State Department of Transportation Role in the Implementation of Transportation Demand Management Programs

DETAILS

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STATE DEPARTMENT OF TRANSPORTATION ROLE IN THE IMPLEMENTATION OF TRANSPORTATION DEMAND MANAGEMENT PROGRAMS

This digest presents the results of NCHRP Project 20-65 Task 24, "State Department of Transportation Role in the Implementation of Transportation Demand Management Programs." The research was conducted by ICF International, Fairfax, Virginia. Kathleen Rooney and Michael Grant were the Principal Investigators.

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CHAPTER 1 BACKGROUND

Transportation demand management (TDM) strategies have long played an important role in helping commuters get to work and in improving air quality in metropolitan areas. TDM focuses on strategies to reduce congestion by shifting transportation demand to alternatives to single occupancy vehicle (SOV) use, shifting travel out of the peak period, or shifting it to less crowded facilities.

While we are accustomed to seeing local and regional jurisdictions actively promote TDM strategies, current and emerging challenges facing the transportation system are putting more emphasis on the value of statewide efforts focused on TDM. Traffic congestion continues to challenge urban areas of all sizes across the country. According to the Texas Transportation Institute's Urban Mobility Study, congestion has increased in urban areas of all sizes over the past 20 years, and with more roads experiencing congestion over more hours of the day.[1] Limited transportation funding is putting more emphasis on optimizing transportation system performance and implementing near-term, cost-effective solutions to "squeeze the most" out of our existing transportation system. Increased road capacity may ease congestion temporarily, but this strategy is not a sustainable solution to reducing congestion in the long-run. Moreover, new infrastructure takes a long time to plan and implement, and it is often disruptive to communities.

Managing travel demand offers the potential to improve the efficiency of our transportation system in ways that more rapidly and cost-effectively address traffic congestion issues. In addition, TDM strategies offer the potential to address non-recurring events, such as weather conditions (e.g., snow, ice, or rain); work zones; special events; and major incidents and emergencies, which are estimated by Federal Highway Administration (FHWA) to be responsible for over one-half of all traveler delay.[2]

The objective of this research task was to examine TDM programs nationwide to

[1] Texas Transportation Institute., *Urban Mobility Report 2009,* press release. http://mobility.tamu.edu/ums/media_information/press_release.stm, accessed 12/9/2009.

[2] Federal Highway Administration, *Traffic Congestion and Reliability: Trends and Advanced Strategies for Congestion Mitigation.* http://ops.fhwa.dot.gov/congestion_report/chapter2.htm, accessed 12/7/2009.

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identify examples of successful implementation and support of TDM programs by state departments of transportation (DOT) and to disseminate this information to practitioners as a primer for states to use in implementing TDM programs. Key elements include a survey of state DOTs to determine their role in TDM programs and a set of case studies illustrating the different roles that state DOTs can play to encourage TDM. This report includes the following sections:

- A summary of results and research findings from the nationwide survey and the five case studies.
- A primer on TDM based on the research.
- The results of the nationwide survey.
- A set of case studies, detailing the wide range of ways that state DOTs encourage TDM services.

This research will help states interested in incorporating TDM strategies into a variety of programs and plans to understand the potential roles of state DOTs and the breadth and depth of TDM options.

CHAPTER 2 SUMMARY OF RESEARCH FINDINGS

This section includes a summary of the survey and the case studies, as the direct results of these research activities. The survey shows the breadth of state DOT activities regarding TDM, whereas the case studies are in-depth and detailed investigations into specific TDM activities.

Survey Results

Based on an extensive outreach effort, the research team conducted a nationwide survey of state DOTs.[3] The underlying aim of the survey was to identify national trends regarding the roles that state DOTs play with TDM and to evaluate the breadth of their TDM-related activities. The research team secured responses from 42 states, equaling an 82 percent response rate.[4] Thirty-nine state DOTs (over 90 percent of respondents) indicated that their agencies play a role in TDM. The most commonly identified role (43 percent) was the use of TDM on project-level activities, such as construction projects. The second and third most common TDM roles were to fund local organizations focused on TDM, such as local jurisdictions or Transportation Management Associations/Transportation Management Organizations (TMAs/TMOs) (38 percent), and to provide technical assistance to local TDM organizations (36 percent). It is also important to note that over one-half of the state DOTs that fund local organizations focused on TDM provide technical assistance to them as well. Both of these roles are decentralized approaches to TDM, illustrating that the most common state DOT role, outside of project-based TDM, is a guiding/funding role to local organizations. Seventeen state DOTs with a role in TDM reported that the state is considering changing its role toward TDM (approximately 45 percent of those with a role in TDM). The large number of state DOTs already actively considering a change in role indicates that states are interested in learning more about opportunities, benefits, and options for programs.

All respondents were asked to identify whether or not the state DOT encouraged specific TDM-oriented activities (e.g., bicycling, congestion pricing). The most common activities reported were carpooling, bicycling, promotion of transit use, vanpooling, and walking (all reported by at least 33 states). The least common activities reported were support for pay-as-you-drive insurance, parking pricing and management, and congestion or road pricing (all reported by five or fewer states).

The majority of state DOTs indicated that TDM responsibilities are located in the planning division or planning department at the DOT. Other state DOTs either identified the public transportation division or indicated that TDM is spread across multiple divisions. The remaining agencies reported that TDM is located in the operations division, project development department, or at another state agency. The few state DOTs that did not identify a role in TDM explained that their states are too rural, so congestion is not a serious enough problem to justify additional staffing or funding to address TDM at the state level.

Case Studies

The results of the survey helped the researchers to identify possible case study candidates for more

[3] Through this outreach strategy, the team was able to identify and confirm contacts for 49 states and the District of Columbia. While the research team was unable to confirm a contact in Texas, the team did send the survey to potential contacts, but did not receive a response.

[4] For the purposes of this survey, the total potential survey response is 51 (50 states plus the District of Columbia).

in-depth research. The purpose of the case studies was to examine several different examples of state DOTs' roles in TDM. A large part of this task was to understand what the challenges and benefits were to the specific types of TDM approaches at the statewide level. The research team evaluated and analyzed the nature of the programs described in the survey in order to narrow the selection of states for further study, based on geography and the type of state DOT role in TDM. Using these criteria, the research team identified five state DOTs for further review as case studies. Table 1 illustrates the diversity of the case studies, following a summary of each case study.

Massachusetts

Massachusetts Department of Transportation (MassDOT) was restructured this year according to the governor's transportation reform plan, and it manages a $3.5 million statewide travel options program, MassRIDES. MassRIDES recently established a Memorandum of Understanding (MOU) with MassCommute, the private association of TMAs, to avoid duplication and streamline TDM services in the Commonwealth. Consequently, the TMAs and MassRIDES will soon be using a single ridematching system, and will cross-promote one another during outreach. Though MassDOT does not control the TMA work plans, MassDOT has been able to form a cooperative relationship with the association of TMAs to ensure coordination toward common goals. This continued coordination between the state DOT and the TMAs can help to improve all TDM programs statewide.

New Jersey

Through a cooperative relationship with eight TMAs, New Jersey DOT (NJDOT) manages a statewide TDM program that provides localized support for all counties in the state. The TMAs tailor their messages to their service areas, but all implement two DOT programs—Smart Workplaces for Commuters and Carpooling Makes Sense. With an annual budget of $10 million, $9 million of which is designated for the TMA program, NJDOT guides the TMA workplans to align with the department's TDM goals. Those goals are to develop new strategies, incentives, and pilot programs to reduce vehicle miles traveled (VMT) and improve air quality, and to expand the state's park-and-ride system to encourage more multimodal trips. Both of these goals will be broadened as NJDOT completes its first department-wide TDM Strategic Plan next year. New Jersey's program has benefitted from its formal definition of TDM goals, which helps to establish an agency-wide consensus that TDM strategies ought to be incorporated into projects and planning within the department.

Table 1 Summary of case studies

State	U.S. Region	TDM Challenge	Nature of State's TDM Program	State DOT Role
Massachusetts	Northeast	Congestion coupled with limited expansion ability	Statewide travel options program and central TDM clearinghouse	Centralized
New Jersey	Northeast	Congestion in a high density state	TMA program with full state coverage	Centralized
Georgia	Southeast	Congestion and air quality with very little transit access	Employer Services Organizations	Mixed
Utah	Mountain West	Congestion, air quality and energy reduction	Marketing and grassroots community outreach	Mixed
California	West	Congestion attributed to non-work travel, as well as land use challenges in a large, diverse state with dramatically different transportation options	Metropolitan Planning Organization (MPO)-based authority	Decentralized

Georgia

Georgia Department of Transportation's (GDOT's) employer services organization approach, which includes nine TMAs and The Clean Air Campaign (CAC), provides TDM services statewide with a focus on air quality in addition to congestion. Originating as a metro Atlanta program, in part due to a *Framework for Cooperation* established with the Atlanta Regional Commission and Georgia's Environmental Protection Division, GDOT's TDM program recently expanded statewide. The comprehensive program, with a budget of $13 million, now offers commuter financial incentives – Commuter Rewards – as well as ridematching and guaranteed ride home (GRH). GDOT funds and oversees the TDM program, but works closely with the Framework partners to guide and develop the activities of the employer services organizations.

Utah

Leveraging a 6-week commuter challenge called Clear the Air Campaign, the Utah Department of Transportation (UDOT) recently launched a statewide TDM program, TravelWise, that builds on the intersection of energy reduction, congestion reduction, and air quality improvements. The $1.5 million program evolved out of the governor's interest in reducing energy consumption, which has become well recognized through the state's adoption of a compressed work week. The state does not have TMAs and instead is focusing on partnerships with community organizations, private businesses, and government offices, to build its network and expand its TDM services, along with the Utah Transit Authority. TravelWise will serve as a statewide brand, as well as offer a clearinghouse of information and technical assistance for TDM activities. Utah's program has benefitted from political support to reduce energy consumption in the state, as well as its network of partnerships. Additionally, its statewide brand will help with name recognition as it strives to become the clearinghouse for TDM information.

California

California DOT (Caltrans) has a decentralized approach to TDM in which the state sets TDM goals, but the authority to implement those goals rests mainly with local government and Metropolitan Planning Organizations (MPOs). At one time, Caltrans did fund and manage a statewide TDM program, but those responsibilities were devolved to local government by order of the governor at the time. Nonetheless, Caltrans has established a precedent of incorporating TDM into projects, such as construction mitigation, and has additionally developed an Intelligent Transportation System (ITS) that helps to guide TDM activities in the state. Caltrans has incorporated a TDM objective into its *Strategic Plan 2007–2012* to reduce the share of commute trips made by SOVs by 5 percent from 2005 levels by 2012.[5] Caltrans' decentralized model allows for regionally tailored solutions, led by the MPOs and local governments.

As a result of the survey, the research team also developed several miniature profiles of interesting state TDM practices. Many of these are discussed in the primer, and include practices from the following states:

- **Arizona DOT:** Integrates TDM into projects and manages a state employee ridematching program called Capitol Rideshare.
- **Delaware DOT:** Requires and enforces traffic mitigation agreements, which include TDM requirements. The respondent emphasized how their program has "teeth."
- **Minnesota DOT:** Funds local TMAs but also has a TDM coordinator for all non-MPO areas, meaning the state TDM person is responsible for rural, decentralized TDM strategies.
- **Mississippi DOT:** Analyzes the best ways to integrate TDM for rural traffic to reduce SOV travel.
- **New York State DOT:** Uses a hybrid approach by managing a comprehensive statewide program and concurrently overseeing a regional-based support model to local TMAs/TMOs.
- **Pennsylvania DOT:** Promotes trip chaining through a state air quality program.
- **Virginia DOT:** Contributes funds to the Telework!VA program to provide incentives for employers to set up telework programs.
- **Washington State DOT:** Funds a new telework pilot project in Kitsap County and subsidizes vanpools.

From these research activities, the research team has created a primer in the next section. The details

[5] California Department of Transportation, *Caltrans Strategic Plan 2007–2012*. http://www.dot.ca.gov/docs/StrategicPlan2007-2012.pdf, accessed 12/16/2009.

of the survey are available in Chapter 4. The aforementioned case studies are available in more detail in Chapter 5.

CHAPTER 3 PRIMER

Based on the results of the survey and the case studies, the research team has identified several TDM trends as they relate to state DOTs. Many of these help to provide insights and a national perspective on successful strategies and roles taken by state DOTs to support and implement TDM programs. Drawing on these, this primer is a resource for state DOTs to implement TDM programs or improve existing TDM programs.

What Is Transportation Demand Management (TDM)?

Transportation demand management (TDM) focuses on strategies to reduce congestion by:

- Shifting demand to alternatives to SOVs, such as carpooling, vanpooling, transit, walking, bicycling, or telecommuting;
- Shifting travel out of the peak period, such as through flexible schedules, compressed work weeks, or congestion pricing; or
- Shifting travel to less congested facilities, such as through providing traveler information systems that warn motorists about delays.

For example, DOTs have implemented High Occupancy Vehicle (HOV) lanes to encourage carpooling, developed commuter choice programs to promote employer-sponsored transit benefits programs, and developed marketing campaigns to spread the message about ridesharing and/or consolidating trips. TDM programs usually involve a number of these types of strategies.

Although TDM programs have traditionally focused on commute trips, TDM strategies can be used for a wide range of trip types, including travel to school, shopping, and recreation sites. Moreover, TDM strategies can be used not only to respond to recurring congestion problems, but also for special events and to respond to traffic incidents, poor weather conditions, and emergency situations by helping travelers make more informed choices. TDM strategies can also be known as travel options, mobility management, or travel choices.

Why Should State DOTs Be Interested in TDM?

State DOTs are facing a wide variety of transportation issues that TDM can help address. Some of these issues include:

- Environmental concerns such as air quality and climate change;
- Transportation concerns, such as traffic congestion, system efficiency and reliability, and the high cost of constructing facilities to accommodate demands;
- Quality of life issues, such as excessive commuting times, the costs of energy and transportation services, and supporting more livable communities; and

TDM and Emerging Transportation Issues

TDM can also be applied to non-traditional areas of transportation activities. Transportation staffs often believe that traffic congestion is an "urban" issue, which is true, but increasingly traffic congestion and the other motivating forces for TDM apply to other areas. This means that TDM has broader applications, such as for rural areas, to address incident management issues, for special events, in transportation operations, and in work zone/construction management.

Mississippi DOT has invested in studying the best ways to integrate TDM for rural traffic to reduce single occupancy vehicle (SOV) travel. Mississippi DOT recently released a study of the feasibility of ridesharing as a practical, efficient alternative to SOV commuting; it concludes that the state has all the elements needed to make a successful ridesharing program. The report recommends the acquisition of ridesharing software, presents a prioritized list of possible ridesharing pilots, and discusses potential park-and-ride locations.[6]

In addition, Minnesota DOT funds local TMAs but then also has a TDM coordinator for all non-MPO areas, meaning that the state TDM person is responsible for rural TDM strategies.

[6] Strategies for Ridesharing Report, August 2009, prepared by ABMB Engineers for Mississippi DOT, provided via email by Al Brantley, Mississippi DOT, on 9/16/2009.

- Public service/good issues, such as meeting older seniors' transportation demands.

In response to these issues, TDM is increasingly an attractive choice, providing multiple benefits including reduced congestion; cost savings (road/facility, user, emergency incidents, and gas); reduced pollution; and more efficient land use.[7]

Moreover, TDM may be very cost-effective in achieving multiple objectives. In addition to including TDM programs as a specific transportation strategy in the statewide long-range transportation plan,[8] the State of Georgia commissioned a study that found that implementing a package of aggressive TDM strategies would yield 100 times more value in congestion reduction than a similar investment in new transportation infrastructure.[9] In Massachusetts, increasing system capacity is not really an option–the road network is very mature and the public has very little desire for large-scale transportation projects, so demand management is seen as essential. In fact, all five of the state DOTs profiled as case studies highlighted TDM as a major strategy in their long-range transportation plans, citing multiple cost, transportation, environmental, and quality of life reasons.[10]

Significant motivating forces for TDM programs varied somewhat among the case studies. For instance, in Massachusetts, congestion was identified as a primary motivator, given the large increase in vehicle miles traveled coupled with limited ability to expand infrastructure; in Georgia, air quality was a key focus, given the non-attainment issues in the Atlanta metro area; and in Utah, energy reduction goals of the former governor were a motivation. However, common themes include congestion (commuting times and transportation system efficiency); environmental concerns (air quality, climate change, and energy issues); and infrastructure constraints.

What Are the Potential Roles of State DOTs in TDM?

State DOTs can play many different roles in providing TDM services to residents and these roles are not mutually exclusive. Some potential roles are listed in the following discussion.

Administering TDM Services

This role focuses on the provision of TDM services and programs, such as ridesharing or encouraging alternative modes through program incentives. These activities focus on the programmatic side of TDM services, such as offering assistance to employers in setting up worksite programs, maintaining ridematching databases, offering transit incentives, or providing a GRH program. Both the survey responses and the case studies illustrate kinds of TDM services provided by state DOTs. The most common TDM services include those to support the following activities:

- Bicycling (95 percent)
- Carpooling (88 percent)
- Transit Use (83 percent)
- Vanpooling (80 percent)
- Walking (80 percent)
- Ridematching (68 percent)

It is also important to note that state DOTs offer or support several other strategies in significant percentages as well (approximately 40 percent): commuter financial incentives, employer-based TDM programs/outreach, HOV lanes/priority, special event planning, TDM marketing, telecommuting, and transit-oriented development. These findings also match the results from the case studies, shown in the matrix of Table 2, illustrating the modes and programs state DOTs encourage.

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[7] Victoria Transport Policy Institute, *Online TDM Encyclopedia.* http://www.vtpi.org/tdm/index.php, accessed 12/07/2009.

[8] Georgia Department of Transportation, *Georgia 2005–2035 Statewide Transportation Plan.* http://www.dot.state.ga.us/INFORMATIONCENTER/programs/transportation/Pages/swtp.aspx, p. 16.

[9] Clean Air Campaign, *Advertising and Marketing RFP Supporting Promotional Materials.* http://www.cleanaircampaign.org/About-Us/Requests-for-Proposals/Advertising-and-Marketing-RFP. Accessed 10/22/2009

[10] Statewide and Long Range Transportation Plans: Massachusetts Long-Range Transportation Plan, http://www.eot.state.ma.us/default.asp?pgid=content/longplanIndex&sid=level2; You Move Massachusetts, February 2009 Interim Report, http://youmovemassachusetts.org/; UDOT'S Long Range Transportation Plan 2007-2030, http://udot.utah.gov/main/f?p=100:pg:0:::1:T,V:1843; UDOT Unified Transportation Plan, http://udot.utah.gov/main/f?p=100:pg:0:::1:T,V:1843; NJDOT Transportation Choices 2030, Public Discussion Draft, http://www.state.nj.us/transportation/works/njchoices/; California Transportation Plan 2025, http://www.dot.ca.gov/hq/tpp/offices/osp/ctp.html; and Georgia 2005-2035 Statewide Transportation Plan Update, http://www.dot.state.ga.us/INFORMATIONCENTER/programs/transportation/Pages/swtp.aspx.

Table 2 Main strategies supported in case studies

	MA	NJ	GA	UT	CA
Bicycling	X	X	X	X	X
Carpooling	X	X	X	X	
Commuter Financial Incentives	X	X	X		
Employer-based TDM Programs/ Outreach	X	X	X	X	
HOV Lanes/ Priority	X	X	X	X	X
Ridematching	X	X	X	X	
Special Event Planning	X		X	X	
TDM Marketing	X	X	X	X	
Telecommuting	X	X	X	X	
Transit-Oriented Development	X	X	X		X
Transit Use	X	X	X	X	X
Vanpooling	X	X	X	X	
Walking	X	X	X	X	X

An example of one of these services is the Virginia DOT's efforts to support teleworking. Virginia DOT contributes funds to the Telework!VA program to provide incentives for employers to set up telework programs. Telework!VA is a public/private partnership founded by the Department of Rail and Public Transportation that was launched to reduce the number of commuters on Virginia's roadways. It helps companies attract and retain productive employees, reduce employee absenteeism, and lower operational and recruitment expenses. With help from Virginia DOT's funds, Telework!VA offers up to $35,000 to help start a new telework program. Eligible businesses must demonstrate commitment to a long-term program, willingness to invest in planning and staff resources to sustain a program, and ability to establish a schedule of milestones. Types of eligible expenses include equipment lease, technical or consultant assistance, and telework space leases. In addition to the funding, Telework!VA offers e-learning tools for companies interested in learning more about establishing telework policies, launching a pilot program, and determining appropriate equipment.[11]

Conducting Marketing

This role focuses on providing a statewide level of support for TDM marketing, helping to provide information about alternatives to SOVs. This can span from having a statewide brand for TDM, such as UDOT's TravelWise program, to running a full-fledged TMA program with marketing responsibilities, such as NJDOT. TDM marketing in Georgia is one of the factors for its program success, using reliable performance metrics to pitch its messages to the public. For example, CAC boasts an annual reduction from commute alternatives:

- 16 million car trips eliminated from metro Atlanta roadways.
- More than 200,000 tons of pollution not released into the air.
- More than $156 million estimated in reduced commute costs.
- $30 million estimated in health related costs savings due to improved air quality.[12]

For the most part, this role focuses on changing travel behaviors through informed decision making and public education. The most effective TDM marketing programs involve a variety of partners within a community, including public officials, community organizations, and individuals who support transportation alternatives. Some activities include surveying users of alternative modes, creating targeted personalized marketing campaigns, and providing travel options education/travel guides.

