

POINT OF VIEW

Carpool Lanes—An Idea Whose Time Has Come and Gone

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For more than two decades—from the late 1960s through the mid-1990s—transportation officials were wedded to the idea that high-occupancy vehicle (HOV) lanes would lure Americans from their solo commuting habits and lead to reduced highway congestion, fewer travel delays, and better air quality. But the evidence is growing that HOV lanes have not changed Americans' driving habits. Instead of gradually gaining strength, carpooling has been slowly eroding.

The number of commuters carpooling to work declined by 19 percent during the 1980s, and average vehicle occupancy in metropolitan areas dropped from 1.17 persons per car in 1970 to 1.09 in 1990. The decline continued in the 1990s. The Washington, D.C., metropolitan area—a showcase for ridesharing—has experienced a 6 percent increase in people driving alone to work since 1993 and a 14 percent decrease in carpooling, according to the Metropolitan Washington Council of Governments.

Even on the famed model Shirley Highway in

Northern Virginia, carpoolers make up a declining proportion of commuters. According to Virginia traffic surveys, the percentage of carpooling commuters dropped from 25 percent to 21 percent in two years. This trend is expected to continue because many of the commuters in the corridor are high-tech employees who keep irregular hours, use their cars during the day, and park for free at work—conditions that make forming carpools difficult.

Even in cities that report significant levels of ridesharing—such as Houston, Los Angeles, and Washington, D.C.—carpools of three persons or more have become a rarity. Carpools now consist primarily of family members with similar destinations and schedules, notes Alan Pisarski, author of *Commuting in America* and *Commuting in America II*.

Vanishing Carpoolers

The decline in carpooling has been the subject of many analyses, technical papers, and professional meetings. Some ascribe the decline to long-term



socio-economic and demographic trends—notably the dispersal of home and job locations, changing work schedules, and time pressures experienced by busy, two-worker households.

Working parents must drive to drop off and pick up their children from day care or school. Commuting workers find it convenient to make multiple stops on the way home to shop for food and run household errands—a practice incompatible with carpooling. A study for the Federal Highway Administration found that nearly two-thirds of female commuters make at least one stop on the way home, and more than one-quarter stop at least twice.

People with responsibilities for aging parents hesitate to rely on carpools because they have to be able to get home quickly to respond to an emergency. Professional employees worry that an unexpected need to complete an assignment after hours will leave them stranded at work if they don't have their car. Even husband-and-wife carpools are difficult if the spouses' jobs are in two widely separated locations.

Another reason for the overall decline of carpooling is that peak-period commuting is declining in proportion to overall daily travel. Council of Government surveys in the Washington, D.C., metropolitan area indicate that travel to work accounts for only 25 percent of total daily traffic. Therefore only one trip in four is a potential candidate for carpooling. Other trip purposes also may generate multiple-occupant travel—for example, parents taking children to school—but do not decrease the number of cars on the road.

In short, with work schedules becoming more irregular, travel patterns growing more complex, trip “chaining” becoming more prevalent, and homes and jobs dispersing to far-flung suburban locations, fewer and fewer travelers are able to share rides and take advantage of carpool lanes.

Declining Support

Because of these trends, many HOV facilities operate under capacity. An HOV lane is underutilized if it fails to carry at least the same number of people as an adjoining general-purpose or mixed-flow lane. Since a freeway lane has a capacity of approximately 1,400 to 1,500 vehicles per hour, an HOV lane must carry a minimum of 700 to 800 vehicles per hour to offer equivalent person throughput.

How many HOV facilities in the nation fail to reach this threshold is uncertain because few state departments of transportation maintain adequate statistics on HOV lane use. But “empty HOV lanes” is a widespread public perception. Politicians and irate commuters view HOV facilities as an inefficient and



inequitable use of scarce road space. Few drivers, they contend, are taking advantage of carpool lanes, while thousands of solo commuters sit frustrated in stop-and-go traffic in adjacent regular lanes.

HOV lanes also have come under attack from environmentalists, who played a major role in the push for carpools and HOV lanes three decades ago. Environmentalists now view HOV lanes as a thinly disguised attempt to build more roads. They reason that for every car diverted into the reserved lane, another car fills the vacancy, causing traffic to increase rather than decrease. Construction of HOV lanes therefore leads to more vehicle trips, higher levels of air pollution, and greater suburban sprawl.

The environmental movement sees what it once hailed as an enlightened policy as nothing more than a ruse to accommodate more traffic. These arguments have convinced some elected officials. Most notably, New York Governor George Pataki canceled his own transportation department's proposal for new carpool lanes on the Cross Westchester Expressway and the Long Island Expressway in response to objections by civic and environmental groups. In the state of New York, at least, building carpool lanes is no longer an acceptable approach to relieving traffic congestion.

