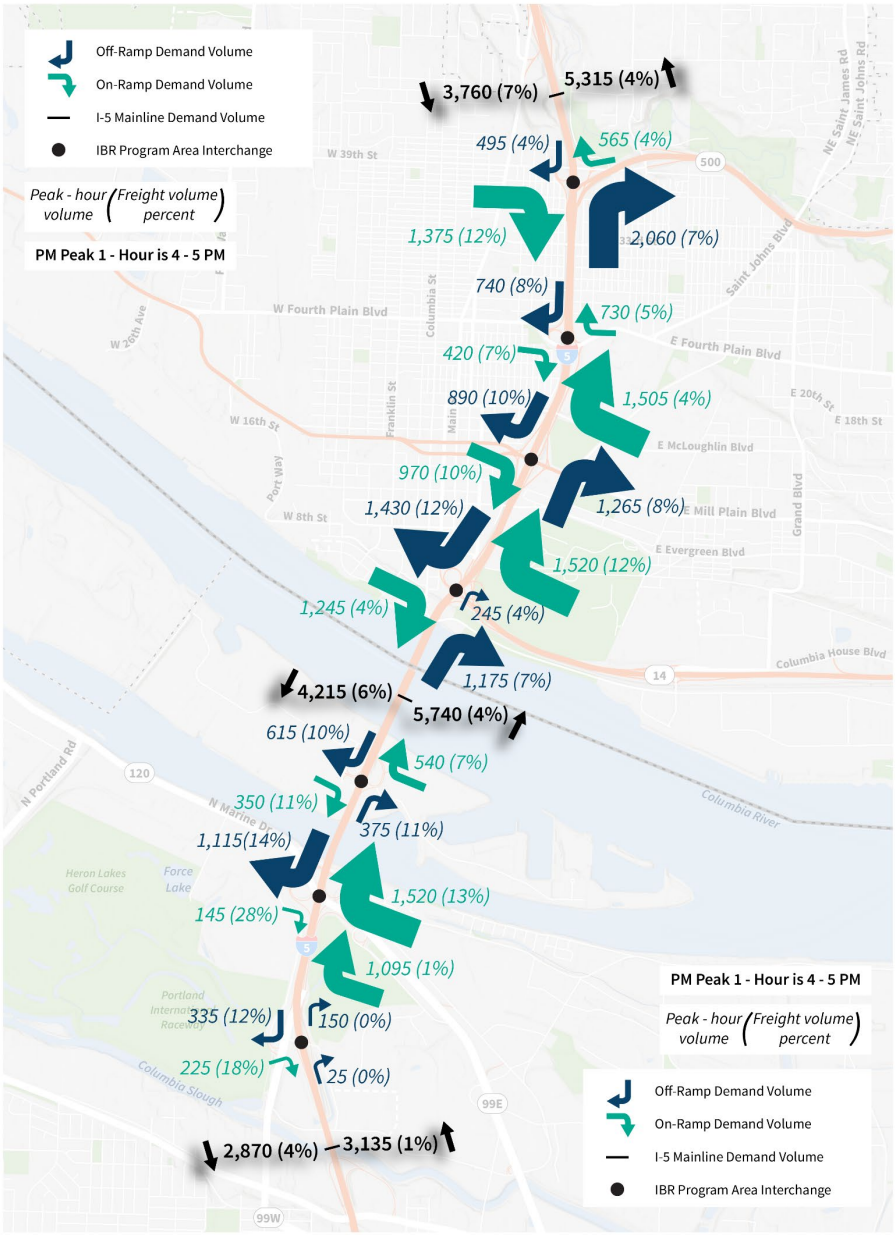
Program Area Peak Travel Patterns Northbound - Victory Blvd to SR 500



