

# STATEWIDE TRANSPORTATION DEMAND MANAGEMENT (TDM) PLAN for Tennessee Nonattainment and Maintenance Areas



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## Glossary

**BTS** – Bureau of Transportation Statistics

**CO** – Carbon Monoxide

**CMAQ** – Congestion Mitigation and Air Quality

**ETC** – Employer Transportation Coordinator

**FHWA** – Federal Highway Administration

**GRH** – Guaranteed Ride Home

**HOV** – High-Occupancy Vehicle

**ITS** – Intelligent Transportation Systems

**PM** – Particulate Matter

**SOV** – Single-Occupant Vehicle

**TDM** – Travel Demand Management

**TDOT** – Tennessee Department of Transportation

**TMA** – Transportation Management Area

**TTI** – Texas A&M Transportation Institute

**VMT** – Vehicle Miles Traveled

## Executive Summary

The Statewide Transportation Demand Management (TDM) Plan for Tennessee provides a dynamic structure for trip reduction strategies that is suitable for immediate implementation, but flexible to accommodate the demands of future transportation and travel. The Plan positions the Tennessee Department of Transportation (TDOT) as the leader, coordinating TDM efforts with regional partners responsible for program implementation within each of the state's five urban areas that include the Chattanooga, Clarksville, Knoxville, Memphis and Nashville regions.

TDOT's 25-year Long Range Transportation Plan Mobility Policy Paper<sup>1</sup> established the foundation that the state's transportation system should encompass mobility options and travel choices that promote a strong and connected transportation system that links residents to jobs, schools, services and attractions. The plan describes the provision of viable alternatives to the single occupant vehicle (SOV) as a central element of TDOT's vision of an efficient and effective multimodal transportation system. TDM represents low-cost alternatives that can help TDOT expand and enhance mobility, transportation system efficiency, and environmental protection by reducing SOV congestion and improving air quality as a result.

The primary goal of TDM programming statewide is to reduce SOV travel while promoting alternative modes that include carpooling, vanpooling, taking transit, bicycling, walking, alternative work arrangements and on-demand or shared services. The Statewide TDM Plan is further supported through the following key objectives:

- Decrease traffic congestion and air pollution
- Support and enhance TDM programming in the state's five major urban areas
- Increase customer access to programs and services
- Streamline the administration and evaluation of TDM programming
- Increase awareness and support for TDM initiatives in the state

Based upon findings gathered through a data collection effort that featured stakeholder engagement, commuter and employer surveying statewide, and analysis of national best practices, the Plan includes six key recommendations under a new structure led by TDOT as follows:

- 1. Introduce a standard Commuter Program structure**
- 2. Establish a statewide TDM brand**
- 3. Identify a statewide TDM coordinator (team)**
- 4. Maintain core TDM services for regional implementation**
- 5. Increase accountability**
- 6. Develop standard operating procedures for administration of TDM projects**

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<sup>1</sup> [https://www.tn.gov/assets/entities/tdot/attachments/Mobility\\_022316.pdf](https://www.tn.gov/assets/entities/tdot/attachments/Mobility_022316.pdf)



These recommendations seek to enhance the state's current regional TDM programming, which is comprised of efforts that vary in scope and design including: the TMA Group, MTA/RTA efforts, Complete Trips and Hytch in Nashville; GreenTrips in Chattanooga; Smart Trips in Knoxville; and Memphis Area Rideshare and Commute Options in Memphis. In addition to the comprehensive review of regional programming, survey data was collected from over 1,600 commuters representing current program participants and non-participants, along with 150 employer organizations statewide.

With a greater emphasis on mode shift, measurement, and accountability, the new TDM program model for Tennessee seeks to eliminate duplication and create efficiencies while supplementing core TDM services with new and existing technologies. Implementation of the Statewide Plan will heighten the value of TDM in Tennessee and better integrate the programs and strategies with state and local policies and programs along with the overall transportation infrastructure.

## 1. Plan Overview

Transportation in Tennessee is dominated by drive-alone traffic. According to the latest Bureau of Transportation Statistics (BTS) annual report<sup>2</sup>, almost eighty-four percent of work-related travel involved a single-occupant vehicle (SOV) in 2013 – almost ten percent higher than the national average. This helped produce a 2.8 percent increase in vehicle miles traveled (VMT) in Tennessee during that same year.

This trend has also produced a steady increase in congestion in Tennessee. According to INRIX's 2016 Global Traffic Scorecard<sup>3</sup>, three of Tennessee's four largest cities by population, (Nashville, Memphis, and Chattanooga), rank in the Top 70 most congested U.S. cities during peak hours; spending around 18 to 34 hours per year in congestion. INRIX estimates this costs the average driver between \$750 and \$1,300 per year in wasted fuel and time.

Through the effort to strengthen and enhance TDM programs and activities, TDOT seeks to address these negative trends while supporting economic growth across the state by helping commuters get to and from their jobs and enabling employers to participate in transportation solutions. The Statewide TDM Plan guides the Department's effort to create more efficient TDM management practices by establishing a statewide vision and developing goals and objectives that provide the framework for long-term program implementation and sustainability. The Plan is supported by a baseline assessment created through data collection and stakeholder engagement, and combined with national best practices. One of TDOT's goals is to support and enhance TDM programming statewide in order to reduce congestion and air pollution by reducing the use of SOVs and increasing the use of transportation alternatives.

### 1.1 TDM Definition

Transportation Demand Management is a set of strategies that influence travel behavior to reduce SOV travel. Ranging from ridesharing, bicycling, teleworking, taking transit, car sharing and on-demand or real-time applications, TDM strategies redistribute commuter travel across a variety of alternatives and away from daily peak periods. TDM programs represent a flexible, low-cost way to engage residents, travelers, businesses, and local governments in the effort to reduce commuter travel and the associated impacts on the community including traffic congestion and emissions.

Most TDM efforts are funded with Congestion Mitigation and Air Quality (CMAQ) Improvement Program<sup>4</sup> funds through the Federal Highway Administration (FHWA). Current CMAQ Interim

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<sup>2</sup> <https://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/tennessee.pdf>

<sup>3</sup> <http://inrix.com/scorecard/>

<sup>4</sup> [https://www.fhwa.dot.gov/Environment/air\\_quality/cmaq/policy\\_and\\_guidance/2013\\_guidance/cmaq2013.pdf](https://www.fhwa.dot.gov/Environment/air_quality/cmaq/policy_and_guidance/2013_guidance/cmaq2013.pdf)

Guidance defines TDM as “a diverse set of activities that focus on physical assets and services that provide real-time information on network performance and support better decision making for travelers choosing modes, times, routes, and locations. Such projects can help ease congestion and reduce SOV use – contributing to mobility, while enhancing air quality and saving energy resources. Similar to Intelligent Transportation Systems (ITS) and Value Pricing, today’s TDM programs seek to optimize the performance of local and regional transportation networks.” Eligible TDM activities (defined by CMAQ), range from traveler information services, shuttles, employer-based programming, parking initiatives, public education and outreach activities, telework promotion, transportation management associations (TMAs), carpool and vanpool services (ridematching, marketing, guaranteed ride home, subsidies), and car sharing.

