REVIEW DRAFT

I-5 Columbia River Crossing Partnership:
Traffic and Tolling Analysis

Identification and Threshold Analysis of Truck Only Lanes

Working Paper 6.2

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OVERVIEW

Working Paper (WP) 6.2 is one of two working papers that address options for accommodating High Occupancy Vehicle (HOV) and Truck-Only operations on I-5. Information from these working papers will be used to make recommendations for how HOV and Truck lanes will be used in the tolling analysis and later, in the Draft Environmental Impact Statement (DEIS). WP 6.1 addressed the impacts and benefits of operating two freeway/bridge lanes (one in each direction) or one reversible lane as an HOV lane. Analogous to WP 6.1, WP 6.2 addresses the same lane options for Truck-Only operations.

Truck-only lanes are being considered because freight movement within the I-5 Vancouver/Portland corridor has been slowed by the increase in traffic congestion, and is expected to worsen in the future. And, incidents involving automobiles and trucks have heightened public awareness of the need to consider separate facilities. Providing truck-only lanes are one of many solutions for improving truck operations and safety.

WP 6.2 includes 5 sections in addition to this overview:

1. Summary of findings and recommendations on truck-only lanes within the BIA.

2. Evaluation criteria is presented that provide thresholds for truck-only lanes.

3. Available existing and projected data on trucks is applied to the thresholds for evaluating truck-only lanes within the I-5 BIA, along with recommendations for further consideration.

4. Impacts of tolling scenarios and whether trucks and HOV should share a common lane are reviewed.

5. **Appendix A** provides added information on why exclusive truck facilities should be considered, provides examples of exclusive truck facilities in the United States, and where truck-only lanes are being considered and implemented.

1. SUMMARY OF FINDINGS/RECOMMENDATIONS FOR STUDY IN THE DEIS

Findings

- Extensive research has been conducted relating to exclusive lanes for trucks and cars on interstate systems. However, only a few truly exclusive facilities for trucks actually exist, and little history is available on their economic and operational performance.

- The benefits and impacts of operating managed lanes for truck-only use within the I-5 corridor between I-205 in Clark county and I-84 in Portland, or within the shorter BIA, was not specifically modeled or analyzed during the I-5 Transportation and Trade Partnership project.

- Based on a review of existing data and thresholds, it appears that truck-only lanes within the BIA are not feasible.

- Tolls collection scenarios will have an impact on trucks. Trucks that can use transponders can use high-speed electronic toll collection (ETC) lanes. Other trucks will be slightly delayed by the longer time it takes for a truck to pass through a collection booth.

- Metro Council's approved 2004 Federal Update to the 2000 RTP recommends, where appropriate, that consideration should be given to improvements that are dedicated to freight travel only. Consideration should be given in the EIS process for enhancing truck mobility in the I-5 Corridor.

- ODOT, Metro, and the Port of Portland has initiated a regional freight data collection study that will begin in the fall of 2004 that is expected to result in a more robust data set for calibration of Metro's truck model and for regional freight forecasting. This data set should be available for use in the I-5 EIS and can be used for evaluating other exclusive freight strategies.

- Heavy freight trucks and HOV are generally not combined in the same priority lane. However, light trucks that meet HOV lane eligibility should be considered. There is no record of any HOV system in the United States that allows shared use by trucks that don't meet HOV lane occupancy criteria.

2. EVALUATION FACTORS FOR TRUCK-ONLY LANES

Neither Oregon nor Washington has established warrants to determine the feasibility for truck-only lanes. The Federal Highway Administration (FHWA) has conducted research on many issues associated with trucks and has addressed conditions that can be used to measure the effectiveness of exclusive truck lanes. Three methods are presented below:

General warrants for truck volumes and congestion: In FHWA's *Interim Manual for Managed Lanes* ***(1)***, October 2003, the report references a 1990 study by Janson and Rathi **(2)** regarding the feasibility of exclusive lanes. This study concluded that exclusive truck facilities are warranted when one of the following conditions is satisfied:

- when the truck volume exceeds 30 percent of the normal traffic mix;

- when the peak hour volume exceeds 1,800 vehicles per lane per hour; and

- when the off-peak volumes exceed 1,200 vehicles per lane per hour.

