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“You Cannot Avoid Traffic”... and Other Myths

High Occupancy Toll Lanes Guarantee a Congestion Free Choice

By Jon Caldara

Background: HOV Falls Short

“This idea will solve traffic congestion permanently.” No credible transportation official ever seems to say this anymore. Certainly, many will imply that the latest transit-fad will somehow, magically reduce traffic and congestion, but they know that no investment will ever solve congestion.

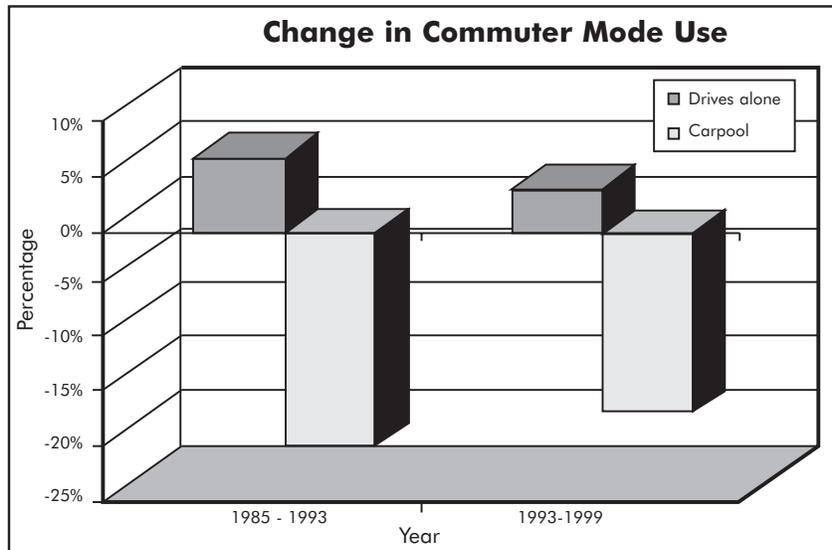
Nonetheless, in many U.S. urban areas conges-

tion-free options do exist. Twenty years ago, High Occupancy Vehicle (HOV) lanes, or carpool/diamond lanes as they are often called, were the transit-fad that led to these congestion-free trips. These are lanes separate from

the normal “general-purpose” lanes of travel, often providing many miles of reserved laneage, for those who carpool or ride the bus.

Provided you

carpooled, you would enjoy a congestion-free trip on the HOV lanes.



The HOV advocates imagined that ordinary commuters would flock to carpools and buses, doing anything to escape the horrors of traffic; the increased carpooling and bus riding would benefit everyone, with lower pollution, decreased congestion, and reduced stress.

Somewhere between wish and reality, things didn't work out so well. Although HOV lanes are relatively successful at moving people (at least in HOV lanes oriented towards central business districts), many of the HOV users are people who simply moved from the general-purpose lanes to the HOV lanes. To make matters worse, carpooling has declined dramatically nationwide since HOV lanes were widely implemented.¹ It seems the convenience of the personal automobile still warranted putting up with the horrors of traffic and congestion.

making an uncongested trip without changing to a carpool or riding the bus. Offering this option to drivers can also provide the same congestion-free benefit to carpoolers.

HOV lanes currently feature "unused space," or as transportation planners refer to it, "excess capacity." The Reason Public Policy Institute studied HOV systems in various metropolitan areas and found that the typical HOV lane nationwide has 950 vehicles per hour and 2275 persons per hour. Although the total number of persons per hour is generally higher than in the adjacent general-purpose lanes (2000 persons per hour on average for a congested lane), the HOV lanes could carry 45 percent more vehicles and still flow at 55 miles per hour. This ability to carry 750 more vehicles per lane is typical of HOV lanes' excess capacity.