Signs of a spreading revolt against HOV lanes are evident also in other jurisdictions. In November 1998, former New Jersey Governor Christine Whitman (now head of the Environmental Protection Agency) eliminated the controversial HOV lanes on I-287 and I-80. The governor justified the decision on the grounds that the HOV lanes failed three nationally recognized criteria for success—the lanes did not encourage carpooling, did not reduce congestion, and did not meet a minimum threshold of use.

The governor's action followed months of public protests by grassroots commuter groups and negative



publicity in the local press. The New Jersey congressional delegation introduced an amendment to the federal transportation appropriations bill relieving the state of the obligation to repay the \$240 million the federal government put up to build the lanes.

California's Experience

In California, a report by the influential, nonpartisan state Legislative Analyst's Office (LAO) has provided HOV critics with additional ammunition. The report concluded that the state's 925 miles of carpool lanes were underused and had not changed drivers' habits (1).

The LAO report analyzed the performance of California's HOV lanes in terms of two measures: people throughput and vehicle throughput. The report concluded that during peak periods each of the HOV lanes carried an average of 2,518 persons per hour, roughly equivalent to the number of people carried by a mixed-flow lane operating at maximum capacity.

LAO estimated that in 1998 carpool lanes in California carried an average of 1,095 vehicles per hour during peak hours—approximately two-thirds of the maximum capacity. Approximately 24 percent of the state's carpool lane miles carried volumes less than 800 vehicles per lane per hour during peak hours, falling short of the state's "minimum vehicle throughput" criterion used to justify construction.

One of the theories behind the expansion of an HOV network is that demand for carpool lanes increases over time as the system becomes more extensive and integrated. However, LAO analysts found that the average number of vehicles using any given segment of the HOV network did not necessarily increase and concluded, "Overall, the historical data suggest that Caltrans should not assume that demand for HOV lanes will grow over time."

The LAO report also noted that statewide impact of HOV lanes on ridesharing was difficult to determine: "...[T]o reduce congestion and improve air quality, HOV lanes must not simply divert...carpoolers to the HOV lane, but must also generate new carpoolers...." The report continued, "surveys have found that many carpoolers would ride together regardless of whether or not the HOV lane existed. The presence of such lanes simply causes them to drive in the HOV lane, as opposed to the congested mixed-flow lane."

Reopening the Debate

Despite years of HOV-lane promotion, few commuters are giving up their cars to join carpools. Although HOV lanes reduce travel time and increase reliability for the small percentage of commuters who are able to carpool, the contributions to reduc-

ing highway congestion, air pollution, and fuel consumption have proved illusory.

Many states continue to build HOV lanes, convinced that the federal government will pay only for these highway facilities. Other states hesitate to decommission underutilized HOV lanes, to avoid the obligation of reimbursing the federal government for the construction cost, even though New Jersey has shown how to get around that.

Carpool lanes may be justified on some highway corridors. But with few state transportation agencies monitoring carpool lane operations, credible effectiveness data are scarce. HOV advocacy consists mostly of vague claims of benefits—that carpool lanes "relieve congestion," "reduce vehicle-miles of travel," and "improve air quality"—without the support of serious analysis of the effects on modal shift from solo driving to carpools and vanpools.

Joy Dahlgren, a respected University of California, Berkeley, transportation analyst and longtime student of HOV lanes, has observed:

I have not found an evaluation of an HOV lane in the last 10 years that contains the information needed to estimate the extent to which the lane motivated a shift to HOVs. Evaluations typically do not include travel times, volumes, and vehicle occupancies for both mixed-flow lanes and the HOV lanes over the entire congested period both before and after the HOV lane was instituted. Without such information it is not possible to determine if there was a real shift to HOVs or simply a shift of HOVs from shoulders of the peak to the peak of the peak....State departments of transportation should collect the required data and make it available to researchers so that unbiased assessments of the effectiveness of travel time savings in motivating HOV use can be assessed.

The time has come to reopen the public debate on HOV lanes and reexamine the orthodox belief that HOV lanes effectively address traffic congestion and air pollution problems. Credible demonstration of carpool lane benefits may be the only way to salvage the concept from mounting criticism.

If the evidence shows that HOV lanes are not producing the expected results, decision makers should admit it, abandon the current policy of uncritical HOV favoritism, and focus attention on ways to convert underutilized HOV facilities to more productive use.

References

1. HOV Lanes in California: Are They Achieving Their Goals? Legislative Analyst's Office, Sacramento, Calif., January 7, 2000.
2. *Toll Roads*, January–February 2001, p. 21.