



Oregon

John A. Kitzhaber, MD, Governor

Department of Transportation

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John Mermin, Senior Transportation Planner
Metro Planning & Development
600 NE Grand Ave.
Portland, OR 97232-2736

John

Dear Mr. Mermin:

ODOT requests amending the Regional Transportation Plan (RTP) to incorporate Corridor Bottleneck Operations Study (CBOS) projects to the 2035 RTP Financially Constrained project list. ODOT Region 1 Major Projects started the CBOS in 2009 to identify, rank and provide conceptual solutions for the worst bottlenecks on I-5 south of the Marquam Bridge, I-205, I-84, I-405 and US 26 in the Portland Metro Region. Several projects have been moved into design and construction, and preliminary results are very encouraging.

The CBOS has identified several bottlenecks on the aforementioned corridors based on PORTAL data, ODOT traffic cameras, travel time runs, collision data and field observations. These data helped identify the location of the bottleneck, the duration of the congestion, contributing factors and speeds during bottleneck activation periods. Some bottlenecks locations were eliminated from further investigation because a project has been programmed to address the problem, or a cost-effective improvement was not feasible. The bottlenecks were ranked in terms of delay and cost, and those projects with the highest delay and lowest costs were proposed to move forward.

Four (4) high-priority projects proposed to address bottlenecks on major commute/freight routes in the Portland metro area are described in more detail on the following pages. One of these projects (I-5 NB at Lower Boones Ferry Rd, Figure 1) does not require an RTP amendment, as it only involves restriping.

These projects were selected as providing the best value of benefits and cost. It should be noted, however, that traffic volumes on these highways are very high, particularly during the peak commute hours, and as these operational improvements do *not* add capacity, the benefits achieved will not eliminate congestion, but rather improve the operations and safety of the mainline. Notwithstanding these occurrences, the proposed projects will reduce congestion at identified bottlenecks, particularly on the peak commute shoulders, and enhance safety by improving the weaves and merges that occur at interchanges. Follow-up phases are identified that would provide further benefits, funding permitting.

Briefly, the three high priority projects are summarized as:

I-5 SB: Lower Boones Ferry to Nyberg, Figure 2

- **Problem:** The fourth lane from Hwy 217 entrance-ramp drops at Lower Boones Ferry Road exit-ramp, and a high volume weaving movement to Nyberg St. exit-ramp, resulting in poor lane utilization and operational deficiency. **Solution:** Extend I-5 SB auxiliary lane from Lower Boones Ferry exit-ramp to Lower Boones

Ferry entrance-ramp. Auxiliary lane would provide direct connection from Hwy 217 to Nyberg Street exit-ramp.

- **Solution:** Extend I-5 SB auxiliary lane from Lower Boones Ferry exit-ramp to Lower Boones Ferry entrance-ramp. Auxiliary lane would provide a continuous lane from Hwy 217 to Nyberg Street exit-ramp.
- **Project Benefits:** Reduce congestion, improve lane balance and travel time reliability, and sustain stable traffic flow. Extension of the auxiliary lane would provide continuous lane from Hwy 217 to Nyberg St. exit. Construction of the auxiliary lane is anticipated to result in a 30% reduction in mainline crashes, based on similar comparative auxiliary lane improvements.
- **Estimated Cost:** \$7M - \$8.5M

I-205 NB: Powell/Division to Stark/Washington, Figure 3

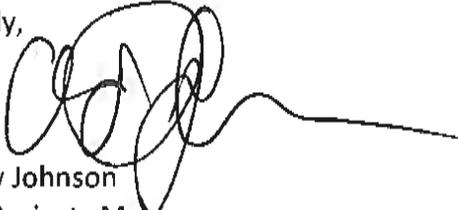
- **Problem:** The combined volumes from the two consecutive entrance ramps are high, coupled with the high mainline volumes. Conflicts between entrance-ramps create turbulence at merge points with mainline and difficult weaving movements. Heavy exit demand at Stark/ Washington St. creates unsafe weaves to existing single-in exit ramp.
- **Solution:** Extend existing accel-lane from Powell Blvd. entrance-ramp to match with existing auxiliary lane from Division St. entrance-ramp to Stark/Washington St. exit-ramp, and provide two-lane exit at Stark/Washington. Auxiliary lane would provide an extended distance for traffic to merge onto mainline. Two-lane exit at Stark/Washington St. will reduce weaving conflicts in this segment.
- **Project Benefits:** Reduce congestion and enhance stable traffic flow. Construction of a 2-lane exit ramp at Stark/Washington will allow motorists additional time/distance to find gaps and safely weave over lanes. Construction of the auxiliary lane is anticipated to result in a 30% reduction in mainline crashes, based on similar comparable auxiliary lane improvements.
- **Estimated Cost:** \$6.5M to \$7.5M

I-205 SB: I-84 EB to Stark/Washington, Figure 4

- **Problem:** Division/Powell Blvd. exit-ramp to entrance-ramp from I-84 EB. Congestion/queuing starts from weaving section between Stark/Washington St. entrance-ramp and Hwy 26/Division St./Powell Blvd exit ramp to I-205. Contributing Factors: high volumes from I-84 EB merging with I-205 mainline traffic. Conflicts between entrance-ramps create turbulence at merge points with mainline and difficult weaving movements.
- **Solution:** Extend lane from I-84 EB entrance-ramp to Stark/ Washington St., to match existing auxiliary lane from Stark/Washington St. to Division St./Powell Blvd. Approximately 25% of traffic from I-84 EB entrance-ramp is destined for Division/ Powell Blvd. exit. Auxiliary lane would provide direct connection to this exit for almost one out of four vehicles in this segment of I-205.
- **Project Benefits:** Reduce congestion, improve lane balance and travel time reliability, and sustain stable traffic flow. Construction of the auxiliary lane would facilitate the I-84 EB to Division/Powell movements. This auxiliary lane is anticipated to result in a 30% reduction in mainline crashes, based on similar comparable auxiliary lane improvements.
- **Estimated Cost:** \$7.0M - \$8.5M

The total estimated costs of these projects are \$21.5 - \$26.5 million. To add these projects to the Financially Constrained list, ODOT is proposing to reduce \$26.5 M from the OR 217: Braid from B-H to Allen (#10875) from the Financially Constrained list.