Level-of-service analysis: The literature also suggests consideration of congestion levels and safety history. Congestion levels relate to performing a level-of-service analysis for both the truck-only lane and adjacent general-purpose lanes. Not unlike HOV lanes, providing an underutilized truck-only lane could result in time savings and economic benefits for trucks at the risk of adding to congestion in the remaining general-purpose lanes. Level-of-service analysis would measure the LOS of the truck-only lane in comparison to LOS in the remaining general purpose lanes. Washington State has established LOS criteria for HOV lanes in urban corridors, but has not established separate LOS criteria for trucks.

Benefit-cost Ratio or Net Present Worth: Ultimately, the feasibility of truck-only lanes rests with the specific economics of using benefit-cost ratios or the net present worth comparison between alternative truck strategies. Cost savings can occur in travel time, vehicle operating cost, lives saved, medical expenses, and property damage. Energy consumption and environmental effects may also be reduced.

Insufficient data on truck movements within the I-5 BIA is available to perform a detailed LOS analysis or credible cost benefit analysis. However, sufficient information is available on trucks to perform a "fatal-flaw" analysis that may conclude that truck-only lanes are not feasible within the BIA.

It is important to note that ODOT, Metro, and the Port of Portland have initiated a regional freight data collection study that will begin in the fall of 2004. This study is expected to result in a more robust data set for calibration of Metro's truck model and for regional freight forecasting. This data set should be available for use in the I-5 EIS for evaluating other freight enhancement strategies.

3. APPLYING THRESHOLD CONDITIONS FOR TRUCK-ONLY LANES

For the purposes of performing a "reasonableness" review for truck-only lanes, the following section provides a basic analysis of two of the three thresholds described above. One test applies general warrants that Caltrans has used to test eligibility, and the other compares projected truck volumes to typical truck lane capacities to determine whether the truck-only lane will be utilized and the potential impact on adjacent lanes.

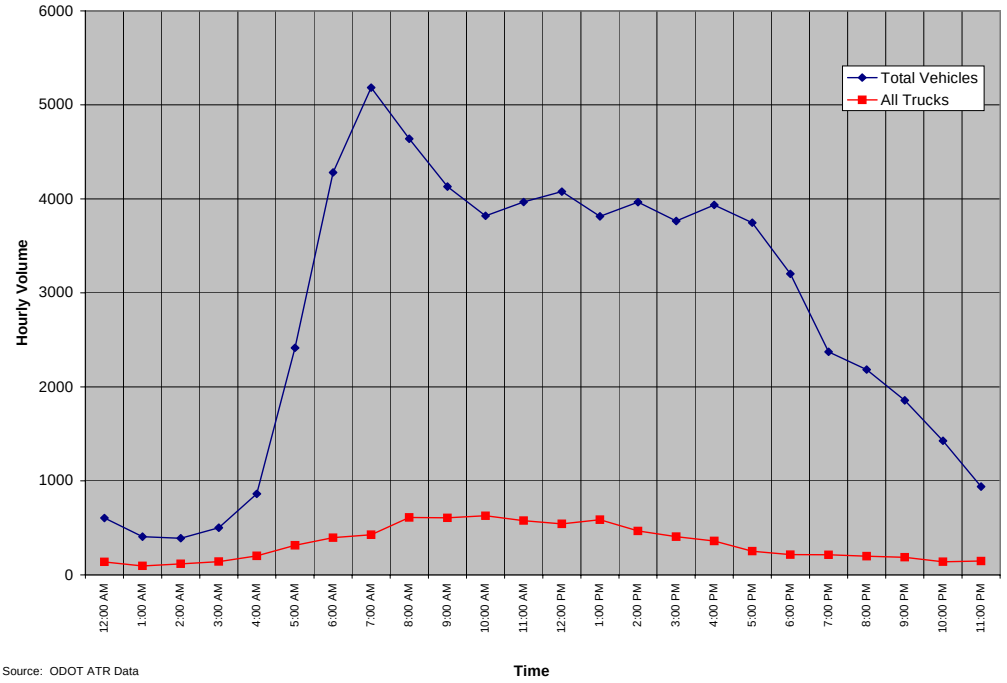
Existing Truck Data within the BIA

The I-5 Transportation and Trade Partnership project did not include a detailed analysis of truck movements in the corridor. In order to complete a reasonableness review for whether truck-only lanes are warranted, existing truck data from area traffic recorders was used for estimating purposes.