TDM programming is traditionally built on a foundation that seeks to influence commute-based travel behavior and workplace engagement. When expanded, TDM can have a greater connection to economic development, land use and healthy communities, transportation planning, traffic operations, and a framework for innovation. In addition, the use of technology directly intersects TDM and represents a significant opportunity to change travel behaviors. Examples of related technology include:

- Private sector mobile applications for ride booking that are supplementing and replacing traditional ridematching
- Services (e.g., Waze) that are integrating with local transportation agencies
- Autonomous vehicles that will impact SOV travel and air quality
- ITS digital signage to encourage alternative mode use
- Big data sets including INRIX, AirSage, BlueTOAD, and StreetLight to further direct TDM efforts based on commuting patterns and origin/destination data
- The influence of Smart Cities on commute behavior and increasing throughput efficiency

## TDM Characteristics

### Core program/service offerings:

- Ridematching for carpool/vanpool support
- Vanpool programs
- Financial incentives
- Guaranteed Ride Home
- Modal promotions
- Employer outreach and education
  - Partnership/recognition program
- Community outreach and education
- Marketing and communications
- Road construction and event-based promotions/education
- Traveler information
  - Website
  - Customer service
  - Trip planning

### Promotion of regional services:

- Transit education
- Car sharing
- Bike sharing
- Traveler information systems
- Telecommuting, alternative work arrangements

### Ability to influence:

- Livable and healthy community initiatives
- Land use and smart growth programming
- Walking, biking and transit access/connectivity

## 1.2 TDM in Tennessee

Tennessee has 16 nonattainment and maintenance counties (full or partial) that are eligible to receive CMAQ funds. They are located in the state's five major urban areas – Chattanooga, Clarksville, Knoxville, Memphis and Nashville. TDM programs currently exist in the Chattanooga, Knoxville, Memphis and Nashville metropolitan areas. These programs span a significant age range with the oldest having started in 1988 with TMA Group and most recently Metro's Complete Trips anticipated to kick off in early 2017. Likewise, the key program offerings and program scopes vary significantly, with some programs focused solely on vanpools, others based on employer outreach services, and some utilizing rideshare matching databases and commuter incentives.

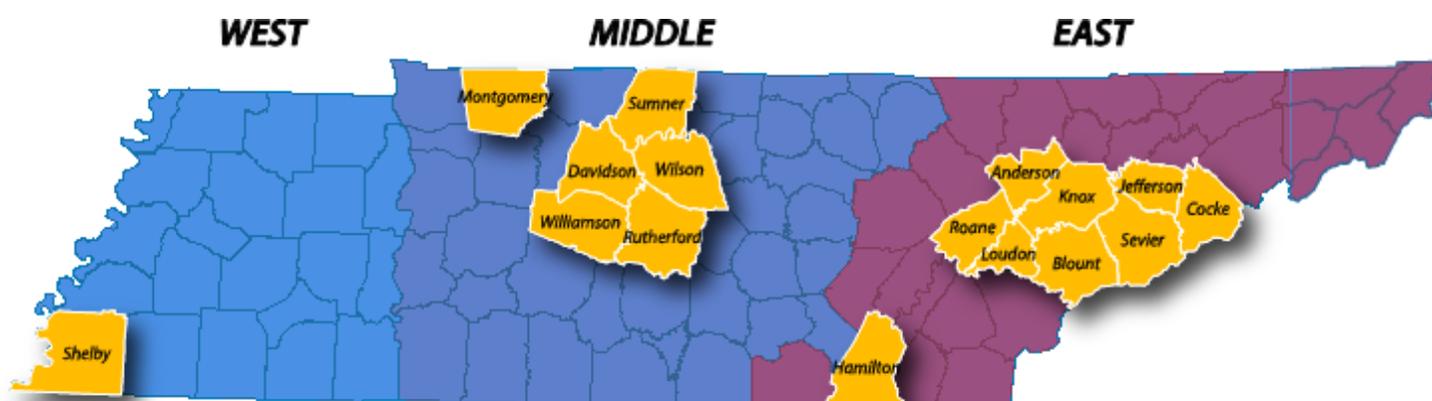
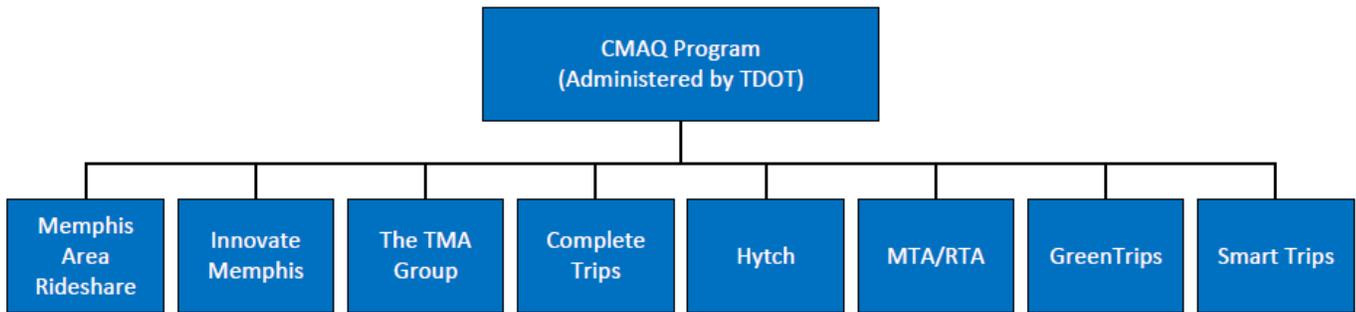


Figure 1. CMAQ Eligible Project Areas

### CMAQ Competitive Funding

Since 2010, TDOT has utilized a competitive application process to distribute the state's allocated CMAQ funds. The application process requires the project sponsor to describe in detail the nature of the project and anticipated use of the requested funds. The applicant is also required to provide an implementation and funding plan, and calculate the estimated pollutant emissions reduced by each project.

In 2016, TDOT set aside a portion of their CMAQ funds to help encourage the advancement of specific initiatives related to new or expanded transit service, park and ride lots, and diesel emissions reduction projects. Other TDM project applications were placed in the General Competition category and competed against other CMAQ projects (e.g., ITS, Bike/Ped). Between 2014 and 2015, TDOT awarded approximately \$3.4 million of CMAQ funds to TDM-related projects. In 2016, TDOT awarded over \$7.1 million to seven TDM projects statewide.



**Figure 2. Current CMAQ TDM Funding Structure**

## 2. Summary of Key Findings

The baseline assessment of current TDM efforts in Tennessee, through the use of stakeholder interviews, employer- and commuter-based surveys, and national best practices, reveals the following key findings categorized by strengths and improvement opportunities:

### EXISTING STRENGTHS

- TDM has a long history in Tennessee with some programs in operation for more than 25 years. Increases in the amount of CMAQ competitive grant applications and new program offerings (e.g., Metro’s Complete Trips) indicate a continued interest in programming and support at the regional level.
- There is regional support for TDOT to play a leading role in TDM program development and messaging. CMAQ-recipients are seeking greater interaction and coordination across the state.
- Newly funded initiatives (e.g., Hytch) are demonstrating increased focus on private sector engagement, use of technology and innovative solutions.