Existing Varying AM Peak 1-hour Traffic Volumes

Interstate BRIDGE Replacement Program

Existing Varying PM Peak 1-hour Traffic Volumes

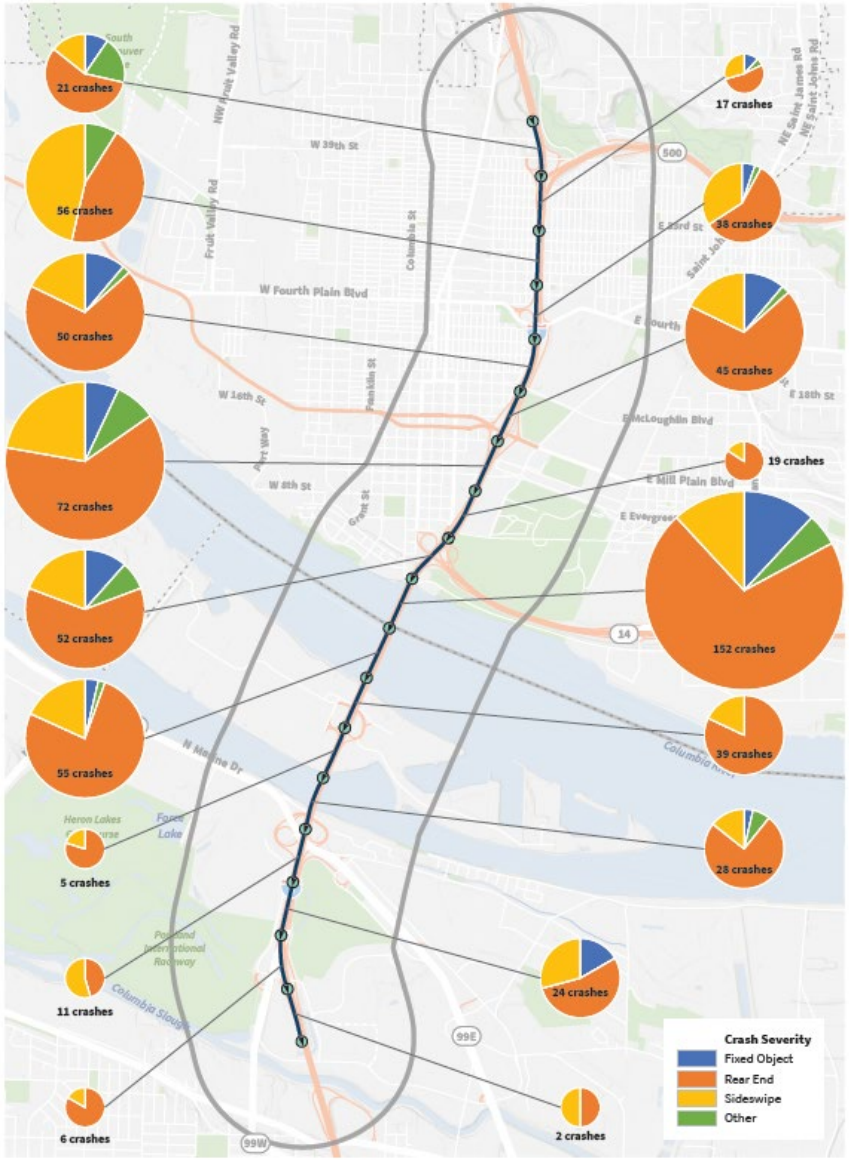


Bottleneck Locations in the Program Area

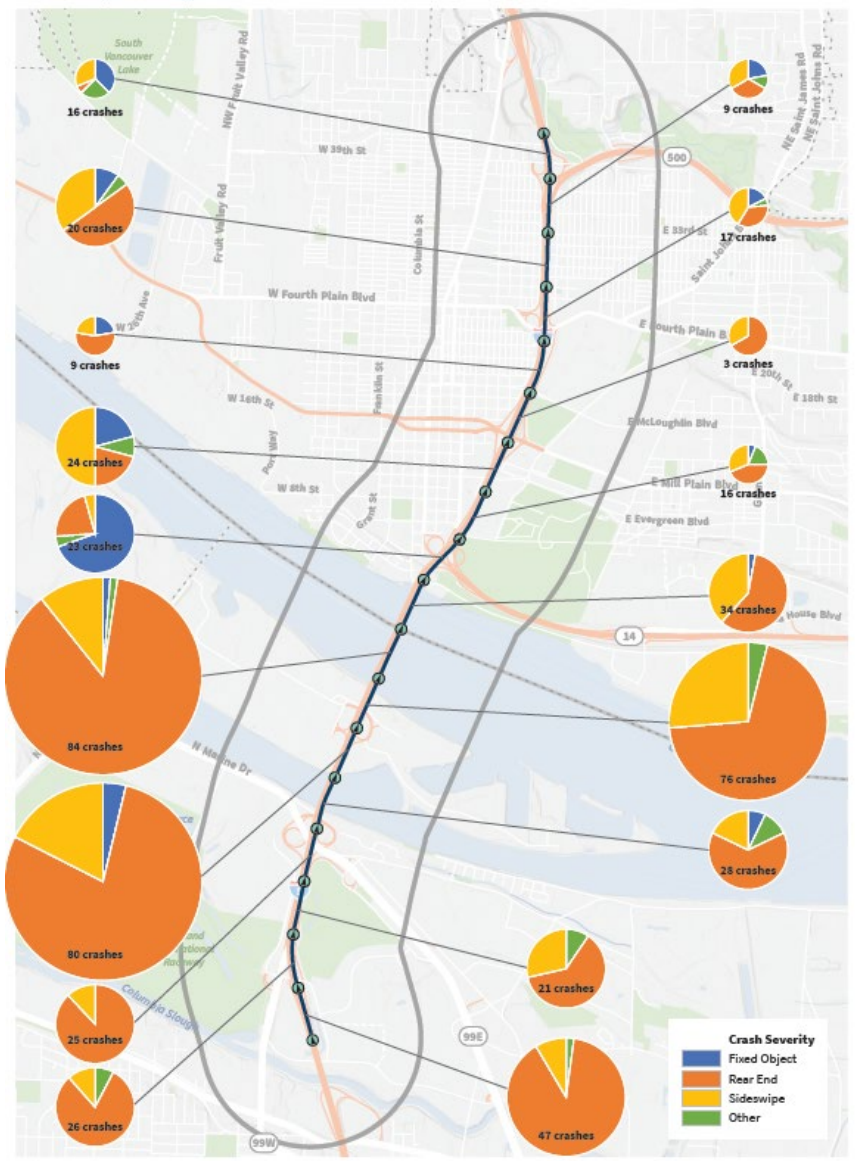
- **There are multiple bottleneck locations within and influencing the IBR Program Area.**
- **These include:**
  - **Northbound I-5** – Capitol Hwy to Interstate Bridge for 7 hours from 12:30-7:30 PM
  - **Southbound I-5 -** Main Street to Interstate Bridge for 3.5 hours from 6-9:30 AM.
  - **Southbound I-5** – Marine Drive to Going Street for 4 hours from 7-11 AM.

Crash Data in the IBR Program Area by Type

Southbound



Northbound



Safety Issues

- **Following features all contribute to the high number of crashes and crash rate within the I-5 IBR Program Area**
  - Short merges, diverges, & weaving sections
  - Presence and duration of congested traffic conditions
  - Bridge lifts / traffic stops

Ramp to Ramp Connections
(Auxiliary Lanes)

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What are Auxiliary Lanes?

- **Ramp-to-ramp connections to facilitate acceleration and deceleration, weaving, merging, and diverging for automobiles and trucks between two or more interchanges**