Table 2: Comparative Throughput of HOV Lanes and HOT Network

	Typ. HOV-2	Typ. HOV-3	Ideal HOV-3	HOT Network
SOVs (avg. 1.1 person/veh.)	0	0	0	1100
HOV-2s (avg. 2.1 person/veh.)	788	0	0	300
HOV-3s (avg. 3.2 person/veh.)	150	350	1200	200
Vanpool (avg. 7.0 person/veh.)	10	20	20	60
Express bus (avg. 35 person/veh.)	2	3	40	40
Vehicles/hour	950	373	1260	1700
Persons/hour	2275	1365	5380	4300

An Alternative: Merging Toll Roads with HOV Lanes

There may, however, be a way to guarantee that a driver would always have the choice of

Reason Public Policy Institute²

For example, on the North I-25 HOV lanes in Denver, Colorado, a facility widely-regarded as successful by HOV advocates, carpools and buses use only 30 percent of the total conges-

¹ Bureau of Transportation Statistics. "Transportation Statistics Annual Report 2000", http://www.bts.gov/publications/transportation_statistics_annual_report/2000/chapter4/commuting_to_work_fig1.html.
² Robert W. Poole & C. Kenneth Orski, "HOT Networks: A New Plan for Congestion Relief and Better Transit," Reason Public Policy Institute (February 2003), p. 13.

tion-free capacity at the rush hour. That means that more than 70 percent of the capacity in HOV lanes is wasted during peak periods. Over the total hours that the HOV lanes are open, over 80 percent of the facility capacity is wasted. In other words, HOV lanes can actually accommodate several times the number of vehicles currently using the lanes, without causing any congestion or slowdown in these lanes.

The problem of excess capacity is already apparent to the public. The wasted space led to public resentment in northern New Jersey, eventually leading to the elimination of HOV lanes on I-287 and I-80. The traveling public in Minnesota, California, Washington, and Virginia has recently raised its own voice about the misuse of HOV lanes, although none of these states have seen any HOV elimination as of yet. Even so, HOV lanes are facilities under siege, and their demise is more a question of “when,” rather than “if” – unless measures are taken to improve their use.

The solution is to turn the underused High Occupancy Vehicle lanes into High Occupancy Toll, or HOT, lanes. A HOT lane allows single occupant vehicles to use the lane, in exchange for paying a toll which varies in price based on how congested the lane is. Simply put, drivers stuck in the traffic jam of the general purpose lanes will finally have the

option to use a lane guaranteed to be congestion-free.

How HOT Lanes Work

How can the HOT lane be guaranteed to be congestion-free? As more drivers choose to use the HOT lane, price of the toll increases, thereby discouraging additional drivers from choosing it. The toll on the I-15 HOT lanes in San Diego changes every few minutes, with the price shown on electronic signs. Since traffic moves at full speed in the HOT lane, the speed of carpools and buses is unaffected.

Commuters who use the HOT lane, whether bus riders, carpoolers or single occupants, will never be slowed down by ugly, old-fashioned

A HOT lane allows single occupant vehicles to use the lane, in exchange for paying a toll which varies in price based on how congested the lane is.

toll booths. Tolls are collected electronically via windshield-mounted transponders.

Because there is a variable toll on the HOT lanes, a toll that increases with increasing congestion and decreases with decreasing congestion, individual drivers make an “on-the-spot” decision as to whether paying the current toll rate warrants the benefit of a congestion-free trip. The fee is essential to managing traffic in the HOT lanes, so as to ensure the lanes never become congested. As demonstrated by HOT lanes elsewhere in the United States, the variable toll ensures that the demand for the facility is managed, such that congestion **never** occurs in the HOT lanes.

HOT Lane Benefits

- **Choice.** Mass transit advocates, with their nearly insatiable appetite for more and more tax subsidies, argue that commuters need a choice. HOT lanes provide choice without requiring tax increases. The user pays. In fact, mass transit derives a huge windfall from HOT lanes. As single occupants voluntarily pay for the maintenance and expansion of HOT lanes, bus riders and Bus Rapid Transit (BRT) riders have the benefit of new busways that transit agencies did not have to build. Single occupants thus finance facilities for buses and carpools.
- **Safety.** HOT lanes save lives. Given that HOT lanes are never congested, emergency vehicles – including ambulances, fire trucks, and police – will never be slowed down by a traffic jam. As state and cities work on counter-terrorism plans, congestion-free lanes might be critical.
- **Value.** HOT lanes are a new way to 1) provide the option for a guaranteed uncongested trip to all motorists, and, 2) preserve the uncongested trip for carpools and buses. HOT lanes are therefore a value-added, market-driven policy that modifies the nature of the

HOV lanes. With HOT lanes, HOV lanes are no longer for the exclusive use of carpools and buses; the lanes are facilities that can be used by all motorists – provided they are willing to pay a fee. Carpoolers may continue to use the lanes for free; only people who drive alone must pay the toll.