### IMPROVEMENT OPPORTUNITIES

- There is a need to coordinate efforts and establish a vision for TDM in Tennessee. While TDM efforts have been funded for many years, there has been little attempt to coordinate programs, operations and outcomes.
- There is a common belief in the value of employer engagement but the level of employer outreach and private sector engagement is very low.
- The current TDM programming is fragmented, leaving gaps in service and missed opportunities. This greatly limits the state’s ability to demonstrate collective impacts.

## 2.1 Stakeholder Input

The following list represents a summary of direct input received through the stakeholder engagement process. This process included meetings and discussions in each of the five urban areas with:

1. Regional TDM program staff (past and present)
2. Regional program operators
3. Regional planning agencies
4. Transit agencies
5. Others (private service providers, mobile app developers, partnerships)

The input received is categorized into four primary themes which presented themselves consistently across each of the stakeholder interviews and were unsolicited by the interviewers. A summary of each of the regional TDM programs is provided in the Summary of Existing Programs in Appendix A.

- **Increased Coordination and Information Sharing:** Each of the programs operating in the urban areas have little to no contact with one another and feel that there would be significant benefit to regular contact and information sharing in order to share successes and encourage creation of a Tennessee best practice model for TDM program implementation.
- **Administration of CMAQ Funding:** The TDM programs/operators with CMAQ funding and reimbursement experience seek more guidance from TDOT, including standard operating procedures for program measurement and quarterly reporting along with the reimbursement process and allowable expenditures.
- **TDM Support from the Department of Transportation:** The regional programs would like to see TDOT lead the dialogue in support of TDM and travel options. TDOT's efforts to engage state, local and business leaders by generating more multi-modal messaging in support of TDM and its benefits would boost the success of the regional programs and position TDM as a valuable component of the transportation network.
- **Statewide Services:** While the regional programs are protective of the brands and programming that they have worked hard to establish, they are also supportive of TDOT playing a strong role in TDM program delivery. In addition to more vocal support and promotion of commute options, the state could serve as a best practices resource, consider cost-sharing measures for core program elements, host regular coordination/guidance events for the regional partners, and assist with innovations and technology.



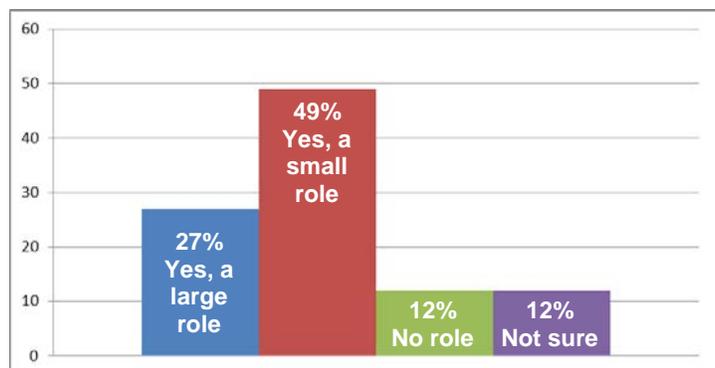
## 2.2 Survey Data

Employers and commuters statewide participated in the TDM plan development through participation in online surveys. The regional TDM providers assisted by supplying distribution lists for both the commuter and employer surveys. In total, 1,600 commuters participated in the survey. The majority of the responses were obtained through the outreach efforts of the regional partners so participants were likely to be commuters for whom transportation is an issue of interest or who are already participating in a TDM program. To obtain a more representative sample of commuters throughout the state, responses were obtained using an online panel, which represents 211 of the commuter responses. Employer responses were collected from 150 employer organizations statewide, with approximately half located within the Nashville region. Responses from employers indicate that approximately fifty percent of the organizations were categorized as professional/business services with other designations including education/health, government, manufacturing and financial.

The surveys demonstrated the anticipated participation rates among commuters and employers and exhibited overall support for program participation and alternative mode use. The following sections provide a high-level summary and touch on the level of support and opportunity for TDM in Tennessee.

### Employer Survey – Major Findings

- **Impact of the transportation system on business:** Survey responses show the transportation system tends to negatively impact businesses in Nashville more than other regions, showing less positivity to the following: employee recruitment, employee productivity, employee turnover, cost of receiving and sending goods, and goods movement and package delivery.
- **Role that companies play in addressing traffic congestion and/or air pollution in the state:** statewide approximately seventy-five percent agree they have a responsibility; in Nashville this number was slightly higher at eighty-three percent.



**Figure 3. Survey response: Do you think your company has a role to play in addressing traffic congestion and/or air pollution in the state?**

- **Services that would benefit the employer’s organization:** respondents could select multiple options from a list (chart below); car/vanpool assistance, transit education, health campaigns, incentive programs, sustainability, and guaranteed ride home all ranked well. Notably, none of the respondents replied that “none of these services would help my organization.”

Service	Nashville	All Others
➔ Assistance to help employees form carpools	34%	24%
➔ Assistance to help employees form vanpools	37%	16%
➔ Assistance to help employees understand transit options/how to ride transit	58%	27%
Bicycle education to help employees know how to ride a bike safely	25%	24%
➔ Health campaigns to help employees be more physically active	49%	41%
Transit pass sales at your worksite	29%	14%
Assistance developing parking policies to increase the availability of parking spaces	23%	22%
➔ Incentive programs that allow employees to earn prizes when they don't drive to work alone	41%	31%
➔ Actions to improve the long-term environmental sustainability of your organization/community	36%	39%
➔ A guaranteed ride home program	44%	39%
Assistance with the creation and implementation of a telework program	21%	14%
Assistance with the creation and implementation of alternative work schedules	25%	14%
Other	5%	6%
➔ None of these services would help my organization	0%	0%

**Figure 4. Survey response: Transportation services that you think would benefit your organization**

- **Interest level:** The following organizational characteristics were found to be statistically correlative to an organization’s interest in participating in TDM programs:
  - Interest in obtaining a bicycle friendly business designation
  - Inadequate parking for visitors/customers
  - Inadequate parking for staff
  - Offsite parking for employees
  - Increasing or likely to increase staffing
  - Have a bus route within a 5-minute walk of the work place

- **What employers are already doing:**  
The list to the right demonstrates selected TDM programs and services and the percentage of employers who said that they were already offering this to employees or would consider offering it, which demonstrates the broad opportunity for service enhancements and employer engagement. Outreach strategies can be tailored by referencing employer types and industries that indicated interest in each offering.

Program	Already Offer It	Would Consider
Carpool matching	10%	38%
Discounted transit passes	3%	47%
Bicycle parking	24%	42%
Telework options	41%	27%
Flexible schedules	46%	20%
Compressed work weeks	14%	34%
Guaranteed ride home	8%	50%
Rewards/incentives	5%	41%

**Figure 5. Survey response: Indicate the services you offer at your worksite or would consider offering**

- **When asked if they work with the regional program:** sixty-three percent of the participating employers have not worked with a regional TDM program to date; ten and eleven percent work with the regional program a little or a lot respectively, and seventeen percent are unsure whether they have worked with their regional program.

### Commuter Survey – Major Findings

- **Transportation infrastructure:** In Nashville, most people said that they travelled along a freeway or highway with an HOV/carpool lane, and most responded that there was a park and ride facility between their home and work; however, a transit stop in proximity to their home was much lower than in other areas.