Please don't hesitate to contact me if you have questions or concerns about this request,
Cordially,

A handwritten signature in black ink, appearing to read 'AJ', with a long horizontal line extending to the right.

Andrew Johnson
Major Projects Manager
ODOT, Region 1

Attachments

cc: Jason Tell, ODOT Region 1 Manager
Rian Windsheimer, ODOT Planning & Development Manager
Tim Wilson, ODOT Senior Planner

I-5 Southbound
Lower Boones Ferry Rd
Exit Ramp to Lower
Boones Ferry Road
Entrance Ramp
Auxiliary Lane

Project Location

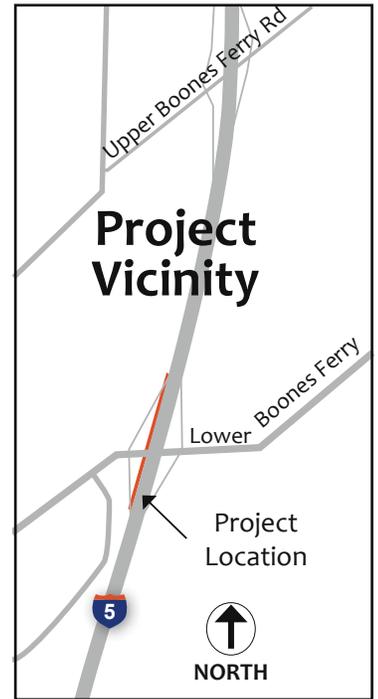
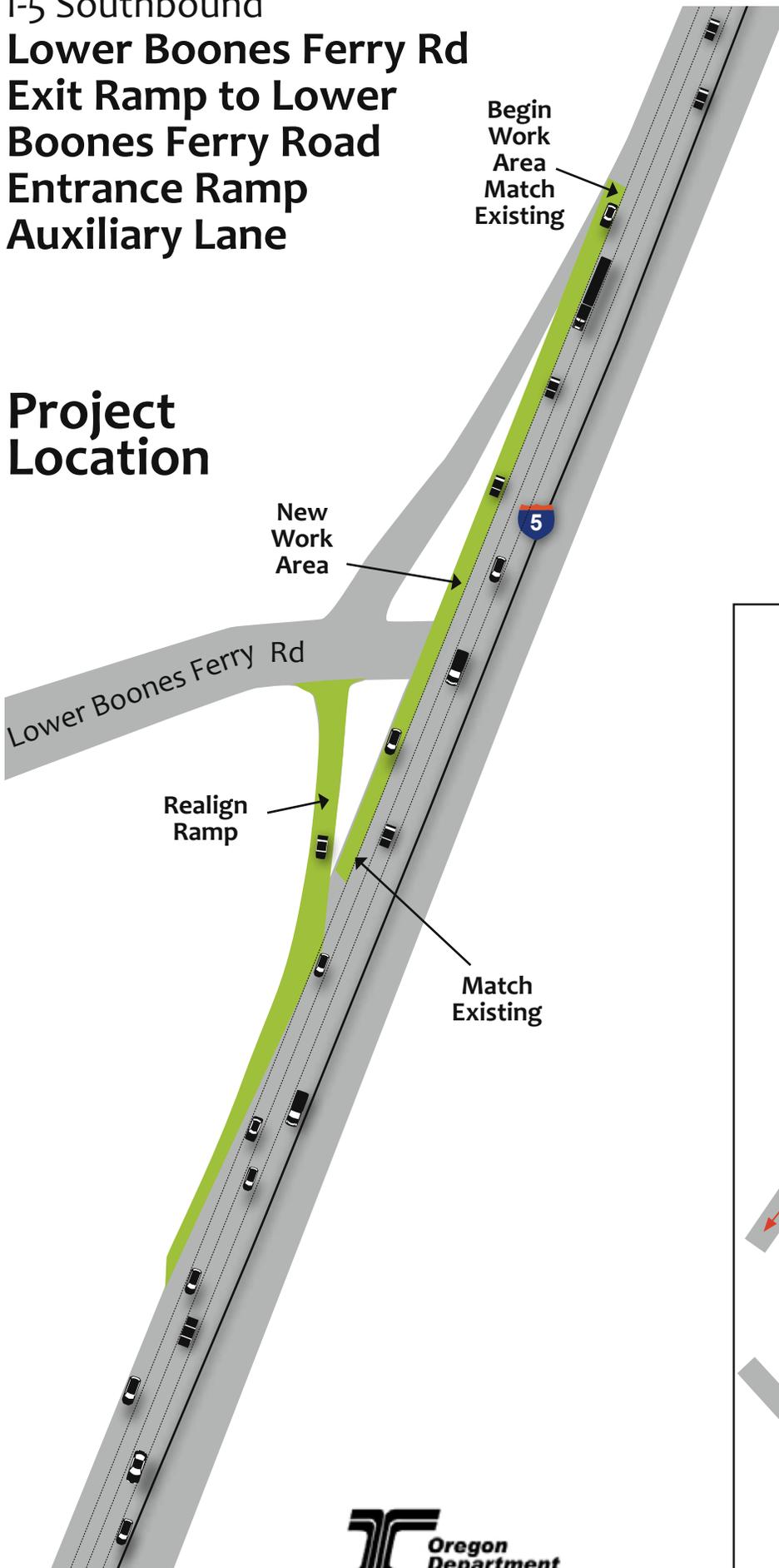
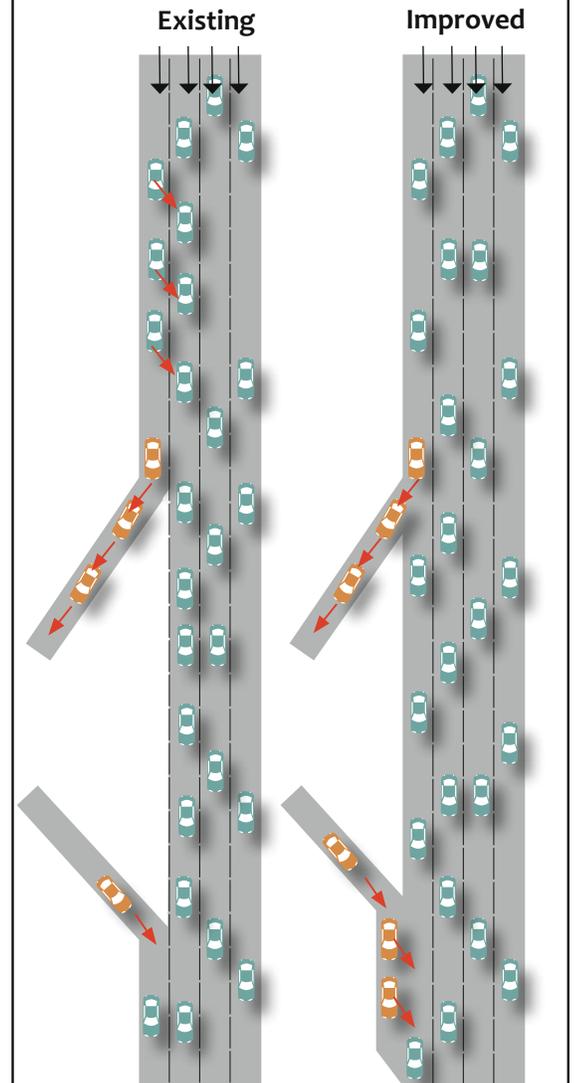
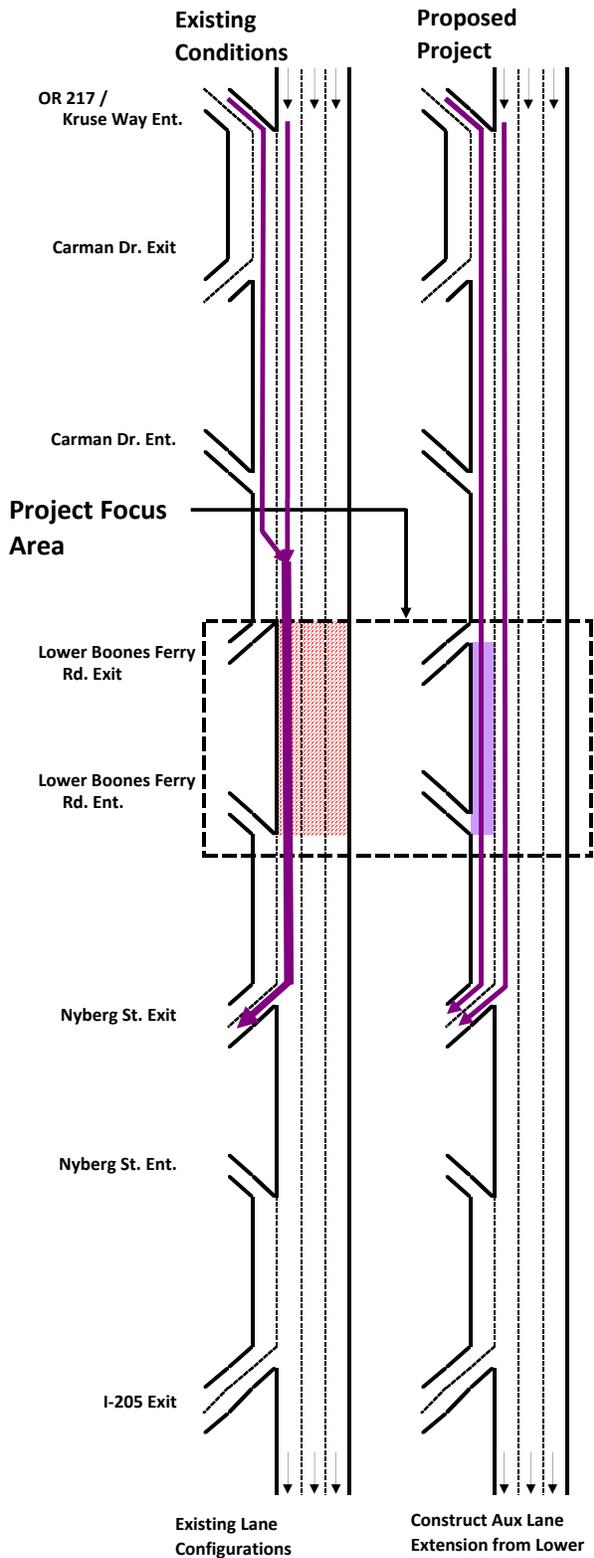