Existing truck volumes within the I-5 BIA range from 8% to 9% of the daily traffic. These truck percentages are expected to increase slightly when projecting traffic growth into the future. Figures 1 and 2 show a typical 24-hour traffic volume distribution within the BIA for Northbound and Southbound traffic.

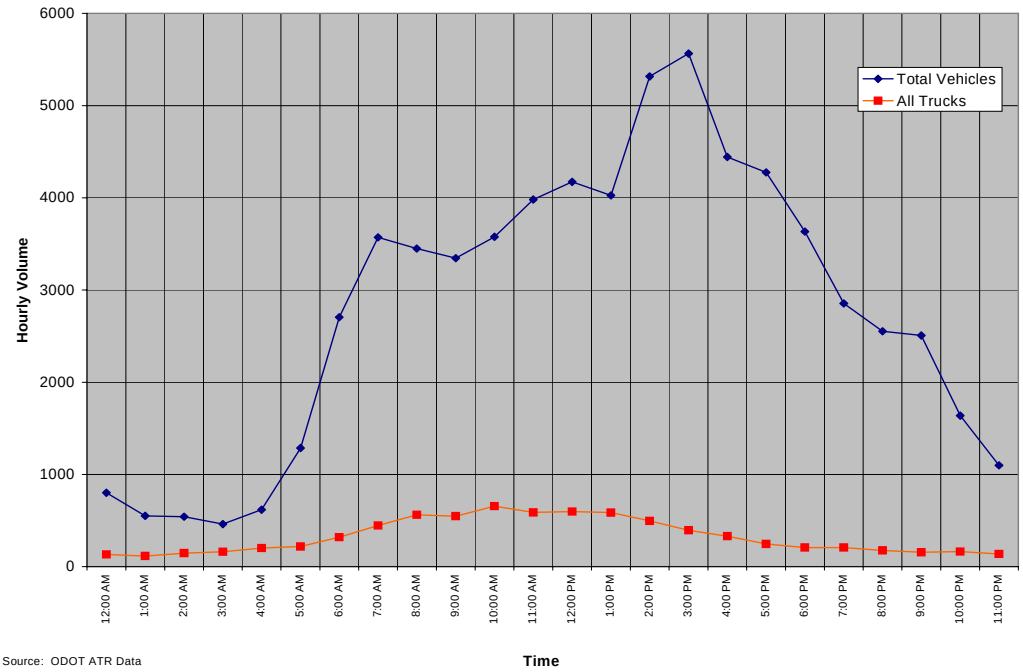
The data in Figures 1 and 2 indicate that total traffic peaks during the morning and afternoon heavy commute periods, while truck traffic is more evenly distributed throughout the day and peaks closer to mid-day. Average truck volumes during the a.m. and p.m. commute peak periods currently do not exceed 600 vph. Truck percentages are projected to increase slightly by 2020, with average peak period truck volumes in the 900 vph range.

Figure 1. Hourly Volume Profile @ Minnesota ATR
All Vehicle vs. Truck Volumes (NB) (May, 2003)
(Minnesota ATR located between SB Portland Blvd. on-ramp and SB Alberta/Going St. off-ramp)



Source: ODOT ATR Data

Figure 2. Hourly Volume Profile @ Minnesota ATR
All Vehicle Vs. Truck Volumes (SB) (May, 2003)
(Minnesota ATR located between SB Portland Blvd. on-ramp and SB Alberta/Going St. off-ramp)



Source: ODOT ATR Data

Table 1 shows typical classifications for trucks within the BIA. Of the 8% to 9% truck percentages, less than 3% are single-unit trucks and more than 5% are truck-trailer. The importance of this chart is to recognize that there isn't a clear definition of what qualifies as a "truck," and therefore what would qualify to be in a truck-only lane. In general, for the classifications shown below, trucks weighing more than 10,000 GVW would be single unit, 2-axle, 6 tire or larger.

