

Traffic Safety

It is difficult to quantify the relative safety of one Concept versus another. At best, one can discuss qualitatively the expected impact of particular design features or operational measures on safety. This section provides a brief qualitative discussion of safety related to 2020 Baseline conditions and under each of the four Build Concepts for which detailed traffic analysis was conducted.

Based on forecast year 2020 traffic demand and traffic flow patterns, it becomes apparent that the Bridge Influence Area (BIA) between Columbia Blvd. and SR 500 will experience the greatest concentration of traffic activity within the established I-5 Trade Corridor. Under Baseline conditions with relatively few changes in BIA capacity, even relatively modest increases in peak period-peak direction traffic demand, applied to interchanges that are currently too closely spaced, will become increasingly problematic.

During the combined seven hour peak period, and considering only the peak traffic flow direction for each peak period (6-9 am southbound and 2-6 pm northbound), overall I-5 traffic demand from the mainline and all on-ramps within the BIA is estimated to increase to approximately 87000 vehicles, representing a 27 percent increase under Concepts 1, 4, and 6 relative to Baseline. Combined peak period I-5 traffic demand across the Columbia River is estimated to increase to approximately 56,000 vehicles, representing a 33 percent increase under Concepts 1, 4, and 6 relative to Baseline.

Effective management of traffic flow and access through facility design and operations will become increasingly important within the BIA. Although increased traffic demand by its very nature leads to increased potential for traffic conflicts, effective facility management holds the potential to hold steady or decrease the likelihood for conflicts while serving more traffic. Management techniques include elimination of problematic weave sections by separating (or braiding) on and off-ramps, improvements to substandard merge sections, development of collector-distributor roadways, and improvement to substandard roadway shoulders to mention a few.

Each of the Build Concepts introduces a collector-distributor (C-D) roadway system in Vancouver that provides access between I-5 and interchanges to key destinations including SR 14, downtown Vancouver, Mill Plain, Fourth Plain, and SR 500. This is expected to have a desirable effect on safety by moving the majority of turbulence associated with interchange activity off of the freeway mainline. Designs that limit direct interchange access to the mainline (as designed under Concept 6) would be expected to result in the highest level of safety on the mainline and perhaps for the freeway system overall.

Concepts 1, 6, and 7 utilize both of the existing I-5 Columbia River Bridges in some fashion to serve vehicular traffic. Focusing increased traffic demands across Bridges with currently substandard 1-2 foot roadway shoulders increases the potential for corridor impacts associated with incidents (e.g., stalled vehicles or accidents). Current shoulders preclude moving a disabled vehicle onto the shoulder and inhibit the ability of emergency

response vehicles from reaching the scene. Concepts with replacement or supplemental vehicular bridges offer the opportunity to construct standard shoulders to serve disabled vehicles and provide emergency vehicle access. As a replacement bridge, Concept 4 would provide the only opportunity to provide full shoulders along I-5 in each direction across the Columbia River.

Overall, each of the Build Concepts currently includes some design feature(s) or operational measure(s) that show promise. There is potential for blending many of the most promising aspects of each Build Concept into refined designs as this process moves toward completion of an EIS.