

2010 AND BEYOND
A VISION OF AMERICA'S TRANSPORTATION FUTURE

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Foreword

In the 1950s the Eisenhower administration embarked on a program that literally changed the face of America. The interstate highway system was built, catapulting the nation into the modern era of transportation. This revolutionary development enhanced economic growth, added to personal mobility, reduced transactional business expenses, and offered housing opportunities undreamed of until this point in U.S. history. For half a century the nation lived on this legacy.

Now the roads are congested, waiting time for truckers at ports has increased exponentially, and what was once an American dream—rapid and reliable highway travel—has been converted for many into an American nightmare. It is time to revisit the issue of national transportation.

In this book, which emanated from what is arguably the most comprehensive study of transportation in a generation, Hudson Institute calls for revolutionary changes in the financing, technology, and management of the nation's surface transportation system. This study contends that changes are essential if the American economy is to progress without major impediments. Since these changes are likely to take a generation to work their way fully through the nation's surface transportation system, the time to begin is now.

The most serious financial challenge involves the nation's roadways, where existing methods of funding highways and streets seem to have broken down. The American Association of State Highway and Transportation Officials (AASHTO) estimates that \$5.3 trillion will be needed during the first quarter of the twenty-first century to prevent further deterioration of the nation's highways, and this estimate does not include the similar shortfalls in spending for transit, rail, and freight needs. In order to overcome the effects of past underspending and keep pace with growing transportation demand, new investment is necessary. But the present federal motor vehicle fuel tax and appropriations from state and local government budgets are projected to meet less than two-thirds of these needs.

It is our contention that the solution to this funding shortfall is to end the traditional practice of regarding highway access as "free." Instead, motorists should be charged reasonable user fees for using the roads based on miles traveled, the kind of vehicles driven, the amount of pollution generated, and the level of traffic demand in effect when trips are made. New technology now

makes it feasible to enable the nation's existing highways to collect user fees to generate revenue without affecting traffic flow. The goal is to deliver highway access to motorist "customers" through the marketplace in a manner similar to that which governs the allocation of other goods and services. Highway user fees should be accompanied by "money-back performance guarantees" so that each motorist can make meaningful tradeoffs between travel time savings and how much is paid to use highway lanes.

New technology offers many potential improvements to the surface transportation system. Equally important from the perspective of this book are the many ways that technology can help smooth the flow of people and goods in travel time and cost savings.

For example, technology already available or being developed can greatly reduce the incidence of motor vehicle accidents on crowded highways, as well as limiting the personal injuries and property loss from crashes. (In 2003, 42,000 lives were lost in highway fatalities in the United States, with an estimated cost of \$230 billion.) "Smart cars" and "smart highways" could reduce the increasing financial burden that such events impose on American society and minimize the travel time delays. The same technology can also work around the clock to optimize vehicle spacing, speeds, and routings so that any number of highway lane miles can move more vehicles in less time.

Perhaps most significantly, we foresee effective technology helping to break down the artificial barriers among surface transportation modes so that people and goods move expeditiously door-to-door through a properly integrated system. But superior technology is not enough to make the difference by itself. More important is how the use of technology is managed to produce desirable results. That is why the study's conclusion stresses the need for transportation system managers to change their focus from traditional engineering-oriented performance measures like vehicle-miles-of-travel to customer-oriented measures that emphasize reduced door-to-door travel time, greater reliability, and smoother interfaces among various transportation modes. With improved customer service as their primary goal, transportation managers will find new uses for technology as it becomes available and new ways to have different technologies work together.

Perhaps the study's most ambitious concept is a proposal to convert what is now a disconnected group of surface transportation modes into a fully integrated "system" that travelers perceive as seamless and transparent. The key for accomplishing this goal is to have the national, user-fee-supported highway network become a major funding source for all surface transportation activity, not just for roadways. This can include using user-fee revenues to support a large network of freight railroad tracks so that more goods can be moved by rail, easing the impact of trucks on the nation's highways. The same approach can be applied to public transit in large metropolitan regions in order to avoid clogging highways with single-occupancy vehicles.

The use of cross-subsidization is a necessary step in our opinion, but one that has its risks. There are obviously huge institutional, administrative, and public acceptance hurdles that could not be explicitly considered in this book. Issues related to the sharing of road revenue with transit services in the same corridor, for example, are vastly different from what is involved in using nationwide road revenue for selected investments in the freight system.

It should also be noted that an extended transition period is needed to move from the present gas tax to road pricing and cross subsidies. We realize as well that despite the best efforts of the government and the private sector, petroleum fuels are likely to dominate the transportation market for some time to come, and notwithstanding the many issues associated with the gas tax, it does offer low transactional costs and is roughly related to usage.

Hudson Institute's visionary approach to creating an integrated surface transportation system poses major new financial, technological and management challenges. But we regard it as a step in maintaining national economic competitiveness in a world economy which increasingly puts a premium on moving people and goods efficiently.

As we see it, just as the Eisenhower administration had the vision to see transportation as a catalyst for economic growth in the 1950s, the new century requires an integrated transportation system consonant with the demands of the twenty-first century. We now have the technology that is necessary to make that happen; all we need is the will to make it a reality.

