Transportation Demand Management

Transportation Demand Management is a broad term for a diverse series of programs and policies that seek to change how, when and where people travel. Such programs are designed to reduce traffic congestion by shifting transportation away from single-occupancy vehicles, shifting travel out of peak periods or shifting it to less congested roads or modes of transportation. These strategies can help make more efficient use of existing transportation systems during an era in which expanding road capacity is increasingly expensive and the availability of future funding for infrastructure is in question. They can also produce other key benefits, including savings to consumers, improved travel options, improved road safety, less damage to the environment, more efficient land use, improved community livability and economic development. Although many transportation demand management strategies are undertaken at the local or regional level and others are associated primarily with the private sector, state governments play an increasingly important role in promotion and oversight of these strategies.

Role of State Governments in Transportation Demand Management

The role state departments of transportation play in demand management varies widely, as does the breadth of activities they support.

Forty-two states responded to a survey as part of a report released in 2010 by the Transportation Research Board’s National Cooperative Highway Research Program. Thirty-nine state departments of transportation said their agencies play a role in transportation demand management. Among the most commonly identified roles were using these strategies on transportation construction projects, funding local organizations focused on demand management, providing technical assistance to local agencies and using them as part of own activities, such as during construction projects. All of the above was the most commonly identified role.

Roles of State Departments of Transportation in Transportation Demand Management, 2010 Survey

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Percent</th>
<th>Number of Respondents</th>
</tr>
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<tbody>
<tr>
<td>Enforces/supports the implementation of localities’ plan to reduce single-occupant vehicle travel</td>
<td>26</td>
<td>11</td>
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<tr>
<td>Funds local organizations focused on transportation demand management, such as local jurisdictions or transportation management associations/organizations</td>
<td>38</td>
<td>16</td>
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<tr>
<td>Funds/manages a statewide demand management program</td>
<td>31</td>
<td>9</td>
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<tr>
<td>Provides technical assistance to local organizations</td>
<td>26</td>
<td>15</td>
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<tr>
<td>Uses demand management as part of its own activities, such as during construction projects</td>
<td>43</td>
<td>18</td>
</tr>
<tr>
<td>All of the above</td>
<td>21</td>
<td>9</td>
</tr>
<tr>
<td>None of the above</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>17</td>
<td>7</td>
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A total of 42 states responded to the survey.

In the majority of states, the department of transportation’s planning division or department oversees transportation demand management responsibilities. Survey respondents in 33 states said their department of transportation encouraged specific demand management-oriented activities, including carpooling, bicycling, promotion of use of public transit, vanpooling and walking. The least common activities (reported by five or fewer states) included support for pay-as-you-drive insurance, parking pricing and management, and congestion or road pricing.

The survey identified seven roles of state departments of transportation in transportation demand management, including:

- Administering demand management services: States can provide services and programs or encourage the use of alternative modes of transportation through program incentives. They can offer assistance to employers in setting up worksite programs and maintain databases for ride-matching programs.
- Conducting marketing: States can provide support for marketing transportation management strategies to increase public education and allow travelers to make informed decisions about the way they travel.
- Funding investments in travel options: States can use funds to invest in the infrastructure for alternative means of travel, including bicycle and pedestrian facilities and park-and-ride lots.
- Enforcing and providing technical assistance to meet regulations: State departments of transportation also play a role in regulating transportation demand management programs and ensuring statutory requirements are met. They can enforce such things as commuter trip reduction programs, traffic mitigation plans and environmental agreements.
- Integrating demand management strategies into transportation operations: States can integrate demand management principles across transportation systems to allow travelers to make better decisions about how, when, where and whether or not they travel through the use of traveler information services—electronic road signs and traffic websites, among other things—and other technologies.
- Integrating demand management into project planning and development: In developing and designing transportation projects, states can integrate consideration of multimodal options, such as bicycling, walking and public transit.
- Integrating transportation demand management into internal business practices: State departments of transportation can support commuter options programs—including ridesharing and telecommuting—for their own employees.

