

I-5 Southbound: Lower Boones Ferry Road to I-205 Freeway Improvement Performance Evaluation

THE CHALLENGE:

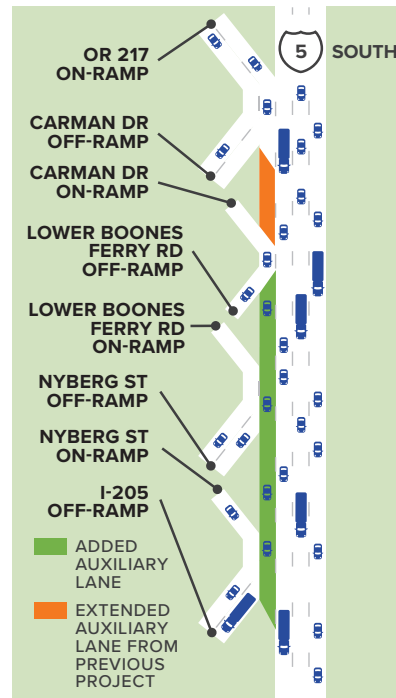
The stretch of southbound I-5 between OR 217 and I-205 was one of the most congested locations in the Portland region, especially during the afternoon hours. This was primarily due to the high volume of traffic merging onto I-5 from OR 217 and weaving with the traffic leaving I-5 at downstream exits. Additionally, the large majority of vehicles exiting at I-205 enter I-5 at one of the four upstream on-ramps. The afternoon queues extended back on I-5 to the Haines Street exit and on OR 217 past the 72nd Avenue interchange. Afternoon traffic was often under stop-and-go conditions. Without improvements, congestion and related crashes were anticipated to increase in the area due to growing travel demand.

IMPROVEMENTS MADE:

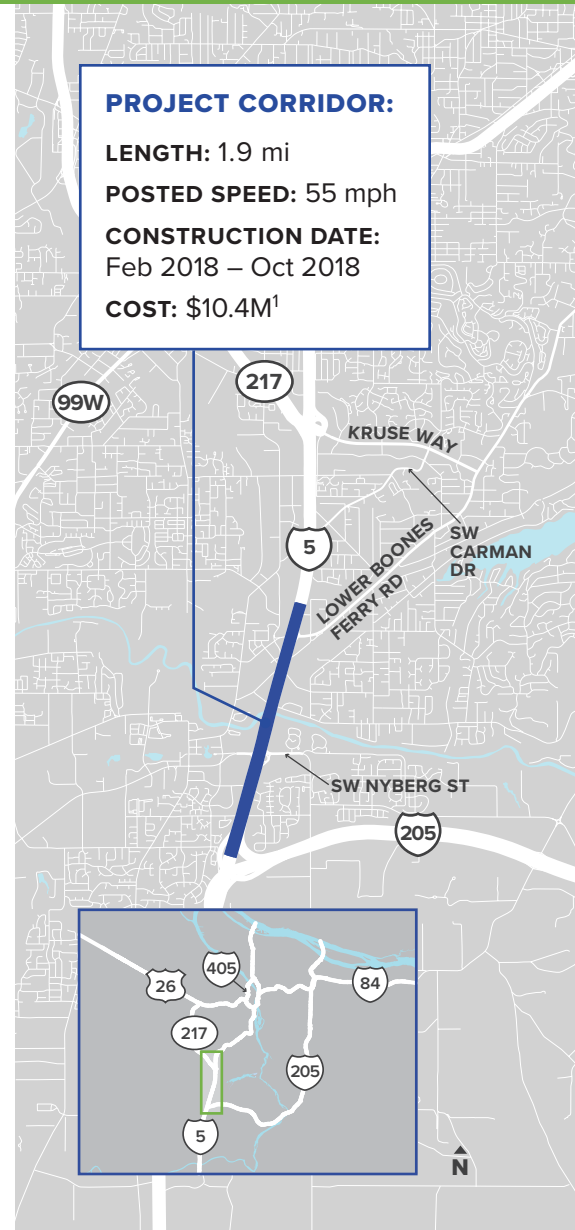
The operational enhancements listed below were selected in part because of ODOT's objective to preserve reliable travel times.

