

COULD DRIVERS' BEHAVIOR CHANGE? IMPLICATIONS FOR HIGH OCCUPANCY VEHICLE (HOV) LANES

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BACKGROUND AND RATIONALE OF RESEARCH PROPOSAL

Traffic congestion has been a major issue facing public transportations officials since the early 1970s. California has at least five of the nation's 20 or so most congested metropolitan areas. There have been drastic increases in population, employment, and car ownership in Southern California in the last 30 years. Such increases have resulted from growing trends such as having more women joining the working force, having more cars per family, and rising incomes or wealth of households. These trends are expected to keep growing in coming years. For instance, while the population of the six county of greater Los Angeles metropolitan area was 19 million in 2000, it is expected to reach 23 million by the year 2020. This may further complicate transportations authorities' efforts to address traffic congestion, at least in Southern California, as some recent studies indicated that the number of miles driven on Los Angeles and Orange County highways is expected to increase by 40% by 2020. Consequently, the expected increase in population and in driven miles will likely accelerate traffic congestions, increase fuel consumption; increase time lost by commuters, lower travel reliability, and lower air quality. It is imperative to note here that road capacity, due to many constraints, did not keep up with population growth in California in the last 30 years. For instance, it has been estimated that from 1967 to 1997, California's road capacity increased by 29%, while its population increased by 70% (Federal Highway Administration, *Our Nation's Highways*; 2000).

High Occupancy Vehicle (HOV) lanes have been heralded as the answer to the growing traffic congestion on Southern California highways. HOV lanes were introduced in the mid 1970s as a means of increasing the people-carrying capacity of the freeways by encouraging and promoting carpooling. Ever since their introduction, HOV lanes have become one of the most common measures or tools used by transportation authorities to control traffic congestion. In theory, HOV lanes have substantial benefits if implemented successively in reducing traffic congestion. The main premise behind adoption or use of HOV lanes is that by designating a specific lane on the highway, without adding additional road capacity, for carpooling (a minimum of two or three people per car) that would result in fewer cars using the highway. Thus, allowing for a faster flow of traffic.

However, if HOV lanes do not attract enough carpooling, drivers in general-purpose lanes would still be stock in slow moving traffic. In general, faster flow of traffic in HOV lanes produces a more reliable travel time and fewer propensities for being involved in accidents due to reduced traffic congestion and reduced driving stress level. The reliable trip travel time on HOV lanes is especially important in promoting public transportation, such as buses, as a reliable means of mass transit due to their would be prompt and consistent schedules. Other benefits of HOV lanes include cost saving on things such as fuel cost, insurance cost, and car maintenance and repair cost among others. Additionally, as more commuters participate in carpooling, fewer cars will be using the highways resulting in reduced air pollution.

Despite the obvious and demonstrated benefits of carpooling, its popularity has diminished over recent years. Some studies have shown that carpooling have declined from 13.4% of commuter trips in 1990 to 11.2% in 2000 (Public Policy Institute, 2002). Though billions of dollars have been spent on HOV lanes construction, their impact on traffic congestion has been marginal at best. A number of reasons have been cited as to why people prefer not to participate in carpooling such as difficulty of spending commuting time with a stranger. Or the difficulty to giving up the convenience of having your own

space or listening to your preferred music, and loss of freedom to do personal business during lunch hour or after work. The backdrop from reasoning is that participating in carpooling precipitates difficult changes in commuters' lifestyles.

How can we convince commuters to change their lifestyles or in other words how can we change a fundamental value in our society that is of "individualism?" Recall Patrick Henry's infamous saying, "Give me liberty or give me death!" Liberty and freedom are deeply rooted values in our society and it has always been encouraged and respected through out American history. The fact that most people prefer to drive alone is not a coincidence but rather a manifestation of our cherished freedom and liberty. In theory, carpool lanes should have been a primary tool to change drivers' behavior. Lately, the issue of whether HOV lanes encourage carpools has been an ongoing topic of debate among concerned citizens and organizations. The restrictions that HOV lanes have imposed on single-occupant vehicles (SOVS) using the general-purpose lanes have in some cases led to criticism, loss of public support, organized opposition, and even the cancellation of some projects. Realistically, the creation of HOV lanes have forced SOVS to crowd into a fewer number of general-purpose lanes while the HOV lanes are generally underutilized on most highways.