Moreover, the National Cooperative Highway Research Program report said the organization and governance of transportation demand programs varies from state to state. In some states, the program is centralized with the department of transportation having a high level of direct oversight. In others, it is decentralized with local governments taking responsibility for the services and no regulation or standardization from the state level. A number of states also take a hybrid approach, where one tier of demand management activities is centralized at the state level and another tier is overseen at the local or regional level.

Integrating transportation demand management strategies can take place not only at the state level, but also at the metropolitan planning organization level, corridor/regional level or local level. But, according to the Federal Highway Administration, statewide management and/or coordination of demand management activities offers several benefits:

- It helps to ensure a strong level of performance accountability;
- It promotes higher levels of program visibility through marketing efforts that have a consistent theme; and
- It promotes efficiency by reducing or eliminating duplication of effort.

Transportation Demand Management Strategies

States are employing a wide range of strategies spread across three categories of congestion-reducing policies.

Some strategies seek to shift demand away from single-occupant vehicles. These strategies include promoting rideshare, carpool and vanpool programs. Many state departments of transportation oversee ride match lists that help commuters from the same area or traveling to the same area every day find each other. States such as California, Colorado, Florida, Minnesota, Utah, Virginia and Washington have created high occupancy vehicle and high occupancy toll lanes that encourage carpooling by reserving a lane just for those sharing a ride to work—or for those who pay a premium to drive in the lanes.
States also can use marketing campaigns to promote ridesharing, use of public transit, walking or bicycling. States can enact policies that ensure the accessibility of alternative forms of transportation, promote more transit-oriented development or ensure the integration of bike and transit infrastructure. They also can create commute trip reduction programs, which provide incentives to large employers to motivate employees to commute in ways other than driving alone, including telecommuting.

Other transportation demand management strategies seek to shift travel out of peak periods, morning and evening rush hours, for example. Again, states can provide incentives to employers to allow flexible work schedules and compressed work weeks. As employers themselves, policymakers can enact similar policies for state government workers. States can incorporate mechanisms into transportation projects that provide a disincentive to travel during the peak times. Congestion pricing, for example, is a type of tolling that charges motorists more to use a road, bridge or tunnel during periods of the heaviest use.

The third category of transportation demand management strategies seeks to shift travel to less congested facilities. This is frequently done by providing motorists the resources necessary to assess traffic conditions and make better informed decisions about how, when, where and whether they travel. States can integrate technologies into road projects such as advanced traffic signals, roadway and weather monitoring cameras and stations, and roadside electronic message boards that warn of trouble ahead and recommend alternate routes.

**Benefits of Transportation Demand Management Strategies**

Just as the transportation demand management strategies state governments can employ are a diverse collection of policies, so too are the benefits they can produce—benefits that can accrue to governments, businesses and the average motorist/citizen. These strategies help reduce traffic congestion delays and associated costs, road and parking facility costs, and consumer costs associated with owning and operating vehicles. They can reduce traffic crashes, environmental damages and urban sprawl. Demand management strategies also can improve travel options and community cohesion, while supporting community economic objectives.

Transportation demand management strategies that reduce traffic congestion can improve the overall efficiency and reliability of the transportation system and make it less necessary to expend scarce taxpayer dollars to add capacity to the nation’s roads. They also can prove to be more cost effective. A study commissioned by the state of Georgia found that implementing a package of aggressive demand management strategies would yield 100 times more value in congestion reduction than a similar size investment in new infrastructure.

The Texas Transportation Institute, which issues the Annual Urban Mobility Report, has found that addressing the nation’s mobility problems requires three main strategies besides simply adding capacity—increasing system efficiency, better management of construction and maintenance projects, and managing the demand.