Yes, there is...	Nashville	Chattanooga	Memphis	Knoxville
Transit stop within 5 mins	19%	45%	38%	40%
HOV along my route	59%	12%*	34%	14%*
Park and Ride along route	57%	8%	7%	8%

\*While respondents indicated availability, there are currently no HOV/carpool lanes in Chattanooga & Knoxville

**Figure 6. Survey response: Availability of specific infrastructure along commute route**

- **Experience with non-SOV travel:** More than thirty percent of respondents that currently drive alone have used an alternative mode of transportation in the past - with the majority having carpooled or rode transit.
- **Why commuters returned to driving alone:** Most respondents identified their home or work location changed or their hours changed.
- **Use of Lyft or Uber:** Ten percent of respondents from Nashville and Chattanooga said they have used Lyft or Uber to get to work at least once, compared to just one percent of respondents from other areas.
- **Motivators to change :** Across those who drive alone to work, the following were the top five strategies, in order of most favored, to motivate them to change modes:
  - A small cash payment to not drive alone
  - Guaranteed ride home
  - Prize raffle entries for days not driving alone
  - Ability to modify work schedules to match transit options
  - Preferential parking
- **Regional differences in motivators:** The survey did identify some differences depending on region. For example, in Nashville:
  - Forty-nine percent are likely or very likely to drive less if they could slightly modify their work schedule to match a transit schedule (as opposed to twelve to thirty-six percent for the other regions)
  - Forty-four percent are likely or very likely to drive less with transit pass discounts (eleven to thirty-seven percent in other regions)
- **When deciding how to commute, which factors are most important:** Respondents indicated that convenience along with money and time savings have the greatest influence on mode choice.



### 2.3 National Best Practices Data

The Statewide TDM Plan also looks to national best practices for guidance. TDOT seeks to develop a program that is suitable for immediate implementation, but flexible enough to accommodate the demands of future transportation and travel. As TDOT looks to provide strengthened traditional or core TDM services, the agency must also consider innovations in technology and the way people view travel, which is set to change drastically in the coming years. TDOT's investments in TDM should be flexible and designed to adapt to quickly changing travel technology and choices.



The following “best practice” concepts serve as guiding principles for the plan development:

**Statewide or regional programs are more likely to succeed and produce desired outcomes.**

- Benefits include administrative efficiencies and a single point of accountability
- Statewide examples, each managed by the state’s Department of Transportation, used for guidance include:
  - Connecticut: [CTrides](#)
  - Delaware: [Rideshare Delaware](#)
  - Massachusetts: [MassRIDES](#)
  - New York: [NY511 Rideshare](#)
  - Washington: [Rideshare Online](#)
- Large regional examples used for guidance include:
  - Atlanta: [Georgia Commute Options \(GCO\)](#)
  - San Francisco: [511 SF Bay](#)
  - South Florida: [South Florida Commuter Services](#)

**Focus limited resources on outreach, public relations and incentives.**

- TDM spending on mass advertising is often wasteful because resources are too limited to make an impact when competing with more than 5,000 logos and brands daily
- Targeted outreach efforts and incentives have a more direct and measureable impact on travel behavior and mode shift
- Public relations and recognition activities also provide support at a much lower cost

**Incentives work.**

- Models for best practices exist in:
  - Atlanta: [GCO incentives including Gimme Five](#)
  - Birmingham: [CommuteSmart Get Green](#)
  - Las Vegas: [Club Ride Rewards](#)
  - San Francisco: [511 SF Bay](#)
  - San Diego: [iCommute](#)
- Incentives generate trial use and the opportunity for on-going evaluation
- Success has been demonstrated across both large scale implementation and corridor and/or mode-specific trials

### **TDM programs should not rely on technology alone.**

- TDM programs need to leverage existing technology in a way that does not compromise core program offerings
- Launching a new technology (e.g., mobile app) is not going to change behavior; reserve funds for outreach and marketing the technology
- Human interaction remains a key component of trip planning/education and behavior change
- Employer and stakeholder relationships are invaluable

### **Relationships create mode shift.**

- Commuter-to-commuter or co-worker success stories
- TDM program trip planning and educational activities
- Employer encouragement and support can significantly influence employees

### **Don't ignore the core services.**

- Keep it simple
- Services should be both multi-modal and mode-neutral
- Examples: ridematching, guaranteed ride home, employer outreach

## **2.4 Other Considerations**

A key finding in this section identified a missing element in the current assessment of TDM in Tennessee. Currently there is no comprehensive analysis of work tasks across funded TDM initiatives. This would demonstrate if the programs are performing according to plan, while also analyzing how the allocated funds are being spent against the approved funding schedule. The recommendations included in this TDM Plan seek to address these performance deficiencies in order to allow for this valuable and on-going analysis moving forward.

### 3. Statewide TDM Plan

The Statewide TDM Plan for Tennessee positions TDOT as the leader for the coordination efforts, with the regional partners responsible for program implementation within each of the five urban areas. The Plan looks to eliminate duplication and create efficiencies that allow for greater emphasis on mode shift, measurement and accountability, while supplementing core TDM services with new and existing technologies. Implementation of the Statewide Plan will heighten the value of TDM in Tennessee and better integrate the programs and strategies with state and local policies and programs, along with the overall transportation infrastructure.