Funding Investments in Travel Options

This role focuses on the provision and direct support for the infrastructure for travel alternatives. This can span many different programs, such as carsharing, park-and-ride, HOV, and bicycle and pedestrian infrastructure. Many states use federal funding from the Congestion Mitigation and Air Quality Improvement (CMAQ) program, as well as other funding sources, for these investments.

[11] Telework!VA, http://www.teleworkva.org/Default.aspx, accessed 10/20/2009.

[12] The Clean Air Campaign Press Kit, http://www.cleanaircampaign.org/For-the-Press/Press-Kit, accessed 10/22/2009.

Although many of the activities occur separately from the statewide TDM program, the TDM program activities can help to identify investment needs and define the most effective infrastructure improvements. For example, MassDOT uses the infrastructure assessment in its Safe Routes to School program to identify and fund these travel option improvements, such as a ramp to a bike trail in Northampton. Both UDOT and NJDOT work in partnership with their transit authorities (Utah Transit Authority and NJ Transit, respectively) on efforts to improve access to transit.

Enforcing and Providing Technical Assistance to Meet Regulations

This role focuses on the statutory requirements/regulatory authority that a state DOT may have regarding TDM regulation, such as enforcing commuter trip reduction programs, traffic mitigation plans, and environmental agreements. One example is how Delaware Department of Transportation (DelDOT) helps the New Castle County government analyze and review TDM measures with respect to Traffic Mitigation (TM) Agreements.[13] Applicants (employers, developers, property owners) are required to carry out trip reduction/TDM measures in connection with proposed developments. DelDOT coordinates specifically with the local government's Department of Land Use when negotiating TM Agreements. TM Agreements traditionally include trip reduction measures (at a minimum, no more than 85 vehicles per 100 employees may arrive during the morning peak traffic period or depart during the evening peak traffic period), as well as contingent trip reduction measures. Applicants must contract with a third-party auditor (supervised by DelDOT) to audit the applicant's progress on implementation of the specific TDM measures annually and to evaluate the effectiveness of the measures in achieving trip reduction goals. DelDOT maintains a role of monitoring the implementation of all trip reduction efforts and TDM measures, and enforcing negotiated agreements jointly with New Castle County government. The compliance audits and enforcement measures embody the "teeth" of this requirement.[14]

Integrating TDM into Operations

States may consider integrating demand management into operations, such as traveler information, incident/weather management, special events management, and ITS. These programs and information systems and technology allow travelers to make better decisions about how, when, where, and whether or not they travel.

As an example, Caltrans uses advanced traffic signals, roadway and weather monitoring stations, bus location systems, and electronic roadside information signs as part of its ITS infrastructure.[15] In terms of managing or shifting demand, these ITS tools help Caltrans to handle transit and freeway management, traffic signal control, and electronic toll collection, and to respond to non-recurring congestion.[16] Caltrans has many examples of how its ITS measures are working, such as how drivers changed or alerted a route or travel plan based on information provided on variable message signs. For example, in Los Angeles, a survey of motorists found that 78 percent of respondents changed their routes based on information provided by Caltrans ITS' automated work zone information system.[17] Caltrans' ITS program is conducting analysis using highway monitoring data to help evaluate demand according to a variety of factors, including the time of day, day of the week, weekend versus week day, holiday versus non-holiday. This information can help to advance effective approaches to manage travel demand, including strategies that address non-work trips, not just traditional commute trips.[18]

[13] *DelDOT and NCC Guidelines Regarding Development of, Compliance with, and Enforcement of Traffic Mitigation Agreements,* provided via email from Daniel LaCombe, Delaware DOT, on 9/15/2009.

[14] NCHRP 20-65-24 Delaware Survey Response, submitted 8/12/2009.

[15] California Department of Transportation, *Statewide ITS Architecture: What is ITS,* http://www.dot.ca.gov/hq/tpp/offices/opar/CAarchitecture/What_is_ITS.htm, accessed 11/14/2009.

[16] *Electronic Toll Collection,* Caltrans ITS, http://www.dot.ca.gov/hq/tpp/offices/opar/CAarchitecture/Archive/its-elements.pps#275,10,Electronic%20Toll%20Collection, accessed 11/14/2009.

[17] Research and Innovative Technology Administration, *ITS Lessons Learned Database,* http://www.itslessons.its.dot.gov/its/benecost.nsf/ID/A70ADBCAC89456AE85257260006E4D77?OpenDocument&Query=State, accessed 11/14/2009.

[18] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans, 10/14/2009.

Integrating TDM into Project Planning and Development

TDM may be integrated into project planning and development. These efforts may include further consideration of multimodal options, such as bicycling, walking, and transit, within the development of the project and design. For instance, inclusion of bicycle lanes and sidewalks, design of intersections to accommodate pedestrian crossing, and consideration of transit service and bus stop locations can be conducted in designing a project. In addition, construction mitigation for projects with significant impacts may include TDM efforts, such as informing the public about travel options, implementing new transit services, or promoting ridesharing or alternative trip times.

Linking with Other Programs

PennDOT furthers TDM through its promotion of trip chaining—combining trips and errands into one trip so that catalytic converters do not cool off—through a state air quality program.[19]

As an example, TDM is often considered in the project planning phases at Caltrans. TDM is usually incorporated within project development during the project initiation phase. During the initiation phase, a project team is assembled to develop a Project Initiation Document that identifies the project scope, schedule, and cost estimate. It is at this point that the initial decision would be made about whether or not any TDM measures need to be incorporated. Refinement of the plan, if needed, would occur at the next stage, the Project Approval and Environmental Document.[20] As another example, UDOT created a construction mitigation and TDM brochure for practitioners to bring to project stakeholders.

Integrating TDM into Internal Business Practices

Another way for a state DOT to be a promoter of TDM is as an employer itself, supporting commute options programs for its own employees. For instance, Arizona DOT manages Capitol Rideshare, a state employee ridematching program that offers a variety of incentives to share rides. The program is operated by the Department of Administration's Office of Travel Reduction Programs. The program is funded by FHWA, Maricopa Association of Governments, and the Department of Environmental Quality. Capitol Rideshare offers a transit subsidy, rideshare parking permits, free emergency rides home, and an excellent discount program. An online Share the Ride database provides a list of people with matching commutes, and anyone using an alternative mode of transportation at least twice a week is eligible for an incentive program.[21]

How Can State DOTs Organize Efforts to Advance TDM?

As a result of these different roles in TDM, state DOTs can choose to organize these efforts according to their specific needs. One way is to have a fully centralized program, in which the state provides most TDM services statewide. The other end of the spectrum is to be completely decentralized in which all TDM services are devolved to local government. This devolution does not imply an absence of state DOT involvement in TDM, but it does imply the lack of regulation/statewide standardization across TDM programs. The survey and the case studies presented in this digest represent the full spectrum of possible ways to organize a TDM program. No single way is preferred nationwide; approximately 38 percent of states fund local organizations that focus on TDM, 21 percent fund/manage a statewide program, 36 percent provide technical assistance to local TDM organizations, and another 21 percent engage in all of those activities.

Centralized

A fully centralized program is one that provides most TDM services statewide, with a high level of direct oversight or management from the state DOT. NJDOT operates a centralized TDM program through its high-level management of the TMAs. MassDOT is similarly very centralized due to its statewide provision of TDM services through MassRIDES.

[19] Email from Michael Baker, PennDOT, 9/24/2009.
[20] Follow-up email from Tom Neumann, 12/3/2009.
[21] *Capitol Rideshare,* http://www.capitolrideshare.com, accessed 10/20/2009.

Vermont State Agency of Transportation runs Go Vermont, the statewide ridematching program, which features a carpool/vanpool matching service, ridesharing tips, and other practical information for reducing the cost and environmental impact of driving.[22]

Decentralized

A completely decentralized program is one in which all TDM services are devolved to local government, meaning a lack of regulation/statewide standardization across TDM programs. Caltrans is a completely decentralized model, meaning a complete devolution of TDM authority and responsibility to the MPOs. However, the state DOT does play a very practical facilitator role to assist the MPOs in coordinating their services, including ITS and funding experimental pilot projects in TDM.

Hybrid Approach

Another option is a hybrid approach, in which the centralized approach is one tier of TDM activities and the regional and local programming is another. New York State DOT takes this approach, as described in the box. GDOT and UDOT operate statewide programs, but historically the TDM focus has been in one congested corridor/region, meaning their programs mimic a regional-based program in implementation.

Hybrid of Regional and Local Programming

New York State DOT (NYSDOT) uses a hybrid approach to TDM by managing a comprehensive statewide program and concurrently overseeing a regional-based support model to local TDM organizations' TMAs. NYSDOT's two primary strategic program initiatives are the Metropolitan New York Commuter Choice Integrated Service Delivery Program, and the Strategic TDM and Commuter Choice Operations and Service Planning (individual project initiatives having statewide significance). For the Integrated Service Delivery program, NYSDOT funds the operation of three TMAs; each TMA receives funding from the state, but designs, implements, and locally manages its own TDM program with guidance from the Regional Mobility Manager. For the Service Planning initiatives, NYSDOT provides funding for individual project initiatives of statewide significance. NYSDOT's vision is to develop an enhanced program that results in 'Working Smarter, Not Harder' as it develops and measures traveler and commuter response to TDM and Commuter Choice initiatives. To meet this vision, NYSDOT utilizes outside-the-box thinking that streamlines strategy development.[23]

Role within the DOT

Another dimension to consider is how the state DOT chooses to integrate its TDM responsibilities/programs into its larger organizational structure. The most common situation is to house TDM as part of a planning division/department, which is the case in approximately 45 percent of all respondents, and then as part of the public transportation division, which is the case for approximately 18 percent.[24] However, an additional 18 percent house TDM across multiple divisions in their agency.[25] All of our case studies housed their TDM programs in planning, except for Caltrans (which was across multiple departments). In these cases, housing responsibility means where the primary responsibility is for TDM; this does not necessarily mean that other departments are uninvolved in TDM.

Role with Local Organizations

Additional variability appears in how the state DOTs relate to the local transportation organizations in delivering TDM services; these include cities, counties, TMAs, MPOs, and other local private organizations. As mentioned previously, when state DOTs aim to deliver TDM services/support to local organizations, they also very frequently provide technical assistance. MassDOT has a cooperative relationship with its TMAs, whereas NJDOT has an oversight and strategic vision that the TMAs support. GDOT, for the most part, does not directly oversee its TMAs, but the MPO for the Atlanta region does. UDOT does not have any TMAs, and localized outreach and promotion is done by the Utah Transit Au-

[22] Email from Scott Bascom, Vermont Agency of Transportation, 9/18/2009.
[23] NCHRP 20-65-24 New York Survey Response, submitted 8/19/2009.
[24] Only 38 states responded to this question.
[25] Only 38 states responded to this question.

thority. Similar to California, West Virginia DOT stated in the survey that they encouraged their MPOs to incorporate TDM into their activities.

What Are Some Implementation Steps or Tips for State DOTs?

Based on our research, we identified several strategies for starting or improving a statewide TDM approach. Not all of these will apply to all states and their circumstances, but they can be improvements to consider.

Create a Department-level Strategic Plan for TDM

Developing a strategic plan for TDM helps sets the stage for more formal adoption of TDM strategies department-wide. These sorts of strategic plans can guide the goals and policies of a DOT pursuing TDM strategies, and help to formalize the process. A strategic plan typically includes goals, objectives, strategies, and performance metrics. NJDOT is currently developing a TDM Strategic Plan to capitalize on relatively new topics in TDM, such as school-age outreach and assistance to disabled populations.[26] Some other items for consideration in the strategic plan include looking at ways to improve access to transit for seniors, reaching out to underserved areas in the counties (such as more rural areas), and improving bicycle and pedestrian safety.[27] Over the next year, NJDOT staff, as well as external stakeholders from NJ Transit, metropolitan planning organizations, and businesses, will discuss how best to help NJDOT determine how and where to invest its TDM funds.[28] By linking in department goals and evaluation metrics, the strategic plan will assist the department in making decisions for the state about which strategies to pursue.[29]

Other states, like GDOT, engaged a multi-agency stakeholder group to develop a strategic plan, called *A Framework for Cooperation to Reduce Traffic Congestion and Improve Air Quality,* which essentially functions as the DOT's TDM strategic plan. The Framework was designed by a variety of organizations, including GDOT, Georgia Environmental Protection Division (EPD), Georgia Regional Transportation Authority (GRTA), nine TMAs, the Atlanta Regional Commission (ARC), and CAC—a not-for-profit travel options program. The Framework guided the expansion of TDM services in Georgia and continues to serve as a living document that is meant to be revised and updated according to the needs of the region.

Match Your TDM Message to Your TDM Challenges

While there are a number of common messages that are often promoted within TDM programs, there is no cookie-cutter approach to understanding TDM motivating forces and creating the right TDM messaging. Each state has its own unique geography and transportation challenges. TDM initiatives represent an opportunity to tailor messaging to address these unique challenges and concerns. In Georgia, air quality has been a very important issue, because of non-attainment area status. As a result, GDOT's marketing materials stress that challenge, focusing on what Atlantans can do to improve air quality. At MassDOT, the focus is on traffic congestion through MassRIDES, emphasizing the travel time lost and quality-of-life degradation. At UDOT, new programs are pitching energy conservation, because this message appeals to the residents of Utah. In New Jersey, the message is further refined within each TMA, tailoring each TMA's workplan to the specific local needs. As a fundamental component of the NJDOT TMA program, this approach allows for marketing to be targeted based on development context issues (i.e., urban, suburban, and rural). Although many of these motivating forces are similar, it is important to make sure the TDM messages match the concerns of residents; these concerns may differ by state and the various conditions of individual metropolitan areas or sub-areas.

Leverage Smaller, Targeted Practices as First Steps

Around the country, the foundations of strong TDM programs have been built around small pilot initiatives and small successes. DOTs often start TDM programs modestly, and then build and tweak. Some DOTs use TMAs and/or TDM organizations as incubators for TDM strategies. Some even provide annual funding for innovative programs to stimulate outside-of-the-box thinking. Many of the programs started with simple vanpool or employer outreach programs, such as New Jersey's nascent employer trip reduction program growing into its TMA program today. Others are using targeted campaigns to

[26] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[27] Phone interview with Lori Diggins, Consultant, 10/21/2009.
[28] Phone interview with Lori Diggins, Consultant, 10/21/2009.
[29] Phone interview with Lori Diggins, Consultant, 10/21/2009.

try out new marketing techniques such as Cash for Commuters in Atlanta, which started as an experimental campaign. UDOT leveraged a 6-week commuter challenge to help launch its TravelWise brand as a permanent TDM clearinghouse.

Start or Support a Vanpool Program

Vanpools are ideal TDM programs to initiate and support, and perfect for suburban travelers with longer commutes of 15 miles or more. Vanpool leasing agents and providers are well versed in tracking participants and VMT reductions and can guide DOTs and TDM organizations in the ins and outs of funding mechanisms. Vanpool programs are effective in that they reduce significant VMT while filling the gaps in public transit. In many cases, such as in New Jersey and Utah, vanpools are the longest running components of their well-established programs.

Vanpool Incentives

Washington State DOT (WSDOT) funded a new telework pilot project in Kitsap County, which resulted in the creation of a comprehensive online Telework Toolkit for employers and employees. The project also developed a Community Template to help local organizers launch telework efforts in their area.[30] Furthermore, WSDOT's subsidy of the statewide Vanpool Investment Program, established in 2003 to guide vanpool program development and manage vanpool grants, has helped transit agencies almost double their vanpool ridership.[31] Part of the I-405 Kirkland Nickel Stage 1 Widening Project utilizes this TDM vanpool strategy, which has reduced an estimated 65,500 to 101,100 annual one-way trips from March 2006 through October 2007.[32]

Leverage the Value of "Feet on the Street"

The "feet on the street" are the people that are going to carry TDM messaging to the communities. They are the "sales force" that promotes travel options, builds partnerships, educates the public, and motivates them to change travel behaviors. The "feet on the street" are the key to networking, and can help identify champions among the public and business communities to take the message further and carry your cause. This allows for the program to become "viral," as the champions and partners help deliver the TDM message and sustain the outreach strategies through word-of-mouth, partner websites, speaking opportunities, and events and mailings. In many states, such as New Jersey, TMAs function in this role. In Georgia and Utah, it is a combination of local organizations (for example, TMAs and the transit authority). In California, this component is completely controlled by the MPO.

Consolidate Ridematching with One Vendor If There Are Multiple Transportation Management Associations (TMAs)

Given scarce fiscal resources, having one ridematching system is often more efficient than having multiple ridematching systems in the same area. MassDOT has recognized this and embraced a consolidated ridematching system with the state's TMAs. Through the new MOU between MassDOT and MassCommute, the statewide association of TMAs, this partnership aims to streamline and improve cooperation for TDM services in the Commonwealth, where a single statewide ridematching system is integral.[33] One purpose of this MOU is to eliminate the duplication of services and centralize those services that are better provided at a state level.[34] In addition, because of the MOU, instead of expending resources (both personnel and financial) in areas covered by the TMAs, these resources can be used to expand programs that support mobility for an aging population, and to develop TDM programs related to special events in the Commonwealth.[35]

[30] Kitsap Telework Pilot Project, *2009 Report to the Legislature,* Washington State DOT, http://www.teleworktoolkit.com/library/Telework_Project_Report.pdf, accessed 10/19/2009.
[31] *Status Report on Vanpool Grant Program,* http://www.wsdot.wa.gov/TDM/Vanpool/grantStatus.htm, accessed 10/9/2009.
[32] *Construction Traffic Mitigation Demand Management: 1-405 Kirkland Nickel Stage 1,* Washington State DOT, http://www.wsdot.wa.gov/NR/rdonlyres/778E3AE1-D8A7-436E-AFBB-A307A3F6B4F4/58819/20090714_I405_Kirkland_TDM_Performance_Report.pdf, accessed 11/20/2009.
[33] *Memorandum of Understanding between the Executive Office of Transportation and Public Works and Transportation Management Associations,* June 2008, provided via email by Jim Cope, MassDOT, on 11/13/2009.
[34] Follow-up phone call with Jim Cope, MassDOT, 11/18/2009.
[35] Follow-up email from Andrea Leary, MassComute, 12/7/2009.

Establish a Department-level Protocol for Integrating TDM into Projects

Regardless of whether or not state DOTs operate an overarching TDM program, they can still integrate TDM into planning phases. This can often be done through the development of traffic mitigation or management plans, as well as construction mitigation, and consideration of bike/pedestrian facilities for new highways or roads. States may want to develop a protocol based on input from a variety of divisions, so that TDM can be incorporated as a strategy into projects across multiple departments within the state DOT. States may want to consider adding a step into the project planning phase to account for TDM measures, including a TDM representative on all major new projects to ensure that TDM mitigation is at least considered in the planning phase, as with Caltrans' example. As another example, UDOT has a standing committee of internal TDM stakeholders across departments in order to help this integration process.

CHAPTER 4 SURVEY RESULTS

As part of the first step in surveying the state DOTs, the research team conducted outreach to identify contacts to participate in the survey. The research team aimed to identify and confirm at least one contact for each state DOT who could participate in the survey. The team reviewed a variety of sources to identify contacts, including: professional contacts; membership directory for the Association for Commuter Transportation (ACT); membership directory for the AASHTO Standing Committee on Public Transportation; TDM Listserv, Center for Urban Transportation Research at the University of South Florida; membership directory of the TRB TDM Subcommittee; Biking and Pedestrian Coordinator contact list at http://walkinginfo.org; contacts from past research team projects and reports; staff list for FHWA Federal-aid Division Offices, Planning and Environment and Realty; and general review of state DOT websites.

Using these sources, the researchers identified two to three potential contacts at each state DOT. The team emailed each potential contact inquiring if that person would be an appropriate contact to discuss TDM at their agency. If the response was yes, the team requested that the contact confirm that he or she would be able to participate in a brief survey.

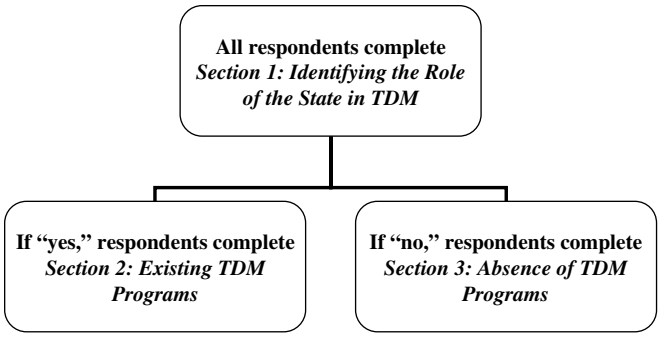

Figure 1 Illustration of survey logic.

If the response was no, the team then requested that the contact recommend an alternate contact. In the few cases without any response, the team followed up via telephone. Through this outreach strategy, the team was able to identify and confirm contacts for 49 states and the District of Columbia.[36]

The survey was designed in three parts using http://www.surveymonkey.com. Figure 1 shows the relationship between the three parts described here. All respondents filled out Section 1 (Identifying the Role of the State in TDM) and one additional section depending on their response to the following conditional question.

Question #3. Does your state DOT:[37]

- Enforce/support the implementation of localities' plans to reduce SOV travel?
- Fund local organizations focused on TDM, such as local jurisdictions or TMAs/TMOs?
- Fund/manage a statewide TDM approach?
- Provide technical assistance to local TDM organizations?
- Use TDM as part of its own activities, such as during construction projects?

Those participants who responded affirmatively (e.g., that their agency did one/all of these roles) filled out Section 2 (Existing TDM Programs). Those respondents who did not identify a role in TDM filled out Section 3 instead (Absence of TDM Programs). The survey allowed for several open-ended questions in which respondents could provide additional information/detail.

[36] While the research team was unable to confirm a contact in Texas, the team did send the survey to potential contacts, but did not receive a response.