Reducing congestion can improve the quality of life for daily travelers by reducing their commute times and allowing them to spend more time with their families. It can reduce the amount motorists spend for gas each year, the amount they spend on vehicle repairs and the amount companies that ship by freight truck spend, a cost passed down to consumers in the price of goods. The 2010 Urban Mobility Report found in 2009, congestion—based on wasted time and fuel—cost about $115 billion in the 439 urban areas highlighted by the report. The average cost per commuter was $808 per year, $1,166 per commuter in very large urban areas.

Finally, reducing congestion can cut the production of greenhouse gas emissions that contribute to climate change.

Studies indicate that the more strategies a state can employ to increase travel efficiency and reduce vehicle miles traveled, the more impact they can have on the environment. A March 2011 study by the Environmental Protection Agency evaluated four kinds of travel efficiency strategies, including:

- Employer-based travel demand management such as flexible work hours; incentives and support for carpooling; subsidies or discounts for transit, pedestrian and bike modes; and telecommuting;
- Land-use policies such as transit-oriented development, smart growth, increased density and mixed-use developments;
- Transit-related strategies including improved bus/rail service and fare reductions or subsidies; and
- Pricing strategies, including parking pricing (charging more for parking and severely limiting parking to encourage the exploration of non-single occupant vehicle travel), vehicle miles traveled fees (charging motorists per mile) and congestion pricing.

The study found that progressively greater reductions in vehicle miles traveled and emissions could be achieved by combining such strategies. Employing a full range of strategies could result in more than 8 percent reduction in emissions from greenhouse gases and other pollutants from baseline levels by 2050.
States have enacted a variety of transportation demand management strategies in different combinations and with different goals in mind. The need to relieve congestion, decrease commute times and improve the efficiency of the transportation system have motivated many states to enact these programs. For others, environmental concerns such as air quality, climate change and energy reduction have been motivating factors. In still other states, officials have realized that building new roads and expanding infrastructure to meet increasing demand is simply not possible due to limited funds or a lack of available space within their borders. Here’s a look at the demand management programs in several states.

Washington: In 1991, with the goals of improving transportation system efficiency, conserving energy and improving air quality, Washington state adopted the first state employer-based transportation demand management program in the country, known as the Commute Trip Reduction Program. The state department of transportation collaborates with local governments and employers to create employer-based programs that encourage workers to find alternatives to the solo drive commute. All employers in nine counties with 150,000 or more residents that have 100 or more full-time employees who work at a single worksite and begin work between 6 and 9 a.m. are required to participate. State agencies and local governments also fall under the law. Counties and local jurisdictions within the nine counties must adopt a commute trip reduction ordinance to implement program goals, which include targeted reductions in the vehicle miles traveled per employee and the proportion of single occupant vehicle trips by employees in the jurisdiction, and requirements. The ordinance specifies the actions large employers should take to encourage their employees.

A manual for employers issued by the state department of transportation outlines what must be included in each program. Employers are required to designate an employee transportation coordinator, distribute information to employees about commuting alternatives, implement a set of measures geared toward achieving the goals of the program, survey employees about their commuting habits every two years and report annually about progress toward meeting program goals. The manual also identifies benefits employers can experience by adopting a program. They include:

- Increasing employee satisfaction by improving the compatibility of employees’ work and personal lives.
- Reducing the demand for parking spaces.
- Reducing tardiness and absenteeism.
- Increasing productivity of employees who feel better about their jobs due to added flexibility.
- Reducing employee stress, tension and fatigue.
- Expanding the labor pool from which to draw qualified candidates by providing flexible work schedules and options to get to work.
- Enhancing the public image of the employer by showing they are doing more than paying lip service to addressing traffic congestion and environmental concerns.
- Providing employees with a low-cost benefit that can be used as a recruitment tool.

Washington’s legislature revised the commute trip reduction program in 2006 to establish a state planning framework to better integrate demand management strategies with local, regional and state land use planning and investment. The 2006 legislation also allowed for the designation of “growth and transportation efficiency centers” that would receive priority in regional funding and for state competitive grants.