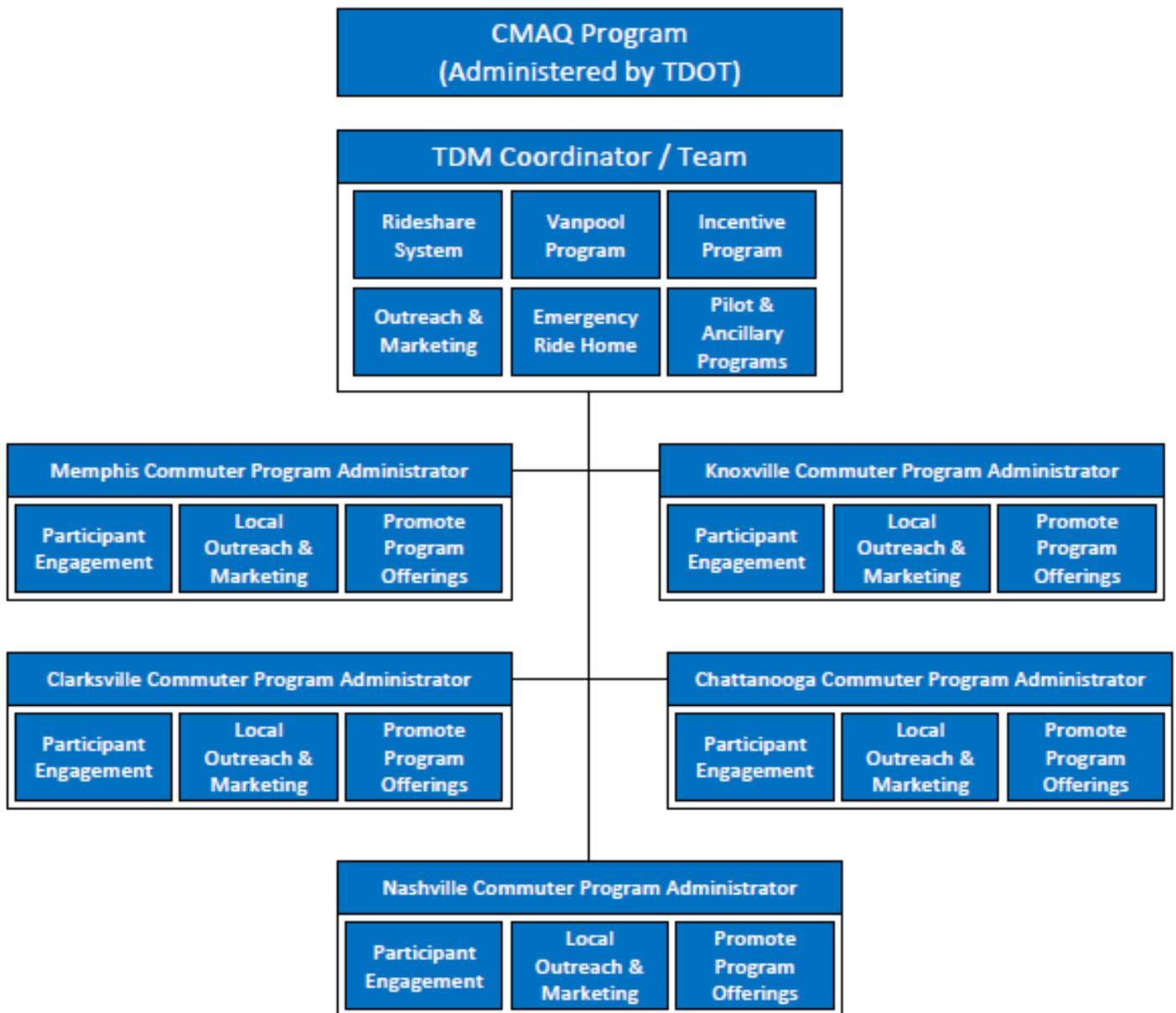


Figure 7. Proposed statewide TDM structure

The recommendations and supporting strategies have been developed with the following objectives in mind:

- Decrease traffic congestion and air pollution
- Support and enhance TDM programming in the state's five major urban areas
- Increase customer access to programs and services
- Streamline the administration and evaluation of TDM programming
- Increase awareness and support for TDM initiatives in the state

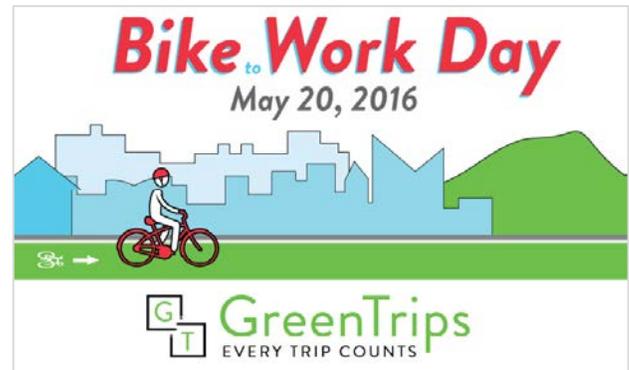
### 3.1 Recommendations

**Recommendation 1: Introduce a Standard Commuter Program Structure.** TDOT should lead the effort to create a statewide approach to comprehensive program offerings for implementation in each region. This will establish a base of services to be implemented in each of the five urban areas and help increase commuter and stakeholder access to programs and services statewide. It will also reduce redundancies and provide needed guidance and standardization for each region and CMAQ applicant. The structure would feature a standardized scope of work across each program with required performance measures and reporting, which will allow TDOT to better quantify statewide impacts and investment returns.

- **Each region features a single Commuter Program:** Each region should have a single entity administering its comprehensive Commuter Program. This could be TDOT or a TDOT-appointed entity. This would allow ancillary TDM services to operate in each region, but only if they support the comprehensive program and not duplicate or distract from the core offerings.
- **Regional coverage:** The Commuter Program should be required to provide service offerings across the region served. This includes outreach and promotional activities that seek to engage commuters, employers, and stakeholders in each of the counties within the region.
- **Core programs and activities:** Under TDOT's guidance, each Commuter Program should incorporate a multi-modal and mode neutral approach that promotes all non-SOV travel options, through the following core programs:
  - **Employer outreach:** Provide TDM program development and implementation guidance to employers in the region through proactive employer outreach and a structured employer engagement/recognition program.
  - **Marketing:** Carry out marketing and education activities that include digital and print communications that supplement the state-provided resources (Recommendation 2).



- **Program offerings:** Promote ridematching, guaranteed ride home, and trip planning resources, which may be supplemented by regional-specific programs.
- **Modal promotions:** Conduct promotions to engage commuters and employers (e.g., Commuter Challenges, Bike to Work Day/Week, Rideshare Week, Try Transit).
- **Regional customization:** While each regional Commuter Program will have standardized scope and work tasks, each should be provided the opportunity for regional customization based on local conditions and interests.
- **TDOT guidance and training:** The regional partners should look to TDOT to provide a number of resources for program implementation, including best practices and standardized approaches and operating procedures. TDOT should also provide added coordination and networking opportunities for the regional programs to learn and share experiences together.
- **Standardized program evaluations:** All programs across the state should provide the same activity documentation and provide TDOT with the information necessary to conduct an independent assessment of mode shift impacts. These should include required CMAQ-related metrics such as reductions in VMT, ozone, carbon monoxide (CO) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>)



#### Benefits:

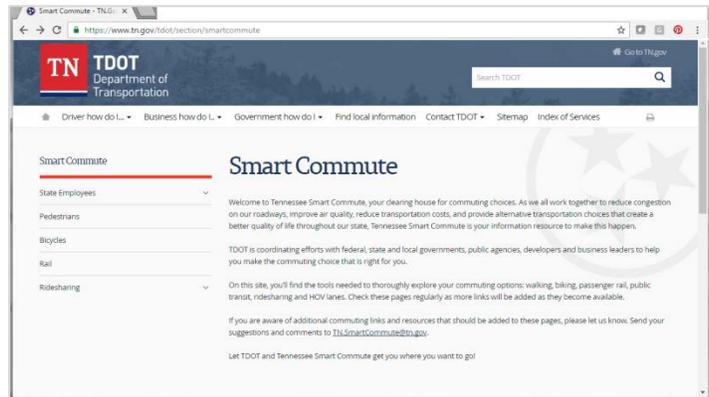
- Demonstrates the influence the Commuter Programs have on reducing traffic congestion, improving air quality and expanding commuter mobility
- Allows comparison against other spending like transit services, road widening, signalizations and intersection improvements
- Prepares TDOT/regions for more standardized requirements for TDM practitioners from the national level
- Increases awareness of TDM and participation in TDM programming statewide
- Establishes a baseline and standardized performance measures to gauge success moving forward

#### Considerations:

- New structure and operational expectations will have an impact on current programs and funding; the required changes will not be as significant in Chattanooga and Knoxville as they will be for the other regions
- As a smaller market, will Clarksville be required to start a program; possibility to receive services from Nashville
- How will added services and CMAQ requests be addressed such as single mode providers (e.g., vanpool), private companies (e.g., Hytch) and universities
- The timeline will likely present a challenge due to the current CMAQ award schedule and varying schedules across each existing regional program
- Funding and administration resources available through TDOT

**Recommendation 2: Establish a Statewide TDM Brand.** A newly developed TDM brand for Tennessee would position TDOT as the leader and a strong supporter of commute options and multi-modal travel, while also lending credibility and support to the regional partners. Having the ability to draw from fully developed materials and messaging will save resources by preventing the duplication of this activity within each of the five regions. TDM brand elements would include:

- **Statewide marketing plan:** Through the development of a marketing plan, TDOT would introduce a new TDM logo, website and messaging. This effort could build upon existing branding including Smart Commute or Smart Way.
- **Regional co-branding:** To help express solidarity and continuity of Tennessee's TDM programs, local/regional marketing materials should be co-branded to feature the state and regional brands. Furthermore, each of the regional programs will have access to marketing materials and messaging provided through the statewide marketing effort.
- **Templates and toolkits:** A common request from stakeholders, TDOT should develop a set of toolkit items and templates to support the regional Commuter Programs. These professionally developed pieces will support outreach and promotional efforts at the regional level.



