An Evaluation of Houston's HOV Facilities

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It is a pleasure to have the opportunity to discuss the ongoing evaluation of the Houston HOV lane system. Bob MacLennan provided an excellent overview of the Houston transit and transportation system in his luncheon speech yesterday. I would like to focus my remarks today on the ongoing assessment of the lanes that have been conducted by the Texas Transportation Institute (TTI) with the support of the Metropolitan Transit Authority of Harris County (METRO) and the Texas Department of Transportation (TxDOT).

Traffic congestion became a major problem in Houston during the 1970s. HOV lanes were one of the alternatives examined to address these growing concerns. A contraflow HOV lane on the I-45 North Freeway was implemented in 1979. The lane was opened to buses and authorized vanpools during the morning and afternoon peak-periods. Although many people did not think the lane would work, it was a big success. Premium park-and-ride bus service was introduced and ridership levels increased significantly.

The success of this initial project led to the development of an extensive system of HOV lanes in Houston. Currently, 64 miles of a planned 105 mile HOV lane system are in operation in five radial freeway corridors. The facilities have been planned, designed, constructed, and are being operated through the cooperative efforts of METRO and TxDOT. The HOV lanes represent the largest component of METRO's long-range transit plan.

Although there are a few sections of two-lane, two-direction facilities, most of the HOV lanes in Houston are one-way, reversible lanes located in the median. They are usually 20 feet wide, and are separated from the mainlanes by concrete median barriers. Some of the lanes were implemented by narrowing the general-purpose traffic lanes and/or the inside shoulder. Ingress and egress is provided in a variety of different ways. Slip ramps are provided in some areas. This is the cheapest and easiest form of access to the HOV lanes, but conflicts may arise with merging vehicles. Grade separated access ramps are also used on the Houston HOV lanes. These ramps cost $3 to $6 million on average and provide direct connections from major park-and-ride lots and transit stations.

The cost of the HOV lane system has averaged approximately $6 million a mile. Annual operating costs average $250,000 per lane. Some 80,000 people use the lanes on a daily basis, with carpools and vanpools accounting for 60 percent of this and bus riders 40 percent. The costs for carpool and vanpool use is very low.

One of the keys to an effective HOV facility is attracting new bus riders and carpoolers. In Houston, the HOV lanes have influenced commuters to change from driving alone to using HOV modes. The HOV lanes have attracted young, educated, white-collar Texans to use transit. The survey results indicate that the time savings, trip time reliability and the ability to avoid traffic congestion are the main reasons people use the lanes. A comparison of a freeway corridor with an HOV lane and one without indicates that bus ridership is twice as high in the corridor with the HOV lane. HOV lanes have produced more reliable travel times, which in turn has increased the efficiency of bus service and improved schedule adherence. Cat-pool volumes have also increased. In addition, carpools using the HOV lanes tend to last longer.

The HOV lanes have support from the general public in Houston. In addition to support from HOV users, survey results from motorists in the general purpose lanes indicate that the lanes are considered good improvements to the transportation system. Support for the motorist system among users and non-users continues to grow.

The experience in Houston indicates that, while HOV lanes are not the total solution to traffic congestion and environmental problems, they can play important roles in helping to address these concerns. They represent one set of tools to help improve mobility. Other areas considering HOV lanes may want to examine the experience in Houston in more detail.