Table 1. Classification Breakdown
I-5 Interstate Bridge (2002)

Classification Breakdown	Percent of ADT
Passenger Cars	67.6
Other 2-axle, 4-tire	23.4
Single Unit, 2-axle, 6-tire	2.0
Single Unit, 3-axle	0.7
Single Unit, 4-axle or more	0.1
Single Trailer Truck, 4-axle or less	0.4
Single Trailer Truck, 5-axle	3.6
Single Trailer Truck, 6-axle or more	0.9
Double Trailer Truck. 5-axle or less	0.2
Double Trailer Truck, 6-axle	0.2
Double Trailer Truck, 7-axle or more	0.5
Triple Trailer Trucks	0.0
Buses	0.3
Motorcycles and Scooters	0.1

Utilization of a Truck-Only Lane

Sufficient information on trucks is available to estimate lane utilization in 2020. According to data from Metro, the demand for trucks in year 2020 will average about 775 vehicles in the peak direction during the commute period. Current peak hour truck volumes average less than 600 vph. It is reasonable to assume the peak hour capacity of an Interstate lane will be 2,000 vph. A conservative estimate of lane capacity for trucks-only is about 1,200 trucks per hour based on the assumption that 1.7 passenger vehicles equate to one truck. Therefore, based on these conservative estimates, a truck-only lane on I-5 would be underutilized in year 2020 with truck volumes about two-thirds of lane capacity.

However, the imbalance between the underutilized truck-only lane and adjacent congested general-purpose lanes will most likely be much worse than estimated. Not all trucks will have access to the truck-only lane because of their need to enter and leave the freeway at the closely spaced access ramps. This would provide travel time savings for trucks and result in increased congestion for the adjacent general purpose lanes.

Therefore, based on utilization, a truck-only lane would be underutilized during peak periods and result in an increased LOS for the remaining general-purpose lanes.

Warrants for a Truck-Only Lane

Table 2 compares existing and forecast conditions within the I-5 BIA to three general criteria suggested in research on Feasibility of Exclusive Facilities for Cars and Trucks by Janson and Rathi (2). The process recommends that all three warrants be met to qualify for consideration of truck-only lanes. Truck volumes do not reach the threshold levels that would warrant consideration of truck-only lanes.

Table 2. Truck-Only Lane Criteria Assessment for I-5 BIA

Criteria	Criteria met today?	Criteria met in 2020?
1. Truck volume exceeds 30 percent of the normal traffic mix	**No** 125,000 daily trips on the I-5 Columbia River Bridge with at most 9% trucks including smaller single-unit trucks. Peak direction-peak period percentages tend to be lower.	**No** Previous analysis from the I-5 Partnership and recent I-5 Delta Park study results show truck volumes as a percentage of total traffic will not reach 30 percent.
2. Peak hour volume exceeds 1800 vehicles per lane per hour	**Yes** The I-5 Partnership work and recent Delta Park EA , shows that peak period/direction volumes within the BIA exceed 1,800 vehicles per lane. * Of note, the southbound Delta Park bottleneck restricts flow to about 1,200 vehicles per lane	**Yes** Growing regional demand ensures this criteria will be met In the future
3. Off-peak volumes exceed 1200 vehicles per lane per hour	**Partially** The Delta Park EA shows southbound I-5 afternoon volumes exceeding 1,200 vph on the I-5 Bridge. At other BIA locations, volumes drop below 1,200 vph. Northbound morning volumes rarely exceed 1,000 vph.	**Partially** Barring significant changes in regional jobs/housing balance, its reasonable to assume this criteria, partially met today, will continue to be at least partially met in 2020.

Other Considerations for Truck-Only Lanes/Facilities

The literature suggests that truck-only lanes are more effective over longer distance corridors with relatively high percentages of through truck trips. Several of the region's major freight generators are accessed to/from I-5 within the BIA such as Port of Vancouver, Port of Portland, and the Columbia Corridor with Swan Island access just outside the BIA. A better understanding of regional origins and destination patterns is needed to support such an evaluation for facilities within the BIA or long distance facilities that serve the BIA.

ODOT, Metro, and the Port of Portland will initiate a regional freight data collection study in the fall of 2004 that is expected to result in a more robust data set for calibration of Metro's truck model and for regional freight forecasting. This data set should be available for use in the I-5 EIS for evaluating other enhancements for exclusive freight strategies.

There are other disadvantages in providing truck-only facilities. Within the I-5 BIA, physically accommodating a separated truck-only facility may pose the biggest impact, especially if the facility were barrier-separated as is generally recommended in the literature. The cost and environmental impacts that are related to the added infrastructure within this corridor would be considerable. The ultimate footprint of such a facility would also be affected by how access is provided. Access from adjacent general-purpose lanes would reduce costs and impacts, but these savings could be offset by the concentration of congestion and potential for increased accidents. Direct access in and out of truck-only lanes will cost more and require a larger footprint.