**Benefits:**

- Demonstrates TDOT's support for TDM
- Lends credibility to regional efforts while allowing them to retain established branding
- Creates efficiencies so CMAQ funding is not used to duplicate the same materials and messaging separately in the five urban areas

**Considerations:**

- Availability of resources within TDOT and personnel to lead the effort
- Required coordination with regional partners

**Recommendation 3: Identify a Statewide TDM Coordinator (team).** As the lead agency, TDOT should identify a TDM Coordinator to guide the development, implementation, and evaluation of the Statewide Plan. It is likely, especially during the initial phase, that this would require one full-time individual or the combined work of a team of individuals within TDOT. The coordinator/team would be responsible for many of the overall plan goals, including engaging business leaders and elected officials, more visible and accessible programs and services, leadership and guidance for the regional partners, and a strong show of support from the state level.

The following details the role of the Coordinator/Team:

- Accountable for quantifiable statewide motor vehicle trip and mileage reductions
- Serve as the face and voice of TDM for TDOT
- Oversee and monitor the regional Commuter Programs
- Oversee and monitor ancillary and/or pilot programs
- Participate in the national TDM community to bring best practices and guidance to Tennessee
- Collect and compile reporting to quantify statewide impacts
- Fill gaps in standardized Commuter Program implementation (i.e., regions without a comprehensive program operator)
- Assist with employer outreach efforts statewide
- Special projects outreach
  - Municipalities – Complete Streets / Smart Cities
  - Economic development
  - Construction/developer – congestion mitigation
- Fulfill the Employer Transportation Coordinator (ETC) role for state employees
- Create (or oversee the creation of ) the statewide TDM marketing plan and brand; maintain the identified materials and messaging
- Conduct bi-annual statewide surveys; generate annual “State of the Commute” reports
- Conduct an annual TDM forum and quarterly interactions for regional programs
- Administer core TDM Services (e.g., ridematching system, incentive program, vanpool program, guaranteed ride home, mobile apps, pilot programs) (Recommendation 4)
- Develop/oversee funding accountability (Recommendation 5)
- Develop/implement standard operating procedures for statewide TDM programming/evaluation
- Identify opportunities for enhancements and improvements for the statewide program
- Educate policy makers and local/statewide government and business leaders on TDM initiatives and their ability to influence success

#### **Benefits:**

- Fulfills the need for messaging from the state level to counter the idea that TDOT does not embrace multi-modal and alternative travel options
- Identifies a single point of accountability for the regional programs; eliminates the uncertainty of who and where to go for support
- Supports the need for added accountability with the creation of a baseline and regular program monitoring of performance/results and financial responsibility

#### **Considerations:**

- Represents a significant undertaking as the Department will need to build the statewide program from the ground up; likely to require a team of individuals
- Start-up will involve a substantial learning curve as knowledge of TDM, CMAQ, best practices and standard operating procedures for core program offerings will be essential
- Availability of staff and resources within TDOT

#### Recommendation 4: Maintain Core TDM Services for Regional Implementation.

Under the current structure, TDOT is paying for core program elements multiple times by allowing them to operate separately within each region (e.g., procuring software, creating marketing materials). By identifying core services that are more effectively provided and maintained by the state for regional implementation, TDOT can encourage the regional partners to redirect their use of funding to fulfill the requirements of the new Commuter Program structure outlined in Recommendation 1. Core TDM services could include:

- **Ridematching system:** A single system for use statewide would promote consistency in data collection, promote cost efficiencies, support streamlined survey efforts for evaluation, and allow for consolidated marketing and communications. A statewide system could feature statewide branding and messaging allowing for regional customizations to support the partner brands and local programming. Features within systems can also be made available to partners to support local promotions or pilot programs as needed.
- **Vanpool program:** A statewide vanpool program would allow TDOT to administer contracts with one or more vanpool vendors and make subsidies available to commuters across the five urban areas. The Commuter Programs would promote vanpooling as a commute option and facilitate vanpool formation through commuter and employer outreach and analysis of employee clusters within the ridematching system.
- **Incentive program:** Administering commuter incentives at the state level allows for greater program access and consistency in program offerings and measurement/analysis. Most ridematching systems allow for incentive administration, which prevents TDOT and the regional partners from having to secure additional software or administer additional registration and tracking processes.
- **Marketing:** As detailed in Recommendation 2, the development of a statewide brand and marketing plan would eliminate duplicative efforts within the regional programs and provide added support.
- **Guaranteed Ride Home (GRH):** Similar to ridematching and incentives, administration of this basic TDM program offering would prevent the regional partners from having to create separate protocols and systems for commuter registration and reimbursement. Currently, GRH is not offered by all of the regional programs or is offered only to specific modes/audiences.
- **Pilot programming:** With the regional programs looking to TDOT for leadership in innovation and technology, TDOT should serve as the lead on pilot initiatives that incorporate new tactics, travel options, and best practices. While pilot efforts could be facilitated statewide, they could also be done in partnership with the regional programs, focusing on specific modes, corridors,



or activity centers. Following the pilot conclusion and evaluation, the programs could then be designed for rollout statewide or packaged for regional implementation.

**Benefits:**

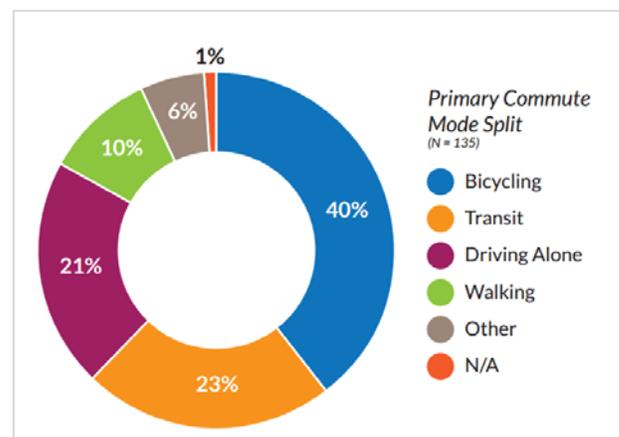
- Provides resources that enable regions to implement the standard Commuter Program structure; fills gaps where services do not exist
- Addresses the current duplication of services in some regions and creates cost efficiencies as a whole
- Allows for regional partners to redirect funding to fulfill standard Commuter Program requirements

**Considerations:**

- Mixed level of support from regional partners on certain program offerings
- Requires the designation of a long-term Statewide Coordinator/Team
- Regional partners may have contracts with providers on varying timelines
- Availability of staff and resources within TDOT and longer-term commitment to program support

**Recommendation 5: Increase Accountability.** In support of a streamlined and well-coordinated effort to administer TDM funding and programming in Tennessee, each CMAQ recipient should begin each initiative with a clear scope of work and defined work

tasks/deliverables. In addition to the regional Commuter Programs, ancillary programs and services would follow these same requirements. Likewise, reimbursement requests should clearly document progress towards the goals established in the work plan and be tracked against the established program budget. The TDOT TDM Coordinator (Recommendation 3) would be responsible for the implementation and oversight of the work and spending, and there would be a heightened level of accountability for the regional partners. This would allow TDOT to monitor the effectiveness and intended use of funds and provide a comprehensive assessment of the Department’s return on investment. Currently there is no comprehensive analysis at this level because of the lack of consistent data and reporting procedures - making it hard to demonstrate the value of TDM efforts throughout the state.