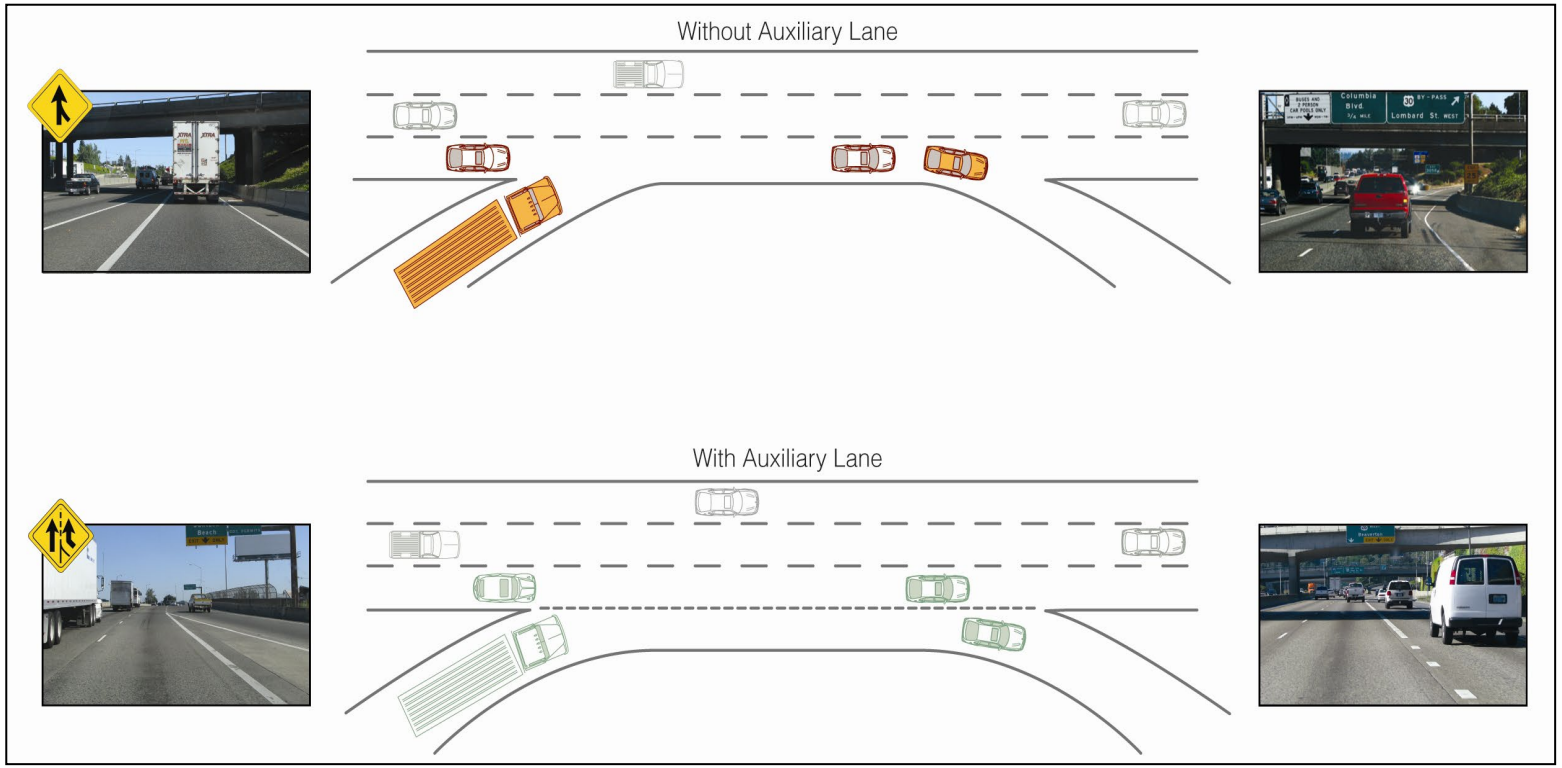
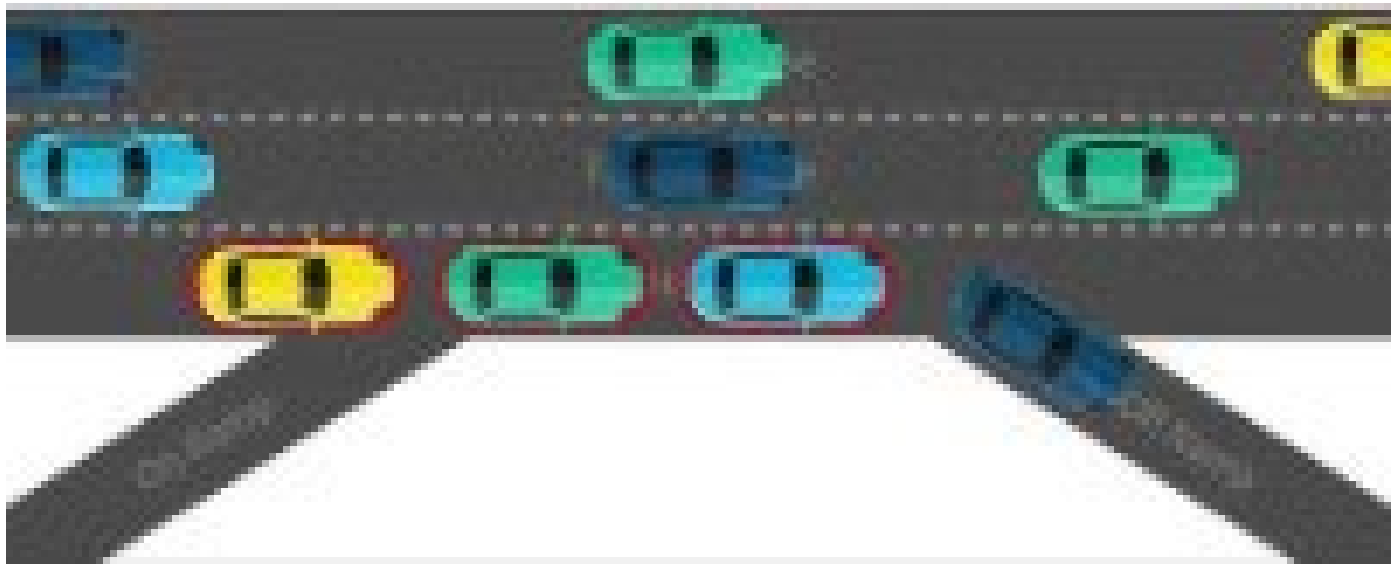
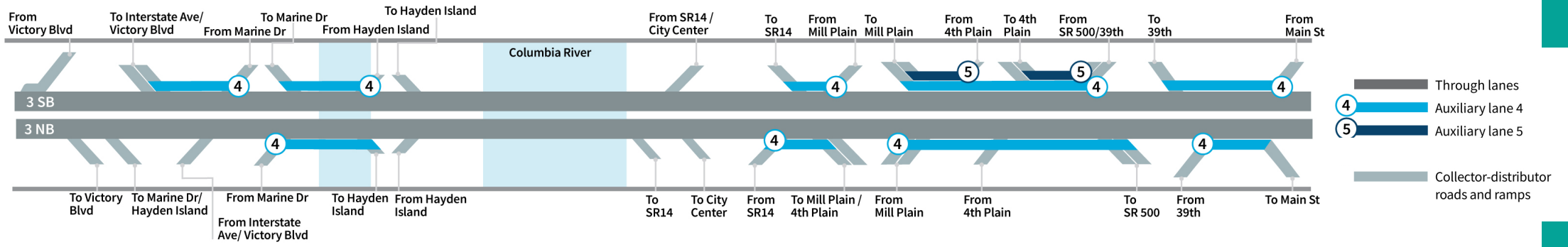