4. ARE THERE OTHER SOLUTIONS FOR FREIGHT MOBILITY?

Finding a way to improve freight movement within the I-5 corridor is still a valid goal. Many state agencies throughout the United States have explored and implemented truck-only facilities, including Oregon and Washington. ***Appendix A*** *includes information on national examples of truck facilities, and describes truck-only lanes being considered and implemented within the United States. They include climbing lanes, interchange by-pass lanes, lane restrictions, separate lanes, and separate roadways. Because there are so few exclusive truck facilities in place, there is little history available on their performance and economic benefits in relationship to their cost.*

Tolling I-5 and Truck-Only Lanes

If truck-only lanes are considered for the I-5 corridor, they will have an impact on toll collection scenarios. Providing a dedicated truck lane, one in each direction, or a reversible truck lane, will most likely result in the exclusive truck lane being located on the inside lane next to the median. Under current toll plaza concepts being studied, the two inside lanes would be reserved for high-speed electronic toll collection (ETC) with a peak hour capacity of about 1,800 vehicles per hour per lane. Exclusive truck lanes would either require that one of the two toll collection lanes be reserved for trucks or to drop the truck-only lane when entering the toll plaza. In the former case, carrying an underutilized truck-only lane through a toll plaza would ultimately require a third high-speed lane to meet the demand for other eligible ETC vehicles.

If an exclusive truck lane is not provided, trucks can still benefit within the BIA if they have transponders and can use the high-speed ETC lanes. In the proximity of the bridge, these ETC lanes would operate very similar to truck priority lanes. For trucks that don't have transponders, they would have to pass through manual toll lanes. A special toll lane would be designated for oversize trucks if toll plazas become a reality on this project.

Toll plazas can also potentially add delay for trucks that must use tollbooths as a method of payment. NCHRP Synthesis 240, *Toll Plaza Design*, page 46, provides typical toll lane capacities by method of collection and vehicle use. In every case, manual attended lanes have lower capacities for commercial vehicles than passenger vehicles. For example, for manual attended lanes, the average

number of vehicles per hour per lane is 416 for private passenger vehicles; 233 commercial only vehicles; and, 360 mixed (< 5% trucks/buses).

Technical Memorandum 5.5 provides a summary of toll rate structure options that includes a discussion of how trucks are classified within a typical toll plaza.

Freight Trucks in Shared HOV Lane

Under current policies, heavy trucks are not allowed in HOV lanes. Washington State Policy currently restricts HOV access to vehicles that are more than 10,000 gross vehicle weight (GVW). A substantial amount of freight is hauled in commercial vehicles that are less than 10,000 GVW such as United Parcel Service and other businesses' delivery vans. However, they must also meet the occupancy requirement to qualify for access to the HOV lanes. Current proposals by the Washington State Department of Transportation (WSDOT) for implementing a one-lane High Occupancy Toll (HOT) lane would allow vehicles that meet the weight standards for HOV to use the lanes. Trucks larger than 10,000 GVW would be restricted.

Allowing commercial vehicles over 10,000 GVW to have access to an HOV lane has been proposed around the country for a variety of safety and operational reasons. However, there is no record of any HOV system in the United States that allows shared use by trucks that do not meet HOV-lane weight limit and occupancy criteria. Several design, safety, and operational issues often preclude this idea such as:

(1) differing origins and destinations of commuters and truckers can be difficult to accommodate;

(2) HOV facilities often do not allow for adequate maneuvering space for large trucks; and

(3) weaving movements for trucks associated with ingress/egress of the HOV could adversely affect overall freeway operations.

The most compelling reason not to combine HOV and trucks into a shared lane is based on volume and capacity. Allowing 3+ HOV vehicles, transit, and trucks to share a lane is projected to exceed the lane capacity during peak hours.

Note: The summary of findings and recommendations are located at the beginning of this working paper.

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APPENDIX A

FREIGHT MOBILITY AND TRAFFIC CONGESTION WITHIN THE BIA

A 2003 report commissioned by ODOT titled, "*Regional Economic Effects of the I-5 Corridor/Columbia River Crossing Transportation Choke Points"* ***(3)***, contains supporting information concerning the impacts of congestion on freight movement. The Portland-Vancouver metropolitan area, as a whole, experienced an estimated 34.4 million road-traveler hours of delay in 2000. This is equivalent to 47 hours per road-traveler per year or an entire weekend stuck in traffic. The economic cost to Portland-Vancouver area road-travelers was estimated at $670 million per year, or about $910 per road-traveler.