Diagram of Improvements



I-5 SB: Lower Boones Ferry Exit-ramp to Lower Boones Ferry Entrance-ramp Auxiliary Lane



LEGEND

- Area of Congestion
- Auxiliary Lane Improvement
- Critical Movements in Focus Area

Existing Conditions

Queue: Queuing experienced from the Lower Boones Ferry Road exit-ramp to the Lower Boones Ferry Road entrance-ramp. Contributing Factors: The fourth lane from OR 217 entrance-ramp drops at Lower Boones Ferry Road exit-ramp, and a high volume weaving movement to Nyberg St. exit-ramp, resulting in an unbalanced lane utilization and operational deficiency.

Duration: Approximately 2 hours daily between 4:00PM to 6:00PM.

Speed: Bottleneck activation speeds drop as low as 30 mph.

Volume (2011 ADT): Mainline: 77,020 (10% truck); Exit-Ramp to Lower Boones Ferry Road: 13,610; Entrance-Ramp from Lower Boones Ferry Road : 12,870; Exit-ramp to Nyberg St.: 21,190

Focus Area Crashes: Rate: 0.39 per MVMT; Frequency: 27 crashes from 2007-2011; 1 Fatal Crash

Proposed Project

Description: Extend I-5 SB auxiliary lane from Lower Boones Ferry exit-ramp to Lower Boones Ferry entrance-ramp.

Benefits:

Queue: Congestion/queuing would be reduced in all lanes by providing a balanced roadway section.

Duration: It is anticipated that the queue would be reduced to less than an hour during the peak periods.

Speed: Average speeds within the congested areas are expected to increase to between 40 and 50 mph.

Project Benefits Summary:

Reduce congestion, improve lane balance and travel time reliability, and sustain stable traffic flow. Extension of the auxiliary lane would provide continuous lane from OR 217 to Nyberg St. exit. Construction of the auxiliary lane is anticipated to result in a 30% reduction in mainline crashes, based on comparative auxiliary lane improvements.

Project Estimated Cost:

\$7M - \$8.5M

Follow-up Phases to Further Enhance Operations and Safety in Corridor

I-5 SB Auxiliary Lanes:

An I-5 SB auxiliary lane extension would create a continuous lane connection from OR 217 entrance-ramp to the I-205 exit-ramp.

Description: Extend the SB auxiliary lane from Nyberg St. exit-ramp to the Nyberg St. entrance-ramp. This would connect to the existing auxiliary lane between Nyberg entrance-ramp and I-205 exit-ramp. A new auxiliary lane between Nyberg St. entrance-ramp and I-205 exit-ramp will be required.

Benefits: This would result in improved system to system traffic operations for this section from OR 217 to I-205.

Queue: Congestion/queuing is reduced in all lanes due to improved lane utilization.

Duration: It is anticipated that the queue would be considerably reduced.

Speed: Average speeds within the congested areas are expected to increase to between 40 and 50 mph.