HOT lanes present an opportunity for new road capacity to be built without raising taxes or cutting programs.

Additionally, adjacent general-purpose lanes remain unchanged – they are toll-free, but they also may be congested in peak periods.

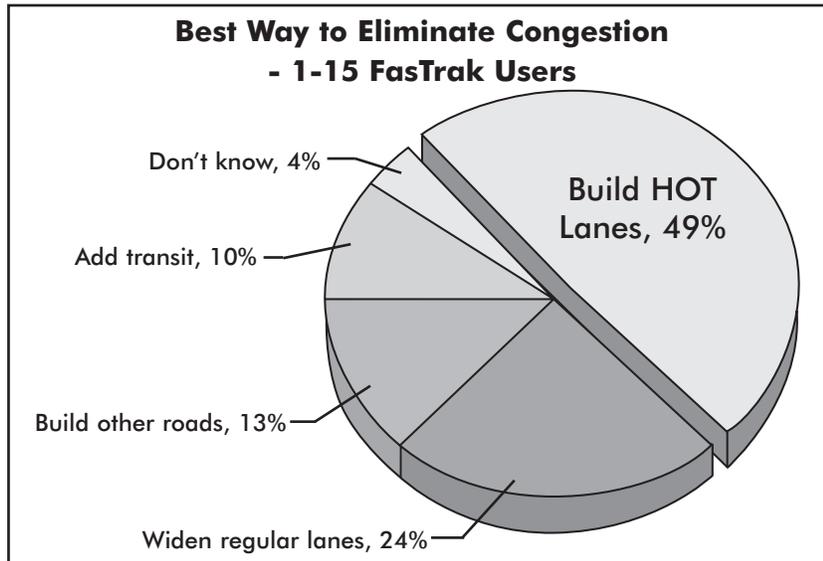
- **Revenue.** Many states are dealing with budget shortages. Road expansion, and even basic maintenance programs are being cut. HOT lanes present an opportunity for new road capacity to be built without raising taxes or cutting programs. HOT lane revenue is used within the corridor that generates it; for example, HOT lane revenue can be used to pay off initial or expanded capital investment debt (such as original construction or extension of an HOV / HOT facility), maintenance of infrastructure on the facility, conversion of HOV lanes to HOT, or other upgrades. HOT lane revenue is never used as a “general fund” revenue source, nor should it be. Indeed, many state statutes require toll and HOT lane revenue to be spent within the corridor from which the revenue is generated.

HOT Lane Experience

HOT lanes have already been implemented on California State Route 91 in Orange County, I-15 in San Diego, and I-10 and US-290 in Houston.

California and Texas have been so satisfied with their experiences that both states are well underway to implementing expanded highway facilities that are financed, in part, by the use of HOT user fees. On all of the aforementioned facilities, *carpooling and bus use increased*³ after the implementation of HOT lanes (contrary to the fears expressed by many HOV advocates). *Congestion never occurred* on the HOT lanes (contrary to warnings that HOT lanes might be overrun). *Congestion decreased slightly* in the general-purpose lanes, and the *public expressed greater satisfaction* with these corridors compared to when the lanes were simply HOV. HOT lanes are a win-win proposition.

A December 2001 study by the San Diego Association of Governments regarding the



existing HOT lanes on I-15 found the following results:⁴

- 66% of non-users and 88% of HOT lane users approved of the I-15 HOT lanes;
- 70% of voters agreed with the statement, “People who drive alone should be able to use the I-15 Express lanes for a fee.” Greater support was actually found among lower income voters (81% of less-than-\$40,000-per-year) than higher income (71% of more-than-\$100,000-per-year) voters.
- 90% of HOT lane users and 73% of non-users stated that the HOT lanes “reduce congestion on I-15.”
- When asked what was the “single most effective way to reduce congestion on I-15,” HOT lanes were the top choice:
 - Extend the HOT lanes (49% of HOT lane users; 37% of non-HOT lane users)

³ San Diego Association of Governments, Report to the California Legislature, “HOV Usage Increased Substantially By 49%” (Dec. 1999), p. 17 (report on San Diego’s I-15 during a three-year congestion pricing and transit development demonstration program).