Since 2005, the Washington State Department of Transportation has invested more than $100 million in local efforts to manage congestion through regional mobility grants, which fund a variety of capital and operating investments including new buses, park-and-ride lots, bus lanes and new transit services. The agency also provides capital assistance for the state’s 20 transit agencies that operate vanpool programs.

Virginia: Virginia’s transportation demand management activities date back to the 1970s, when gas shortages prompted state officials to begin looking at alternatives to the solo commute. What began with a limited state effort to market and promote carpools and vanpools has expanded into a partnership of state, regional and local agencies and private sector partners, all working to increase the transportation alternatives available to Virginia commuters.

The Virginia Department of Rail and Public Transportation provides technical and financial support to local transit and commuter service agencies. As part of the Telework VA program, the agency provides financial incentives—up to $35,000 over two years—for businesses to start or expand a program that allows employees to perform some or all of their duties without commuting to the office. The Virginia Department of Transportation fills a number of im-
important roles, including maintaining a statewide network of more than 340 park-and-ride lots across the state that support and encourage greater use of ride sharing. Working with the state’s transit and transportation demand management agencies, the department of transportation works to ensure the lots are located in the right areas and are promoted through regional rideshare programs. The state also has incorporated high occupancy vehicle and high occupancy toll lanes into major transportation projects.

Transportation demand management and transit programs in Virginia appear to be successful in reducing single-occupant vehicle travel, according to data from the Virginia State of the Commute Study and other research. State transportation officials measure that success by what’s called the shift in modal split—the share of drive-alone work trips compared to the use of other travel options. In the metropolitan Washington, D.C., region, the share of drive-alone work trips has dropped from 70 percent in 2001 to 64 percent in 2010. Virginia transportation officials say the overall increase in modal split is the result of increased use of transit and telework, along with more employees working compressed workweeks. The percentage of regional commuters who telework in the Washington region more than doubled from 11 percent in 2001 to 25 percent in 2010.

**New Jersey:** The New Jersey Department of Transportation manages a statewide transportation demand management program through a cooperative agreement with eight regional transportation management associations that together serve every county in the state. The state provides $7 million in federal surface transportation program funds to support the program. Demand management strategies include the Smart Workplaces for Commuters program, which recognizes employers that embrace efforts to reduce single-occupancy vehicle commutes by providing incentives such as reduced fee transit passes or vanpool subsidies. Another incentive-based program called Carpooling Makes Sense recently has been discontinued. It was implemented by the transportation management associations and used federal Congestion Mitigation and Air Quality funds to provide gas cards worth up to $200 to commuters who form new carpools. More than 16,000 carpools formed as a result of the program.

**Georgia:** Georgia’s commuter incentive program, Cash for Commuters, is still active, however. Individuals who drive alone and begin carpooling, vanpooling, teleworking, using public transit, walking or biking to work can earn $3 for each day they use a “clean commute” or up to $100 over a 90-day period. Ridematching and guaranteed rides home—to registered commuters who miss their carpool or other scheduled transportation due to an unforeseen event—are part of the state’s comprehensive, statewide, $13 million demand management program. The state of Georgia has incorporated demand management strategies into its long-range statewide transportation plan. In addition, the state provides local, technical assistance to employers through nine transportation management associations. The state also is converting high occupancy vehicle lanes to high occupancy toll lanes on Interstate 85 in Gwinnett and DeKalb counties.

**Future of Transportation Demand Management Programs**

Despite their many potential benefits, transportation demand management programs are likely to face challenges in the years ahead for a number of reasons. Diminishing state and federal dollars available for all transportation concerns make it likely the programs will see their share of cuts. If the U.S. can’t find the money to fix all the crumbling bridges that need to be fixed, even relatively inexpensive ride share support programs could be on the chopping block. That’s why state agencies should continue to demonstrate the value of such programs by measuring their performance and effectiveness in addressing specific policy objectives. Continuing to build support for such programs through promotional campaigns, outreach and coalition-building will be important. So, too, will finding the right messaging, experts say. Finally, many believe it will be important to ingrain the principles of transportation demand management across state transportation programs, including it in long-range plans, project development and land-use policies.