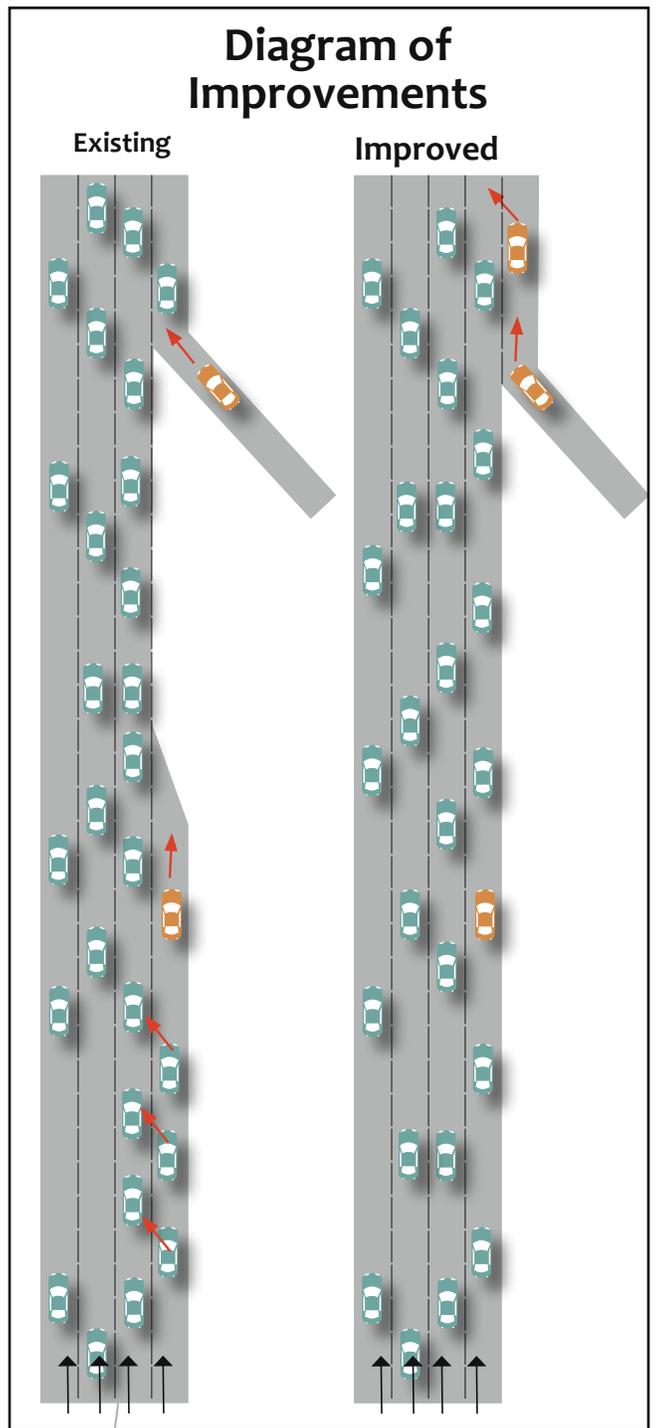
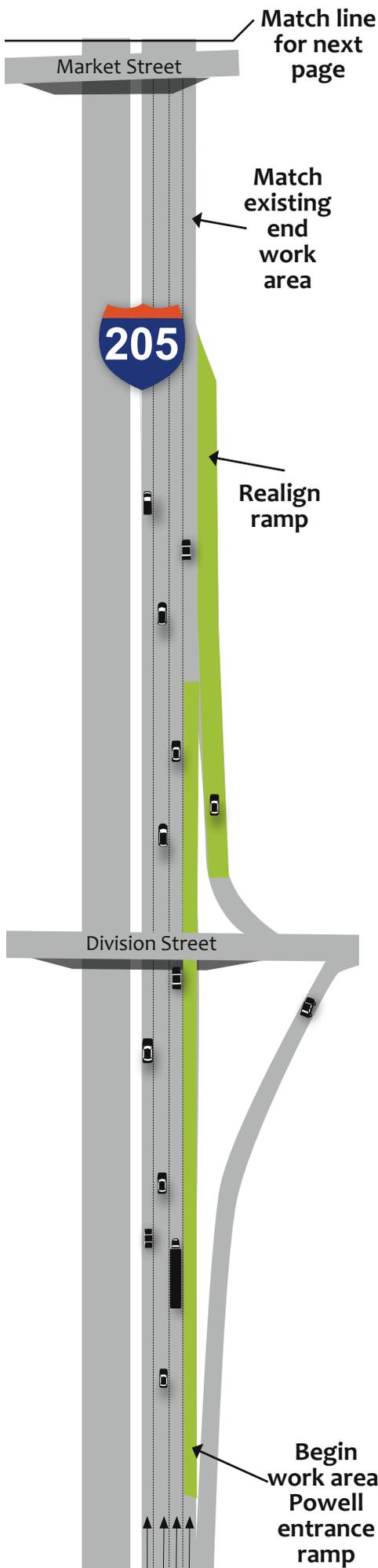
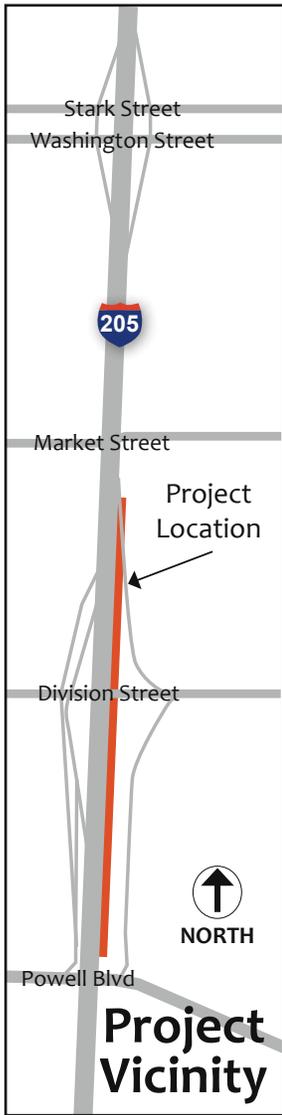
Project Estimated Cost: \$19M - \$20M



Site Map Diagram

C-BOS: High Priority Projects

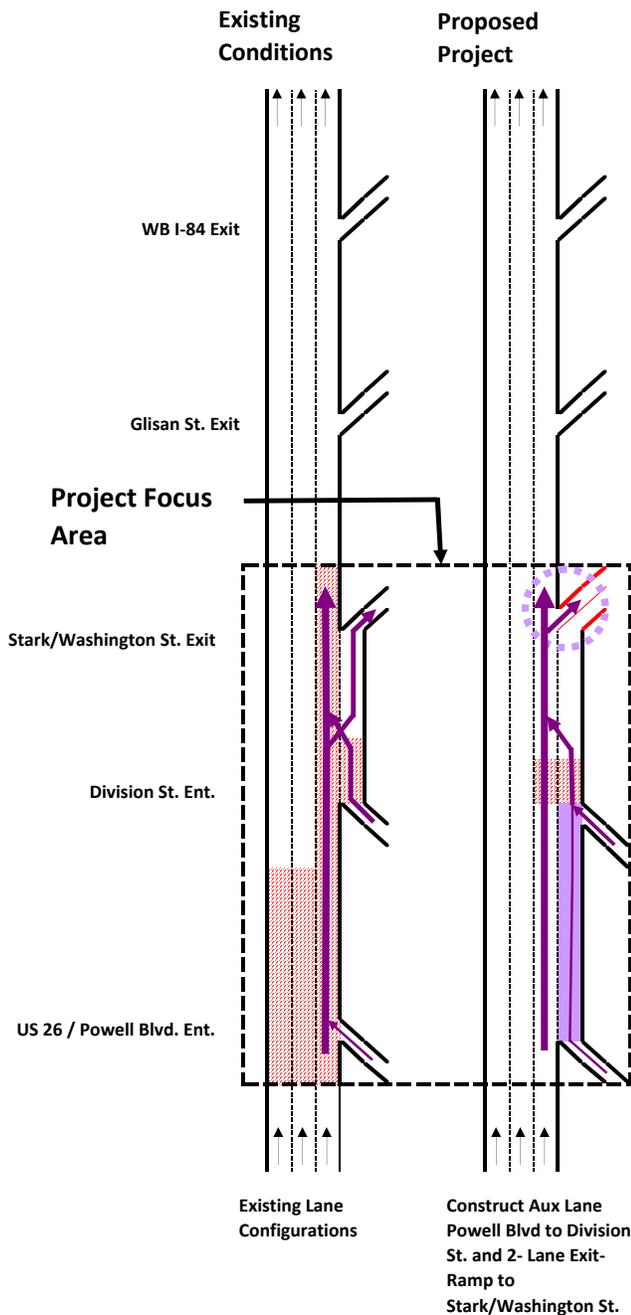
I-5 SB - Lower Boones Ferry Exit-ramp to Lower Boones Ferry Entrance-ramp