Congestion at the Columbia River crossings accounted for a portion of this delay and congestion at the crossings will grow over the next 20 years. Total vehicle hours of delay during the peak periods will increase 74 percent from 31,000 hours per day in 2000 to 54,000 hours per day in 2020 if no significant capacity is added to the I-5/Columbia River crossing. The I-5/Columbia River crossing serves the industrial core of the region, and trucks serving these industries will experience an increase in congestion and delay costs as highlighted below.

- Annual vehicle hours of delay on truck routes in the I-5 corridor will increase by 93 percent from 13,400 hours in 2000 to 25,800 hours by 2020;

- Congested lane-miles on truck routes will increase by 58 percent: and

- The cost of truck delay will increase by 140 percent to nearly $34 million.

Freight traffic is disproportionately affected by this congestion:

- Congestion is spreading into the midday period, which is the peak-travel period for trucks. Most truck deliveries are made in the mid-morning after businesses open, and most pick-ups are made in the mid-afternoon before businesses close. Congestion spilling over from the morning and evening commuter peaks into the midday will entangle truck operations, increasing trucking costs, and making pick-up-and-delivery times less reliable;

- Trucks enter and leave the highway at the closely spaced interchanges north and south of the bridge to access the ports, intermodal rail yards, industrial areas, and commercial areas near the Columbia and Willamette Rivers, but the interchanges and ramps cannot safely and efficiently handle the large volumes of truck traffic;

- Bridge openings are limited to off-peak hours to reduce delays for commuters, but bridge lifts during midday and off-peak hours coincide with the heaviest volumes of trucks on I-5. A 10-minute bridge lift during midday creates a traffic queue that takes 25 to 30 minutes to dissipate. By 2020, it will take 30 to 35 minutes for the northbound queue to clear and 50 to 60 minutes for the southbound queue to clear;

- Traffic congestion increases truck travel times to and from the Ports of Portland and Vancouver, and to and from the BNSF and Union Pacific intermodal rail terminals; and

- Congestion delays trucks moving among the manufacturing plants, warehouses, and distribution centers in the Columbia Corridor on the Portland side of the river and along SR 14 on the Vancouver side of the river.

- When an incident on I-5 reduces capacity or temporarily closes the highway during peak travel periods, the high volume of traffic using the I-5/Columbia River highway crossing and the lack of alternate routes results in gridlock across the Portland-Vancouver area. This happens almost daily.

WHY CONSIDER TRUCK-ONLY LANES?

The concept of separating large trucks from the remaining traffic stream and placing them within their own separate facility is being addressed by many state and regional agencies. The public, regional policy makers, and transportation professionals recognize the inherent operational and safety issues associated with mixing large trucks and passenger car traffic in the same lanes and thus see a potential benefit.

A brief discussion of the key factors to be considered in the development of truck-only lanes follows.

Regional Policy

Regional transportation policies support the investigation of improvements that are dedicated to freight travel only. In December 2003, the Metro Council approved the 2004 Federal Update to the 2000 Regional Transportation Plan (RTP). The 2004 Federal RTP will serve as the basis for making federal funding decisions until the next update in 2007. **Policy 15.0 Regional Freight System,** addresses objectives relative to the freight system. The overall policy is to provide efficient, cost-effective, and safe movement of freight in and through the region. Objective (b) under Policy 15.0 states:

b. Objective: Maintain a reasonable and reliable travel time for moving freight through the region in freight transportation corridors that enhances the region's economic competitive advantage.

    - Freight operation (such as weigh-in-motion, automated truck counts, enhanced signal timing on freight connectors).

    - Where appropriate, consider improvements that are dedicated to freight travel only.

While this policy does not necessarily advocate for truck-only lanes, it does highlight the importance of considering enhancements that would be exclusive for trucks.

Operations

Separating trucks from passenger cars can improve freeway operations, capacity, and safety. Trucks, characterized in this paper as having a gross vehicle weight greater than 10,000 pounds, operate quite differently from passenger cars. Due to their size and weight, trucks typically require more time and a longer distance to accelerate and decelerate relative to passenger cars and require more space to turn and maneuver. They occupy greater physical space than passenger cars, which effects queuing

and capacity under congested conditions. Under level terrain conditions similar to I-5 in the BIA, the Highway Capacity Manual (HCM) equates each large truck to 1.5 passenger cars.