[37] Paraphrased and edited from original survey question.

Survey Responses

This section summarizes the major findings in the survey responses. Appendix B (not published herein) includes a complete overview of the survey responses. The research team secured a response from 42 contacts, representing 42 states, equaling an 82 percent response rate.[38] The team also followed up with one reminder e-mail and one reminder phone call for those participants that had not completed the survey within 1 week of the deadline. The high response rate may be due to the initial confirmation that the contact would indeed be willing to participate in the survey and the follow-up reminders. Nine jurisdictions did not respond to the survey request: Alaska, Washington, D.C., Montana, Oklahoma, North Dakota, South Dakota, Tennessee, Texas, and Wyoming.

Based on the 42 states that did respond, the team compiled responses and identified several common themes. Thirty-nine state DOTs (over 90 percent of respondents) identified one or more specific roles that their agency plays in TDM. Three state DOTs did not identify any role, implying an absence of the DOT's role in TDM. Of the 39 state DOTs that identified a role, the most commonly identified role (43 percent) was the use of TDM on project-level activities, such as construction projects.[39] The second and third most common TDM roles are:

- Fund local organizations focused on TDM, such as local jurisdictions or TMAs/TMOs (38 percent).
- Provide technical assistance to local TDM organizations (36 percent).

It is also important to note that over one-half of the state DOTs that fund local organizations focused on TDM provide technical assistance to them as well. Both of these roles are decentralized approaches to TDM, illustrating that the most common state DOT role, outside of project-based TDM, is a guiding/funding role to local organizations, rather than following a larger programmatic or agency-wide vision. Some respondents also mentioned other roles played by their agency. Vermont and West Virginia DOTs integrate TDM into their business processes, and Arizona and New Mexico DOTs provide TDM services/benefits as employers, such as offering ridesharing.

Table 3 Most common TDM activities reported being encouraged by state DOTs

Activity	Response Percent	Response Count
Bicycling	95%	39
Carpooling	88%	36
Promotion of Transit Use	83%	34
Walking	80%	33
Vanpooling	80%	33
Ridematching	68%	28
Telecommuting	49%	20
TDM Marketing	49%	20
Employer-based Outreach/Programs	46%	19
Special Event Planning	41%	17
Commuter Financial Incentives	44%	18
HOV (High Occupant Vehicle) Lanes/Priority	44%	18
Transit-Oriented Development	39%	16
Trip Chaining	22%	9
Congestion/Road Pricing	12%	5
Parking Pricing/Management	7%	3
Pay-As-You-Drive Insurance	2%	1

All respondents were asked to identify whether or not the state DOT encouraged each of seventeen TDM-oriented activities (e.g., bicycling, congestion pricing). The most common activities reported were carpooling, bicycling, promotion of transit use, vanpooling, and walking (all reported by at least 33 states). The least common activities reported were pay-as-you-drive insurance, parking pricing and management, and congestion or road pricing (all reported by five or fewer states). Table 3 lists the activities in order of prevalence at the states.

Of the state DOTs that responded, 17 indicated that TDM responsibilities are located in the planning division or planning department at the DOT, approximately 45 percent.[40] Seven other state DOTs identified the public transportation division and seven indicated that TDM is spread across multiple divisions, combined totaling 37 percent.[41] The remaining agencies reported that TDM is located in the operations division, project development department, or at another state agency.

[38] For the purposes of this survey, the total potential survey response is 51 (50 states plus the District of Columbia).

[39] Results for this question are based on 42 respondents.

[40] Only 38 states responded to this question.

[41] Only 38 states responded to this question.

The survey was not conclusive about the TDM budgets and staff, primarily because 39 percent of respondents did not know about the budget and 45 percent of respondents either did not know the number of full-time employees or indicated that the question was not applicable. Of those that were aware of their budget amount (23 states/32 percent), most spend either $100,000 to $500,000 (16 percent of those states) or $1 to $5 million (16 percent of those states) annually. A list of these states is available in Appendix A (not published herein). The greatest number of state DOTs (15) also indicated that they had between one and five TDM employees (full-time equivalents), approximately 39 percent. Nine state DOTs (24 percent) responded that they were unaware of an exact number, primarily because the TDM work is spread across so many regions. These results imply that there is often no clear, standard position for TDM at the state level.

The three state DOTs that did not identify a role in TDM explained that their states are too rural, so congestion is not a serious enough problem to justify additional staffing or funding to address TDM at the state level.

Seventeen state DOTs with a role in TDM reported that the state is considering changing its role toward TDM (approximately 45 percent of those with a role in TDM). The large number of state DOTs already actively considering a change in role indicates that states are interested in learning more about opportunities, benefits, and options for programs, whether they are decentralized or statewide. The state DOTs interested in changing their role are Arizona, California, Connecticut, Georgia, Indiana, Iowa, Louisiana, Massachusetts, Minnesota, Mississippi, New York, Ohio, South Carolina, Utah, Virginia, Washington, and West Virginia.

Nearly all survey respondents provided detailed responses for each open-ended question, allowing for a unique perspective on each state DOT's programs. The research team used these additional details to recommend case studies for development, as described in the next section.

CHAPTER 5 CASE STUDIES

The results of the survey helped the researchers to identify possible case study candidates for more in-depth research. After compiling the survey results, the team conducted additional web research to supplement the information provided in the survey. The research team evaluated and analyzed the nature of the programs described in the survey in order to narrow the selection of states for further study. In selecting case study recommendations, the team used the following evaluation factors: status of the state DOT as a champion of TDM programs, variation in the state DOT's role and program structure, variation in geographic area, variation in population, variation in population density/urban context, willingness of the state DOT staff to participate in case study interviews, and accessibility of additional information online.

The researchers then followed a structured case study process, including general research review and a minimum of two 30-minute phone interviews, one of which was with the state DOT contact. Some topics covered during the phone interview included:

- *Role of the State*—includes greater detail about the state's role in TDM, the history of the role, the initial and current challenges, and any changes planned for the program.
- *Program Organization*—including greater detail about the program organization, especially regarding inter-agency and public/private cooperation, the funding amount and sources, and performance results to date.
- *Notable Practices and Lessons Learned*—including greater detail on the notable practices, benefits and disadvantages of program design, challenges to the program's success, and recommendations for other states.

The following is a discussion of the five state DOTs identified for further review as case studies: Massachusetts, New Jersey, Georgia, Utah, and California.

Massachusetts Department of Transportation (MassDOT)

As in many other states, traffic congestion in Massachusetts has been getting worse–vehicles miles traveled have increased nearly 200 percent over the last 20 years with lanes only up 120 percent.[42] While there has been very little population growth

[42] *The State of the Commonwealth's Transportation System Power Point,* 4/30/2009, http://youmovemassachusetts.org/reform_stateofcommtranspsystem_043009.pdf, p. 2, accessed 11/18/2009.

since 2000, older residents as a percentage will grow rapidly, presenting a new challenge to travel needs.[43] The Commonwealth of Massachusetts is also facing underfunding issues, with a projected $15 to $19 billion in transportation expense over the next 20 years–and very little ability to increase infrastructure.[44] However, major capacity expansion is difficult because of the property requirements, environmental impacts, and costs of capital investment in the transportation system.[45]

Massachusetts Department of Transportation's (MassDOT's) roots in travel demand management began in the late 1970s with a statewide travel options program, the Caravan for Commuters vanpool program.[48] This program was created in response to the energy crises of that time; now it is expanding toward greater employer outreach and public information/education.

Currently, the Commonwealth manages, designs, and implements a statewide travel options program called MassRIDES, which focuses on state-level TDM marketing and services (e.g., ridematching, employer outreach, vanpool support). MassRIDES' statewide efforts are complemented by MassCommute's work as an independent group of TMAs. Generally, the TMAs in MassCommute provide TDM services in specific geographic areas. For those areas not covered by a TMA, MassRIDES provides services.[49] See Figure 2.

Key Information

Annual Funding: $3.5 million (80 percent Congestion Mitigation and Air Quality Improvement [CMAQ], 20 percent state match from state transportation fund)[46]

Lead Department at the DOT: Office of Transportation Planning

Number of Full-Time Employees: 17 staff (including contractors but excluding TMA staff)[47]

Other Major Partners: WalkBoston, MassBike, MassCommute (the state association of TMAs)

Contact for More Information:

James Cope
Massachusetts DOT
Office of Transportation Planning
Phone: (617) 973-7043
Email: james.cope@state.ma.us
Web: http://www.commute.com/

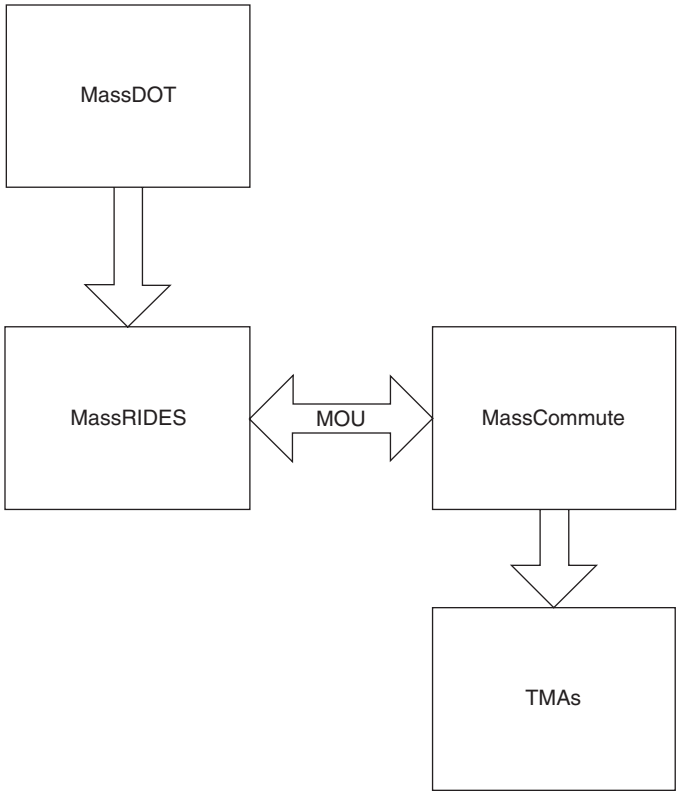

Figure 2 Organization chart of TDM services in Massachusetts.[50]

[43] Massachusetts EOT Long Range Transportation Plan, 2006, http://www.eot.state.ma.us/default.asp?pgid=content/longplanIndex&sid=level2, p. 5, accessed 10/9/2009.
[44] Governor's Press Release on Comprehensive Transportation Reform, February 20, 2009 http://www.mass.gov/?pageID=gov3terminal&L=3&L0=Home&L1=Media+Center&L2=Speeches&sid=Agov3&b=terminalcontent&f=text_2009-02-20_trans&csid=Agov3, accessed 10/8/2009.
[45] Follow-up email from Jim Cope, MassDOT, 12/15/2009.
[46] Follow-up phone call with Jim Cope, MassDOT, 11/18/2009.
[47] Phone interview with Jim Cope, MassDOT, 10/9/2009.
[48] Phone interview with Jim Cope, MassDOT, 10/9/2009.
[49] Phone interview with Matt Grymek, MASCO TMA, 11/18/2009.
[50] Developed based on conversations with Jim Cope, MassDOT.

Coordination between the Commonwealth, MassRIDES, and MassCommute is affected by an MOU that was executed in 2008 between the Executive Office of Transportation (EOT)—now MassDOT, and MassCommute. This memorandum aims to streamline and improve cooperation for TDM services in the Commonwealth. Within the MOU, the Commonwealth and MassCommute agreed that they will:

- Promote a single, statewide ridematching system.
- Encourage new and existing MassRIDES partners located in TMA areas to join TMAs.
- Cross-promote and invite one another to events for employer outreach.
- Shift MassRIDES emergency ride home partners in TMA areas to TMA GRH services.
- Host an annual promotional event.[51]

TDM Services Offered through MassRIDES

- Local, technical assistance to employers
- Ridematching services
- Emergency ride home services
- Marketing and promotional materials on TDM
- Safe Routes to School
- Management of some TMA contracts
- Coordination and collaboration with MassCommute TMAs
- Vanpool assistance

The relationships between these TDM actors (the Commonwealth, MassRIDES, MassCommute, and the TMAs) are also expected to be influenced by a new state transportation overhaul. In February 2009, Governor Patrick issued a comprehensive reform plan to improve the organization of the transportation system. The relevant components of the plan include the creation of a consolidated Department of Transportation, the consolidation of different state agencies and various divisions with EOT, and the creation of a dedicated transportation fund.[52] The goal of the reorganization is to address fiscal challenges, simplify bureaucracy, and improve transportation services.[53]

These changes should have beneficial impacts on the delivery of TDM services in Massachusetts, and complement the existing MassRIDES statewide travel options program managed by MassDOT. One purpose of this MOU is to eliminate the duplication of services and centralize those services that are better provided at the state level.[54] Together, they have also committed to consider establishing new TMAs in targeted under-served areas.[55]

MassRIDES

MassRIDES is a statewide travel options program that provides information for commuters and employers on ways to reduce commuting costs and improve air quality.[56] The goal of the program is to help employers and commuters find alternative modes in order to reduce traffic congestion and pollution.[57] The program is operated by 17 staff members under a contract to MassDOT that is overseen by the MassDOT Office of Transportation's Sustainable Transportation unit.[58] To maintain a statewide presence, MassRIDES has its main office at the MassDOT headquarters, as well as branch offices in the Berkshires in western Massachusetts and Cape Cod in southeastern Massachusetts.[59] MassRIDES is funded

[51] *Memorandum of Understanding between the Executive Office of Transportation and Public Works and Transportation Management Associations,* June 2008, provided via email by Jim Cope, MassDOT on 11/13/2009.

[52] Governor's Press Release on Comprehensive Transportation Reform, February 20, 2009, http://www.mass.gov/?pageID=gov3terminal&L=3&L0=Home&L1=Media+Center&L2=Speeches&sid=Agov3&b=terminalcontent&f=text_2009-02-20_trans&csid=Agov3, accessed 10/8/2009.

[53] *Reform and Renew,* You Move Massachusetts, http://youmovemassachusetts.org/reform.html, accessed 10/8/2009.

[54] Follow-up phone call with Jim Cope, MassDOT, 11/18/2009.

[55] *Memorandum of Understanding between the Executive Office of Transportation and Public Works and Transportation Management Associations,* June 2008, provided via email by Jim Cope, MassDOT on 11/13/2009.

[56] MassRIDES webpage, http://www.commute.com/about.shtml, accessed 10/8/2009.

[57] MassRIDES webpage, http://www.commute.com/about.shtml, accessed 10/8/2009.

[58] Phone interview with Jim Cope, MassDOT, 10/9/2009.

[59] Phone interview with Jim Cope, MassDOT, 10/9/2009.

through Congestion Mitigation and Air Quality Improvement (CMAQ), with the Commonwealth's 20 percent match from the transportation fund.[60] Centralized funding and management of MassRIDES is intended to minimize delay and maximize efficiency for administration of the contract.[61]

MassRIDES – 2008 Results[62]

- Generated 74 new partnerships with businesses and community organizations
- Implemented 71 new programs (e.g., ridematching, GRH) at partner worksites
- Maintained a ridematching database of over 15,400 travelers looking for options to driving alone[63]
- Manages a vanpool fleet, with a current ridership of 684 commuters in 57 vans, achieving an annual VMT reduction of 15,409,400 miles[64]

The program includes a statewide ridematching database, an employer outreach program, emergency ride home services, and regional marketing to promote alternative modes (see Figure 3).

One strong outreach effort focuses on their Safe Routes to Schools program. Although this is a federal program, MassDOT has created a uniquely strong program in connection with MassRIDES. What makes it different from other Safe Routes to School programs is that staff is operating it entirely statewide.[65] This program uses an approach very similar to the outreach approach used for employers and businesses.[66] Staff members handle the outreach, meet with schools, provide technical assistance, and conduct surveys on behavior change.[67]

Once schools have participated in the education and encouragement program for a year, they are eligible for an infrastructure assessment at no cost, in which a team conducts an inventory to identify new sidewalk facilities needed to improve safety. For instance, working with the MassDOT's planning and design consultant on the Jackson Street School infrastructure assessment, MassRIDES helped the city of Northhampton to evaluate its needs, which included establishing a connecting ramp from Jackson Street to a bike trail, which is now used regularly for students to bike to school.[68] Over the past 5 years, MassRIDES worked with 269 schools in 101communities, reaching over 120,000 elementary and middle school students and their parents.[69] The team coordinates two annual Walk to School Days, recently conducted the third annual forum for schools to share lessons learned, and provided safety training sessions.[70]

MassCommute and Transportation Management Associations (TMAs)

MassCommute is a group of 11 private, nonprofit TMAs. They are primarily clustered in eastern Massachusetts, particularly in the Boston area. The group works together to leverage public and private funds to increase the use of ridesharing and other commuting alternatives that reduce traffic congestion and improve air quality across the state.[71] The TMAs that make up the MassCommute group include five urban TMAs in Boston and Cambridge that serve a specific business area, as well as six suburban TMAs.[72] The group represents nearly 300 employers and 25 cities. The services offered by some of the TMAs include financial incentives

[60] Follow-up phone call with Jim Cope, MassDOT, 11/18/2009.
[61] Phone interview with Jim Cope, MassDOT, 10/9/2009.
[62] *2008 MassRIDES Annual Report,* provided via email by Jim Cope, MassDOT on 11/10/2009.
[63] *Commonwealth Conversations: Transportation,* April 2009, http://transportation.blog.state.ma.us/blog/2009/04/massrides.html, accessed 10/8/2009.
[64] *Commonwealth Conversations: Transportation,* April 2009, http://transportation.blog.state.ma.us/blog/2009/04/massrides.html, accessed 10/8/2009.
[65] Phone interview with Jim Cope, MassDOT, 10/9/2009.
[66] Phone interview with Jim Cope, MassDOT, 10/9/2009.
[67] Phone interview with Jim Cope, MassDOT, 10/9/2009.
[68] Phone interview with Jim Cope, MassDOT, 10/9/2009.
[69] Follow-up email from Jim Cope, MassDOT, 12/15/2009.
[70] *2008 MassRIDES Annual Report,* provided via email by Jim Cope, MassDOT on 11/10/2009.
[71] *MassCommute Mission,* http://www.masscommute.com/masscommute_mission.htm, accessed 10/8/2009.
[72] *MassCommute TMA Directory,* http://www.masscommute.com/tma_directory.htm, accessed 10/8/2009.

Figure 3 MassRIDES homepage.

for carpools, vanpools, and transit; assistance with the rideshare regulation for Department of Environmental Regulation; shuttle service; and ridematching.[73] TMAs in Massachusetts develop and promote alternative transportation programs that support their members' and communities' concerns regarding access and congestion, environmental/sustainability goals, economic development, and land-use planning. To that end, core value-added services provided by TMAs for their members include GRH programs, advocacy, sustainability programs, and a variety of cycling/ pedestrian programs, roundtables, and seminars.[74]

"The MetroWest/495 TMA played a key role in initiating the process that yielded the Southborough shuttle system, which connects the new MBTA commuter rail station with businesses in Marlborough and Westborough. The organization and the business leaders who financially support it are strong advocates for providing alternatives to driving alone. Their commitment helps alleviate traffic congestion and improve air quality."[75]

-William J. Mauro, Former Mayor,
City of Marlborough

[73] *MassCommute TMA Services,* http://www.masscommute.com/tma_services.htm, accessed 10/8/2009.

[74] Follow-up email from Andrea Leary, MassCommute, 12/7/2009.

[75] *MassCommute Look Who's Talking about TMAs,* http://www.masscommute.com/masscommute_people.htm, accessed 10/8/2009.

Most TMAs in MassCommute began with funding from CMAQ and have become mostly self-sustaining based on private funding.[76] One relatively new TMA, North Shore TMA, began with funding provided by the Boston Region MPO's Suburban Mobility Funding Program.[77] TMAs in MassCommute generate their own funding through employer dues, shuttle operations, parking lots, member dues, and other types of contracts.[78] MassCommute has raised a substantial amount in private investment.[79]

The TMAs are mostly geographically focused, largely due to their history as employer-based organizations. Many of them still focus on employer outreach, but they are not restricted solely to employer activities. The format of each TMA depends on their members' needs and funding structure. For instance, the TMA known as CommuteWorks is funded through MASCOT, a community improvement district. The community improvement district is formed by employers in the Longwood Medical and Academic Area. MassCommute TMAs look for ways to improve and help one another.[80] MassCommute hosts roundtables with public agencies, including Massachusetts Bay Transportation Authority, to discuss new ideas in TDM.[81]

For some TMAs, using MassRIDES services has increased efficiency, and so it is expected that the MOU will continue to streamline TDM processes in the Commonwealth. MassRIDES handles the vendors, which means that there is one less step for the TMA.[82] The MOU has been described as very efficiency-driven—allowing the DOT and TMAs to look for ways to work together in a non-competitive manner while avoiding duplication of services and allowing the state to reap the benefit of approximately $12 million annual in private investment to support TDM in the Commonwealth.[83]

In addition to traditional TDM services, some TMAs also provide assistance with the Massachusetts Department of Environmental Protection (DEP) rideshare reports, in which large employers are required to report how they will reduce congestion. In fact, the state has a rideshare regulation that requires many businesses with at least 250 commuters and education facilities with 1,000 or more commuters to develop plans and set goals for reducing the number of times commuters drive alone to work or school by 25 percent.[84] As part of this process, each organization must:

- Survey current commuter patterns,
- Identify available commuting options,
- Set goals for reducing drive-alone trips,
- Offer options and incentives for reducing drive-alone trips, and
- Review how commuter patterns change as a result.