I-205 Northbound
**Powell Blvd to
Washington St
Auxiliary Lane**



I-205 NB: US 26/Powell Blvd Entrance-ramp to Division Entrance-ramp Auxiliary Lane and Stark/Washington St. Exit-ramp Bottleneck



LEGEND

-  Area of Congestion
-  I-205 NB Auxiliary Lane
-  2-Lane Exit-Ramp
-  Critical Movements in Focus Area

Existing Conditions

Queue: AM queues appear to be caused by turbulence at the Powell Blvd entrance-ramp merge point, and is reflected in queues to Stark/Washington St. exit. In the PM, queues occur at both entrance-ramps (Division St., Powell Blvd.). Contributing Factors: The combined volumes from the two consecutive entrance ramps is high, coupled with the high mainline volumes. Conflicts between entrance-ramps create turbulence at merge points with mainline, and difficult weaving movements. Heavy exit demand at Stark/Washington St. creates unsafe weaves to existing single lane exit-ramp.

Duration: Approximately 2 hours daily between 4:00PM to 6:00PM.

Speed: Bottleneck activation speeds drop as low as 20 mph.

Volume (2011 ADT): Mainline: 82,810 (8.7% Truck); Powell entrance-Ramp: 11,300; Division entrance-Ramp: 6,790.

Project Focus Area Crashes: Rate: 0.74 per MVMT; Frequency: 114 crashes from 2007-2011; No Fatal crashes.

Proposed Project

Description: Extend existing accel-lane from Powell Blvd. entrance-ramp to match with existing auxiliary lane from Division St. entrance-ramp to Stark/Washington St. exit-ramp, and provide two lane exit at Stark/Washington. Auxiliary lane would provide an extended distance for traffic to merge onto mainline. Two-lane exit at Stark/Washington St. will reduce weaving conflicts in this segment.

Benefits:

Queue: Congestion/queuing would be reduced in most lanes and completely reduced in the two leftmost lanes.

Duration: It is anticipated that the queue would be reduced to an hour during the peak periods.

Speed: Average speeds within the congested areas are expected to increase to between 40 and 45 mph.

Project Focus Area Benefits Summary:

The construction of extending the auxiliary lane from Powell to Division and a 2-lane exit ramp at Stark/Washington will allow motorists additional time/distance to find gaps and safely weave over lanes. Construction of the auxiliary lane is anticipated to result in a 30% reduction in mainline crashes, based on comparable auxiliary lane improvements. The improvements will reduce congestion and enhance stable traffic flow.

Project Estimated Cost: \$6.5M - \$7.5M

Follow-up Phases to Further Enhance Operations and Safety in Corridor

I-205 NB Auxiliary Lanes:

Division St. to Stark/Washington St.; Stark/Washington St. to Glisan St.; and

Glisan St. to I-84 WB

Description: Construct second NB auxiliary lane from Division St. entrance-ramp to 2-lane exit at Stark/Washington St. and auxiliary lane to Glisan; add auxiliary lane from Stark/Washington to I-84 WB exit-ramp. Construction of the auxiliary lane would facilitate the Powell and Division movements to I-84 WB. This would improve lane balance and travel speeds, and sustain stable traffic flow and would result in overall safety improvements.

