

I-205 Northbound: I-84 Eastbound to Killingsworth Street Freeway Improvement Performance Evaluation

THE CHALLENGE:

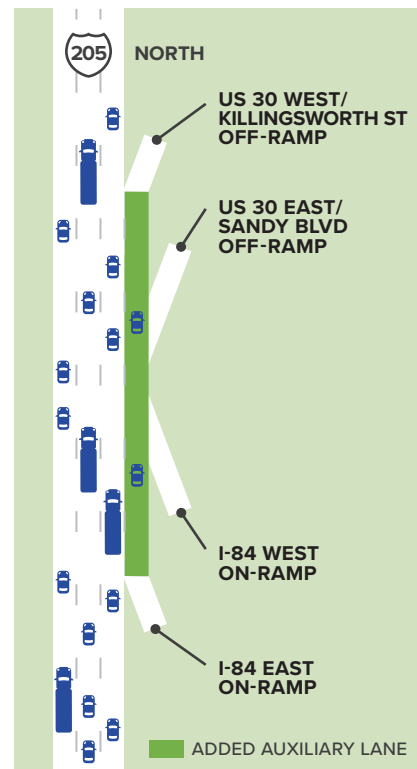
The stretch of northbound I-205 between the I-84 eastbound on-ramp and the US 30 Bypass West/Killingsworth Street off-ramp had reached its vehicle capacity. High traffic volumes and short merging distances caused speeds to drop below five miles per hour during peak travel times. The worst congestion started at the US 30 Bypass/Sandy Boulevard exit and extended more than four miles to south of Powell Boulevard. Without improvements, congestion and related crashes were anticipated to increase in the area.

IMPROVEMENTS MADE:

The selection of the following improvements was guided by ODOT's objective to invest in operational enhancements that preserve reliable travel times.

- Added an auxiliary lane on I-205 northbound connecting the I-84 eastbound on-ramp to the US 30 Bypass West/Killingsworth Street off-ramp.
- Added ODOT RealTime signs displaying traffic flow and roadway conditions, enabling drivers to make better informed travel decisions. These new signs will assist in reducing crashes, improve travel time reliability, and enhance transit operations throughout the project area.

LANE CONFIGURATION AFTER IMPROVEMENTS:



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.

PROJECT CORRIDOR:

LENGTH: 1.05 mi
POSTED SPEED: 55 mph
CONSTRUCTION DATE:
Dec 2017 – Aug 2019
COST: \$6.8M¹



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

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RESULTS:

This project included improvements over an approximately one-mile segment along northbound I-205. However, because the congestion caused by this bottleneck extended far to the south, the benefits are summarized over an approximately 11-mile segment on I-205 (approximately Airport Way to OR 224), as well as over the I-84 ramps feeding into I-205, to capture the full impact of improvements. Note that a separate auxiliary lane project from Powell Boulevard to I-84 westbound was still in construction during the “after” time period and is part of the 11-mile segment. This construction activity may have been slowing traffic flow and, therefore, the potential benefits that could be realized from the I-84 eastbound to Killingsworth Street improvements may be greater than measured.

RELIABLE TRAVEL TIME (MIN):

DURING P.M. PEAK PERIOD

↓ **22%**



RELIABLE TRAVEL TIMES **IMPROVED BY 22 PERCENT** ON I-205 NORTHBOUND DURING THE WEEKDAY P.M. PEAK PERIOD (3-6 P.M.), **REDUCING BY 11 MINUTES** THE TIME NEEDED TO CONFIDENTLY TRAVEL THROUGH THIS AREA.

DURING A.M. PEAK PERIOD

↓ **12%**



RELIABLE TRAVEL TIMES **IMPROVED BY 12 PERCENT** ON I-205 NORTHBOUND DURING THE WEEKDAY A.M. PEAK PERIOD (6-9 A.M.), **REDUCING BY THREE MINUTES** THE TIME NEEDED TO CONFIDENTLY TRAVEL THROUGH THIS AREA.

HOURS OF CONGESTION:

ON THE I-84 EASTBOUND RAMP TO I-205 NORTHBOUND:

↓ **4 HRS
30 MIN**



THE DURATION OF THE CONGESTED PERIOD ON THE I-84 EASTBOUND RAMP FEEDING INTO I-205 NORTHBOUND DURING AN AVERAGE WEEKDAY WAS **REDUCED BY FOUR HOURS AND 30 MINUTES—A 43 PERCENT DECREASE—**FROM 10.5 HOURS TO 6 HOURS.

ON THE I-84 WESTBOUND RAMP TO I-205 NORTHBOUND:

↓ **4 HRS
45 MIN**



THE DURATION OF THE CONGESTED PERIOD ON THE I-84 WESTBOUND RAMP FEEDING INTO I-205 NORTHBOUND DURING AN AVERAGE WEEKDAY WAS **REDUCED BY FOUR HOURS AND 45 MINUTES—A 43 PERCENT DECREASE—**FROM 11 HOURS TO 6.25 HOURS.

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AVERAGE TRAVEL SPEED:

ON I-205 NORTHBOUND:

+ 7 MPH



DURING THE WEEKDAY A.M. PEAK HOUR (7-8 A.M.), AVERAGE TRAVEL SPEEDS INCREASED BY SEVEN MILES PER HOUR (MPH)—**AN 18 PERCENT INCREASE**—FROM 38 MPH TO 45 MPH.

ON THE I-84 EASTBOUND RAMP TO I-205 NORTHBOUND:

+ 9 MPH



DURING THE WEEKDAY A.M. PEAK HOUR (7-8 A.M.), AVERAGE TRAVEL SPEEDS INCREASED BY NINE MILES PER HOUR (MPH)—**AN 18 PERCENT INCREASE**—FROM 49 MPH TO 58 MPH.

ON THE I-84 WESTBOUND RAMP TO I-205 NORTHBOUND:

+ 16 MPH



DURING THE WEEKDAY A.M. PEAK HOUR (7-8 A.M.), AVERAGE TRAVEL SPEEDS INCREASED BY 16 MILES PER HOUR (MPH)—**A 46 PERCENT INCREASE**—FROM 35 MPH TO 51 MPH.

VEHICLE HOURS OF DELAY:

↓ 15%



THE NUMBER OF VEHICLE HOURS OF DELAY EXPERIENCED ON AN AVERAGE WEEKDAY DECREASED BY 1,010 VEHICLE HOURS—**A 15 PERCENT DECREASE**—FROM 6,960 VEHICLE HOURS TO 5,950 VEHICLE HOURS.

VALUE OF TIME SAVED:

\$6.7M



AS A RESULT OF THE REDUCED CONGESTION FROM 2017 TO 2019, THE VALUE OF TIME SAVED FOR THE TRAVELING PUBLIC TOTALS \$6.7 MILLION—**A 14 PERCENT REDUCTION** IN THE ANNUAL COST OF CONGESTION—FROM \$47 MILLION TO \$40.3 MILLION.