Other State Activities

In addition to managing MassRIDES, MassDOT also contributes to other TDM activities. One way it contributes is through the state's environmental review process for large projects, which may include a negotiated agreement that incorporates TDM, between the developer and MassDOT to mitigate traffic impacts. These are quite common and a normal part of the process. Currently, MassDOT is looking for ways to improve TDM integration into projects and with the state's 511 traveler information service.[85] Another area of promotion is through its park-and-ride program, which now includes 25 lots.[86] MassDOT oversees the usage of the lots and has developed proposals for expansion when necessary.[87]

MassDOT also promotes TDM through its interactions with MPOs. MassDOT has overseen the Boston Region MPO's Suburban Mobility and TDM programs, funded at $650,000 per year through

[76] Phone interview with Andrea Leary, MassCommute, 11/20/2009.
[77] Phone interview with Andrea Leary, MassCommute, 11/20/2009.
[78] Phone interview with Matt Grymek, MASCO TMA, 11/18/2009.
[79] Follow-up email from Andrea Leary, MassCommute, 12/7/2009.
[80] Phone interview with Matt Grymek, MASCO TMA, 11/18/2009.
[81] Phone interview with Andrea Leary, MassCommute, 11/20/2009.
[82] Phone interview with Matt Grymek, MASCO TMA, 11/18/2009.
[83] Follow-up email from Andrea Leary, MassComute, 12/7/2009.
[84] *Massachusetts Rideshare Program,* Mass DEP, http://www.mass.gov/dep/air/approvals/ridesh02.htm, accessed 10/8/2009.
[85] Phone interview with Jim Cope, MassDOT, 10/9/2009.
[86] Phone interview with Jim Cope, MassDOT, 10/9/2009.
[87] Phone interview with Jim Cope, MassDOT, 10/9/2009.

CMAQ and state/local match.[88,89] The Suburban Mobility Program funds projects created by municipalities, regional transit authorities, TMAs, or planning agencies that address mobility services and infrastructure specifically in suburban areas that lack transit.[90] The types of projects funded include demand-response or joint dispatch services, as well as services that improve access to commuter rail stations.[91] For instance, it has funded the Ipswich Essex Explorer, which provides bus service from the Ipswich Train Station to various popular destinations in the area, essentially eliminating the need for a car to access the beach, shopping, and other recreational activities.[92] The Boston Region MPO is currently reviewing proposals to merge its suburban mobility, TDM, and bicycle activities into a single CMAQ-funded program for 2010 in order to create a more flexible and results-oriented program.[93]

Additionally, MassDOT's TDM program funds projects created by local or regional agencies or municipalities that provide mobility services that will contribute to air quality improvements.[94] Eligible projects include parking management, park-and-ride lot amenities, and telecommuting services.[95] The program has funded community walking maps and citywide bicycle maps for Boston.[96]

[88] Massachusetts NCHRP 20-65-24 Survey, submitted 8/25/2009.

[89] *Suburban Mobility Program Description,* Boston MPO, http://www.bostonmpo.org/bostonmpo/3_programs/7_suburban_mobility/mobility.html, accessed 11/14/2009.

[90] *Suburban Mobility Program Description,* Boston MPO, http://www.bostonmpo.org/bostonmpo/3_programs/7_suburban_mobility/mobility.html, accessed 11/14/2009.

[91] *Suburban Mobility Overview,* Boston MPO, http://www.bostonmpo.org/bostonmpo/3_programs/7_suburban_mobility/sm_overview.html, accessed 11/14/2009.

[92] *Ipswich Essex Explorer,* http://www.ipswichessexexplorer.com, accessed 11/14/2009.

[93] Follow-up email from Jim Cope, MassDOT, 12/15/2009.

[94] *Suburban Mobility Program Description,* Boston MPO, http://www.bostonmpo.org/bostonmpo/3_programs/7_suburban_mobility/mobility.html, accessed 11/14/2009.

[95] *Transportation Demand Management Program Eligibility,* Boston MPO, http://www.bostonmpo.org/bostonmpo/3_programs/7_suburban_mobility/tdm_eligible.html, accessed 11/14/2009.

[96] *Transportation Demand Management Program Services,* Boston MPO, http://www.bostonmpo.org/bostonmpo/3_programs/7_suburban_mobility/tdm_services.html, accessed 11/14/2009.

Benefits and Challenges

MassDOT's TDM program structure works well for its context. Considering that Massachusetts is a densely populated state, a cohesive statewide program suits it well. MassDOT believes the approach is efficient and effective and a good way to get a lot done with a minimal amount of administration.[97] This structure also allows for some experimentation. One new area that MassRIDES is developing is working with older citizens and their needs for transportation services.[98]

As a result of the MOU with the TMAs, some elements will be run more efficiently, specifically with respect to the ridesharing system. There will be one software vendor, one contracting process, and greater geographic coverage.[99] In addition, because of the MOU, instead of expending both personnel and financial resources in areas covered by the TMAs, these resources can be used to expand programs that support mobility for an aging population and to develop TDM programs related to special events in the Commonwealth.[100]

Unlike some states in which DOTs provide substantial funding for the TMAs, the TMAs in Massachusetts are mostly funded by their member organization. One challenge under this structure is that MassDOT does not have control over each TMA workplan, goals, or programs. However, the MOU offers new opportunities for increased coordination on those efforts, which should help to leverage the efforts and build effective partnerships to achieve common goals.

New Jersey Department of Transportation (NJDOT)

Through a cooperative relationship with eight TMAs, New Jersey Department of Transportation (NJDOT) manages a statewide TDM program that provides localized support. The high-density urban state, which has the most people per square mile of all 50 states,[101] has well-developed train service along the major corridors, but also faces challenges

[97] Phone interview with Jim Cope, MassDOT, 10/9/2009.

[98] Phone interview with Jim Cope, MassDOT, 10/9/2009.

[99] Phone interview with Matt Grymek, MASCO TMA, 11/18/2009.

[100] Follow-up email from Andrea Leary, MassComute, 12/7/2009.

[101] Phone interview with Sheree Davis, NJDOT, 10/9/2009.

with "the last mile" transit for suburban travel.[102] With an expected growth of 1.7 million residents by 2030, New Jersey faces a tremendous increase in demand from residents, as well as from employees coming in and out of the state.[103]

Key Information

Annual Resources and Allocation: $15.3 million ($6.3 million on TMAs; $1 million state and $5 million federal on park-and-ride leases; $3 million TDM)[104]

Source of Funding: CMAQ, Surface Transportation Program, and Transportation Trust Fund[105]

Main Department: Bureau of Commuter and Mobility Strategies (one of four bureaus in the Statewide Planning Division)[106]

Number of Full-Time Employees: 5 staff members (excluding TMA employees)[107]

Other Major Partners: North Jersey Transportation Planning Association, Delaware Valley Regional Planning Commission, South Jersey Transportation Planning Authority, eight TMAs, and New Jersey Transit

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Web: http://www.njcommuter.com

Through the TMAs, NJDOT is able to provide specialized, local TDM options to every county in the state, whether urban or suburban.[108] Starting out as primarily a ridematching program, NJDOT's TMA program has evolved into a much broader program, tackling everything from alternative transportation strategies for seniors to integrating TDM into land use plans.[109]

NJ DOT's involvement in TDM dates back to the 1980s when the department's TMA program was initiated.[110] At the time, New Jersey provided funding to three TMAs to support efforts already made by the private sector to improve employee mobility, employee access to transit, and employee use of alternative transportation services.[111] When the federally required employer commute trip reduction requirement was introduced through the Clean Air Act in 1992, NJDOT expanded its funding to the TMAs.[112] After that specific requirement was rescinded in 1997, NJDOT continued to provide funding and guidance to the TMAs.[113] Originally focused on employers, TMA services were expanded to reach individual commuters.[114, 115] Today New Jersey manages and funds eight TMAs that provide localized service to each county in the state. The TMAs operate two major TDM programs on the ground—the Smart Workplaces for Commuters and Carpooling Makes Sense—which were designed and implemented by the DOT.

NJDOT is developing a TDM Strategic Plan to capitalize on relatively new topics in TDM, such as school-age outreach and assistance to disabled populations.[116] Some other items for consideration in the strategic plan include looking at ways to improve access to transit for seniors, reaching out to underserved areas in the counties, such as more rural areas, and improving bicycle and pedestrian safety.[117] Over the next year, NJDOT staff, as well as external stakeholders from NJ Transit, MPOs, and businesses, will discuss how to help NJDOT determine how and where to invest its TDM funds.[118]

[102] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[103] New Jersey NCHRP 20-65-24 Survey submitted 8/12/2009.
[104] New Jersey NCHRP 20-65-24 Survey submitted 8/12/2009.
[105] Transportation Choices 2030 Long Range Transportation Plan, http://www.state.nj.us/transportation/works/njchoices, p. 2, accessed 10/5/2009.
[106] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[107] Transportation Choices 2030 Long Range Transportation Plan, http://www.state.nj.us/transportation/works/njchoices, p. 1, accessed 10/5/2009.
[108] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[109] Phone interview with Lori Diggins, Consultant, 10/21/2009.
[110] NJDOT TMA Program Guidelines for Developing an Application for Federal Funds, December 2008, provided by Lori Diggins via email on 10/26/2009.
[111] NJDOT TMA Program Guidelines for Developing an Application for Federal Funds, December 2008, provided by Lori Diggins via email on 10/26/2009.
[112] Phone interview with Lori Diggins, Consultant, 10/21/2009.
[113] Phone interview with Lori Diggins, Consultant, 10/21/2009.
[114] Phone interview with Lori Diggins, Consultant, 10/21/2009.
[115] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[116] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[117] Phone interview with Lori Diggins, Consultant, 10/21/2009.
[118] Phone interview with Lori Diggins, Consultant, 10/21/2009.

By linking in department goals and evaluation metrics, the strategic plan will assist the department in making the best decisions for the state on which strategies to pursue.[119]

The Role of the Transportation Management Association (TMA)

Today every county in the state is served by a TMA and the DOT provides a substantial $9 million in funding to those eight TMAs.[120] The TMAs provide the foundation for NJDOT's TDM program. The TMAs tailor their messages to the unique conditions in each of their service areas.[121] For instance, in the northeast part of the state, it is very dense and urbanized with an extensive commuter rail system. The TMAs promote travel information for commuter rail services in the dense urban areas, as well as carpooling and park-and-ride services in the suburban areas of the northern part of the state. However, in the southern part of the state, there is less transit available, so the key messages are promoting carpooling, biking, and walking.[122]

> "The Transportation Management Associations are our tentacles to the people in New Jersey. The Department could not move forward with this comprehensive [statewide] program without them."
>
> -Sheree Davis, TDM Program Manager, New Jersey Department of Transportation

The Bureau of Commuter Mobility, responsible for TDM at the department, has developed specific formalized TDM goals for the state:

1. To develop new strategies, incentives, and pilot programs to reduce VMT and improve air quality, and
2. Expand the park-and-ride program to encourage more multimodal trips.[123]

These goals have guided NJDOT's statewide TDM approach. The DOT is focused on the TMAs to promote the TDM strategies and operate programs that meet the department's goals. To ensure that the TMAs meet those goals, each must submit an Annual Work Plan in order to receive funding. The DOT has authority to reject or approve the plan and may encourage the TMA to pursue additional services, such as the recent push to look at senior transportation and bicycle/pedestrian facilities.[124]

TDM Services Offered by the State

- Localized employer and commuter outreach through eight TMAs
- Ridematching services (using RidePro software by Trapeze)
- Vanpool matching
- Information on transit, bicycling, telecommuting, and park-and-ride lots
- Smart Workplaces for Commuters—employer recognition program
- Carpooling Makes Sense—financial incentive
- Emergency ride home programs
- Shuttle Services
- Safe Routes to School

The TMA work program identifies the major strategies, goals, and work products, as well as specific evaluation metrics to measure success in those programs.[125] The TMAs build on the success of previous services, but will frequently recommend new strategies to the DOT.[126] For instance, this past year, Cross County Connection TMA in south New Jersey recommended a new strategy to "provide commuters with interactive information regarding bicycle facilities utilizing Google mapping technology."[127] Given Cross County Connection's expertise in mapping, and its promotion of biking in southern New Jersey, this sort of strategy makes sense as a

[119] Phone interview with Lori Diggins, Consultant, 10/21/2009.
[120] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[121] Phone interview with Bill Ragozine, Cross County Connection TMA, 11/2/2009.
[122] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[123] TDM Goals, provided by Sheree Davis via e-mail on 10/26/2009.
[124] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[125] TMA Work Plan, Cross County Connector TMA, provided by Bill Ragozine via email on 11/4/2009.
[126] Phone interview with Bill Ragozine, Cross County Connection TMA, 11/2/2009.
[127] TMA Work Plan, Cross County Connector TMA, provided by Bill Ragozine via email on 11/4/2009.

localized product, rather than a statewide approach. The flexibility afforded to the TMAs allows for tailored approaches to best deliver services in their communities. Likewise, given the home-rule nature of the towns in New Jersey, the local approach allows the TMAs access to officials and businesses that might not otherwise be accomplished at the state level.[128]

To continually improve, the DOT encourages new ideas in the work programs, but ultimately has oversight if the plans do not align with the goals of the department.[129] This coming year, DOT is encouraging the TMAs to expand services to the underserved areas within their service zones.[130] For instance, Cross County Connection TMA is creating and marketing interactive bike/transit maps in the Atlantic City, Cumberland, and Gloucestor Area.[131]

The TMAs do more than just offer the traditional services of ridematching and vanpools. Two of the core requirements as defined in the Annual Report are to support community TDM initiatives and offer state and regional transportation systems support.[132] In those capacities, the TMAs assist with corridor studies, participate on task forces for the MPOs, help with traffic mitigation strategy development, and conduct mapping of traffic plans for the region.[133] In addition, with construction projects, the TMAs assist the DOT in getting notice out to the public about alternative routes, transit options, emergency evacuation routing, and shuttle services.[134] These services go above and beyond the usual traveler and employer services offered by traditional TMAs.

Designing and Implementing Statewide TDM Programs

Unlike some other states active in statewide TDM implementation, New Jersey does not have a statewide brand that serves as an umbrella for marketing.

Figure 4 NJDOT recognizes four levels of employer success for its Smart Workplaces for Commuters.

However, the DOT does host a website—http://www.njcommuter.com—that serves as a clearinghouse for traveler and employer services information. NJDOT manages two statewide programs—Smart Workplaces for Commuters, an employer recognition program, and Carpooling Makes Sense, an incentive-based carpooling program. NJDOT designed each program and ultimately manages and funds it, but the TMAs do the brunt of the on-the-ground work to solicit applications and conduct outreach. While both programs, Smart Workplaces for Commuters and Carpooling Makes Sense, are statewide, neither serves as a standalone brand for the entire TDM program at the DOT.

New Jersey Smart Workplaces for Commuters is an employer recognition program that honors organizations that embrace strategies to reduce SOV travel (see Figure 4). Employers eligible for recognition must offer some sort of program and incentive for employees, including reduced-cost transit passes or vanpool subsidies.[135] In 2009, NJDOT honored 353 companies as partners with New Jersey Smart Workplaces for Commuters (an increase of 38 percent since 2008).[136] The goal next year is to increase recognition again by 50 percent.[137] This program is tailored locally by the TMAs so that they can conduct their own outreach on the ground, offering the

[128] Phone interview with Lori Diggins, Consultant, 10/21/2009; phone interview with Sheree Davis, NJDOT, 10/9/2009.
[129] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[130] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[131] Follow-up email from Sheree Davis, NJDOT 12/2/2009.
[132] 2008 NJDOT TMA Annual Report, provided by Sheree Davis via email on 10/21/2009.
[133] 2008 NJDOT TMA Annual Report, provided by Sheree Davis via email on 10/21/2009; phone interview with Bill Ragozine, Cross County Connection TMA, 11/2/2009.
[134] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[135] *New Jersey Smart Workplaces,* http://www.state.nj.us/transportation/commuter/njsw/requirements.shtm, accessed 10/8/2009.
[136] Follow-up email from Sheree Davis, NJDOT, 10/9/2009.
[137] Phone interview with Sheree Davis, NJDOT, 10/9/2009.

local connections that would otherwise not be available at the state level. The DOT sets the goals for the program, funds it, and oversees its implementation.

Carpooling Makes Sense is an incentive gas card program designed by the NJDOT and implemented by the TMAs. The program was initiated in December 2006 and has drawn much attention. Carpoolers in the NJDOT Ridesharing Program are eligible for up to $200 depending on the size of the carpool, provided that they carpool at least 24 days in a 2-month period.[138] In the 2007–2008 report, more than 15,800 had registered to participate in the program.[139, 140] NJDOT sees this as one of its flagship programs and plans to continue offering the incentive due to the high interest.[141] The DOT will be tracking how many carpoolers participate in the program, even after no longer qualifying for the incentive.[142]

Integrating TDM into Planning

NJDOT makes significant efforts to incorporate TDM strategies into the planning process. Transportation Choices 2030, the most recent statewide long-range transportation plan, identifies one of its four primary goals as: "continue investment in measures that shift travel out of cars, move trips to other times of the day, and eliminate some auto trips altogether."[143] In its statewide long-range transportation plan, the state identifies that the strategy to reduce demand is only possible through a variety of integrated measures, including investments in public transportation to encourage shifts in travel from SOV to bus, rail or ferry, use of ITS to improve transit operations, and use of smart growth for development and redevelopment.[144] This sort of state-level endorsement of TDM as a critical component of transportation planning makes the promotion of its strategies much easier.

At DOT headquarters, senior-level management at NJDOT recognizes the importance of integrating TDM across multiple divisions.[145] For the most part, TDM representatives (one of the five specified TDM staff at the NJDOT) are invited to the table for project discussions and scoping meetings.[146] TDM staff is also invited to review local smart growth plans for potential endorsement under the State Development and Redevelopment Plan.[147]

As part of its work programs, the TMAs are actually required by the DOT to "assist NJDOT, other state agencies and regional MPOs with state and regional TDM initiatives."[148, 149] Likewise, the DOT established the Community TDM initiative as part of its work program to "encourage and support expanded implementation of TDM initiatives in communities and at activity centers, by providing support and assistance to county and municipal governments."[150, 151] Through these sorts of measures, NJDOT is able to integrate TDM at the statewide and local planning levels.

Partnerships

Partnerships (both formal and informal) have been effective for New Jersey. See below for several examples.

New Jersey Transit—The governor's consolidation of transportation services has formalized the existing cooperative informal relationship between New Jersey Transit (NJ Transit) and NJDOT.[152] The DOT Commissioner, who also serves as Chairman of NJ Transit, ensures that there is limited duplication and increased cooperation between the two agencies.[153] NJ Transit also works with NJDOT to

[138] *New Jersey Carpooling Makes Sense,* http://www.state.nj.us/transportation/commuter/rideshare, accessed 10/8/2009.
[139] 2008 NJDOT TMA Annual Report, provided by Sheree Davis via email on 10/26/2009.
[140] Phone interview with Bill Ragozine, Cross County Connection TMA, 11/2/2009.
[141] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[142] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[143] Transportation Choices 2030 Long Range Transportation Plan, http://www.state.nj.us/transportation/works/njchoices, p. 4, accessed 10/5/2009.
[144] Transportation Choices 2030 Long Range Transportation Plan, http://www.state.nj.us/transportation/works/njchoices, pp. 30-40, accessed 10/5/2009.
[145] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[146] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[147] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[148] 2008 NJDOT TMA Annual Report, provided by Sheree Davis via email on 10/26/2009.
[149] Phone Interview with Bill Ragozine, Cross County Connection TMA, 11/2/2009.
[150] 2008 NJDOT TMA Annual Report, provided by Sheree Davis via email on 10/26/2009.
[151] Phone Interview with Bill Ragozine, Cross County Connection TMA, 11/2/2009.
[152] Phone interview with Sheree Davis, NJDOT, 10/9/2009.
[153] Phone interview with Sheree Davis, NJDOT, 10/9/2009.

build park-and-rides as needed, although each agency operates its own programs.

Metropolitan Planning Organizations (MPOs)—The three New Jersey MPOs[154] review all TMA Work Plans and participate in the quarterly meetings for the TMAs (alongside transit agencies). The MPOs must additionally approve the work plans in order for the TMA to receive funding.[155] Some MPOs provide input on activities that the MPO would like for the TMAs to pursue. For instance, North Jersey Transportation Planning Authority (NJTPA) is encouraging the TMAs in its service area to undertake anti-idling activities in its work plan.[156] NJTPA is also at all of the quarterly meetings held with the TMAs and the DOT to discuss TDM strategies.[157] Moreover, some MPOs, such as the NJTPA, provide additional funding and issue separate work plans for the TMAs to be involved in corridor plans and studies.[158] Through its Local CMAQ Mobility Initiative, NJTPA has provided additional funding to TMAs to conduct an online survey for a bus study.[159]

Department of Human Services—NJDOT is currently partnering with NJ Transit and the Department of Human Services to evaluate the mobility of seniors and disabled travelers.[160] NJDOT wants to work with these other agencies to explore ways to expand mobility options for this group.

Benefits and Challenges

NJDOT has a history of success with its TDM activities dating to the 1980s and has evolved since then into a comprehensive TDM program that offers not only a statewide TDM program through its TMAs, but also an integration of TDM into projects and planning within the department. One of NJDOT's strengths is its recognition of the value of TDM.[161] Its formal recognition of TDM goals helps to establish agency buy-in that TDM is an important strategy and needs to be incorporated into planning activities. Even further, developing a TDM strategic plan—as NJDOT is currently preparing to do—can formalize the involvement of TDM in planning and projects across divisions at the DOT.