Safety

The size and profile of large trucks affects sight lines for following passenger cars and in large volumes, create a formidable moving barrier at freeway entrance ramps. The mix of passenger cars and large trucks in the traffic stream also results in mixed speeds, as passenger cars tend to drive faster in urban areas. Crash data show that speed differentials are linked with increased accident rates. In crashes involving cars and trucks, people in cars have a higher risk of serious injury. Truck accidents tend to block freeways longer, resulting in travel delay and monetary loss. Providing truck-only lanes can improve freeway safety, recognizing that where the lanes are located and how they are designed may have offsetting benefits. At the entrance and exits to truck-only lanes, weaving maneuvers between trucks and passenger vehicles may be concentrated.

Economics

An economic case can be made for reducing travel time (and thus travel costs) for freight and goods movement. A 2003 report commissioned by the Oregon Department of Transportation (ODOT) titled, "*Regional Economic Effects of the I-5 Corridor/Columbia River Crossing Transportation Choke Points*" discusses this topic in some detail within the I-5 corridor. Travel delay due to congestion in the Portland-Vancouver area is not just a local problem. Congestion across the Columbia River bridges and rail crossings affects the entire Pacific Northwest, due to the reliance of the Pacific Northwest economy on international trade. With exports worth $45 billion per year, Oregon and Washington are more dependent on international trade than the United States as a whole.

Good access to Pacific Northwest ports and airports, measured in travel time, cost, and reliability, contributes to the competitive edge in reaching global shipping markets. The Pacific Northwest ports compete with the ports in New York, New Jersey, and all of the West Coast, from Vancouver, Canada to the ports of Los Angeles-Long Beach. For Oregon and Washington, ports to maintain or increase their share of the global trade, access to and from its ports must be reliable and cost-effective. For more information, go to www.I-5partnership.com/reports.

Other Factors

Other factors that can shape a decision regarding feasibility and implementation of truck-only lanes include the following: 1) legislative and political issues; 2) environmental issues, most notably air quality and noise issues associated with slow moving trucks; 3) project financing issues; and 4) social and public opinion issues. The literature cites instances around the Country where the public has been resistant to strategies perceived as preferential to trucks.

NATIONAL EXAMPLES OF TRUCK FACILITIES

The information above supports the need to address opportunities for improving freight movement in the I-5 Trade Corridor, but the use of truck-only lanes as one of the solutions needs further evaluation. Many state agencies throughout the United States have explored and implemented truck-

only facilities, including Oregon. However, a review of the literature reveals that few truly exclusive facilities for trucks actually exist. Most truck lanes generally fall within the following categories.

- **Climbing lanes**: Fairly common throughout Oregon and the United States to improve operations on uphill grades.
- **Interchange bypass lanes:** Used to route trucks around a major merge point or horizontal curve section on a freeway to improve capacity or safety at a spot location. Examples include the I-5/I-405 bypass lane in Los Angeles (**Figure 1**) and the bypass lane on northbound I-5 in Portland, Oregon near Barbur Blvd. This concept is generally applied in two situations: (1) around freeway-to-freeway interchanges where a large volume of trucks would otherwise be required to merge, and (2) around a major arterial interchange where a large volume of arterial trucks would need to enter the freeway on an upgrade.

Figure 1: I-5 Truck Bypass, California (I-5/ SR-14/ I-210 Int.)

Source: Truck Lane Demonstration Corridor Project-Intermodal, Freight, and Safety Subcommittee of the Regional Transportation Council- March 11, 2004- Transportation Department North Central Texas Council of Governments

- **Lane restrictions:** Used to restrict trucks to right-hand lanes and generally requiring at least three travel lanes. This treatment can result in perceived safety issues by auto drivers as trucks concentrate in the right lane(s) and generally has minimal to no influence on accident rates. Section 811.325 of Oregon's Vehicle Code "Failure to keep…truck in right lane; exceptions, penalty" implements such a restriction in Oregon.
- **Separate lanes:** While not truck-only, a 32-mile segment of the New Jersey turnpike (**Figure 2**) is the only current example of a long-distance preferential truck lane on a highway mainline in the U.S.