- Added a single southbound auxiliary lane on I-5 from north of Lower Boones Ferry Road to I-205 to relieve congestion and reduce crashes. The auxiliary lane work included on- and off-ramp lane modifications at Lower Boones Ferry Road and Nyberg Street, and the on-ramp to I-205.
- Reduced conflicts from merging movements onto the mainline and allowed for more direct connection for people travelling from OR217 to I-205, while improving traffic flow on I-5.
- Repaved I-5 from OR 99W to I-205, approximately 5.5 miles. This extended the service life of the road for another 10 to 15 years. By combining the pavement and southbound auxiliary lane work, the project took advantage of cost savings and reduced construction impacts to travelers.

LANE CONFIGURATION AFTER IMPROVEMENTS:



PROJECT CORRIDOR:
LENGTH: 1.9 mi
POSTED SPEED: 55 mph
CONSTRUCTION DATE: Feb 2018 – Oct 2018
COST: \$10.4M¹



WHAT IS AN AUXILIARY LANE?

An auxiliary lane typically provides a direct connection on the freeway from one interchange ramp to another. The purpose is to allow the mixing of different traffic speeds that are entering and exiting the freeway. The lane separates the slower movements from the freeway mainline, reducing conflicts that cause congestion and improving safety and traffic flow at the freeway interchanges.

¹ Only includes costs directly associated with the auxiliary lane (i.e., does not include paving outside the extents of the auxiliary lane)

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RESULTS:

This project was primarily intended to reduce congestion on I-5 southbound over a segment of just under two miles in length between Lower Boones Ferry Road and I-205. Travelers also experienced benefits upstream of this project, reaching as far as 3.2 miles up I-5 southbound and 1.3 miles up OR 217 southbound. This project represented the completion of efforts spanning nearly a decade to extend an auxiliary lane from the OR 217 southbound on-ramp to the I-205 off-ramp to lessen the impacts of traffic weaving between entrance and exit points in this area.

RELIABLE TRAVEL TIME (MIN):

ON I-5 SOUTHBOUND:

↓ **37%**



RELIABLE TRAVEL TIMES **IMPROVED BY 37 PERCENT** ON I-5 SOUTHBOUND DURING THE WEEKDAY P.M. PEAK PERIOD (3-6 P.M.), **REDUCING BY 14 MINUTES** THE TIME NEEDED TO CONFIDENTLY TRAVEL THROUGH THIS AREA.

ON OR 217 SOUTHBOUND:

↓ **28%**



RELIABLE TRAVEL TIMES **IMPROVED BY 28 PERCENT** ON OR 217 SOUTHBOUND FROM OR 99W TO I-5 (1.3 MILES) DURING THE WEEKDAY P.M. PEAK PERIOD (3-6 P.M.), **REDUCING BY TWO MINUTES** THE TIME NEEDED TO CONFIDENTLY TRAVEL THROUGH THIS AREA.

VEHICLE HOURS OF DELAY:

↓ **59%**



THE NUMBER OF VEHICLES HOURS OF DELAY EXPERIENCED ON AN AVERAGE WEEKDAY DECREASED BY 2,050 VEHICLE HOURS—**A 59 PERCENT DECREASE**—FROM 3,490 VEHICLE HOURS TO 1,440 VEHICLE HOURS.

VALUE OF TIME SAVED:

\$13.8M



AS A RESULT OF THE REDUCED CONGESTION FROM 2017 TO 2019, THE VALUE OF TIME SAVED FOR THE TRAVELING PUBLIC TOTALS \$13.8 MILLION—**A 59 PERCENT REDUCTION** IN THE ANNUAL COST OF CONGESTION—FROM \$23.6 MILLION TO \$9.8 MILLION.

HOURS OF CONGESTION:

↓ **90 MIN**



THE DURATION OF THE CONGESTED PERIOD ON I-5 SOUTHBOUND DURING AN AVERAGE WEEKDAY WAS **REDUCED BY 90 MINUTES—A 22 PERCENT DECREASE**—FROM 6.75 HOURS TO 5.25 HOURS.

CONGESTION FROM THE BOONE BRIDGE BOTTLENECK DOWNSTREAM OF THIS PROJECT REDUCES BENEFITS SEEN IN THE PROJECT AREA.

SAFETY:

↓ **29%**



THE NUMBER OF CRASHES IN A ONE YEAR PERIOD IN THE STUDY AREA DECREASED FROM 318 TO 226—**A 29 PERCENT DECREASE**—INDICATING A REDUCTION OF SAFETY CONCERNS RELATED TO CONFLICT POINTS AND WEAVING CHALLENGES.