Likewise, NJDOT's approach takes a broad perspective on what constitutes TDM, and therefore has been able to partner with local jurisdictions to encourage land-use strategies that support demand management, and also support social mobility programs, like elderly transportation, that are becoming new topics in TDM.[162]

NJDOT's TMA program, which covers the entire state, is one of the foundations of success in New Jersey's TDM approach. NJDOT manages and oversees TMA activities, providing structure and support, but offers the TMAs flexibility to design tailored local solutions in their service areas. All TMAs implement statewide incentive and recognition programs developed by NJDOT, including Carpooling Makes Sense and Smart Workplaces for Commuters, but can also develop innovative strategies that best fit their service area, provided the approach is approved by the DOT.

There are challenges associated with New Jersey's approach. For instance, there is no statewide marketing program. Without this branding of a statewide program, some of the messaging may be lost. However, the TMAs have developed a brand and identity at the local level, and implement the statewide incentive programs (Carpooling Makes Sense and Smart Workplaces for Commuters). Additionally, New Jersey faces challenges with diversity in travel needs. For instance, in the north, where a lot of transit is available, carpooling is one of the big topics, but in the south, with less transit available, biking is more heavily promoted.

Georgia Department of Transportation (GDOT)

Congestion and air quality are very big issues for Georgia Department of Transportation (GDOT). The state's heaviest congestion occurs along the urban

[154] The three MPOs in New Jersey are: Delaware Valley Regional Planning Commission, North Jersey Transportation Planning Authority and South Jersey Transportation Planning Authority. Note that South Jersey TPA does not review the work plans since they were not in the TIP.

[155] Phone interview with Hamilton Meghdir, Lois Goldman, and Dave Schmetterer, NJTPA, 11/10/2009.

[156] Phone interview with Hamilton Meghdir, Lois Goldman, and Dave Schmetterer, NJTPA, 11/10/2009.

[157] Phone interview with Hamilton Meghdir, Lois Goldman, and Dave Schmetterer, NJTPA, 11/10/2009.

[158] Phone interview with Sheree Davis, NJDOT, 10/9/2009.

[159] Phone interview with Hamilton Meghdir, Lois Goldman, and Dave Schmetterer, NJTPA, 11/10/2009

[160] Phone interview with Sheree Davis, NJDOT, 10/9/2009.

[161] Phone interview with Lori Diggins, Consultant, 10/21/2009.

[162] Phone interview with Lori Diggins, Consultant, 10/21/2009.

interstates.[163] Over 20 percent of VMT on state roads and 35 percent of VMT on urban roads operate under congested conditions. For the most part, congestion occurs in the urban areas of Georgia.[164] In addition, 27 of the state's 159 counties are classified as non-attainment for ground-level ozone, particle pollution, or both. These air quality issues are primarily the result of fuel combustion, much of which is derived from automobiles.

Congestion and air quality problems could continue to grow considering the rapid population increase in the Atlanta metro area. During the last 8 years, the Atlanta region's population has grown by 1.1 million people, making it the second fastest growing metro area in the country.[165] Metro Atlanta commuters spend more on gas each year than anyone else in the country, over $5,000 per household per year.[166] The average metro Atlanta commuter also wastes an average of an additional 57 hours a year due to regional congestion.[167] Moreover, 84 percent of commuters in the region drive alone and spend an average of 35.9 minutes on a one-way trip to work, compared to a national average of 24.3 minutes.[168] As mentioned, this heavy usage of highways is linked to the air quality problems for the state. Fifty percent of the smog is from vehicles in Atlanta, which accounts for more than one-half of the state's population.[169,170] As a result, the statewide TDM efforts in Georgia have originated out of the metro Atlanta region, where 50 percent of the state's population lives.[171]

Key Information

Annual Funding: Over $13 million[172] (research efforts from State Planning and Research funding;[173] $6 to $7 million on The Clean Air Campaign (CAC); $4 million to Transportation Management Associations (TMAs); $1.5 million to Atlanta Regional Commission (ARC); $800,000 to research and measurement. The majority of funding is primarily CMAQ. Note also that CAC also generates $1 million in cash and in-kind)

Lead Department at the DOT: Planning

Number of Full-Time Employees: Estimated over 75 staff members through the various funded programs[174]

Other Major Partners: Georgia Department of Environmental Protection (GA DEP), ARC, Georgia Regional Transit Authority (GRTA), and nine TMAs

Contact for More Information:

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http://www.cleanaircampaign.org

[163] 2007 Atlanta Regional Commuter Survey, http://www.dot.ga.gov/informationcenter/programs/environment/airquality/Documents/pdfs/Atlanta%20Regional%20Commuter%20Survey%202007.pdf , accessed 10/22/2009.

[164] Georgia Department of Transportation, *Georgia Statewide Transportation Plan,* http://www.dot.state.ga.us/informationcenter/programs/transportation/Documents/swtp/SWTP_final_report_feb_2007.pdf, accessed 10/9/2009, page E-9.

[165] Regional Snapshot, http://www.atlantaregional.com/documents/RS_June09_Forecast2040.pdf, accessed 10/22/2009.

[166] The Clean Air Campaign Press Kit, http://www.cleanaircampaign.org/For-the-Press/Press-Kit, date accessed 12/07/2009.

[167] The Clean Air Campaign Press Kit, http://www.cleanaircampaign.org/For-the-Press/Press-Kit , accessed 10/22/2009.

[168] 2007 Atlanta Regional Commuter Survey, http://www.dot.ga.gov/informationcenter/programs/environment/airquality/Documents/pdfs/Atlanta%20Regional%20Commuter%20Survey%202007.pdf, accessed 10/22/2009.

[169] Promotional Material, http://www.census.gov/Press-Release/www/releases/archives/american_community_survey_acs/004489.html , accessed 10/22/2009.

[170] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.

[171] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.

[172] Georgia NCHRP 20-65-24 Survey Response, submitted 8/13/2009.

[173] TDM Program Comparison Study, prepared by Center for Transportation and the Environment, February 2006, http://www.dot.ga.gov/informationcenter/programs/environment/airquality/Documents/pdfs/program_comparison_research_for_nine_tdm_programs_across_the_nation.pdf, accessed 10/22/2009.

[174] Georgia NCHRP 20-65-24 Survey Response, submitted 8/13/2009.

GDOT oversees the entire TDM approach from the state level; all the major contracts and initiatives ultimately link back to the DOT. (See Figure 5 for an outline of those organizations and relationships.) Georgia's current TDM program is based on the idea that TDM strategy investments can better reduce congestion than investments in new transportation infrastructure. A study commissioned by GDOT found that implementing an aggressive set of TDM strategies would yield 100 times more value in congestion reduction than in a similar investment in new transportation infrastructure.[175]

Much of the current TDM programs and structure in Georgia is based on a strategic plan, called *A Framework for Cooperation to Reduce Traffic Congestion and Improve Air Quality.* The Framework was initiated in 1999 as a guidance document that would help the region to meet is air quality goals.[176] The Framework was designed by a variety of organizations, including GDOT; Georgia Environmental Protection Division (EPD); Georgia Regional Transportation Authority (GRTA); the nine TMAs; the regional MPO; ARC; and CAC, a not-for-profit travel options program.

> "The DOT is the nucleus of the TDM activities in Georgia."
>
> -Allison Richards,
> Atlanta Regional Commission

The Framework guided the expansion of TDM services in Georgia and continues to serve as a living document that is meant to be revised and updated according to the needs of the region. The Framework has a heavy emphasis on air quality, in addition to congestion, as indicated by the inclusion of its TDM programs, including CAC,[177] in metro Atlanta's formal State Implementation Plan for air quality, authored by the Georgia EPD.[178]

TDM Services Offered by the State

- Local, technical assistance to employers through nine TMAs[179]
- Clean Air Campaign (CAC)—a not-for-profit employer and individual outreach program
- RideSmart ridematching services
- Guaranteed ride home services
- Commuter financial incentives
- Marketing and promotional materials on TDM
- Telework Leadership Initiative
- Clean Air Schools
- TDM program evaluation and measurements
- HOT Lanes (projected 2011)
- Construction mitigation
- Integration of 511 and CAC

In terms of the Framework's present day activities, a TDM Policy Group made up of representatives from GDOT, ARC, GRTA, and EPD meets quarterly each year to discuss new strategies and to review progress to date on all TDM measures in Metro Atlanta.[180] The TDM Policy Group is responsible for:

- Recommending funding levels to support TDM activities;
- Establishing and communicating policies for regional TDM activities;
- Overseeing the process for contracting with 10 Employer Services Organizations (ESOs),

[175] *Advertising and Marketing RFP Supporting Promotional Materials,* http://www.cleanaircampaign.org/About-Us/Requests-for-Proposals/Advertising-and-Marketing-RFP, accessed 10/22/2009.

[176] *A Framework for Cooperation to Reduce Traffic Congestion and Improve Air Quality,* http://www.tdmframework.org/reports/files/Framework.pdf, accessed 11/9/2009

[177] The Voluntary Mobile Emission Source Program (VMEP), which included all TDM is included in the SIP.

[178] *Advertising and Marketing RFP Questions & Answers,* http://www.cleanaircampaign.org/About-Us/Requests-for-Proposals/Advertising-and-Marketing-RFP, accessed 10/22/2009.

[179] Note that for the purposes of this report, individual TMAs will be referred to as such, but when the entire TDM program is referenced (the nine TMAs and The Clean Air Campaign), we will refer to the collective group of 10 organizations as the ESOs. GDOT differentiates the TMAs and The Clean Air Campaign in this manner.

[180] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.

which include nine TMAs and the CAC, to implement TDM programs; and
- Monitoring and evaluating the results of the TDM programs.[181]

In addition to the TDM Policy Group, there are several subcommittees, including employer services, media planning, financial incentives, and vanpooling, which make recommendations to the TDM Policy Group.[182, 183, 184] For instance, the Employer Services Committee (ESC) represents the organizations that receive federal funding to provide TDM services—the nine TMAs and CAC. The ESC meets in order to make recommendations to the TDM Policy Group on the processes used to provide TDM services to employers, property managers, and individuals in metro Atlanta.[185] Stakeholders such as vanpool vendors and the TMAs, which do not participate in the TDM Policy Group but are active in TDM, are invited to participate in the subcommittees. Several of these stakeholders also serve as chairs of the subcommittee groups.[186, 187, 188] See Figure 5.

The overall TDM program in Georgia, which was formalized with the Framework and evolved over time, includes the following components:

- Ten ESOs—The nine TMAs and the CAC. Note that for the purposes of this report, individual TMAs will be referred to as such, but when the entire TDM program is referenced (the nine TMAs and CAC), we will refer to the collective group of 10 organizations as the ESOs. GDOT differentiates the TMAs and CAC in this manner.
- The CAC—A not-for-profit organization funded in part by GDOT that focuses on outreach to commuters, employers, and schools in metro Atlanta and statewide to change travel behavior to improve air quality and reduce

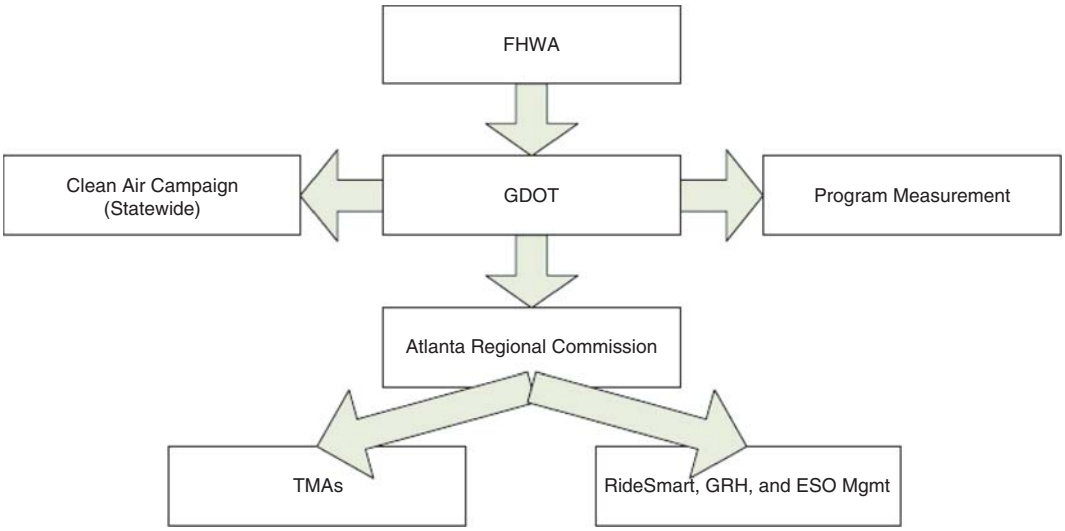

Figure 5 Organization chart of TDM programs and funding in Georgia.[189]

[181] Follow-up email from Dan Hourigan, Midtown Alliance, 11/24/2009.
[182] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.
[183] *A Framework for Cooperation to Reduce Traffic Congestion and Improve Air Quality,* http://www.tdmframework.org/reports/files/Framework.pdf, accessed 11/9/2009.
[184] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.
[185] Follow-up email from Dan Hourigan, Midtown Transportation Solutions, 11/24/2009.
[186] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.
[187] *A Framework for Cooperation to Reduce Traffic Congestion and Improve Air Quality,* http://www.tdmframework.org/reports/files/Framework.pdf , accessed 11/9/2009.
[188] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.
[189] Phone interview with Phil Peevy, Georgia Department of Transportation, 10/30/2009.

congestion. CAC is one of the 10 ESOs in GDOT's TDM program.

- Rideshare matching and guaranteed ride home (GRH)—Provides ridematching services and GRH services funded by GDOT and managed by ARC (in metro Atlanta) and currently has a database of 59,000 registrants.[190]
- Vanpool Services—GDOT provides some funding through CMAQ and GRTA operates contracts with vendors.
- TMAs—Nine organizations that are part of GDOT's ESOs. They provide employer services in specific job centers within non-attainment areas in metro Atlanta and are funded through GDOT and managed by ARC.
- TDM Program Measurement—Evaluation activities funded by GDOT and conducted by the Center for Transportation and the Environment (CTE).

In many ways, GDOT is the funder and also the manager of TDM activities in the state. GDOT coordinates with most of the players involved in TDM activities, and with support from the members of the TDM Policy Group, helps to determine which strategies are working and which are not. Like other members of the TDM Policy Group, GDOT is involved in strategic planning, goal setting, and benchmarking for TDM activities.[191] For instance, GDOT oversees and approves the TMA workplans in metro Atlanta, but ARC manages the TMAs. Similarly, CAC implements its own services, but GDOT provides guidance and oversight on activities. GDOT is regularly in contact with all stakeholders and an active decision maker in the direction of TDM in the state.[192, 193, 194]

GDOT recently was restructured and the Office of Planning now reports to a separate planning director that reports to the governor.[195] The current commissioner and planning director support TDM and recognize that the DOT's activities are critical strategies in the state to improve transportation.[196] GDOT recently commissioned a study to demonstrate just how effective TDM is in comparison to other infrastructure strategies; the study found that implementing a package of aggressive TDM strategies would yield 100 times more value in congestion reduction than a similar investment in new transportation infrastructure.[197] This sort of evidence, pursued by the state, helps to keep TDM as a frontline strategy at the DOT.[198]

The Clean Air Campaign Results

Each year, commute alternatives yield:[199]

- 16 million car trips eliminated from metro Atlanta roadways
- More than 200,000 tons of pollution not released into our air
- More than $156 million estimated in reduced commute costs
- $30 million estimated in health-related costs savings due to improved air quality

The Clean Air Campaign (CAC)

CAC is a not-for-profit corporation, formed in 1996 by collaboration between government, businesses, and civic organizations. Originally started as a public awareness campaign for the link between air quality and vehicle emissions, CAC began to conduct employer outreach in 2000.[200] Currently, CAC provides statewide employer outreach and commuter outreach services (with the exception of private sector employer outreach in nine job centers in the metro Atlanta non-attainment area, which are managed by

[190] Note: In 2010, CAC will be doing ridematching outside of metro Atlanta. (Source: Kevin Green, follow-up e-mail, 11/24/2009.)
[191] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.
[192] Phone interview with Phil Peevy, Georgia Department of Transportation, 10/30/09.
[193] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.
[194] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.
[195] Phone interview with Phil Peevy, Georgia Department of Transportation, 10/30/09.
[196] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.
[197] *Advertising and Marketing RFP Supporting Promotional Materials,* http://www.cleanaircampaign.org/About-Us/Requests-for-Proposals/Advertising-and-Marketing-RFP, accessed 10/22/2009.
[198] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.
[199] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.
[200] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.

Figure 6 The Clean Air Campaign homepage.

the TMAs), as well as comprehensive marketing and public relations services statewide. CAC also handles public-sector outreach (federal, state, and local governments) statewide, including TMA service areas. CAC works closely with the nine TMAs and sees them as the "feet on the ground" for the private-sector employer outreach in the job centers.[201]

The goal of the program is to motivate Georgians to take action to improve air quality and reduce traffic congestion (see Figure 6). The main strategies are to motivate commuters to use alternative modes, partner with employers to develop customized programs, and work with schools to reduce smog-forming emissions and to reduce car travel to schools.[202] CAC operates a smog alert system in addition to its general outreach strategies and sends out notifications on days when the air quality is forecasted to be unhealthy for the public. Currently, there are 8,000 people signed up to receive smog alerts.[203] There has actually been a downward trend in code red days for ground-level ozone in metro Atlanta, even though starting last year there have been more stringent requirements for code red day classifications.[204]

CAC has a budget of approximately $7 million and receives 80 percent of its funding from CMAQ through the DOT, and the remaining comes from match sources, including state and local as well as private sponsorships. Its outreach to private companies is unique and well developed, as demonstrated by the fact that 20 of the top 25 Fortune 500 companies in the Atlanta region are partners with CAC.[205] Additionally, CAC has secured $1 million annually in private-sector and in-kind funding, which is unusual for this sort of program.[206]

While CAC started as an Atlanta-based program, it has expanded statewide, now covering other

[201] The Clean Air Campaign Press Kit, http://www.cleanaircampaign.org/For-the-Press/Press-Kit, accessed 10/22/2009.
[202] The Clean Air Campaign website, http://www.cleanaircampaign.org/About-Us, accessed 10/9/2009.
[203] The Clean Air Campaign Press Kit, http://www.cleanaircampaign.org/For-the-Press/Press-Kit, accessed 10/22/2009.
[204] The Clean Air Campaign Press Kit, http://www.cleanaircampaign.org/For-the-Press/Press-Kit, accessed 10/22/2009.
[205] *Advertising and Marketing RFP Questions and Answers,* http://www.cleanaircampaign.org/About-Us/Requests-for-Proposals/Advertising-and-Marketing-RFP, accessed 10/22/2009.
[206] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.

regions being considered for ozone non-attainment, including Rome, Columbus, Augusta, Athens, and Macon.[207] GDOT has been instrumental in helping to expand the program due to its relationships and contacts outside of the Atlanta region.[208] GDOT has further expanded the reach of CAC by linking it to its 511 system. Anyone calling 511 can sign up on the spot to be a partner of CAC and link to ridesharing and transit information.

Marketing. Unlike other programs, Georgia has a substantial statewide marketing and advertising campaign. The materials are all very results oriented, following the belief that numbers really do sell. For instance, in one of its promotional materials, CAC uses visuals to demonstrate to the public that the average cost of driving alone is more than 50 cents per mile.[209] Using these sorts of performance measures, CAC focuses on results to build an even larger case for changing travel behavior.

Financial Incentives. Another unique aspect of CAC is its financial incentive program, Cash for Commuters, which is now being implemented in other areas of the country, including Washington D.C., due in part to the success of the program in Georgia. This past year, CAC was able to triple the participation rate in the Cash for Commuters Program. Started in 2002, the program offers participants $3 for each day they use a commute alternative within a consecutive 90-day period ($100 maximum). According to a study conducted by GDOT's program evaluation contractor, Center for Transportation and the Environment (CTE), 64 percent of participants continue to use alternative modes 9 to 12 months after the program, without an incentive.[210] More than 8,500 people enrolled in 2008, a threefold increase over 2007, some of which was due to increasing gas prices.[211]

Employer Outreach. CAC has doubled the number of employers who have joined the program—approximately one-half are from CAC and one-half are from specific job centers and areas serviced by the TMAs.[212] CAC focuses on reaching its potential employers by offering worksite assessments, marketing tools, and free training seminars.[213] CAC employer program managers work in assigned territories to consult with employers and help to tailor programs, including ridematching and vanpooling.[214]

Next Steps. Moving forward, CAC will explore opportunities to further improve its telework offerings as this commute alternative becomes more popular in the region.[215] To support these strategies, CAC first launched a Telework Leadership Initiative in 2003 to provide professional consulting and financial resources (up to $20,000 per employer) to launch a telework program.[216] According to surveys conducted by CTE, 500,000 Georgia residents telework on occasion; of those, 297,000 telework at least once a week.[217] There are significant opportunities to extend teleworking in Georgia, and CAC has pursued this through its one-on-one technical assistance available to employers to evaluate their programs and develop customized telework policies.[218] CAC is also recognizing regional employers, property managers, and individ-

[207] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.

[208] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.

[209] *Advertising and Marketing RFP Supporting Promotional Materials,* http://www.cleanaircampaign.org/About-Us/Requests-for-Proposals/Advertising-and-Marketing-RFP, accessed 10/22/2009.

[210] *Making the Change to Alternative Modes, but Does it Last?* Presented at 2009 Association for Commuter Transportation Conference, http://data.memberclicks.com/site/asct/Cash_Commuters.pdf, accessed 10/22/2009.

[211] *Advertising and Marketing RFP Questions and Answers,* http://www.cleanaircampaign.org/About-Us/Requests-for-Proposals/Advertising-and-Marketing-RFP, accessed 10/22/2009.

