

Seattle has experienced a steady growth in the downtown area. Like many metropolitan areas, this presents a problem with increased congestion. The geography of the Seattle area makes this congestion even worse. In many cases our buses reach average operating speeds of only 3 to 4 miles an hour in the downtown area -- you can walk faster. The solution for us was a 1.3 mile bus tunnel in the downtown area.

There were several reasons why we chose to build a tunnel rather than utilize a surface treatment. First, we have limited streets and thus capacity in the downtown area. This, compounded with short blocks, would make it virtually impossible to convert a surface mall or other surface treatment to rail at some point in the future. However, the tunnel provides both future capacity for buses and the ability to convert to rail.

The major components of the project are the tunnel, the surface circulation system, surface improvements, and the dual-powered bus technology. The tunnel starts in the south end of the downtown area in the International District. There are 5 stations along the tunnel, each with its own architecture and design, reflecting the main activities in the surrounding area. At the north portal there is a direct connection to the I-5 HOV lanes and at the southern most station there is a connection to an exclusive busway. By early 1992 there will also be a connect to the I-90 HOV lanes.

Routes serving the major activity centers, high ridership routes, and routes from many different neighborhoods and communities in King County are currently using the tunnel. The bus tunnel obviously creates a focal point for our service. In addition, we have helped reduce congestion in the downtown area by removing many of our buses from the surface streets. Eventually we will have 235 dual-powered buses in service. The

ridership response has been very good, especially from the University district to the north of downtown.

I would like to walk you through a typical bus trip using the tunnel. You enter the in-bound staging area from the surface streets or one of the HOV connections. The bus will pull to a platform, the driver presses a button to kill the diesel engine, the trolley poles are extended to the electric wires above, and the electric motor comes on. With a smooth mode-change only about 30 seconds elapses before the coach is ready to proceed through the tunnel in the trolley mode. In the future, buses will move through the tunnel in platoons of 3 to 5 buses. At the other end, the process is just reversed and the bus continues its route using diesel power.

We are currently operating 13 routes in the tunnel with about 15,000 passengers a day. It appears that we have attracted new riders to the system since the tunnel opened and we hope this trend will continue as more routes are able to use the tunnel. I hope you enjoy the tour of the HOV facilities this afternoon and have an opportunity to see the bus tunnel.

The HOV System In the Seattle Area

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One of the things I have learned in the short time I have been in the Puget Sound region is that people have strong feelings -- both positive and negative -- about the HOV lane system. One thing that has been pointed out at this conference is that different agencies and groups have different

stakes in HOV facilities. Transit agencies look at HOV lanes as a key element for keeping their buses on schedule, making their services more competitive with the automobile, and improving operating efficiencies. Carpools and vanpools also think of the HOV facilities as theirs, providing travel time savings and travel time reliability. Last, the general public often feels they should have access to the lanes, especially if the lanes are viewed as not adequately utilized.

I think we have been fortunate in the Seattle area in that we have excellent cooperation between the different agencies involved with HOV facilities, and generally good compliance from the motoring public. As a result, I think we have a very effective system that enjoys widespread support. I would like to provide a brief overview of some of the major elements of the Seattle HOV system and our future plans.

Our first HOV lane was initiated as part of the Blue Streak demonstration project in the early 1970s. Today, our core system is comprised of approximately 50 miles of HOV lanes. By 2000, we would like to have approximately 273 lane miles constructed. To date we have spent nearly \$500 million on HOV treatments in the region. A good share of the funding has been part of the Interstate completion project on I-90. We will spend approximately \$350 million on the HOV elements associated with I-90. The other major source of funding has been the Interstate 4R program. Approximately \$100 million has been utilized from this source. State funds have comprised most of the remainder.

Funding for the future is somewhat uncertain. We currently need approximately \$1.4 billion to complete the projects in the core 2000 system. About half of this is funded, with \$400 billion available through

the Interstate completion program. We hope that continued funding for HOV facilities will be available through the reauthorized Surface Transportation Act. We also anticipate using additional state funds. However, the funds anticipated from these three sources are still not expected to cover the full amount. Therefore, we anticipate needing to utilize a wide variety of other sources. These may include local option taxes and local option funding, UMTA programs, oil rebate funds, and private sources.

You will have the opportunity on the tour to see just about every type of HOV facility. We have inside and outside concurrent flow HOV lanes, separated HOV lanes on the new I-90 facility, direct HOV connections, and the bus tunnel. We also have interim HOV lanes under construction on the I-5 South facility. This project consists of narrowing 4 general-purpose lanes and rebuilding the inside shoulder to accommodate a fifth HOV lane. Both the HOV lane and the general-purpose lanes will be 11-foot wide; with a 3-foot shoulder provided next to the HOV lane.

The HOV lane system is supported by 138 park-and-ride lots located throughout the metropolitan area, with a total of some 2,200 parking spaces. Overall, these are operating at 74% of capacity, although some of the more popular lots are at or slightly over capacity. This creates some problems with people parking inappropriately. Flyer stops are used on many facilities, along with ramp metering and HOV by pass lanes. Transit centers are located at strategic spots through the area.

You may have heard the term FLOW system used to describe the comprehensive approach being taken to manage the transportation system in the Seattle area. The FLOW system centers on the freeway

operation system and includes ramp meters, television monitors, detection loops, incident response teams, and the different elements of the HOV system. The HERO program is also utilized to help enforce the HOV lane occupancy requirements. We still experience some problems with violation of the occupancy requirements; with violation rates ranging from 10% to 40% depending on the facility.

I think there is no question that HOV facilities will continue to be a major component of the transportation system here in the Puget Sound area. We are looking forward to the future expansion of the system.