THE HOV EXPERIENCE

Role of HOV Facilities

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High-occupancy vehicle (HOV) facilities are currently found in more than 25 urban areas in the United States and Canada. Most commonly, HOV facilities are designated as special use lanes reserved for buses, carpools, and vanpools. Lane use is restricted during peak periods, when traffic congestion is most intense, but many lanes are also restricted throughout the day and are used whenever incidents adversely affect travel conditions. HOV lanes cater to a variety of different users and are thus becoming common mobility management tools in a variety of settings, including congested suburban corridors. The growth in miles of HOV facilities on freeways since 1980 is shown in Figure 1. The number of route-miles of HOV facilities on freeways has doubled every 5 to 7 years, and, on the basis of current commitments, should continue to do so throughout this decade. Similarly, HOV lanes are appearing on a number of urban arterials, especially in Canada, Europe, and Asia. In the United States, an increasing proportion of HOV lanes are being added on nonradial, suburban corridors, where the primary market is carpools and vanpools accessing dispersed employment centers.

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Why HOV?

One of the primary reasons for considering use of HOV lanes is to maintain mobility along a route or corridor that would otherwise suffer from recurrent traffic congestion. A second, closely related, reason for considering use of HOV lanes is to improve transit service in suburban areas and provide mobility for transit-dependent commuters in the rapidly developing "edge cities" of large metropolitan areas by providing facilities for congestion-free service at relatively low cost compared with rail transit. When demand on these restricted lanes is managed at a level of service that provides free-flow conditions, significant travel time savings may result. These savings can promote improved mobility through ridesharing and transit use and reduce the number of vehicles that would otherwise be traveling. Occupancy restrictions [usually two or more occupants (HOV-2) or three or more occupants (HOV-3)] provide the means of regulating demand. Managers of most projects establish occupancy policies that provide benefits to the greatest number of commuters while protecting the service level of the lane.

To connect one HOV lane to another, ramps are being constructed in freeway interchanges (ramp between I-105 and I-110 in Los Angeles).

Encouraging more efficient vehicle use may also have favorable impacts on vehicle emissions and air quality and may reduce the need for costly capacity expansion of some roadways. More commonly, officials in many highly developed urban areas are finding that continued capacity expansion is no longer practicable, affordable, or popular. HOV lanes have become one tool for maintaining mobility in these constrained physical settings. In the Los Angeles area alone, more than 815 miles of freeway are planned to be retrofitted with HOV lanes; these lanes represent the last major physical expansion planned for much of the area's freeway system.

Building an HOV System

HOV lanes are only one element applied to serve the diverse commuter markets associated with bus, vanpool, and carpool use. As transportation planners learn how to best serve this demand, a variety of supporting facility needs are emerging. For bus patrons, such needs include transit centers to serve high-density needs or to allow quick transfer between multiple routes, park-and-ride lots to aggregate enough demand in sparsely populated residential settings to generate sufficient ridership, and perhaps intermodal terminals to allow transit users to access other regional services such as commuter rail or subway systems. One example is in suburban Virginia, where buses use the I-395 Shirley Highway HOV lanes to carry passengers transferring to the Washington Metropolitan Area Transit Authority rail system. Similarly, carpoolers and vanpoolers, who generally represent a different market with longer commutes, need meeting and parking places to rendezvous with fellow passengers. Park-and-pool lots scattered near strategic meeting points are appropriate supporting facilities for these users. A variety of other measures comprise an HOV system, including provisions for dedicated access to high-demand employment sites, enforcement areas, marketing and education, and programs to encourage ridesharing at trip ends, such as preferential parking facilities.

Relationship with Other Mobility Management Measures

HOV is only one of a variety of measures being considered and implemented in many cities to address congestion, capacity shortage, and other problems. Many examples exist where HOV treatments are being implemented alongside, or as part of, rapid rail projects and incident management and advanced traffic operation systems. In the case of the latter, such systems can benefit both HOV and mixed-flow roadways. An understanding of the unique markets each measure is designed to serve can help local decision makers determine the best and most cost-effective mix of strategies.

Most HOV lanes are being added by modest widening and freeway construction (I-405 in Orange County, California).

HOV Does Not Fit Everywhere

Although the majority of HOV treatments have become effective components of an area's transportation system, not all projects have survived—for a number of reasons. These reasons include lack of congestion (which provides the basis for travel time savings), lack of demand, lack of public support, and inability to manage or enforce the facility and its restrictions. These experiences are on the record and provide practitioners with a better understanding of the requirements for a successful treatment. A number of publications from the American Association of State Highway and Transportation Officials, the Institute of Transportation Engineers, and the Transportation Research Board are available to help planners and designers in studying the potential for HOV facilities. In particular, a synthesis of experience has just been compiled in *National Cooperative Highway Research Program Synthesis of Highway Practice 185: Preferential Lane Treatments for High-Occupancy Vehicles* (see order form at the back of this issue of *TR News* for ordering information).

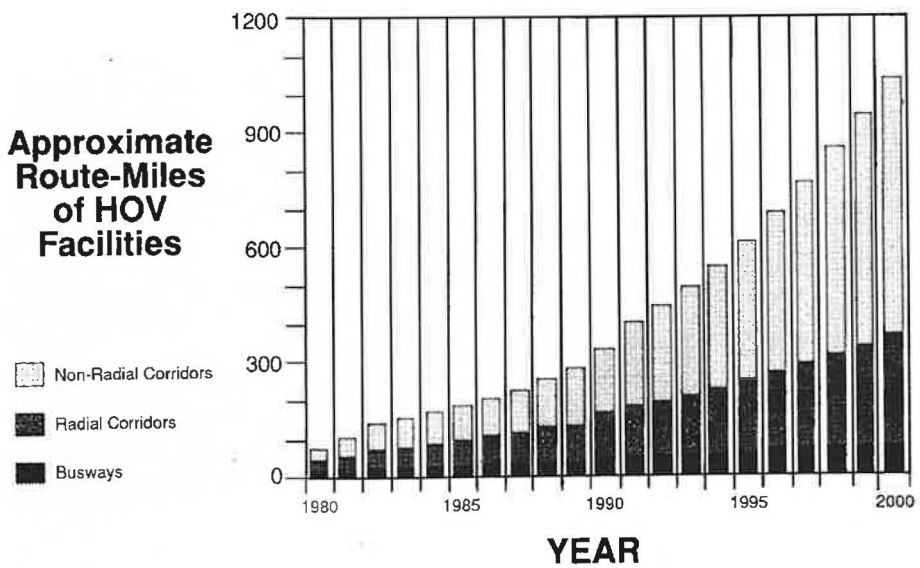

FIGURE 1 Miles of operating and proposed HOV facilities on freeways. (Data are for continuously operated HOV facilities on freeways or on separate rights-of-way in North America; mileage is not shown for facilities that have been discontinued.)