[212] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.

[213] The Clean Air Campaign Press Kit, http://www.cleanaircampaign.org/For-the-Press/Press-Kit, accessed 10/22/2009.

[214] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.

[215] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.

[216] The Clean Air Campaign Press Kit, http://www.cleanaircampaign.org/For-the-Press/Press-Kit, accessed 10/22/2009.

[217] The Clean Air Campaign Press Kit, http://www.cleanaircampaign.org/For-the-Press/Press-Kit, accessed 10/22/2009.

[218] The Clean Air Campaign website, http://www.cleanaircampaign.org/Our-Services/Teleworking-Assistance, accessed 10/22/2009.

uals with significant contributions to TDM in the region, including telework initiatives, through the PACE Awards program.[219]

Atlanta Regional Commission (ARC)—Transportation Management Associations, Ridematching, and Guaranteed Ride Home Management

ARC, the MPO for the 18-county (20 non-attainment areas) region in Atlanta, plays a major role in the TDM services operated by GDOT and has been involved in TDM in the region since the beginning. As one of the members of the TDM Policy Group, ARC is a decision maker in the TDM activities undertaken in the area and helped to design the Framework for TDM.[220] GDOT funds ARC to lead RideSmart,[221] the ridematching system, GRH, and manage the TMAs. ARC and GDOT have a close relationship and interact regularly regarding these contracts.[222, 223] GDOT has dedicated staff managers that work with ARC to administer its contracts for TDM activities.[224] Likewise, ARC has an entire division dedicated to TDM, separate from transportation planning.

RideSmart and Guaranteed Ride Home. RideSmart began as Commute Connections—the ridematching service designed for the 1996 Olympic Games in Atlanta.[225] The program grew out of the need to provide alternate commute information to employers and businesses that would be affected by the increase in traffic from the Olympic Games. Over the years, the program has been rebranded and today offers a database of 59,000 users whom Georgians can contact to share a ride or van.[226] Today, each TMA promotes RideSmart, as does CAC. ARC does not actively promote its services through outreach, rather depends on the activities of the TMAs and CAC to advertise its services.[227] ARC and CAC created a bridge so that anyone who signs up online for one of the region's financial incentive programs, such as Cash for Commuters, is automatically registered in the RideSmart database, which creates a larger pool of potential matches.[228]

Anyone looking for a vanpool match can also use RideSmart to identify potential vanpools.[229] Vanpoolers, as well as alternative mode commuters, are eligible for the Commuter Prizes Program managed by CAC. GRTA contracts with vendors to provide the vanpool services, and CAC, RideSmart, and the TMAs promote those services.[230] The TMAs and CAC also conduct outreach to form new vanpool groups and to place commuters in existing vans. GDOT provides a vanpool subsidy through CMAQ funding which is eligible for the first 3 years of the vanpool program.[231] Many TMAs also provide additional vanpool subsidies funded by local dollars.[232]

The GRH program has evolved over time and ARC has restructured the program. GRH is now available to anyone who signs up for RideSmart, not just for anyone whose employer signs up. This change to the program has expanded the membership pool significantly.[233] ARC also issued a request for proposals to solidify contracts with the GRH providers, including taxi services and rental cars.[234]

[219] The Clean Air Campaign website, http://www.cleanaircampaign.org/Our-Services/Teleworking-Assistance, accessed 10/22/2009.

[220] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.

[221] Note that RideSmart was recently rebranded and used to be called 187RideFind.

[222] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009; *Commute Options,* http://www.atlantaregional.com/html/356.aspx, accessed 11/9/2009.

[223] Phone interview with Phil Peevy, Georgia Department of Transportation, 10/30/2009.

[224] Georgia NCHRP 20-65-24 Survey Response, submitted 8/13/2009.

[225] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.

[226] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.

[227] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.

[228] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.

[229] *RideSmart Vanpool Information,* https://www.myridesmart.com/html/vanpool.htm, accessed 11/9/2009.

[230] *RideSmart Commuter Information,* http://www.grta.org/commuter_options/vans.htm, accessed 11/9/2009.

[231] Phone interview with Phil Peevy, Georgia Department of Transportation, 10/30/2009.

[232] Follow-up email from Dan Hourigan, Midtown Alliance, 11/24/2009.

[233] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.

[234] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.

Note that RideSmart's GRH service is not currently available in attainment areas.[235]

Transportation Management Associations. The nine TMAs providing service to the specific employment centers in the non-attainment regions in Atlanta are 80 percent funded by DOT (a pass through contract through ARC) and the remaining 20 percent match comes mostly from Community Improvement Districts (CIDs).[236, 237] Due to this funding from employer-based CIDs, the TMAs are primarily employer-based in their outreach strategies, and operate mostly to serve those employers.[238] Public relations and marketing is more in the realm of CAC, which is also tasked with providing public and employer outreach statewide in the attainment and non-attainment areas.[239]

The TMAs create work plans and send them to ARC. ARC evaluates them to determine if the plans are allowable or not, according to CMAQ funding regulations. Once finalized, ARC submits a compilation of work plans to the TDM Policy Group for discussion and final approval from GDOT.[240] ARC is encouraging the TMAs to "get back to the basics" by focusing on employer outreach.[241]

The Clean Air Campaign Coordination. In terms of ARC's involvement in CAC, the MPO provides the "behind the scenes" services, such as mapping and technological services.[242] CAC and RideSmart cross-promote one another's services,[243] but one limitation is that RideSmart is funded by CMAQ funds and is therefore targeted for activity in non-attainment areas. CAC however receives additional funding which allows coverage for the entire state. Beginning in January 2010, CAC will be conducting ridematching outside of metro Atlanta.[244]

Statewide TDM Oversight

GDOT's mission, as identified by the *Framework for Cooperation,* is "oversight and accountability" and its main activities are identified as reporting and planning.[245] GDOT is involved in nearly every element of TDM activity in the state and has highly interactive, supportive relationships with the players.

Recent Evaluation Reports Prepared for GDOT

- Cash for Commuters – Survey Findings, 2009
- Regional Employer Survey, 2007
- Regional Commuter Survey, 2007
- Regional Vanpool Survey, 2006
- Commuter Rewards Program Evaluation, 2006
- Evaluation of TDM Framework, 2001 and 2002
- Strategic Research Report for Clean Air Campaign, 2000

GDOT evaluates and measures progress on all TDM activities, including regional surveys of commuter and business leaders conducted on a periodic basis, as well as program impact calculations annually to determine alternative mode placements in the vanpool programs.[246] Its most recent report, *Cash for*

[235] Follow-up email from Kevin Green, The Clean Air Campaign, 11/24/2009.
[236] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.
[237] Phone interview with Phil Peevy, Georgia Department of Transportation, 10/30/2009.
[238] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.
[239] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.
[240] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.
[241] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.
[242] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.
[243] Phone interview with Allison Richards, Atlanta Regional Commission, 11/9/2009.
[244] Follow-up email from Kevin Green, The Clean Air Campaign, 11/24/2009.
[245] *A Framework for Cooperation to Reduce Traffic Congestion and Improve Air Quality,* http://www.tdmframework.org/reports/files/Framework.pdf, accessed 11/9/2009.
[246] TDM Program Comparison Study, prepared by Center for Transportation and the Environment, February 2006, http://www.dot.ga.gov/informationcenter/programs/environment/airquality/Documents/pdfs/program_comparison_research_for_nine_tdm_programs_across_the_nation.pdf, accessed 10/22/2009.

Commuters Evaluation, is based on surveys conducted to measure commuter mode changes and the influence of the incentive program on changing modes from 2007 and 2008.[247] The report concluded that 74 percent of 2007 Cash for Commuter participants had continued using an alternative mode after completing the program, and therefore were no longer receiving a financial incentive to do so.[248] These surveys, along with others that analyzed the major influences on changing travel behavior, have helped GDOT to refine its programs to be more successful.

Prior to the *Cash for Commuters Evaluation* in 2009, GDOT commissioned a study on employers and commuters in 2007, and vanpools and commuter rewards in 2006. Likewise, CTE prepared a report in 2006 for GDOT that compared different TDM programs throughout the United States. GDOT commissioned the report to find the best ways to expand the funding sources available to TDM by identifying other possible funding sources for statewide and regional TDM programs.[249] GDOT has been effective in looking for ways to emphasize TDM and plans to continue to improve its programs.[250]

In addition to its evaluation role, GDOT has been influential in expanding TDM strategies throughout the state by leveraging relationships in TDM, both in project planning and development.[251] For instance, GDOT's connections have also helped to expand the CAC program statewide due to its relationships throughout other regions of the state.[252] Likewise, GDOT has taken the lead by working on the state's first HOV to HOT conversion project to start in 2010.[253] The conversion, which covers 15 miles along I-85, would allow the use of lanes by vehicles with three or more persons in a carpool, or by single- or double-occupancy vehicles that pay a fee for riding in the HOT lane.[254] This example of dynamic pricing demonstrates GDOT's push toward TDM in projects and planning, as listed as a strategy in the *Framework for Cooperation.*

GDOT's Leading Role in TDM and Construction Mitigation

Due to encouragement from one TMA, Midtown Transportation Solutions (MTS), GDOT took an active role in mitigating the potential for traffic congestion due to the rebuild of Midtown's 14th Street Bridge. Working with MTS, GDOT collaborated on a Construction Congestion Mitigation Plan for the 14th Street Bridge project.

GDOT conducted a traffic analysis and simulation to provide a better understanding of peak travel patterns prior to the initiation of construction. The traffic model predicted major congestion and travel time delays if current travel behavior continued.

GDOT allocated funding to MTS to provide intensive outreach to employers and commuters in an attempt to attain a 10 percent reduction in peak-period SOV travel. With GDOT's assistance, MTS was able to achieve the needed 10-percent reduction and major congestion was averted.[255]

This sort of congestion mitigation effort in Metro Atlanta is the first of many that will come as the state continues to take on new ways to improve traffic and reduce congestion.[256]

[247] 2009 Cash for Commuters Evaluation, http://www.dot.ga.gov/informationcenter/programs/environment/airquality/Documents/reports/CAC_Cash_for_Commuters_FINAL_2009.pdf, accessed 10/22/2009.

[248] 2009 Cash for Commuters Evaluation, http://www.dot.ga.gov/informationcenter/programs/environment/airquality/Documents/reports/CAC_Cash_for_Commuters_FINAL_2009.pdf, accessed 10/22/2009.

[249] TDM Program Comparison Study, prepared by Center for Transportation and the Environment, February 2006, http://www.dot.ga.gov/informationcenter/programs/environment/airquality/Documents/pdfs/program_comparison_research_for_nine_tdm_programs_across_the_nation.pdf, accessed 10/22/2009.

[250] Georgia NCHRP 20-65-24 Survey Response, submitted 8/13/2009.

[251] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.

[252] Phone interview with Kevin Green, The Clean Air Campaign, 11/5/2009.

[253] Georgia NCHRP 20-65-24 Survey Response, submitted 8/13/2009.

[254] *I-85 Hot Lane Fact Sheet,* http://www.dot.state.ga.us/informationcenter/activeprojects/interstates/I85hotlanes/Pages/default.aspx, accessed 10/9/2009.

[255] Follow-up email from Dan Hourigan, Midtown Transportation Solutions, 11/24/2009.

[256] Phone interview with Dan Hourigan, Midtown Transportation Solutions, 11/16/2009.

Benefits and Challenges

There are several advantages and benefits, as well as challenges, to organizing a TDM program like the GDOT program. GDOT's working relationship with CAC has created a strong central clearinghouse with consistent branding that resonates with the public. The CAC brand has created a one-stop shop for information about traffic and air quality, whether you are in Atlanta or Athens. The multiple "behind the scenes support" received from other partners, including GRTA and ARC, is not as evident from the branding perspective, which is actually helpful in reducing confusion for the end-user.

The involvement of multiple stakeholders, both public and private, which have a voice in the Framework's subcommittee meetings, helps with statewide collaboration. Likewise, GDOT's programs, and privately held non-profit organizations like CAC, receive a lot of support from the private sector, as illustrated by the number of private companies participating and the board member composition. Currently, 20 out of 25 of the top Fortune 500 companies are partners of either CAC or a local TMA. Likewise, approximately 2/3 of the CAC's board is made up of large private companies that are major employers in the Atlanta region.

To demonstrate success to the funders, GDOT has effectively utilized performance measures and results-oriented activities. For instance, CTE is able to show that 64 percent of Cash for Commuters participants continue to use their alternative mode 9 to 12 months after completing the program, when the commuter is no longer eligible for the financial incentive.[257]

In terms of challenges, like any other program, there is the pressure to continually demonstrate tangible results. Additionally, while the large number of stakeholders is a benefit, it can also be a challenge in finding ways to streamline processes. Now that CAC has expanded statewide with support from GDOT, there may also be challenges in identifying the best ways of extending services available to non-attainment areas to those that are in attainment, such as the RideSmart system, which funds ridematching in only non-attainment areas.

Nonetheless, GDOT has taken on a strong role as the "nucleus" of all TDM activities in the state, and has a supportive group of partners that continue to champion the implementation of new and innovative TDM strategies in the state.

Utah Department of Transportation (UDOT)

Utah's transportation and congestion context is very similar to many states in the Mountain West. Much of the development in this state has been focused on the densely populated suburban/urban areas of the state. From 1990 to 2005, Utah experienced a 71 percent increase in travel but only a 47 percent increase in population and only a 4 percent increase in the capacity of the state highway system.[258] This trend is expected to continue into the future. Except for the Dixie MPO in the southwestern corner of the state and the Cache MPO in the northern part of the state, the rest of the urbanized population resides along the narrow I-15/I-84 corridor, spanning from Utah County in the South to Weber County, with much of this area constrained between the Wasatch Mountain Range and the Great Salt Lake covering the state's major metro areas. Eighty-five percent of its 2.5 million people reside within the five MPO boundaries.[259] See Figure 7.

This congestion challenge coupled with energy, climate, and air quality concerns makes TDM a good

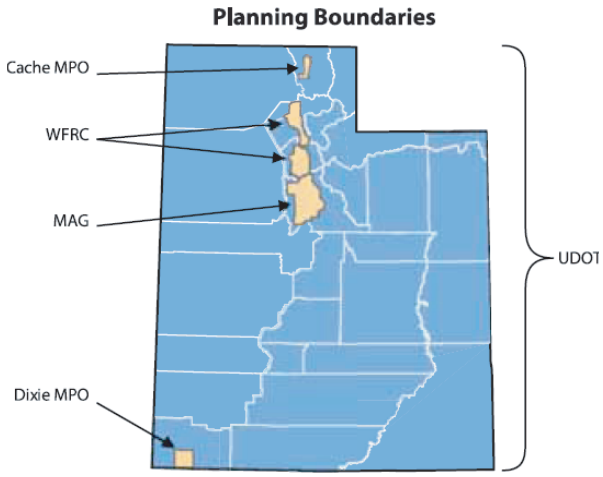

Figure 7 The labeled areas show the five MPOs in Utah.[263]

[257] The Clean Air Campaign Press Kit, http://www.cleanaircampaign.org/For-the-Press/Press-Kit, accessed 10/22/2009.

[258] Utah Unified Transportation Plan, http://udot.utah.gov/main/f?p=100:pg:0:::1:T,V:1842, p. 8, accessed 10/7/2009.

[259] Utah Unified Transportation Plan, http://udot.utah.gov/main/f?p=100:pg:0:::1:T,V:1842, p. 7, accessed 10/7/2009.

Key Information

Annual Funding: $1.5 million[260] through the Utah Department of Transportation (UDOT) planning budget and other partner funds[261]

Lead Department at the DOT: Planning

Number of Full-Time Employees: 1 staff member with 3 on-call consultants[262]

Other Major Partners: Wasatch Front Regional Council, Utah Transit Authority, Salt Lake City, Salt Lake Solutions, Environmental Protection Agency, Utah State Government (Working 4 Utah), Utah State Government, and other not-for-profit and private partners

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fit for further exploration in Utah. In fact, two separate organizations were pursuing TDM initiatives concurrently but not coordinated—TravelWise and the Clear the Air Challenge.

TravelWise is both the brand and program name for UDOT's TDM program, which started in 2008. In 2007, former Governor Huntsman was promoting an energy reduction platform statewide.[264] In response, UDOT further explored TDM ideas for its employers and residents. Previously, UDOT had identified TDM as one of its strategies in the 2007 Unified Transportation Plan to "make the system work better."[265]

UDOT undertook a nationwide research review and local employer focus groups in order to determine how to structure their TDM program in Utah.[266] Concurrently, UDOT's consultants reviewed TDM best practices nationwide and used this information to develop the TravelWise plan.[267] The focus groups included two groups of 18–20 company executives in the Wasatch Front metro area. It concentrated on their opinions regarding transportation issues, the reduction of traffic congestion, air quality improvement, and reductions in energy consumption.[268] One element of concern to these executives was employee hiring and retention, particularly related to the high costs of transportation for those employees.[269] They were also interested in a single point: they wanted to work directly with UDOT as a leader, rather than having to coordinate amongst multiple agencies.[270] Finally, the focus group thought that TDM strategies needed a broader marketing message to resonate with the public.[271]

TDM Services Offered by UDOT

- TravelWise—a comprehensive TDM marketing out outreach program
- Ridematching (using RidePro Automated Services)—managed by Utah Transit Authority
- Information on transit, bicycling, telecommuting
- Social media marketing
- Technical assistance for alternate commutes for employer
- Construction mitigation guidance

[260] Utah NCHRP 20-65-24 Survey Response, submitted 8/21/2009.
[261] Phone interview with Angelo Papastamos, UDOT, 10/14/2009.
[262] Utah NCHRP 20-65-24 Survey Response, submitted 8/21/2009.
[263] Utah Unified Transportation Plan, http://udot.utah.gov/main/f?p=100:pg:0:::1:T,V:1842, p. 8, accessed 10/7/2009.
[264] Phone interview with Angelo Papastamos, UDOT, 10/14/2009.
[265] Utah Unified Transportation Plan, http://udot.utah.gov/main/f?p=100:pg:0:::1:T,V:1842, p. x, accessed 10/7/2009.
[266] Phone interview with Angelo Papastamos, UDOT, 10/14/ 2009.
[267] Phone interview with Angelo Papastamos, UDOT, 10/14/2009.
[268] Dan Jones & Associates, "Qualitative Research Analysis: Travel Demand Management Study – A Qualitative Study of Business Executives." Conducted for Governor Huntsman and the Utah Department of Transportation. September 2008.
[269] Dan Jones & Associates, "Qualitative Research Analysis: Travel Demand Management Study – A Qualitative Study of Business Executives." Conducted for Governor Huntsman and the Utah Department of Transportation. September 2008.
[270] Phone interview with Angelo Papastamos, UDOT, 10/14/2009.
[271] Follow-up email from Angelo Papastamos, UDOT, 11/30/2009.

During the focus group process, UDOT was also pursuing feedback internally and externally on the development of the program. A "TDM Think Tank," composed of a variety of stakeholders including Wasatch Front Regional Council, Utah Transit Authority, city government, and local citizens, met to discuss ideas and brainstorm strategies for a statewide program. Additionally, an internal group, the UDOT Technical Committee, made up of UDOT employees from various departments, met to discuss how to push forward the statewide program internally across various divisions. Finally, a UDOT Steering Committee was formed to help the TravelWise program manager handle the program internally and externally, particularly with a focus on political challenges.[272]

As a result of the input received from the focus group, research, and various committees, UDOT decided to focus its program on behavior changes and on partnerships. UDOT would take the lead to pursue these strategies, but would build on partnerships throughout the state.

Clear the Air Challenge Results

The 6-week competition featured 3,500 drivers working together to save over 1 million miles and reduce 1.7 million pounds of emissions.[273, 274]

Concurrently, but not coordinated at this time, Salt Lake Solutions, a public-private partnership led by the mayor of Salt Lake City's forum for collaborative public-private problem solving, was planning a public TDM challenge. Salt Lake Solutions focuses on actionable problem-solving strategies on a variety of topics.[275] This 20-person and very diverse stakeholder group picks a very concrete issue or project and identifies a way to solve it—in this case, they wanted to do something to raise awareness for air quality and support changing travel behaviors in the Salt Lake City area in response to citizens' concerns. Using a facilitator, the Salt Lake Solutions working group met over the course of 4 months to discuss the best ways to create this awareness about air quality and travel choices, and ultimately decided on a Clear the Air Challenge.

Although both the Clear the Air Challenge and TravelWise started separately, their overlapping stakeholder groups quickly realized that these two initiatives were aligned and that led to collaboration. Renee Zollinger, Salt Lake Solutions, explained that "When we realized that, we quickly backed up and brought all of the players together so we could move forward together, rather than separately."[276] Due to this collaboration, UDOT was able to connect with a pre-existing group of interested stakeholders that could help to promote and expand the TravelWise program. Some of the initial partners in TravelWise actually were in the initial discussions for the Clear the Air Challenge.