⁴ Wilbur Smith Associates “Public Opinion Research: I-15 Managed Lanes Extension” report presented by Ed Regan, project manager, at the Annual Transportation Research Board conference, January 16, 2002. Survey of 800 (random digit dialing) users of the I-15 corridor, 600 of which are non-users of the HOT lanes, 200 are regular users of the HOT lanes. Survey has 95% confidence interval for actual public opinion being +/- 3.5% of the survey results.

- Add regular lanes (24% of HOT lane users; 26% of non-HOT lane users)
- Build other roads (13% of HOT lane users; 21% of non-HOT lane users)
- Add mass transit (10% of HOT lane users; 11% of non-HOT lane users)
- Over 70% of both HOT lane users and non-users stated that having single-occupant vehicle use on I-15 express lanes was fair.

In short, opponents of HOT lanes perpetuate two myths: 1) that HOT lanes will reduce carpooling and bus riding, thereby increasing congestion, and, 2) that the public will not support HOT lanes, due to concerns of fairness and equity. Clearly, the evidence from California and Texas shows these claims to be nothing more than myths.

Moving Forward: A Policy Agenda for State and Federal Lawmakers

There are three primary ways state and federal lawmakers can ensure HOV investments are fully utilized by the traveling public:

1. *Guarantee the public that HOV lanes will be fully used after they are constructed.* Public frustration with underutilized HOV lanes is understandable. The original purpose of HOV lanes was to reduce congestion by converting single-occupant vehicle drivers to either carpoolers or bus riders by offering a congestion-free alternative to general-purpose lanes. Since the adoption of HOV, though,

growth in traffic has greatly outpaced the growth in carpooling and bus riding. Indeed, the 2000 census shows that these two modes of travel have actually declined as a percentage of all modes.

States should adopt policies that benefit all taxpayers. Transportation agencies, including state transportation departments and regional transit agencies, must ensure full use of all HOV facilities. “Full use” means that all available capacity during peak periods must be utilized, without degrading travel speeds within the HOV lanes. The simplest way to ensure full use is HOT lanes.

2. *Incorporate HOT lanes as a standard operating policy for HOV lanes.*

Nationwide experience has shown that most HOV lanes are greatly underutilized, even in peak periods, creating the underused highway space that so frustrates the public. HOT lanes require slightly different operational parameters than HOV lanes. However, many agencies fail to plan for this flexibility of adjustment when constructing HOV lanes. For example, the Colorado Department of Transportation, a department with a statutory mandate to implement HOT lanes on I-25, is constructing new HOV lanes on I-25 (a few miles from the intended HOT lanes) that are

largely incompatible with HOT lane operations.

3. *Restrictions on the implementation of HOT lanes must be addressed by the federal Department of Transportation (US DOT) in the upcoming transportation omnibus legislation (TEA-21 reauthorization).* Two primary restrictions in the past five years have been used to prevent HOT lanes implementation: 1) prohibition of single-occupant vehicles on HOV lanes (regardless of whether the vehicles pay a toll or not), and, 2) prohibition of tolling on interstate highways. Both restrictions were put in place before the idea of HOT lanes was conceived. Both restrictions are obsolete now that HOT lanes provide a means of managing traffic and congestion on HOV lanes, and provide a new choice to travelers without taking away any current benefits from HOV users.

Conclusion

Evidence from the California and Texas experiences dispel the false myths about HOT lanes. Indeed, where HOT lanes are implemented, they are successful, benefiting all and supported by very large majorities. U.S. transportation officials should not delay the implementation of positive transportation policies simply because a few people spread false myths. People who oppose a HOT lane demonstration project are not opposing a trial project because they fear that HOT lanes will

fail. Rather, they oppose HOT lanes for the fear that they will be successful. We can move more vehicles more quickly at no additional expense. *Why don't we just do it?*

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JON CALDARA is the President of the Independence Institute.

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