**Benefits:**

- Transparency and accountability related to CMAQ funding
- Prepares the Department and regional programs for future federal requirements on reporting and performance measures

**Considerations:**

- Commitment of TDOT staffing to create and oversee the delivery of work plans and performance measures

**Recommendation 6: Develop Standard Operating Procedures for Administration of TDM Projects.**

This final recommendation encompasses the program goals, Plan recommendations, and the baseline findings, including feedback from the stakeholders and current program operators. The findings and goals should all be supported by a set of established procedures, that:

- Support the development of a standardized Commuter Program approach and implementation by establishing a framework for how TDM operates statewide and regionally, and how outreach is conducted and coordinated
- Set a standardized schedule that includes resetting current CMAQ project timelines to allow for consistent program implementation, tracking, and measurement
- Develop a process that more clearly describes the types of eligible reimbursement expenses, resulting in increased efficiencies for both the regional program administrators and the TDOT TDM Coordinator/Team
- Create templates for scope of work preparation, budgeting/spending tracking, and periodic progress reporting, which will also create both regional and state efficiencies and allow TDOT to demonstrate collective impact



The effort to standardize the overall process, without stifling local creativity, will be a significant show of support. TDOT should also encourage on-going coordination and information sharing through regularly scheduled TDM meetings and the provision of training resources.

**Benefits:**

- Allows TDOT to monitor effect and intended use of funds and track performance and spending
- Addresses direct requests for support and guidance from regional partners

**Considerations:**

- Represents a significant undertaking for TDOT staff and may involve a sizable learning curve related to TDM and CMAQ protocols for the individuals creating the standards

## 4. Conclusion and Next Steps

The Statewide TDM Plan provides TDOT with guidance to create a more coordinated and effective approach to implementing demand management strategies in the five urban areas. The program builds upon the existing structure and regional programs already in place while increasing overall accountability and allowing TDOT to quantify the impact of CMAQ investments in TDM services statewide. As TDOT moves toward the next phase of Implementation, this Plan can serve as a guide for the tools and resources that need to be developed to support the statewide model.

The recommendations outlined within the Plan are interrelated and highly dependent upon one another. The considerations and challenges presented with each recommendation show common themes that need to be addressed to prepare for implementation including the development of a TDM coordination team, communication with the regional partners and existing program providers, and the development of a timeline that allows for synchronization across each of the programs.

The TDM coordination team will need to simultaneously develop the standard operating procedures to guide the TDM programming statewide, while determining the services and program offerings that will be operated by TDOT and promoted regionally. Additionally, the team will need to prioritize tasks and determine the overall direction for demand management in Tennessee with a specific focus on the process for baseline measurements followed by a prescribed process for reporting and regular evaluation in order to demonstrate the success of the statewide approach and the return on CMAQ investments in TDM programming. The statewide brand and marketing plan will also be key components in demonstrating TDOT's leadership and establishing a level of confidence among the regional partners that they will have the resources necessary to be successful locally.

Under the leadership of the Long Range Planning Division within TDOT, the expanded statewide TDM effort in Tennessee will be poised to positively influence mobility options and travel choices that promote a strong and connected transportation system and support growth and enhanced quality of life for residents and travelers

## Appendix A: Summary of Existing Programs

### The Transportation Management Association (TMA) Group

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**Address:** 708 Columbia Avenue  
Franklin, TN 37064

**Website:** [tmagroup.org](http://tmagroup.org)

**Service Area:** Middle Tennessee

**Services Provided:** Vanpool, Schoolpool, Emergency Ride Home



**Program Summary:** The TMA Group primarily focuses on vanpools - operating a regional vanpool program on behalf of RTA and Williamson County known as VanStar. The program has 60 vans with approximately 600 riders and is focused on growth given a separate CMAQ grant that provides funding for 60 additional vans. The TMA Group utilizes the RidePro ridematching system from Trapeze but only for maintaining commuter records related to vanpooling and to fulfill specific vanpool reporting functions (the carpool matching function is not utilized). There are approximately 2,000 commuters in the database who have expressed interest in ridesharing. The TMA Group also offers an Emergency Ride Home (ERH) program for their vanpool participants. The majority (if not all) of the vanpool riders are federal employees due to the commuter benefits program that subsidizes vanpool fares (with the average VanStar cost at \$90, this means a 100% subsidy for participants). Overall, in addition to the vanpool focus, TMA Group's efforts also appear to be very focused on Franklin/Cool Springs and Williamson County. They have vans that travel into Nashville but the limited employer and community engagement efforts they conduct are very localized. TMA also works on other initiatives including managing The Franklin Transit Authority (FTA), the Clean Air Partnerships of Williamson and Rutherford County, and bike share for Franklin/Cool Springs. These initiatives receive separate funding (this includes both CMAQ TDM and other categories and non-CMAQ sources) and each program/service operates independently within TMA.

### Nashville Metro Transit Authority (MTA) / Regional Transportation Authority of Middle Tennessee (RTA)

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**Address:** 430 Myatt Drive  
Nashville, TN 37115

**Website:** [nashvillemta.org](http://nashvillemta.org) / [rtarelayandride.com](http://rtarelayandride.com)

**Service Area:** Middle Tennessee

**Services Provided:** EZRide, Vanpool, Emergency Ride Home



**Program Summary:** In the past, RTA operated carpool and vanpool initiatives and proactively promoted TDM programming. However, with leadership changes over time, they have become less engaged in regional TDM efforts. With their regional vanpool program under The TMA Group's management (through a contractual agreement), RTA staff does not see itself as the active leader in traditional TDM efforts and defers most inquiries to The TMA Group; however, there are still activities occurring within MTA/RTA that are CMAQ-funded TDM initiatives and should be looked at as part of the regional effort to promote commute alternatives. These include an existing Trapeze RidePro database (separate from The TMA Group's database) for carpool / vanpool / transit matching that is maintained and purged annually. They also have an Emergency Ride Home program. MTA/RTA also manages the EZRide program that provides employers with transit passes and includes partnerships with the State, Vanderbilt University, Belmont University, Lipscomb University, Metro Government, LP Building Products, and Asurion, among others. The EZRide program supports employer-based transit pre-tax and subsidy programs.

