

DRAFT PURPOSE AND NEED

Interchange Function

The I-5 Broadway/Weidler Interchange is located on I-5, in between I-405 to the north and I-84 to the south. The function of the I-5 Broadway/Weidler Interchange is to serve the Portland central city, which includes the industrial area of Lower Albina and the commercial activity along the Broadway/Weidler corridor, regional attractions such as the Rose Garden Arena and the Lloyd Center mall, and the surrounding community.

Purpose

The purpose of the I-5 Broadway/Weidler Interchange Improvement Plan is to improve the safety and operations on I-5 in the vicinity of the I-5 Broadway/Weidler Interchange.

Project Problem/Issues

Congestion and Bottleneck

In the context of the regional freeway network, the city's N/NE Quadrant sits at a crossroads of three regionally-significant freight and commuter routes. As a result, the freeway interchanges experience some of the highest traffic volumes in the state. Table 1 shows the average daily traffic volumes entering and exiting I-5 over the two-mile segment within the N/NE Quadrant.

Table 1: Average Daily Traffic Volumes Entering and Exiting I-5 in the Study Area

I-5 Direction	Total Ramp Volumes Entering I-5	Total Ramp Volumes Exiting I-5
Northbound	29,970	37,530
	Includes entrance ramps from: <ul style="list-style-type: none">• I-84• Broadway/Williams Avenue	Includes exit ramps to: <ul style="list-style-type: none">• Weidler Street/Victoria Avenue• I-405• Greeley Avenue
Southbound	34,020	47,200
	Includes entrance ramps from: <ul style="list-style-type: none">• Greeley Avenue• I-405• Wheeler/Winning/Williams	Includes exit ramps to: <ul style="list-style-type: none">• Broadway/Vancouver Avenue• I-84• Morrison Bridge/Hwy 99E

Highest Accident Rate in the State of Oregon

An analysis of the reported crashes on I-5 in the study area was performed for the five-year period from 2005 through 2009. Both frequency (number of crashes) and crash rate (number of crashes per million vehicle miles) were calculated per 1/10-mile segments.

- I-5 Southbound direction has more frequency of crashes than I-5 Northbound
- The top three locations with highest frequency of crashes and crash rates are:
 - 1) I-5 Southbound at Holladay Street (weave between the Winning/Wheeler On-ramp and the I-84 Eastbound Off-ramp)
 - 2) I-5 N at Multnomah (weave between the I-84 W On-ramp and the Weidler Off-ramp)
 - 3) I-5 S at Thompson Street (weave between the I-405 on-ramp and the Broadway Off-ramp)
- I-5 within the study area has the highest crash rate within the entire state
- Three times the crash rates at the I-5 Terwilliger curves
- The type of crashes in order of ranking from highest are: rear-end, sideswipe, fixed and other.

The attributing factors to the high number of crashes and safety problems in the study area are:

- Heavy congestion
- Short weaving distances
- Lack of shoulders for accident/incident recovery

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Operational Friction and Congestion Caused by Heavy Weaving

Weaving analysis and field observations were performed for the four weaving sections on I-5 within the study area:

- I-5 Northbound between I-84 Westbound and Weidler Off-ramp
- I-5 Northbound between Broadway On-ramp and I-405 Off-ramp
- I-5 Southbound between I-405 On-ramp and Broadway Off-ramp
- I-5 Southbound between Winning/Wheeler On-ramp and I-84 Eastbound Off-ramp



I-5 Northbound Weaving Section between Broadway On-ramp and I-405 Off-ramp

Two weaving sections currently perform at failing level-of-service during the AM and PM Peak periods:

- I-5 Southbound between Winning/Wheeler On-ramp and I-84 Eastbound Off-ramp
- I-5 Northbound between I-84 Westbound and Weidler Off-ramp



I-5 Southbound Weaving Section between Winning/Wheeler On-ramp and I-84 Eastbound Off-ramp

The failing operations will be exacerbated in the future, with the most critical failure being the weave from I-5 Southbound from the Winning/Wheeler On-ramp to the I-84 Eastbound Off-ramp. This bottleneck will cause queuing that extends beyond the weaving section to the north and onto the Fremont Bridge.