Project Estimated Cost: \$5.5M - \$6.5M



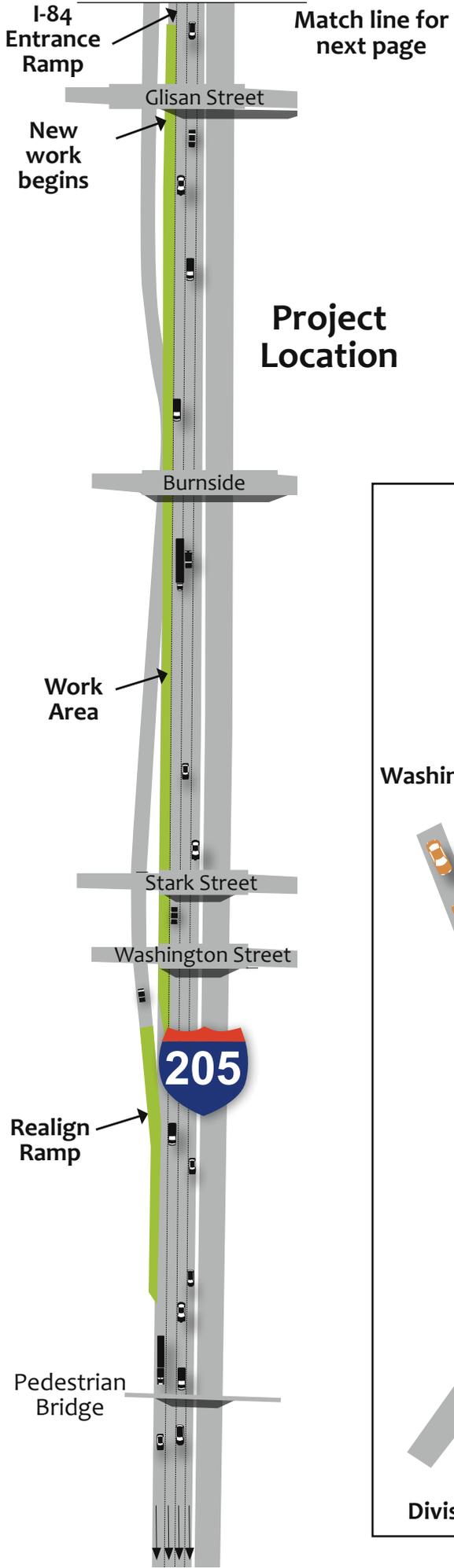
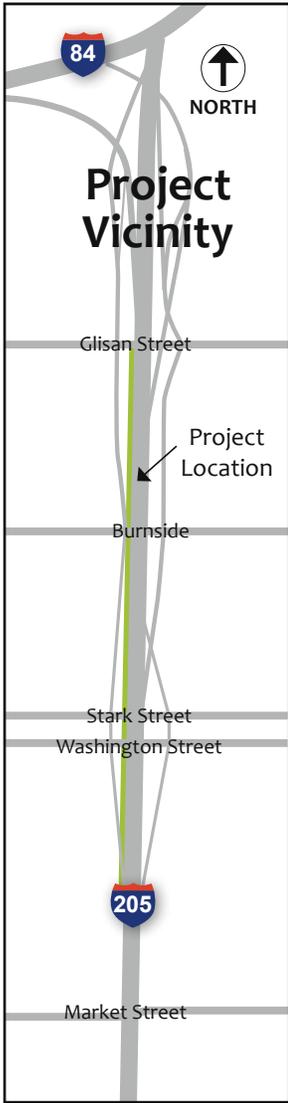
Site Map Diagram

C-BOS: High Priority Projects

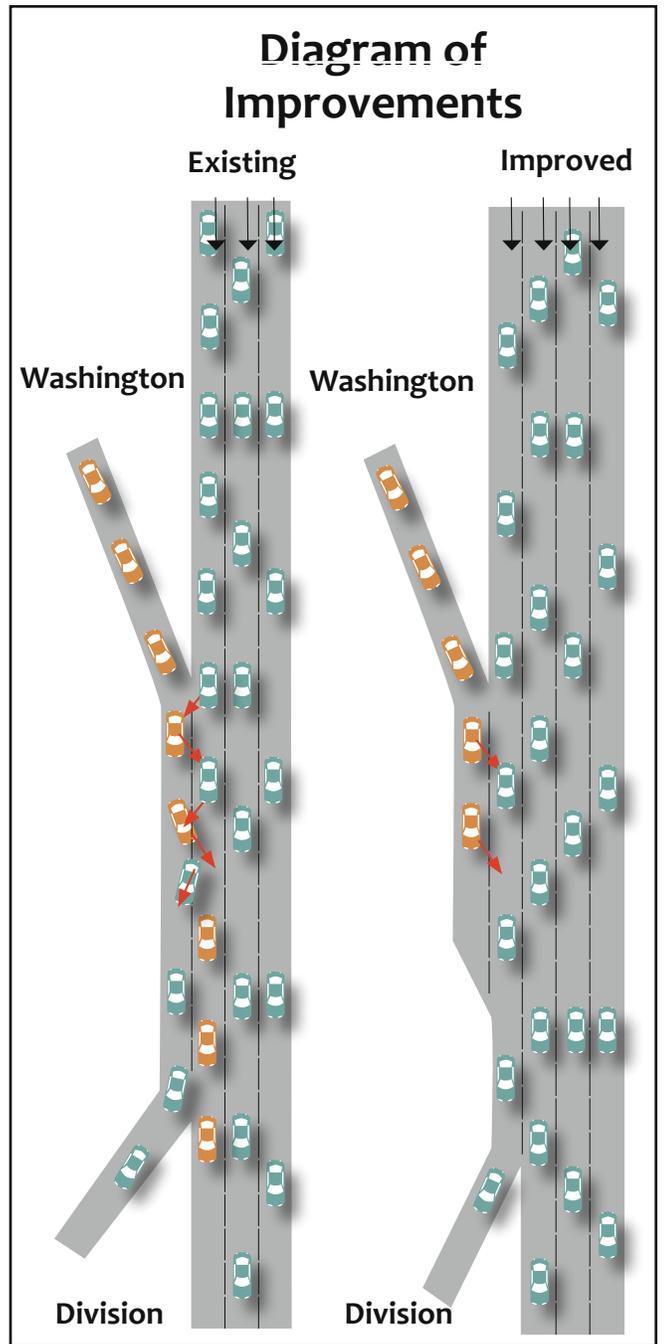
I-205 NB: US 26/Powell Blvd Entrance-ramp to