## Metro Nashville / Davidson County

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**Address:** Metro Planning Department  
800 Second Avenue South  
Nashville, TN 37219

**Website:** [nashville.gov/Planning-Department.aspx](http://nashville.gov/Planning-Department.aspx)

**Service Area:** Metro Nashville / Davidson County



**Services Expected:** Employer Outreach, Regional Call Center, Guaranteed Ride Home, Parking Demand Management

**Program Summary:** Metro's *Complete Trips* initiative is intended to expand employer outreach in Middle Tennessee and promote commute options to tackle increasing traffic. The program plans to start with a focus on downtown Nashville in 2017 and spread outward in future years to become a regional program. Plans include integrating TDM into planning and development practices, a regional call center, Guaranteed Ride Home, a coordinated stakeholder network (pooling existing resources including The TMA Group, the Clean Air Partnerships, walk/bike initiatives, etc.) and parking demand strategies. The effort intends to use a marketing firm to create public messaging and promotions, such as a Workplace Challenge.

## Hytch

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**Address:** 1622 Church Street  
Nashville TN 37203

**Website:** [hytch.me](http://hytch.me)

**Service Area:** Middle Tennessee



**Services Provided:** Carpool Ridematching

**Program Summary:** Hytch is a new mobile app service launched by a local entrepreneur with development support provided through CMAQ funds. The Hytch app is designed to connect neighbors, friends, and coworkers and is currently available for Apple and Android devices. Commuters will be matched with people and see a suggested rate to share the cost of the trip. Hytch will earn a transaction fee from each ride that is coordinated directly through the app. Commuters will also be able to give rides for free, in which case Hytch will not earn a fee. The app will track trips that are booked and can report data like trip reductions, cost and emissions savings.

## GreenTrips

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**Address:** 1250 Market Street  
Suite 2000, Development Resource Center  
Chattanooga, TN 37402

**Website:** [greentripscha.org](http://greentripscha.org)

**Service Area:** Chattanooga

**Services Provided:** Outreach, Promotion, Ridematching,

**Program Summary:** Chattanooga's GreenTrips program has been in operation for three years and is the result of a coordinated effort that engaged community stakeholders to serve on an advisory committee directing the program design and launch process. Housed within the Regional Planning Agency (RPA), GreenTrips is run by two outreach team members that are working with 25 local employers with key activities including: maintaining an online ridematching and rewards system; hosting an annual employer challenge event; promoting all non-SOV modes including carpooling, vanpooling, biking, walking and transit through marketing and outreach; and actively engaging in community outreach efforts. The employer partner list includes large employers like Unum, Amazon, UT-Chattanooga and Blue Cross Blue Shield, along with a handful of smaller organizations. The rideshare database (RideShark) includes approximately 1,500 commuters with 250 reporting commute data on a monthly basis. Overall, the program appears to be well-planned and executed and includes many of the elements you would expect to see in a regional TDM effort. As the youngest of the existing TDM programs in the state, it appears to be the strongest in outreach and commuter/employer participation.



## Smart Trips

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**Address:** 400 Main Street, Suite 403  
Knoxville, TN 37902

**Website:** [smartrtrips.knoxtrans.org](http://smartrtrips.knoxtrans.org)

**Service Area:** Knoxville

**Services Provided:** Promotion, Outreach, Ridematching, Emergency Ride Home

**Program Summary:** Knoxville's Smart Trips program is housed within the Knoxville Regional TPO and has been in operation for approximately 13 years. Serving eight counties, the program staff includes a full-time program coordinator who is supported by a part-time communications team member. Smart Trips promotes carpooling, vanpooling, transit, biking and walking and targets both commuter and employer audiences. The program includes a ridematching and rewards system (through Rideshark) an annual Commuter Challenge, communications including newsletters and e-blasts, Emergency Ride Home, and annual promotions like Bike Month. Other on-going activities include coordination with KAT on prize trolley and transportation trivia promotions, weekly orientations for city and county employees, orientations and special events with the Universities, and program advertisements in the downtown alternative paper, the local business journal and Chamber of Commerce publications. While Smart Trips does work with a number of employers throughout the region, they do not maintain an employer partner roster. Instead they have recently launched an employer sponsorship program that features three paid levels. They have three sponsors currently – Scripps, UT and Pellissippi State – and anticipate bringing Y12 and Oak Ridge National Labs on board soon. The Smart Trips rideshare database includes approximately 800 commuter participants and they maintain an additional list of 800 stakeholder contacts.



## Memphis Area Rideshare

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**Address:** 814 Jefferson Avenue  
Memphis, TN 38105

**Website:** [shelbytnhealth.com/163/Memphis-Area-Rideshare-Program](http://shelbytnhealth.com/163/Memphis-Area-Rideshare-Program)

**Service Area:** Memphis



**Services Provided:** Vanpool, Outreach and Education, Emergency Ride Home

**Program Summary:** Memphis Area Rideshare is the local TDM program run by the Shelby County Department of Health's Air Quality Improvement Division. It operates under two CMAQ funded applications – the rideshare grant, which includes the vanpool and Emergency Ride Home programs, and the outreach and education grant that funds the paid advertising and community outreach efforts. Shelby County has a contract in place with vRide to operate the Memphis Area Rideshare vanpool program. The agreement provides \$193,500 annually to vRide for turn-key vanpool operations, which includes a 40% subsidy for the cost of the vans. There are 28 vans in operation with approximately 200 riders. All of the current vanpool participants are federal employees receiving the transit benefit program, which subsidizes the remaining portion of their monthly vanpool cost making it free to participate. vRide provides the ERH program directly to vanpool participants and Memphis Area Rideshare maintains a separate in-house ERH program for all other modes serving their internal database of 163 commuter participants. The outreach and education efforts include a paid advertising campaign that includes commercials on Comcast (radio and television), WKNO (radio and television), iHeart radio and AM990. There are 5-6 Memphis Area Rideshare commercials on 20 channels. Additional print ads include Jabberblabber, the Memphis Flyer, MATA bus wraps, and gas toppers at local gas stations. Memphis Area Rideshare's outreach efforts include attendance at regular events and health fairs hosted by the Health Department.

## Commute Options

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**Address:** 516 Tennessee St., Suite 223  
Memphis, TN 38103

**Website:** [commuteoptionsmemphis.com](http://commuteoptionsmemphis.com)

**Service Area:** Memphis



**Services Expected:** Outreach, Parking Management, Bike-sharing, TDM Support

**Program Summary:** Innovate Memphis is just kicking off its new *Commute Options* program locally. The group has been working on a strategic approach that focuses on behavior change, creates employer partnerships, and markets all modes collectively. The plan includes an initial baseline survey and an 18-month pilot with six local employers (four large, two small). Initial employer engagement efforts have focused on the Medical District Collaborative, City Hall, University of Memphis, and Southwest Tennessee Community College. The Commute Options program includes regional branding and marketing materials that are created for distribution at community and employer-based activities and will rely on the existing vanpool and ridematching services through Memphis Area Rideshare. Innovate Memphis is also looking to include and support strategies such as parking management and bike-sharing. Overall the Innovate Memphis model is to test ideas and concepts, tweak and customize them and set them up for success and then pass them to another organization to sustain, which means they could look to Memphis Area Rideshare for a program transition in the future.