Herbert I. London

Policy Recommendations

Policy #1-Transportation Finance

Context

- Our nation's transportation network provides mobility for both people and goods.
- Transportation efficiencies represent a major factor in achieving economic competitiveness in the global market.
- Failure to invest in our nation's surface transportation systems and infrastructure will result in significant negative consequences to our quality of life and the nation's economic vitality.
- Traffic volumes have grown 80 percent in the last 20 years and will grow 50 percent more in the next 20 years.
- Cambridge Systematics estimates the cost to maintain the current transportation system to be \$4.4 trillion between 2000 and 2025, or \$1 trillion more than is currently available.
- Cambridge Systematics estimates that the cost to improve the current transportation system will be \$5.3 trillion between 2000 and 2025, or a \$2 trillion gap with available funds.
- Transit ridership is up 24 percent in the last six years, with 9.7 billion trips in 2001.
- It is estimated that it would take \$43.9 billion per year to improve the current physical condition of our nation's transit system.
- Current New Starts projects number 78, with a total value of \$47 billion, vying for just over \$9 billion per year in funding.
- There are another 150 projects in the development stage that would compete for New Starts funding in the near future.
- Funding for homeland security measures is insufficient to protect national transportation assets in an adequate manner.

Policy Recommendation

Transportation investments must be funded from a comprehensive set of revenue sources that are sustainable and reflective of consumer choice.

Strategies

1. The United States Congress should adopt funding strategies that represent "net new" revenue sources for transportation investment.
2. The Congress should encourage and expand High Occupancy Toll (HOT) lanes and the use of user fees by giving the states broad authority to implement these strategies on state corridors as well as interstate freeways.
3. Congress should create new opportunities for transportation agencies and properties to enhance revenue through consumer choice for mobility and mode.

4. The United States should begin to develop the strategies necessary to transition to a Vehicle Miles Traveled (VMT) based revenue system to be implemented in the 2015 timeframe.

Policy Issue #2-Mobility Management

Context

- Our nation's transportation system is made up of transportation modes that operate individually with unrelated performance measures.
- Funding for transportation is largely mode-specific.
- The public is unable to make mobility decisions based on time, value, and cost because of the disparate manner in which the modes operate.
- The transportation system lacks a robust technology backbone that will allow further achievements in efficiency and effectiveness.

Policy Recommendation

The United States must establish a transportation system where all modes operate as one in a Mobility Management environment.

Strategies

1. It is our hope that Congress shall enact legislation giving transportation agencies broad authority and flexibility to employ funding in ways to create truly multi-modal transportation solutions to our nation's mobility needs.
2. Congress should enact legislation that removes barriers to technology deployment, thus advancing technology's role in creating the Mobility Management system.
3. Congress should remove organizational barriers at the federal level, allowing transportation modes to advance toward a seamless transportation system. These barriers include onerous environmental legislation, funding mechanisms, administrative procedures, and other impediments that serve to separate the modes and create inequality.

Policy Issue #3-Technology Deployment

Context

- Fatalities on our nation's highways exceeded 42,000 in 2003.
- In spite of significant gains in seat belt usage, air bags, and other safety equipment in vehicles, the fatality rate continues to be approximately 1.5 per 100 million vehicle miles traveled.
- Our nation expends \$230 billion per year on crash related costs.
- Operational inefficiencies on our nation's surface transportation system resulted in an annual user cost of \$69.5 billion in lost productivity in 2001 for time spent on congested roads.
- There were 5.7 billion gallons of wasted fuel due to congestion in 2001.

- Technology advancements such as the crashless vehicle and other systems are available for deployment, but liability issues and other institutional/policy related barriers prevent their use.

Policy Recommendation

The United States must advance the rapid deployment of technology in all aspects of its transportation system to achieve optimal safety, security, and operational benefits into the future.

Strategies

1. Congress should require the U.S. DOT to accelerate the integration of in-vehicle technologies for all modes and systems to achieve required safety and operational goals.
2. Congress should establish regulatory reform on insurance, tort liability, and anti-trust issues.
3. Standards and protocols should be adopted to address security and privacy issues as well as environmental integrity.
4. Congress should provide state transportation agencies and properties with broad authority to implement key technology components in their infrastructure.

Policy Issue #4-Freight Systems

Context

- Freight growth (in billions of ton-miles) between now and 2020 will increase as follows:
 - Truck – 64 percent
 - Rail – 49 percent
 - Barge – 15 percent
 - Air – over 100 percent
- Truck freight movements are impacted by the same issues of congestion and capacity as are the passenger modes of travel.
- Marginal changes in transportation cost for goods movement in both the domestic and international markets are critical to the economic vitality of our nation.
- Lack of investments in port infrastructure, transfer facilities, and intermodal centers is resulting in freight inefficiencies and capacity issues.
- Investments in freight infrastructure are not separately funded and have no dedicated revenue stream.
- Rail infrastructure is in need of significant investment. In order to maintain and operate current rail systems it would take an estimated investment of \$8.5 billion per year in new funding
- Freight facilities, especially ports, are vulnerable to terrorist threats, with only 5 percent of the containers coming into U.S. ports subject to careful screening.

Policy Recommendation

Establish freight transportation systems, including highway, rail, ports, river, and air, as critical interrelated components contributing to our nation's role in the global economy.

Strategies

1. Congress should establish the National Strategic Freight Investment Program with dedicated revenues and a management system to accommodate needed freight investments in the future.
2. Congress should provide needed authority for the governance of freight investment to the U.S. DOT.
3. Congress should establish the Innovations Program for State and Local Freight Transportation to provide incentives for local and regional investments in freight systems impacting our nation's freight movement.