Division Entrance-ramp Auxiliary Lane and

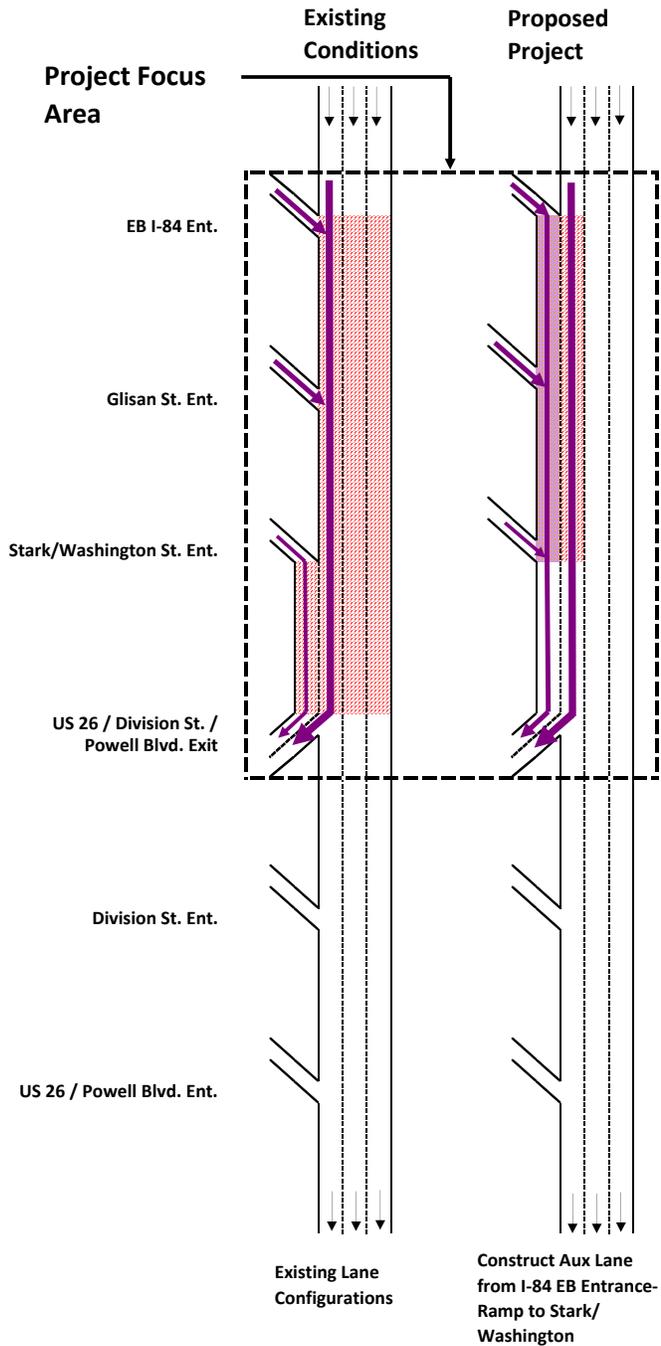
Stark/Washington St. Exit-ramp



I-205 Southbound I-84 to Stark/ Division Streets Auxiliary Lane



I-205 SB: I-84 EB Entrance-ramp to Stark/Washington St. Auxiliary Lane



LEGEND

-  Area of Congestion
-  I-205 SB Auxiliary Lane
-  Critical Movements in Focus Area

Existing Conditions

Queue: Division/Powell Blvd. exit-ramp to entrance-ramp from I-84 EB. Congestion/queuing starts from weaving section between Stark/Washington St. entrance-ramp and US 26/Division St./Powell Blvd exit ramp. Contributing Factors: high volumes from I-84 EB merging with I-205 mainline traffic. Conflicts between entrance-ramps create turbulence at merge points with mainline, and difficult weaving movements.

Duration: Approximately 3 hours daily between 3:00PM to 6:00PM.

Speed: Bottleneck activation speeds drop as low as 20 mph.

Volume (2011ADT): Mainline: 81,760 (8.7% truck); Entrance-Ramp from I-84 EB: 17,390, of which approximately 25% exit to Division/Powell.

Project Focus Area Crashes: Rate: 0.60 per MVMT; Frequency: 112 crashes from 2007 to 2011; No fatal crashes.

Proposed Project

Description: Extend lane from I-84 EB entrance-ramp to Stark/Washington St., to match existing auxiliary lane from Stark/Washington St. to Division St./Powell Blvd. Approximately 25% of traffic from I-84 EB entrance-ramp is destined for Division/ Powell Blvd. exit

Benefits:

Queue: Congestion/queuing would be reduced in all lanes and completely reduced in the two leftmost lanes.

Duration: It is anticipated that the queue would be reduced to an hour during the peak periods.

Speed: Average speeds within the congested areas are expected to increase to between 40 and 45 mph.

Project Focus Area Benefits Summary:

Reduce congestion, improve lane balance and travel time reliability, and sustain stable traffic flow. Construction of the auxiliary lane would facilitate the I-84 EB to Division/Powell movements. Auxiliary lane would provide direct connection to this exit for almost one out of four vehicles in this segment of I-205. This auxiliary lane is anticipated to result in a 30% reduction in mainline crashes, based on comparable auxiliary lane improvements.

Project Estimated Cost:

\$7.0M - \$8.5M



Site Map Diagram

C-BOS: High Priority Projects

I-205 SB: I-84 EB Entrance-ramp to Stark/Washington St.