Figure shows typical highway Merge and Diverge Conditions, with (top) and without (bottom) Aux Lane

Auxiliary Lanes Described



Auxiliary Lanes exist today in the IBR Program Area



IBR Program Design Considerations

- Design throughout the corridor needs to address multiple issues:
  - *Traffic congestion*
  - *Interchange spacing not allowing adequate time for vehicles to make on/off decisions*
  - *High on and off ramp traffic volumes*
  - *Conflicts between through, regional, and local traffic*
  - *Freight requirements (volumes, origin/destination patterns, steep grades)*
  - *Crashes caused by short merging/weaving distances resulting in idling vehicles and increased emissions*
  - *Diversion to local roadways to avoid I-5 congestion causing increased volumes and emissions in local communities*
  - *Transit sitting in general purpose lanes subject to the same back-ups as vehicles*
  - *Limited active transportation facilities*
  - *Maintenance of traffic during construction*

Ramp to Ramp Connections (Auxiliary Lanes) Analysis

Interstate BRIDGE Replacement Program

CAG Values & Priorities

- All modes of transportation to increase capacity of river crossing is essential to effectively & safely move more people, goods, & services
- Congestion relief
- Informed, data-driven decision-making
- Bi-State cooperation
- Economic Empowerment
- Transportation facilities must reflect the needs of all ages & abilities, & remove barriers, including language, to access and ensure availability to transportation choices
- Cost effectiveness (affordability & Future planning
- Centering Equity & avoid further harm
- Cultural & historical heritage & resources protected & honored
- Improve resiliency to global climate change
- Protect natural resources
- Opportunities for meaningful and equitable Community Engagement

IBR Desired Outcomes

PURPOSE AND NEED	DESIRED OUTCOMES
1. Travel demand and congestion	More people can move through the program area.
	Travel times through the program area are faster and more predictable.
	People of all ages, abilities, and incomes have access to move through the program area, regardless of mode.
	Regional trips stay on I-5.
2. Freight movement	Freight travel through the program area is more reliable.
	Freight travel times through the program area are faster.
	Accommodates high, wide, and heavy cargo in existing and future routes.
3. Public transportation	More people use transit.
	Travel by transit is competitive with other modes.
	Transit connects people to their origins and destinations.
	Travel by transit is predictable, reliable, and consistent.
	More people have access to high-quality, affordable, and reliable transit.

IBR Desired Outcomes

PURPOSE AND NEED	DESIRED OUTCOMES
4. Safety	Reduce overall crashes on I-5, including severe injury and fatal crashes.
	Reduce overall crashes, including severe injury and fatal crashes, on I-5 ramps, local streets, and active transportation networks in the program area.
	Fewer diverted trips from I-5 to local streets.
	Safety is reflected in designs for all modes.

CLIMATE CHANGE & RESILIENCY
Reduce GHG emissions in support of state climate goals.
Minimize operational and embodied carbon during construction.
All structures are resilient to and operable following anticipated climate disruptions (e.g., heat events, flooding, sea level rise).
Program limits other environmental impacts that exacerbate effects of climate change (e.g., heat island, runoff).

IBR Desired Outcomes

EQUITY (as excerpted from the Equity Framework and to be refined by EAG)
Improved mobility, accessibility, and connectivity especially for lower income travelers, people with disabilities, and communities who experience transportation barriers.
Fewer identity-based disparities in travel time, access, transportation costs, and exposure to air pollution, road noise, and traffic crashes.
Local community improvements are implemented in addition to required mitigations.
Economic opportunities generated by the program benefit minority and women owned firms, BIPOC workers, workers with disabilities, and young people.
Equity priority communities have access, influence, and decision-making power throughout the program in establishing objectives, design, implementation, and evaluation of success.
Disproportionate impacts on equity priority communities are avoided rather than simply mitigated.

COST EFFECTIVENESS AND FINANCIAL RESOURCES
Pursue and leverage any and all federal, state, and other funding sources that support all modes and address long-term needs.
Identify equitable tolling and pricing strategies supporting multimodal construction costs and improved operations and access, in coordination with statewide tolling programs and in support of each state's climate goals.
Consider fiscal responsibility across the program and into the future, including new technology to solve future problems.

Auxiliary lanes for IBR are proposed to address:

- Close interchange spacing
  - *All interchanges are spaced below **minimum interchange spacing standards:** For example, Marine Drive to Hayden Island interchange spacing is 0.5 mile.*
- Short Merges, weaves & diverges
  - ***Example Short Merge:** Northbound Hayden Island On-Ramp acceleration distance is not long enough to get up to freeway speeds*
- High on-ramp & off-ramp volumes
  - ***Example:** Southbound Marine Drive Off-Ramp is 1,400 – 1,800 vehicles per hour.*
- High vehicle crashes
  - ***Example of Importance:** Substandard merge, diverge, weaving lengths combined with heavy volumes lead to more crashes, and crashes, of any severity increases congestion & impact reliability*
- Lane balancing
  - *Proper arrangement of traffic lanes on the freeway and ramps to realize efficient traffic operations by **minimizing the required number of lane shifts**.*