Admittedly, it is difficult to change travelers' driving behavior. Nonetheless, in my opinion, recent developments and trends in our society have created an excellent opportunity for influencing drivers' behavior and improving effectiveness and popularity of carpooling. Recent societal and economic trends of relevance to carpooling include: people are living longer and healthier than before, baby boomers are retiring younger and working less in their later years, currently people are traveling more than their prior generation, traffic congestion is increasingly being linked to global warming, and fuel prices have more than tripled in the last six years, hovering between \$70 to \$96 a barrel as of November, 2007!

In a nutshell, these developing and other emerging and alarming trends suggest that more people will be driving on the road in future years and they will have more time to drive (Projected longevity). On the other hand, rising fuel prices and global warming, among other alarming issues, may stand to strongly influence people's driving habits and lifestyles and possibly put a dent into their cherished value of liberty and freedom. This suggests that maybe this is the right time for a comprehensive and multifaceted effort to influence Drivers' behavior to increase their participation in carpooling by convincing them that they must embrace change if they want to maintain, if not improve, the standard of living that they now enjoy.

METHDLOGY

The objective of this research is to conduct a limited pilot study which will aim to assess and to investigate a number of potential strategies or initiatives which could be adopted and implemented in a coordinated effort by different stakeholders to increase the effectiveness of carpool utilization. The purpose of this pilot study is to develop or to prove that this study's proposed initiatives (described below) for improving effectiveness of carpooling are worthy and meritorious for considering a much larger and comprehensive study that could be matured into a full fledged project which could be submitted for other governmental or private research sources for possible external grants and contracts.

Some of the initiatives which will be investigated in this pilot project are either derived from findings of prior carpooling studies (based on prior empirical and anecdotal research), or from actual carpooling practices and programs which have been introduced and implemented, in prior years, by different transportation organizations (profit and not-for-profit organizations) including different governmental agencies in California. This project's proposed initiatives will be directed towards three major stakeholders of HOV: individual drivers, employers, and local and state transportation agencies.

Initiatives that are aimed (or could be introduced) to attract individuals to carpooling will include ,but not limited to, financial and non-financial incentives such as: trip time savings, money and car

maintenance savings, tax deductibility of cost of using public transportation , and publicized weekly awards for users of HOV lanes.

Initiatives that could be implemented (or could be introduced) by employers to increase carpooling participation among employees include: creating special awards for employees who use public transportation to and from work; creation of the “compressed work day,” such as the four-ten schedule (employees work for 10 hours for four days); creating awards for employees who regularly use ride sharing; aggressively marketing and promoting benefits (e.g., stress reduction) of ride sharing in the work place; and guaranteed emergency ride home.

Initiatives that could be implemented (or could be introduced) by California’s governmental agencies to increase carpooling effectiveness include: tax deduction of vehicle registration fees (maybe by 50% or 75% depending on number of people participating in carpooling of that particular vehicle); introducing a system to validate commuters’ participation in carpooling (such as a barcode system); introducing a far-reaching law requiring all vehicle owners to register into a state wide database system which links each commuter within each metropolitan areas from their point of departure to their point of destination (which could include their daily work schedule along with other personal info); introducing “area usage fees” in the heavily congested parts of the city (as done in London, England); aggressively enforcing existing traffic laws and increasing traffic violation fines in critical areas; requiring formal training for all people requesting a new drivers license; implementing a strict driver license renewing policy (e.g., require formal training for people with certain number of traffic violations); and aggressively promoting public transportations.

The methodology of this pilot project will involve surveying and interviewing a limited number of members of three stakeholders: individual drivers, employers, and public transportation agencies. All of this pilot study sample members will be randomly selected. Three separate questionnaires drawing on a comprehensive list of carpooling initiatives, similar to the initiatives presented above, will be prepared for telephone or personal interviews. A random sample of 50 individuals who currently are not actively participating in carpooling will be selected from telephone directories of Los Angeles and orange Counties. Additionally, a pilot sample of the largest 10 employers in Southern California will be selected.