What resulted from 4 months of planning was the Clear the Air Challenge (http://www.cleartheair challenge.org)—a regional, 6-week challenge that started in June 2009. The program encouraged participants to find alternatives to driving single-occupant vehicles whenever possible. Then, they were eligible to win weekly, and a grand prize by meeting specific travel goals. The 6-week competition featured 3,500 drivers working together to save over 1 million miles and reduce 1.7 million pounds of emissions.[277, 278]

Clear the Air Challenge proved to be an effective launch for conversations on TravelWise and TDM in Utah. Participants and employers were excited about the interest that it generated in the community and wanted to do more.[279]

TravelWise

UDOT funds and manages the recently launched statewide TDM program through the help of many

[272] Follow-up email from Angelo Papastamos, UDOT, 11/30/2009.
[273] *Salt Lake Solutions,* http://www.ci.slc.ut.us/slsolutions/projects/airquality.htm, accessed 11/3/2009.
[274] Total trips eliminated 120,017, equaling over 1 million miles saved and over $600,000 saved. *The Clear the Air Challenge,* http://cleartheairchallenge.org/index.php, accessed 10/20/2009.
[275] Phone interview with Renee Zollinger, Salt Lake Solutions, 10/20/09.
[276] Phone interview with Renee Zollinger, Salt Lake Solutions, 10/20/09.
[277] *Salt Lake Solutions,* http://www.ci.slc.ut.us/slsolutions/projects/airquality.htm, 11/3/2009.
[278] Total trips eliminated 120,017, equaling over 1 million miles saved and over $600,000 saved. *The Clear the Air Challenge,* http://cleartheairchallenge.org/index.php, 10/20/2009.
[279] Phone interview with Renee Zollinger, Salt Lake Solutions, 10/20/09.

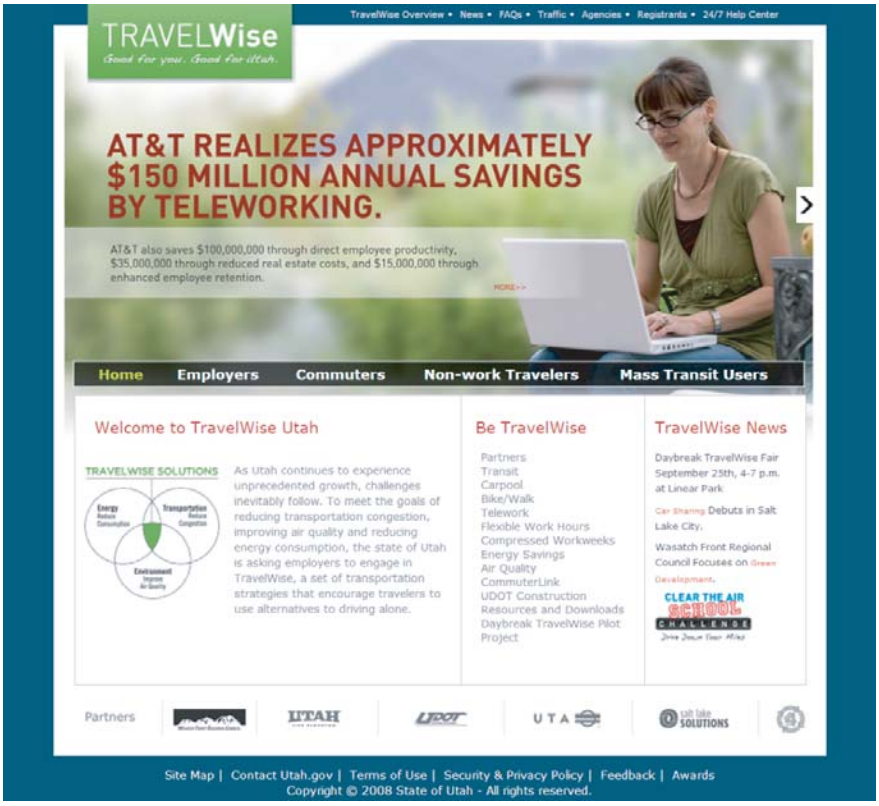

Figure 8 TravelWise homepage.

private and public partners, including Wasatch Front Regional Council, Utah Transit Authority, and Salt Lake Solutions. The overarching goals of the program are to reduce energy consumption, improve air quality, and reduce congestion (see Figure 8). The TravelWise approach is unique in its emphasis on reducing energy consumption, which is a major component of the plan due to former Governor Huntsman's energy platform.

TravelWise serves as a statewide program through its comprehensive clearinghouse of information and technical assistance, as well as a guide for TDM at the DOT itself, helping set the stage for its practices and plans.

TravelWise as a Statewide TDM Program. From the Clear the Air Challenge as a start, UDOT leveraged that momentum through a larger strategic planning process for the TravelWise program. The strategic plan identifies the vision, mission, goals, and objectives of the TravelWise program.[280] The goals in the strategic plan are linked to the governor's plan to reduce greenhouse gas reductions at the state level by 20 percent.[281] Figure 9 outlines the strategic plan for the program.

Since this strategic plan is recent, UDOT has only begun to implement its many strategies to meet these objectives. The overall approach is very partnership oriented. The vision/strategic action plan goes way beyond the abilities of UDOT, but rather is just housed and lead by UDOT. The main activities to date have been to create and codify specific types of partnerships. For instance, UDOT is pursuing partnerships with public agencies, private and public employers, citizens, and state transportation agencies (e.g., Utah Transit Authority and MPOs). Each partnership comes with a unique set of agreements and expectations.

Some of the notable partnerships established to date across the different types of organizations/stakeholders include the Wasatch Front Regional Council, Zions Bank, and Utah Transit Authority. This partnership strategy also allows UDOT to tailor

[280] UDOT, *TravelWise Draft Strategic Action Plan Executive Report 2010–2013,* September 2009.

[281] Follow-up email from Angelo Papastamos, 11/30/2009.

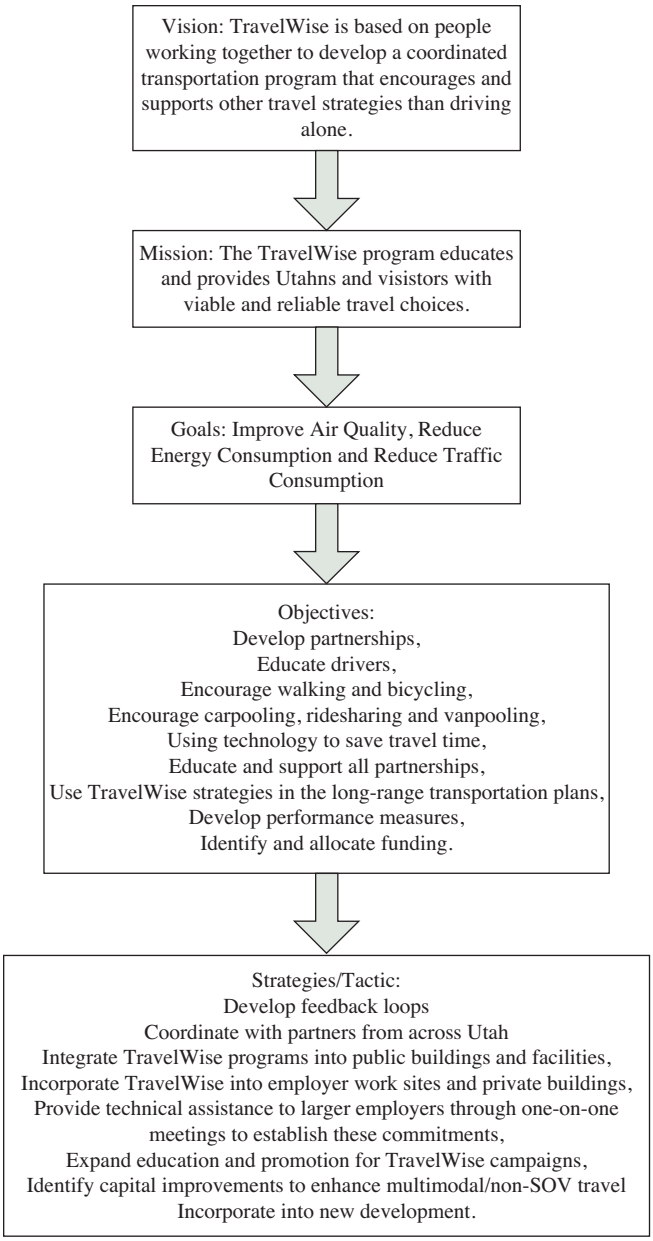

Figure 9 Strategic plan for TravelWise.

TravelWise strategies to each individual organization, making sure their TDM plans fit their TDM challenges. To date, TravelWise has three signed partnerships; the goal is to have 15–25 very active strong partnerships statewide by summer 2010.[282]

Some partners provide funding support, others offer services, and others will simply promote the TravelWise programs internally to employees. For instance, UDOT is working on forming a partnership with a telework organization that can promote the benefits of telework, as well as provide services to interested employers. Likewise, a car-sharing program will be a partner that not only educates its clients on TravelWise Solutions, but can be the provider of car sharing services for other TravelWise partners.[283] In many ways, TravelWise can be seen as a partner-building and service-sharing organization for TDM (see Figure 10). The following are some examples of TravelWise partnerships.

Wasatch Front Regional Council—UDOT formed a formal partnership with the Wasatch Front Regional Council (WFRC), the MPO for the Salt Lake City region, through an endorsement resolution.[284] The resolution organized by the MPO serves as a formal agreement to support and encourage the goals and activities of the TravelWise program.[285] Through the resolution, WFRC outlined the following goals and strategies, including:

- WFRC has funded several TravelWise strategies through the Transportation Improvement Program.
- WRFC's Long-Range Transportation Plan includes TravelWise Strategies.
- WFRC recognizes that encouraging TravelWise strategies can make a difference in reducing congestion, improving air quality, and reducing energy consumption.[286]

Zions Bank—One of the larger employers in Salt Lake City, Zions Bank is an example of a private-sector partner that is taking the lead as one of the program's first partners. The partnership agreement identifies that UDOT will provide Zions Bank with support materials to educate employees and individuals about TravelWise and will recognize Zions Bank as an official endorser of the program on the website and program materials. In exchange, Zions Bank will educate employees and clients about

[282] Follow-up email from Angelo Papastamos, 11/30/2009.

[283] Phone interview with Angelo Papastamos, UDOT, 10/14/2009.

[284] Phone interview with Angelo Papastamos, UDOT, 10/14/2009.

[285] Resolution endorsing TravelWise, submitted by Wasatch Front Regional Council, June 1, 2009, provided by Angelo Papastamos via email on 10/14/2009.

[286] Resolution endorsing TravelWise, submitted by Wasatch Front Regional Council, June 1, 2009, provided by Angelo Papastamos via email on 10/14/2009.

Figure 10 Partners of TravelWise.[287]

the TravelWise program and track the progress of employees using its services.[288] Below is an outline of the specific agreement:

- UDOT TravelWise will provide Zions Bank with support materials to assist in educating employees and individuals about TravelWise strategies and goals;
- Zions Bank will educate employees and clients about TravelWise;
- UDOT TravelWise will recognize Zions Bank as an official endorser, and will place the company name, link, and logo on the TravelWise website, and any other materials recognizing partners;
- UDOT TravelWise may highlight Zions Bank and their TravelWise efforts in newsletters and press releases;
- Zions Bank will track progress of employees while implementing TravelWise and will report results to UDOT;
- The partners will share in the mutual benefits of community goodwill created by UDOT TravelWise; and
- UDOT TravelWise will retain all final decision-making authority in regards to the operation of the program.

Working 4 Utah: An Example of a Statewide TDM Strategy in Practice

In an effort to reduce energy costs and emissions, Governor Huntsman introduced the Working 4 Utah initiative in June 2008. The initiative in essence created a compressed work week for most state government services. The compressed work week is set for Monday through Thursday, 7am to 6pm with a 1-hour lunch break.

The governor has not only reduced operational costs, but also reduced energy usages associated with CO^2 emissions, improved the availability of state services beyond the traditional work day, and offered a unique quality-of-life benefit to state employees.[289]

Preliminary analysis suggests that state employees could save $6 million a year in vehicle operating costs and that the state could save $3 million a year on building operation costs.[290] With fewer vehicles on the road on Fridays, the state initiative also effectively shifts demand and balances the demand for transportation infrastructure.[291]

[287] *TravelWise Partners,* http://travelwise.utah.gov, UDOT, 12/07/2009.

[288] Community Partner Agreement with Zions Bank, signed 11/25/2009, provided by Angelo Papastamos via email on 10/14/2009.

[289] Working 4 Utah Performance Report, Baseline Draft, August 2008.

[290] Working 4 Utah Performance Report, Baseline Draft, August 2008.

[291] Working 4 Utah Performance Report, Baseline Draft, August 2008.

Utah Transit Authority—Utah Transit Authority occupies a unique place within TravelWise because it provides the ridesharing database and vanpool services that support the six-county region in its service areas, as well as the primary rideshare and vanpool service for the TravelWise program. UTA uses RidePro, an automated rideshare software system and has 9,200 active commuters on file.[292] UTA is planning to update its website to better reflect its rideshare and vanpool services, and will cross-promote TravelWise solutions.[293]

TravelWise as a Department Strategy. Internally, UDOT is also incorporating the TravelWise strategies into its larger decision-making processes and programs (see Figure 11). There is a UDOT Technical Committee, an internal committee staffed by 30 employees from a variety of departments that supports the UDOT TravelWise program manager. The group meets two to three times per year to discuss ways to incorporate TravelWise strategies into other division practices at UDOT.[294]

The goal of the committee is to think about how the messages can be incorporated into everyday business at UDOT. For instance, when engineers are on site for construction, they can share information about TDM and construction mitigation.[295] TravelWise is listed as one of the strategies and resources for alternate commutes during construction for the Mountain View Corridor on Route 2100 North.[296] UDOT developed a brochure for employers on construction mitigation to help the department further promote its TravelWise services.

Additionally, UDOT is also planning to link its TravelWise philosophy through its ITS and CommuterLink program (traveler information).[297] Although CommuterLink predates TravelWise, it is one of the resources available through TravelWise.

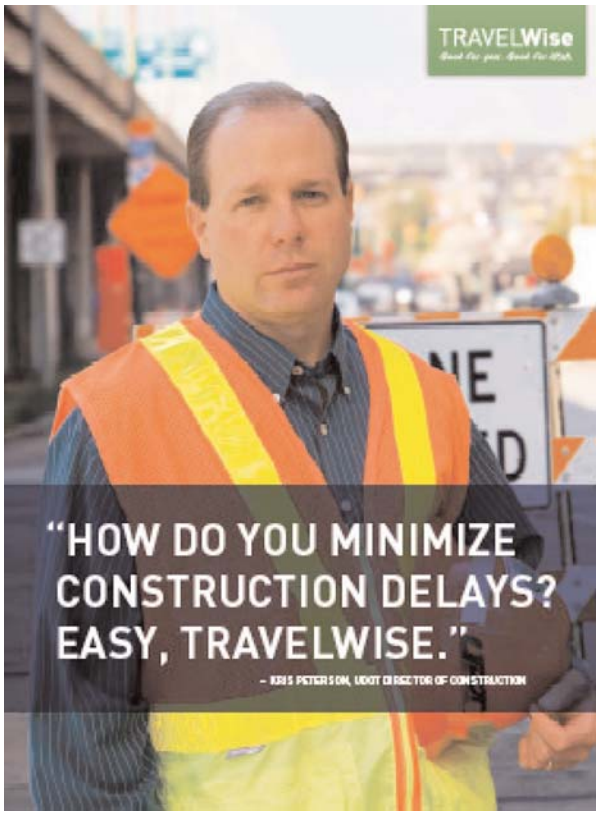

Figure 11 UDOT created a Construction Mitigation brochure that TravelWise as the main source of information on the subject.

CommuterLink is an ITS managed by UDOT that is designed to save lives, time, and money. The system grew out of the Transportation Management Committee initiated by the Senate in 1995. While CommuterLink does not currently link rideshare information and TravelWise to the 511 system operated by CommuterLink, UDOT plans to do so.[298] Aside from the emphasis on construction mitigation, UDOT sees ITS as one of the other prime categories that can be used to advance TravelWise solutions.[299] UDOT's TravelWise program plans to coordinate internally with CommuterLink to identify strategies to reduce demand and incorporate those as TravelWise solutions.[300]

[292] Phone interview with Jan Maynard, Utah Transit Authority, 10/29/09.
[293] Phone interview with Jan Maynard, Utah Transit Authority, 10/29/09.
[294] Follow-up email from Angelo Papastamos, 11/30/2009.
[295] Phone interview with Angelo Papastamos, UDOT, 10/14/2009.
[296] *Mountain View Corridor,* http://www.udot.utah.gov/mountainviewutcounty/content/alternate-routes, accessed 11/15/2009.
[297] Phone interview with Angelo Papastamos, UDOT, 10/14/2009.
[298] Phone interview with Angelo Papastamos, UDOT, 10/14/2009.
[299] Phone interview with Angelo Papastamos, UDOT, 10/14/2009.
[300] Phone interview with Angelo Papastamos, UDOT, 10/14/2009.

> "We are not working just through employers, but through mankind in Utah."
>
> -Angelo Papastamos,
> TravelWise Program Manager

Benefits and Challenges

TravelWise is indeed a comprehensive, statewide program with some unique benefits and challenges. The overarching umbrella approach offers uniform branding and marketing that helps to establish name recognition as a one-stop shop for traveler information. TravelWise serves as a clearinghouse, and with UDOT overseeing its development, the agency is able to avoid duplication of services. While there are no TMAs in the state, the community partners formed through grassroots relationships serve almost like those TMAs by offering localized technical assistance and services in the community. Additionally, UTA provides significant support to the program through its sales staff that cross-promote TravelWise. These grassroots partnerships provide constant support and momentum for the program.

Partnerships in Utah's TDM world have become almost commonplace. There is repetition amongst the partners that have worked on Salt Lake Solutions, Envision Utah, Clear the Air Challenge, and now TravelWise. However, with such an emphasis on voluntary partnerships, the success of the program will only be as good as the partnerships developed. In addition to its strong community partnerships, the success of TravelWise will depend on the continued support at the DOT. UDOT has benefited from existing support from the governor and charges from within DOT leadership to move forward on TDM. Nonetheless, UDOT represents a state taking on a new program that identifies TDM as a solution to many of the state's air quality and congestion challenges.

California Department of Transportation (Caltrans)

California's population is expected to increase by an average of 500,000 residents per year, totaling 48 million by 2030.[301] Furthermore, California is integral to the national movement of goods—an estimated 45 percent of containerized cargo passes through its ports.[302] Nearly one-half of California's urban highways are congested, which is 65 percent greater than the national average.[303] This is partially due to changes in travel patterns, with substantial increases in trips for non-work purposes.

Key Information

Funding: N/A

Lead Department at the DOT: Variable

Number of Full-Time Employees: Unknown

Other Major Partners: Metropolitan Planning Organizations

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While Caltrans recognizes the importance of TDM, unlike other states, it does not have a statewide TDM program for a variety of reasons. Caltrans at one time did have a statewide program in the early 1990s which covered TDM and involved nearly 75 TMAs, but within several years, the governor at the time decided to eliminate the program and devolve the responsibility for TDM mitigation to the local level (counties and MPOs).[304] Additionally, the state budget also lends itself to giving the local government more control over TDM than the state; 75 percent of the state's gas tax goes directly to local government, which leaves Caltrans with

[301] California Department of Transportation, *Caltrans Strategic Plan,* http://www.dot.ca.gov/docs/StrategicPlan2007-2012.pdf , accessed 10/26/2009.

[302] California Department of Transportation, *California Transportation Plan 2025,* http://www.dot.ca.gov/hq/tpp/offices/osp/ctp2025_files/CTP_2006.pdf, p. 1, accessed 10/26/2009.

[303] California Department of Transportation, *California Transportation Plan 2025,* http://www.dot.ca.gov/hq/tpp/offices/osp/ctp.html, p. 23, accessed 10/26/2009.

[304] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans, 10/14/2009.

little influence over TDM activities at the local level.[305]

As a result of this institutional structure, Caltrans represents a decentralized model, in which the state sets clear goals for institutionally incorporating TDM into planning and projects, but the authority to do so resides with the local government. In this case study, we present examples of this decentralized model from a variety of perspectives, including:

- Institutionalizing TDM through the California Transportation Plan.
- Establishing TDM goals through the Caltrans strategic plan.
- Establishing an ITS to guide TDM activities.
- Coordinating with local levels of government on project-specific TDM measures, including emergency response and construction mitigation.

History of Statewide Program Management

As mentioned previously, through the 1990s, Caltrans had a very large statewide TDM program, called California Smart Traveler, with an annual budget of $36 million.[306] This program included statewide and regional marketing, rideshare operations, TMA development, and assistance and traveler information systems.[307] Even then, Caltrans made efforts to link the program to broader goals for short- and long-term planning and operations.[308]

Part of the reason that Smart Traveler emerged was because there was a lack of a central clearinghouse for all TDM information. For instance, in 1993, the state had 32 different toll-free rideshare numbers that were not streamlined in any way.[309] This left commuters confused about information, and led to the development of the unified Smart Traveler program.

Caltrans essentially oversaw and managed "regional partnerships for marketing" or RPMs, which were public and private partnerships responsible for TDM on a local or regional level.[310] Caltrans divided the region into "TDM Districts" and oversaw the partnership development in each district.[311] Caltrans hired a marketing and communications firm to help develop regional strategic TDM plans.[312] Caltrans managed the program and focused on developing partnerships at the state level, including state and regional marketing, offering flexibility for discretion on promotional activities at the local and regional levels, and monitoring and evaluation to track activities.[313]

In the late 1990s, while the Smart Traveler program was still evolving, the governor decided that these responsibilities held by the statewide program should be devolved to the MPO and county levels, which led to the dismantling of this program within 3 years.[314]

Today, Caltrans follows a decentralized model in which TDM is incorporated into projects, planning, and operations, but travel options, like those offered by Smart Traveler, are now responsibilities held at the local and regional level by the MPOs.