Future Volume/Mode Share Forecasting

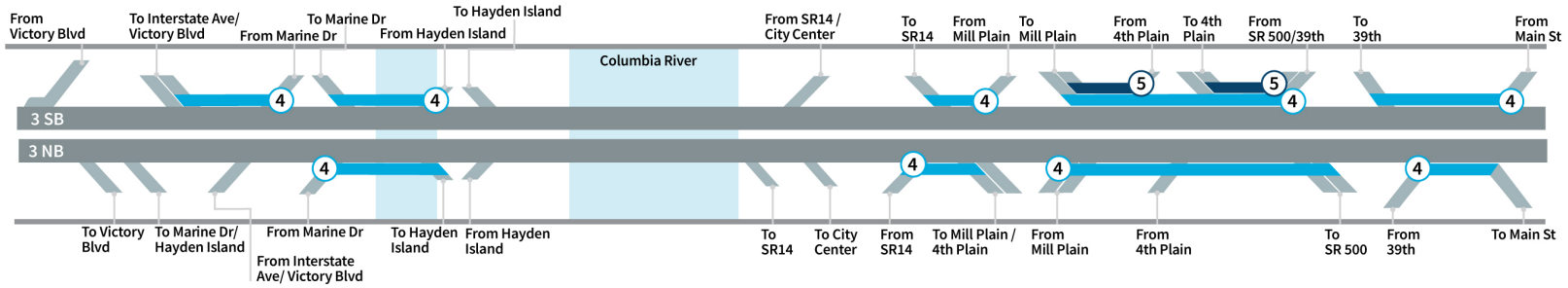
- **Travel Demand Modeling is the process used to predict travel behavior and resulting demand for a specific timeframe given a defined set of assumptions.**
- **Projects future demand, mode choice, traffic volumes, likely travel patterns (origins/destinations) out to 2045 based on current data**
  - The Model includes land use plans and transportation projects identified by the region to be built into the future, which are included in the Regional Transportation Plans (e.g., Rose Quarter, Division BRT Transit, etc.)
  - Metro/RTC (ESG partner agencies) owns this model, and other regional agencies use it to predict travel behavior

Modeling Assumptions

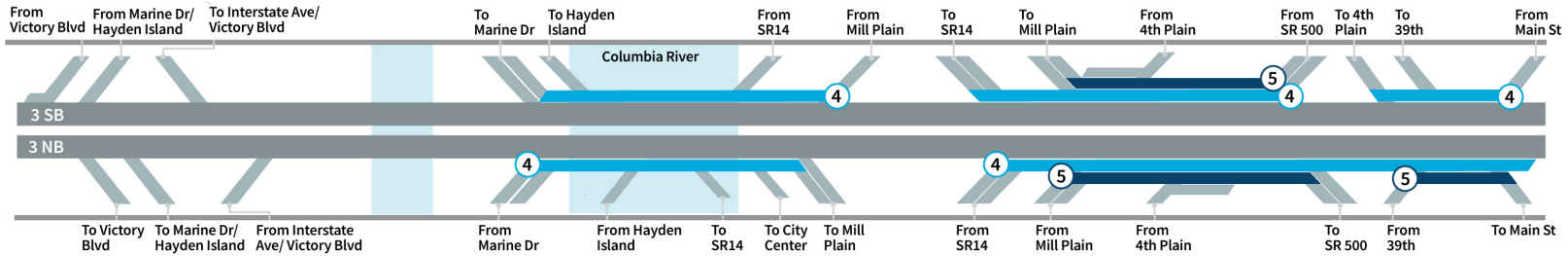
- **Screening work has utilized the 2018 Regional Transportation Plan model as the basis for modeling**
  - LRT High-capacity transit to Clark College including 3 Park-n-rides
    - *Clark College (1900 spaces)*
    - *Mill District (420 spaces)*
    - *SR-14 (570 spaces)*
  - 2 auxiliary lanes across Interstate Bridge
  - Full Hayden Island Interchange
  - Draft variable toll rates on Interstate Bridge
- **Updates will be made in the coming months to prepare for modeling during the environmental phase of IBR**

