Columbia River CROSSING

Memorandum

February 4, 2009

TO: CRC Project Sponsors Council

FROM: CRC Freight Working Group

SUBJECT: Number of Lanes Decision/Implications to Movement of Freight and Goods

Framework

As an integral link in the Interstate highway system, the CRC project area[1] is vital to the movement of freight and people up and down the west coast, as well as within the Portland/Vancouver region. The CRC project is analyzing the appropriate number of lanes to safely and efficiently move the very high number of auto and truck trips that are entering and exiting I-5 in a very short congested area, as well as accommodating the high overall number of trips on the Interstate itself.

There are seven high volume interchanges within the project area. The area warrants a standard two-mile spacing to accommodate the heavy automobile and truck volumes; however this area has nine interchanges in a five and a half mile stretch. The merging and weaving created by these closely spaced interchanges creates unsafe and congested conditions. This section of I-5 has the highest accident rate of any Interstate highway in the entire state of Oregon. By 2030 the number of automobiles is expected to increase by almost 30%, while the number of freight trucks is expected to increase by almost 80%. Congestion is expected to last 15 hours a day if no improvements are made and accidents are forecast to double.

The add/drop lanes being considered are the extension of existing add/drop lane and new lanes that would connect the closely spaced interchanges with the heaviest on/off volumes. They would provide better access to areas that have reduced development capacity, such as the Marine Drive corridor and Hayden Island; as well to improve safety and manage the operation of the freeway. The intent is not to add capacity, but to improve safety and match the flow of traffic to the north and south.

Congestion

By year 2030, truck freight traffic across the I-5 bridge and in the project area is expected to increase at about twice the rate of non-truck freight traffic. Freight haulers try to avoid high periods of congestion. Consequently, a great deal of freight movement occurs in the off-peak hours. The critical freight-related problem being addressed by the CRC project is the duration of the period of congestion on I-5. Under the No-Build alternative, congestion would last about 15 hours, essentially eliminating the peak midday freight hauling period.

The CRC project will help reduce these impacts to varying degrees, in part depending on the number of add/drop lanes within the most congested segments of the study area:

- Under the 8-lane corridor option, congestion on the I-5 Bridge would last for seven to nine hours each weekday in 2030, which still would have a substantial impact on the peak midday freight-hauling periods, but to a lesser extent than the No-Build alternative. Key freight traffic routes and interchanges including Mill Plain Boulevard, SR 14, and Marine Drive would be affected.

[1] Five mile bridge influence is from Victory Boulevard in Oregon to SR 500 in Washington.

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- The 10-lane corridor option provides a more substantial benefit to freight movement than the 8-lane option; I-5 Bridge congestion would last for five to seven hours in 2030, with congestion affecting Mill Plain Boulevard, SR 14, and Marine Drive, but to a lesser extent than the 8-lane option. 10-lane option has five "hot spots" that inhibit smooth, safe traffic flow.

- With the 12-lane option, the period of delay at the I-5 Bridge would be reduced to 3.5 to 5.5 hours in 2030, with all of the congestion occurring during peak commute periods and not during midday freight peaks. Thus, the 12-lane option provides the greatest benefit to freight movement.

Safety

Trucks are currently involved in over twice as many collisions on a per vehicle basis, than other vehicles. However, trucks only comprise about 8% of total daily traffic. Compared to the 12-lane option, the 10-lane option would result in 20 percent more collisions and the 8-lane option would result in 50 percent more collisions. Options with fewer add/drop lanes would increase the number of "forced lane changes" along this critical highway segment (e.g., under the 10-lane option over 10% more lane changes, including movements for trucks, would occur compared to the 12-lane option). Today, almost 40% of truck collisions on this segment of highway involve sideswipes.

- 12% of crashes in I-5 Bridge Influence Area involved at least 1 truck
- 39% of truck crashes involved sideswipes, compared to 14% for all vehicles
- 30% of truck crashes involved injuries

Cost

The difference in capital costs between the 10 and 12-lane options is estimated to be approximately $100 million (2008 mid-year costs). The 8-lane option would be approximately $85 million less than the 10-lane. These numbers would increase by about 35-40% when inflated to the mid-year of construction (2014).

Effects on Local Streets/Adjacent Neighborhoods

Today, during the AM peak hour up to 600 vehicles cut through local streets to avoid I-5 congestion. Many exit I-5 at the Main Street off-ramp and travel south on Main Street to downtown Vancouver destinations or before re-entering I-5 in downtown Vancouver at Mill Plain Boulevard and City Center entrances. Similar effects occur on local streets in Portland during the PM peak period for northbound traffic. Although specific models have not been run to compare the amount of cut-through traffic for the various lane options, it is assumed that 12-lane option would have the least amount of cut-through traffic and an 8-lane option would have the most. Impacts from the 10-lane option would fall in between.

Value of Freight

In 2005, 22.5 million tons of freight crossed the Interstate Bridge. According to the *Commodity Flow Forecast Update and Lower Columbia River Cargo Forecast* report, the estimated value of truck freight was $1,800 per ton, averaged across all commodity classifications. In other words, the value of freight crossing the Interstate Bridge in 2005 was $40.6 billion ($40,600,000,000).

About three-quarters of trucks crossing the Interstate Bridge enter and/or exit an interchange in the I-5 project area. This means approximately $30.5 billion worth of commodities crossing the bridge enter or exit on of the seven CRC project interchanges each year. Freight is expected to grow by 77 percent between 2005 an 2030. By 2030, the value of freight crossing the I-5 Bridge will increase to $71.7 billion

(year 2005 dollars). $53.8 billion worth of this freight will originate or exit from an interchange in the I-5 project area.*[2]

Conclusion

The extensive analysis shows that the 12-lane bridge option (three through lanes and three add/drop lanes) demonstrates the greatest efficiency and safety to both car and truck drivers.

It is critical to our region's economy that the CRC project demonstrates significant improvements to safety, capacity and velocity for efficient freight movement. Safety, speed and efficiency are priorities for the movement of people and commerce within the CRC's five mile bridge study area. The 12-lane bridge option best addresses the significant challenges this project seeks to address.

[2]CRC estimated truck-specific benefits for the Columbia River Crossing project, recognizing that FHWA had not yet issued final guidance on the calculation methodology. The analysis was done only for the 12-lane supplemental bridge option, but provides an estimate of the scale of project benefits related to trucks. The present value (2007$) was estimated at $170 million with about 75% of the total related to travel time savings. Accident cost savings was 13% of the total and remaining savings were attributed to vehicle operating costs, emission costs, and bridge lift time savings. The inflated values of the truck-specific benefits through year 2040 were estimated at $350 million. Although no estimates were made for the 8 and 10-lane options, since travel time savings represents the greatest savings, the benefits would be less for these options.