Institutionalizing TDM

Currently, Caltrans supports TDM services statewide through a decentralized MPO-based model. They provide a wide range of TDM services on a project-level basis across multiple departments without an agency-wide TDM coordinator. In fact, most coordinated TDM programs occur at the MPO level, allowing for regionally specific approaches. The traveling population in San Francisco is different from that in San Diego. This method allows each division to address the integration of TDM into specific projects on a case-by-case basis. Caltrans has 12 different districts that can provide support and guidance through these project-level mechanisms.[315]

[305] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans, 10/14/2009.
[306] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans, 10/14/2009.
[307] *Caltrans TDM Library,* http://www.dot.ca.gov/caltrans511/biblio/plan/strat/ssmp.htm, accessed 12/1/2009.
[308] *Caltrans TDM Library,* http://www.dot.ca.gov/caltrans511/biblio/plan/strat/ssmp.htm, accessed 12/1/2009.
[309] *Caltrans TDM Library,* http://www.dot.ca.gov/caltrans511/biblio/plan/strat/ssmp.htm, accessed 12/1/2009.
[310] *Caltrans TDM Library,* http://www.dot.ca.gov/caltrans511/biblio/plan/strat/ssmp.htm, accessed 12/1/2009.
[311] *Caltrans TDM Library,* http://www.dot.ca.gov/caltrans511/biblio/plan/strat/ssmp.htm, accessed 12/1/2009.
[312] *Caltrans TDM Library,* http://www.dot.ca.gov/caltrans511/biblio/plan/strat/ssmp.htm, accessed 12/1/2009.
[313] *Caltrans TDM Library,* http://www.dot.ca.gov/caltrans511/biblio/plan/strat/ssmp.htm, accessed 12/1/2009.
[314] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans Headquarters, 10/14/2009.
[315] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans, 10/14/2009.

Unlike other states, California's transportation plan is developed for the purposes of implementation by MPOs and local levels of government, not just for Caltrans.[316] The MPOs collectively have a lot of authority in the state and consequently maintain a lot of the implementation roles for TDM.[317] As a result, Caltrans also prepares its own strategic plan, outlining the department's goals and visions. In both the statewide transportation plan and its strategic plan, Caltrans has established a clear policy to incorporate TDM as a goal.

GoCalifornia, the California Transportation Plan 2025, is the statewide plan that outlines a vision of a safe, sustainable, world-class transportation system that provides for the mobility and accessibility of people, goods, services, and information.[318] It is essentially a mobility action plan, which sets a goal to invest in the resources needed to significantly decrease congestion below today's levels.[319] In the plan, the state has identified multiple goals, one of which directly applies to TDM: "improve mobility and accessibility."[320] The state lists several policies associated with improving mobility, including:

- Enhance connectivity between transportation modes,
- Better enable travelers to manage their trips, and
- Provide greater access to information that would increase the use of telecommuting.

Some of the more specific strategies associated with these activities include completing the HOV network and supporting facilities, expanding bus rapid transit service and shared car programs, improving multimodal ground access to airports, and incorporating safe pedestrian and bicycle facilities in roadway capacity improvement and rehabilitation projects.[321] Through these sorts of strategies, the state has shown its commitment to TDM as a viable approach to reduce congestion.

As mentioned above, the state transportation plan is not only led by Caltrans, but is meant to be a plan that can be implemented by multiple agencies, including MPOs.[322] The Caltrans strategic plan, however, lists specific goals and strategies that will be pursued by Caltrans, many of which align with TDM policies. Most specifically related to TDM is the state's goal to reduce the share of commute trips made by SOV by 5 percent from 2005 levels by 2012. Caltrans lists a number of ways in which it would pursue this goal, including:

- Work closely with local jurisdictions on land use issues to promote mode shift.
- Partner with stakeholders and region on implementing TDM strategies.
- Establish baseline performance data for vehicle occupancy.
- Improve interconnectivity between modes.
- Complete California's HOV system.
- Partner with transit and rail authorities making transit options more useful, inviting, and less difficult to use.
- Increase support for non-motorized and promotion/incentives for use of alternate means of transportation.
- Assess the need for a park-and-ride lot program.

Its important to note that in addition to traditional TDM strategies, Caltrans is also focused on transit oriented development (TOD) and land use policies as a means of addressing congestion. Both TOD and associated smart growth policies appear in the strategic plan as important elements to reduce congestion. Additionally, the strategic plan coincides with *GoCalifornia* and offers a statewide perspective on Caltrans' goals, many of which must be implemented by local jurisdictions through cooperative partnerships.

TDM at a Project Level

As outlined above, Caltrans has clear TDM goals and strategies, but does not have a specific formal

[316] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans, 10/14/2009.
[317] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans, 10/14/2009.
[318] California Department of Transportation, *California Transportation Plan 2025,* http://www.dot.ca.gov/hq/tpp/offices/osp/ctp.html, p. ii, accessed 10/26/2009.
[319] California Department of Transportation, *California Transportation Plan 2025,* http://www.dot.ca.gov/hq/tpp/offices/osp/ctp2025_files/CTP_2006.pdf, Executive Summary, p. 5, accessed 10/26/2009.
[320] California Department of Transportation, *California 2025 Transportation Plan,* http://www.dot.ca.gov/hq/tpp/offices/osp/ctp2025_files/CTP_2006.pdf, p. 34, accessed 10/26/2009.
[321] California Department of Transportation, *California Transportation Plan 2025,* www.dot.ca.gov/hq/tpp/offices/osp/ctp.html, p. 39, accessed 12/6/2009.
[322] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans, 10/14/2009.

approach to integrate TDM measures into projects. Nonetheless, TDM is often considered in the project planning phases. TDM usually is incorporated within project development during the project initiation phase. During the initiation phase, a project team is assembled and develops a Project Initiation Document. The team develops a document that identifies the project scope, schedule, and cost estimate. It is at this point that the initial decision would be made on whether any TDM measures needed to be incorporated. Refinement of the plan, if needed, would occur at the next stage, the Project Approval and Environmental Document.[323]

While there is no formal requirement for TDM in the project, most projects include traffic management plans, and the majority of those incorporate TDM elements.[324] Traffic management plans are created and approved by the District's Traffic Operations Division. Additionally, during the project development process, there may be periodic "constructability reviews" in which the project team would identify new areas that have emerged that may need to be responded to during construction; often there are mobility issues. TDM is incorporated then when the scale of impacts for a project necessitates the creation of a temporary new transportation service to keep mobility at a minimally acceptable level. On large projects that will definitely have impacts needing augmentation, TDM is sometimes included as an expected need from the very beginning, at the project initiation phase, but other times, those details are not worked out until much later in a project.[325]

The following examples demonstrate the use of Caltrans' TDM strategies in a planned construction project and an unplanned emergency. Although Caltrans has devolved authority and responsibility for TDM to the MPOs and has no formal authority to pursue standardization, it does play a role as a facilitator to assist MPOs in coordinating services and guides MPO services through its comprehensive ITS.[326]

TDM as a Traffic Management Strategy during Construction

As outlined above, traffic management strategies, a component of TDM, are brought into project development when mobility will be limited due to a construction project. In the case of Interstate 5 (I-5), Caltrans used public outreach for traffic management to reduce congestion. With the "Fix I-5" project, Caltrans used TDM strategies for a short-term fix, but ultimately it is likely that the strategies had a lasting affect in increasing awareness of transit options and alternate modes.

Due to draining problems on I-5, Caltrans undertook efforts in the summer of 2008 to replace ¾ mile of pavement, install a new drainage system and wells, and add new monitoring equipment.[327] The challenge resided in how to avoid a gridlock when the lanes would need to be closed to complete the work in downtown Sacramento. Considering that the interstate carried 190,000 vehicles per day, Caltrans needed a sophisticated approach to manage demand in the area.[328]

Caltrans developed a comprehensive public outreach plan to look at the best ways to handle the travel demand and to use alternate commute strategies to manage that demand. Considering that nearly one-half of their state and California State University's 256,000 employees work in the Sacramento area, Caltrans partially focused its outreach on state employees.[329] The public outreach campaign included paid media advertising, email blasts on a daily basis, community outreach, direct mailing, development of partnerships, and press events.[330] Caltrans sent out mailings to 125,000 residents, businesses, and partners regarding the project and hosted presentations for neighborhood and business associations.[331] Caltrans also established a website, http://www.fixi5.com, to provide information to government agencies, businesses, the public, and the press, regarding the project timeline, links to maps, and live video feed from traffic cameras installed at the site of the construction work.[332]

[323] Follow-up email from Tom Neumann, 12/3/2009.
[324] Follow-up email from David Lively, 12/7/2009.
[325] Follow-up email from Tom Neumann, 12/7/2009.
[326] Follow-up email from David Lively, 12/3/2009.
[327] Caltrans I-5 Fact Sheet, link, http://www.cityofsacramento.org/council/bulletinboard/files5075/I-5%20fact%20sheet%20 5%202%2008.pdf, accessed 10/26/2009.
[328] California Transportation Journal, http://www.dot.ca.gov/ctjournal/service.html, accessed 11/30/2009.
[329] Follow-up email from Marlo Tinney, Caltrans District 4, 11/30/2009.
[330] California Transportation Journal, http://www.dot.ca.gov/ctjournal/service.html, accessed 11/30/2009.
[331] *Caltrans I-5 Boat Section Project, Public Outreach and Advertising Campaign,* Power Point Presentation provided by Marlo Tinney via email, 11/17/2009.
[332] Executive Order S-04-08, http://gov.ca.gov/executive-order/9629, accessed 11/17/2009.

Caltrans also pursued a variety of measures to gain support from the governor's office and the city of Sacramento to issue ordinances that would ease travel options. For example, the city of Sacramento developed an emergency ordinance to permit bicycling on the downtown pedestrian K Street Mall during the construction efforts, in order to encourage alternate commuting.[333] Additionally, the governor's office issued Executive Order S-04-08, which directed state agencies to encourage telecommuting, alternate work schedules, flextime, public transit, and vanpools where feasible and practical.[334] The purpose was to leverage changes at state offices (which make up a large amount of the offices in the area) to reduce traffic demand.[335] The executive order provided information resources and recommended processes to implement the TDM strategies. The issuance also generated additional media coverage, improving public awareness of the construction schedule, as well as potential actions to take to reduce traveler delay.

In addition to the executive order, the state issued a memo to all state employees that encouraged departments to allow flexibility in employee work schedules, encouraged departments to schedule meetings during non-peak times to avoid bringing additional traffic to the downtown area via the I-5 construction area, and offered an internal hotline to assist employees with route planning.[336] To further reach out to state employees, Caltrans utilized the Global Messaging System at the State Controller's Office to include a text message about the project on the state employees' direct deposit payroll statements. The message included the project website address, and referenced the potential for traffic delays in the project area during construction.[337]

Fortunately, due to proactive planning, as well as comprehensive outreach strategies, construction for I-5 was completed in just 35 days of around-the-clock construction rather than the original construction plan of 5 years.[338] After construction was completed, Caltrans and the city of Sacramento began to issue press releases and media that encouraged more alternate commute use. For instance, messages included: "Construction has been completed on the downtown Sacramento stretch of I-5. Thanks for finding travel alternatives that kept traffic disruptions to a minimum. Just because the construction is finished doesn't mean you need to drive alone to work again, follow the links below to explore your travel options."[339] This I-5 project provides an example of implementing TDM outreach and traffic management efforts in a project in order to reduce congestion and encourage alternate commute modes.

TDM as an Emergency Response Tactic

Unlike I-5 in which activities for TDM outreach were planned in advance, the state faced a serious emergency in April 2007 in which Caltrans, through coordination and cooperation with the MPO, was able to utilize TDM messaging and strategies in order to avoid gridlock. On April 29th, 2007, early in the morning, a single vehicle crash of a large gasoline tanker on the lower roadway of a major overpass connection led to an accident that would challenge California's transportation infrastructure and emergency response plans. The tanker, which carried 8,600 gallons of unleaded gasoline, hit a guardrail and erupted into flames.[340] The steel frame and the bolts that held the I-580 overpass together began to melt from the intense heat.[341] About 20 minutes after the crash, the upper connector ramp began to buckle and collapse.[342]

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[333] *City Approves Bicycling on K Street Mall,* http://www.cityofsacramento.org/transportation/fix_i-5/media/6-5-08-KStreet-Mall.pdf , accessed 11/17/2009.

[334] Executive Order S-04-08, http://gov.ca.gov/executive-order/9629, accessed 11/17/2009.

[335] Follow-up email from Marlo Tinney, Caltrans District 4, 11/30/2009.

[336] Executive Order S-04-08, http://gov.ca.gov/executive-order/9629, accessed 11/17/2009.

[337] Follow-up email from Marlo Tinney, Caltrans District 4, 11/30/2009.

[338] California Transportation Journal, http://www.dot.ca.gov/ctjournal/service.html, accessed 11/30/2009.

[339] *Sacramento I-5,* http://www.sacregion511.org/fixi5, accessed 11/30/2009.

[340] *Tanker fire destroys part of MacArthur Maze,* San Francisco Chronicle, 4/29/2007, http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2007/04/29/BAGVOPHQU46.DTL, accessed 10/19/2009.

[341] *Tanker fire destroys part of MacArthur Maze,* San Francisco Chronicle, 4/29/2007, http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2007/04/29/BAGVOPHQU46.DTL, accessed 10/19/2009.

[342] *Tanker fire destroys part of MacArthur Maze,* San Francisco Chronicle, 4/29/2007, http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2007/04/29/BAGVOPHQU46.DTL, accessed 10/19/2009.

After the accident, Caltrans had to face repair and rebuild decisions, as well as travel decisions in order to accommodate the nearly 80,000 vehicles per day that would be displaced by the accident.[343] Caltrans closed Interstate 580 since the overpass that connects I-80 and I-580 collapsed onto I-880.[344] Caltrans had to design a repair plan and a travel plan. Working with Metropolitan Transportation Commission (MTC), the local MPO, Caltrans and MTC were able to collaborate and coordinate to divert what could have been an incredible gridlock through integrated TDM and emergency response strategies.

Immediately after the incident, Caltrans' Emergency Operations Center was activated, and functioned as a gathering place for Caltrans District 4 staff, as well as staff MTC, to gather and make decisions.[345] MTC handled the 511 outreach, verifying information to post, and developing maps of the affected routes.[346] Parallel to these efforts, Caltrans arranged for a significant outreach program, including daily media briefings at the Emergency Operations Center, website updates, press conferences, and a live camera feed for the public to see the progress.[347] Caltrans established the detour routes and MTC provided mapping of those routes. Caltrans also worked with the governor's office to declare a state of emergency, which makes it easier to establish contracts, eases environmental codes, and provided emergency funding for free transit incentives.[348]

Both MTC and Caltrans agreed that it was very effective having all the decision makers in one place (Caltrans, MTC, CHP, locals) because things got done much more quickly than would have been the case if everyone had been in separate areas.[349]

During the emergency, MTC used 511 as the preferred tool for disseminating information to the public regarding the state of the emergency, the state of the roadway infrastructure, and detour, alternate route, and transit information.[350] Those who visited the 511 site were able to access information on detours, detailed maps of the region, and recommendations on transit options.[351] MTC found that its 511 traffic web usage increased to 711% of average (approximately 100,000 sessions versus the average of about 15,000 per day).[352]

Caltrans was able to effectively incorporate TDM messaging and traffic management by leveraging relationships with MTC and utilizing MTC's mapping and data in order to reduce congestion and avoid gridlock after a major traffic accident.

Intelligent Transportation Systems (ITS)

Caltrans' approach to TDM reflects its decentralized role in operating the state's highway system; the state owns only 15,000 miles of highways in the state, while over 100,000 miles of the state's roads are owned by others.[353] While Caltrans no longer has a statewide travel options program in place, the state does maintain and operate a comprehensive ITS program, which Caltrans sees as one of its stronger TDM strategies to be offered at the state level.[354]

[343] *Bay Area Rapid Response to MacArthur Maze Meltdown,* Metropolitan Transportation Commission and Caltrans Fact Sheet, http://www.dot.ca.gov/dist4/mazedamage/docs/mazefactsheet_mtc.pdf, accessed 10/19/2009.

[344] *Freeway Out of Action,* USA Today Visual, 4/30/2007, http://www.usatoday.com/news/nation/2007-04-29-baybridge_N.htm, accessed 10/19/2009.

[345] *Debrief and Lessons Learned from MacArthur Maze Incident and Response,* Metropolitan Transportation Commission, 5/9/2007, provided via email by Barb Laurenson, Metropolitan Transportation Commission on 10/22/2009.

[346] *Debrief and Lessons Learned from MacArthur Maze Incident and Response,* Metropolitan Transportation Commission, 5/9/2007, provided via email by Barb Laurenson, Metropolitan Transportation Commission on 10/22/2009.

[347] *California Transportation Journal,* http://www.dot.ca.gov/ctjournal/service.html, accessed 11/30/2009.

[348] *Emergency Ramp Replacement Project,* Caltrans District 4 Press Release, http://www.dot.ca.gov/dist4/newsreleases/mazeupdate43007.pdf, accessed 10/26/2009.

[349] *Debrief and Lessons Learned from MacArthur Maze Incident and Response,* Metropolitan Transportation Commission, 5/9/2007, provided via email by Barb Laurenson, Metropolitan Transportation Commission on 10/22/2009.

[350] *511 Emergency Response,* Presentation by Metropolitan Transportation Commission to ITS World Congress. Presented by Janet Banner on 11/18/2009; provided via email by Carol Keuster, Metropolitan Transportation Commission, on 10/20/2009.

[351] Phone interview with Carol Keuster, Metropolitan Transportation Commission, 10/19/2009.

[352] *511 Emergency Response,* Presentation by Metropolitan Transportation Commission to ITS World Congress. Presented by Janet Banner on 11/18/2009; provided via email by Carol Keuster, Metropolitan Transportation Commission, on 10/20/2009.

[353] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans, 10/14/2009.

[354] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans, 10/14/2009.

Some of the ITS strategies offered in California include advanced traffic signals, roadway and weather monitoring stations, bus location systems, and electronic roadside information signs.[355] In terms of managing or shifting demand, these ITS tools help Caltrans to handle transit and freeway management, traffic signal control, and electronic toll collection.[356]

Caltrans has a series of working groups, an advisory committee, and stakeholder meetings to ensure that state needs are met in the ITS Architecture.[357] Caltrans sees the goal of the ITS Architecture Plan as "a path for improving the way people travel . . . to speed up our roads and make transit easier to use."[358] Caltrans has many examples of how its ITS measures are working, such as how drivers changed or alerted a route or travel plan based on information provided on variable message signs. For example, in Los Angeles, a survey of motorists found that 78 percent of respondents changed their routes based on information provided by Caltrans ITS' automated work zone information system.[359]

Caltrans is evolving the ITS system to even further benefit TDM planning and strategies by adapting their travel models to include non-work trips.[360] This is unusual, because the models usually just address traditional commute trips. Likewise, the ITS department is conducting causal analysis for highway monitoring to help evaluate demand and capacity according to a variety of factors, including the time of day, day of the week, weekend versus week day, and holiday versus non-holiday.[361]

Benefits and Challenges

One of the benefits of this decentralized approach is regionally tailored solutions. Since 94 percent of the state's land area is rural, it is not clear that there is a need for a statewide program.[362] Caltrans believes that TDM resources should be targeted to the areas facing congestion. In the case of the MacArthur Maze incident, it is also not clear that a system as sophisticated as the one in place would have existed in the Bay area, unless the MPO was able to lead and manage its own 511 program and leverage its own dedicated funding sources. The program was never designed for emergency response, but because it was designed to be flexible and match the MPO's needs, it was adaptable. If the state had managed it, it is possible that it would not have been as specialized. The fact that California has moved back to a decentralized model illustrates that the regional approach works effectively for them.

However, the decentralized approach is not without its challenges. For example, it can be frustrating that TDM solutions are functionally restricted to just those jurisdictions that are in the MPO region. Commuters do not restrict themselves to just MPO boundaries; it is conceivable that some commuters start in Sacramento and end in San Francisco, crossing the two MPOs. Nonetheless, MPOs are moving towards broader boundary definitions in their products, such as mapping, to serve those users that may be commuting between regions.[363]

APPENDICES A AND B

Appendices A and B as submitted by the contractor are not published herein. The titles of the appendices (available on request to NCHRP) are as follows:

Appendix A Specific Survey Responses
Appendix B Interview Log

[355] *Statewide ITS Architecture: What is ITS,* http://www.dot.ca.gov/hq/tpp/offices/opar/CAarchitecture/What_is_ITS.htm, accessed 11/14/2009.

[356] *Electronic Toll Collection,* Caltrans ITS, http://www.dot.ca.gov/hq/tpp/offices/opar/CAarchitecture/Archive/its-elements.pps#275,10,Electronic%20Toll%20Collection, accessed 11/14/2009.

[357] *Statewide ITS Architecture: Stakeholders and Meetings* http://www.dot.ca.gov/hq/tpp/offices/opar/CAarchitecture/stakeholders_and_meetings.htm, accessed 11/14/2009.

[358] *Caltrans Roles and Responsibilities, ITS Architecture,* http://www.dot.ca.gov/hq/tpp/offices/opar/CAarchitecture/Archive/AC_Meetings/FINAL/Roles_and_Responsibilities,8.5X9.pdf, accessed 11/14/2009.

[359] *Research and Innovative Technology Administration, ITS,* http://www.itslessons.its.dot.gov/its/benecost.nsf/ID/A70ADBCAC89456AE85257260006E4D77?OpenDocument&Query=State, accessed 11/14/2009.

[360] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans, 10/14/2009.

[361] Phone interview with Tom Neumann, Nathan Smith, and David Lively, Caltrans, 10/14/2009.

[362] California Transportation Plan 2025, http://www.dot.ca.gov/hq/tpp/offices/osp/ctp.html, p. xi, accessed 10/26/2009.

[363] Follow-up email from David Lively, 12/7/2009.

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