IBR Program - Auxiliary Lane Options

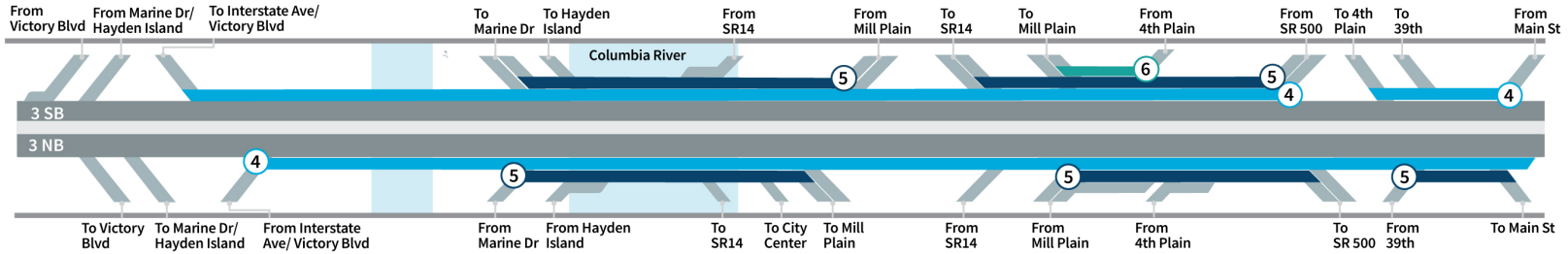
No Build



1 Auxiliary Lane



2 Auxiliary Lane



All options, have 3 lanes thru traffic Northbound and Southbound

- Through lanes
- 4 Auxiliary lane 4
- 5 Auxiliary lane 5
- 6 Auxiliary lane 6
- Collector-distributor roads and ramps

Auxiliary Lane Trade Offs and Considerations
(Example list)

Metric	No Build	1 auxiliary lane	2 auxiliary lanes
Congestion/hot spot locations			
Freeway ramps/arterial streets impacted by I-5 congestions			
Duration of congestion			
Number of annual crashes			
I-5 Interstate Bridge Vehicle Trips			
Weekday Transit Trips crossing Interstate Bridge			
Mode split			
Travel times			
Cost			
Environmental Measures (e.g., VMT, GHG)			
Equity			

What’s Next

What's Next?

- Program design scenarios discussion
- New Summer schedule

Next Program Meetings

- Equity Advisory Group –
  - April 18, 5:30-7:30 p.m.
- Executive Steering Group –
  - April 21, 10:00-12:00 p.m.
- Community Advisory Group
  - April 28, 4:00-6:00 p.m.
- Executive Steering Group
  - May 5, 7:30-9:30 a.m.
- Community Advisory Group
  - May 12, 4:00-6:00 p.m.

Public Comment

Comment Instructions

To make a verbal comment:

- To make a live comment via phone, dial: +1 669 900 6833 or +1 408 638 0968
  - Meeting ID: 993 5459 6043
  - Passcode: 674942
- Dial *9 to raise your hand
- The facilitator will call on participants to provide comment
- Dial *6 to unmute yourself
- Please provide your name and affiliation.
- 10-minute timeframe will be divided among the number of requested speakers.

If we run out of time and you have not had a chance to speak, you can still provide comments after the meeting.

Comment Instructions

To submit comment after the meeting:

- Fill out the comment form on the program website or email your comments to **info@interstatebridge.org** with “CAG Public Comment” in the subject line.

- Call **360-859-0494** (Washington), **503-897-9218** (Oregon), **888-503-6735** (toll-free) and state "CAG Public Comment" in your message.
- Written comments need to explicitly say “**CAG Public Comment**” in the subject line or in the body of the message for them to be identified and distributed to CAG members.
- All written comments must be received prior to 48 hours in advance of each upcoming meeting in order to be distributed to advisory group members. Comments received after that point will be distributed to members in advance of their next meeting.

Wrap up

Final Thoughts

Interstate BRIDGE Replacement Program

Thank you!

Interstate BRIDGE Replacement Program