Figure 2: NJ Turnpike Dual-Dual Truck Lane

Source: Truck Lane Demonstration Corridor Project-Intermodal, Freight, and Safety Subcommittee of the Regional Transportation Council- March 11, 2004-

- **Separate roadways/guideways**: Typically applied in locations with heavy concentrations of truck traffic such as corridors connecting port facilities and intermodal yards. The South Boston Bypass Road (**Figure 3**) is one of the few examples in the U.S.

Truck-Only Lanes under Consideration in the United States

Truck-only lanes as defined in the literature **(4)** refer to, "lanes normally separated from general traffic designated for the exclusive use of trucks and prohibiting passenger car use."

There are a number of states studying the feasibility of truck-only lanes including Florida, California, and Georgia. Additionally, a national study conducted by the Reason Institute looks at a national truck-only system and a short list of corridors for pilot project implementation. This section highlights some of these studies.

Figure 3: South Boston Bypass Road

Source: Truck Lane Demonstration Corridor Project-Intermodal, Freight, and Safety Subcommittee of the Regional Transportation Council- March 11, 2004-

California

The Southern California Association of Governments (SCAG) is considering the use of truck-only toll lanes from the Los Angeles Port of San Pedro east to Barstow. The facility would be two lanes in each direction. A feasibility study was conducted along State Route 60 for the evaluation of truck-only lanes. The volume of truck traffic on this section of SR 60 is between 10,000 and 30,000 trucks per day, which is between 4% and 12% of the total traffic. Trucks in California are restricted to the two rightmost lanes of all freeways and expressways **(5)**. SCAG is also currently conducting a study along I-15 from State Route 60 in Riverside County to Victorville. As part of the corridor study, the implementation of truck lanes is being examined as a possible solution to help congestion.

Georgia

The Georgia Department of Transportation is working on a feasibility study **(6)** for implementing High Occupancy Toll and Truck-Only Toll lanes in the Atlanta region that will improve safety, efficiency, and relieve congestion. The study should identify legislative actions, potential impact to safety and operations, improvements to the corridors, enforcement requirements, and assess the impact on transportation policies.

Florida

The Florida Department of Transportation engaged the Center for Urban Transportation Research to develop a methodology **(7)** for selecting sites within Florida that could be considered for truck only lanes. Factors such as truck crash rates, truck volumes, highway level of service, and percent of trucks in the traffic were used in the model to help identify study corridors.

Reason Public Policy Institute

The Reason Public Policy Institute, a division of the Los Angeles-based Reason Foundation, conducted a study **(8)** that identified the top ten locations for pilot project toll truckways across the

nation. The criteria applied by the institute included truck volume, congestion, connectivity, and industrial production. Corridors with a 2020 rural truck volume of 10,000 per day or greater were considered as candidate sites. Congestion factors included expected speed in 2020 and the average volume to capacity ratio in 2020. Another factor considered for locating toll truckways is the ability to connect to existing routes, such as routes that allow Longer Combination Vehicles (LCVs), such as triple-trailers, in Oregon. LCV-oriented trucking businesses provided input and recommended several corridors of interest for toll truckways. Several other factors considered were right-of-way availability and terrain factors. These factors are more associated with cost criteria.

Truck-Only Lanes Proposed for Implementation in the U.S.

Earlier this year, the STAR Solutions consortium with a $13-billion concept to widen I-81 **(9)** in Virginia to eight lanes with tolls and truck-only-toll (TOT) lanes, was selected over the competing Fluor Virginia consortium proposal. The final project package depends on an environmental review that is scheduled for completion sometime in 2006. In addition to tolling truck traffic, cars would also be tolled in order to reduce the cost of tolls and minimize trucks choosing alternative routes.

Interstate 81 in Virginia is often listed as one of the top eight trucking routes in the United States. Sections of Interstate 81 serve nearly 70,000 vehicles per day. In Virginia, there are 325 miles of interstate with rolling terrain that is primarily rural. The highway was designed for 15% truck traffic but now contains 20 to 4% trucks. Of the 13,000 trucks that travel I-81 each day, an estimated 7% are passing through Virginia. The United States House of Representatives Transportation and Infrastructure Committee Chair, Don Young, has pledged to provide $1.6 billion to make I-81 a demonstration project of “truck tollways.” Young envisions a national system of truck tollways.