Demand management programs are likely to face funding challenges not just because of a lack of overall transportation funding, but also because of where their funding is derived. In many states, state and federal gas taxes support management strategies. So strategies designed to reduce driving also reduce the revenue stream that goes to fund those strategies. That’s clearly not a sustainable situation.

Moreover, the federal highway program includes no funded line item for transportation demand management, and with the streamlining of federal programs expected to take place in the next transportation authorization bill, it is unlikely to include one. So
states face a future of continuing to cobble together funds for programs from anywhere they can.

If state departments of transportation and other agencies involved in demand management programs are going to be expected to do more with less as budgets are slashed, they’ll need to know how well they’re doing now. That’s why the continued development of performance metrics will be key to the survival of management programs in state budgets.

State transportation officials will need to be able to tout the benefits of such programs in detail, including not only data about the shift in modal split (as tracked in Virginia and elsewhere), but also data about how individual programs and services remove passengers from the road, the number of trips they save, the vehicle miles of travel saved, gallons of fuel saved and tons of greenhouse gases removed from the air.24 Other measures can assess traffic operations saved and tons of greenhouse gases removed from the programs, arguments that could resonate well even in an era of budget cuts. Management programs reduce the need for more and wider roads, make the most of existing transportation assets and maximize the return on infrastructure spending, for example.

But state departments of transportation can perhaps make the most difference in ensuring the future of transportation demand management programs by enshrining its principles in such documents as statewide long-range plans and land-use policies. States such as New York and California have gone so far as to establish a “TDM first, added capacity last” orientation to their transportation plans. When road expansion does occur, it must be accompanied by other strategies that better manage or reduce travel demand. In its statewide long-range transportation plan, New Jersey’s Department of Transportation identified one of its four primary goals as: “continued investment in measures that shift travel out of cars, move trips to other times of the day and eliminate some auto trips altogether.”28

As states identify and emphasize new objectives for demand management programs, they may require additional metrics to assess things like accessibility, quality of life/livability, overall trip reduction (not just the work commute), the integration of management strategies into land-use decisions, impact on economic development and the success of programs in meeting the needs of those without transportation.27

No standard methodology for evaluating transportation demand management strategies exists at the national level. But Canada and Europe have developed common methods and approaches that may provide a roadmap.

Experts say transportation demand management strategies to tell its story because it is multi-faceted and multi-jurisdictional. But that, combined with the popularity of many management initiatives, may also be its greatest strength. The more ingrained these principles are across multiple agencies and the more buy-in for the programs amongst partners in communities across the state, the harder it will be to dismantle the programs.

Demand management proponents also have a number of strong arguments to use in their messaging about the programs, arguments that could resonate well even in an era of budget cuts. Management programs reduce the need for more and wider roads, make the most of existing transportation assets and maximize the return on infrastructure spending, for example.

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Oregon’s Department of Transportation encourages land use that is supportive of transportation demand management, while the state departments of transportation in Massachusetts and Vermont provide grants and technical support for demand management-supportive land use.

As state governments develop and plan major state transportation projects, they can make sure demand management strategies are part of the discussion—things like HOV and HOT lanes on highways or accommodations for bicyclists on transit. Transportation analysts note that while specific strategies might have only modest impacts, the cumulative impact of a program that includes many different strategies can be substantial and synergistic. So it is important to plan and evaluate overall programs rather than the individual strategies.29

Demand management strategies are unlikely to solve all of the nation’s congestion, air quality and other transportation problems by themselves, regardless of the number of strategies employed or the varied combinations around the country.

But clearly, transportation demand management programs and the strategies of which they are comprised hold significant promise for helping state governments meet their transportation needs in more sustainable, more efficient and more cost-effective ways.
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