Transportation Demand Management Best Practices

Summary Report

May 6, 2019

Submitted to:
Southwestern Pennsylvania Commission

Submitted by:
ICF Incorporated, LLC

Table of Contents

1. Introduction

Transportation demand management (TDM) involves a wide array of flexible and cost-effective strategies for improving regional mobility. Evolving from traditional carpool/vanpool programs of the past, TDM now encompasses a fast-growing inventory of innovations that focus on increasing travel choices. These choices include alternatives to driving alone – such as transit, ridesharing, bikesharing, and walking – as well as choices for shifting the time of travel (e.g., shifting from peak to off-peak periods), route (e.g., shifting travel to less congested routes or parking locations based on real-time information), and even whether to travel (e.g., telecommuting).

Recent and emerging technologies have created a dynamic landscape for both public and private sector TDM implementation, including shared mobility options and use of real-time travel information to support more efficient mobility choices. This fast-paced change in the market creates both challenges and opportunities for public agencies. While TDM programs have often been viewed as stand-alone programs focused on helping commuters get to work, increasingly there are opportunities to integrate TDM strategies into regional planning, project-level planning, and transportation systems management and operations (TSMO) in order to maximize community benefits and enhance transportation system performance.

This review of national best practices highlights effective strategies that have been applied in regions around the country. From an implementation perspective, the report considers both effective practices related to time-tested demand management strategies like vanpooling, as well as new and emerging strategies such as advances in shared mobility options, integration of TDM within active transportation system management, and application of technology to support "Mobility on Demand." Examples of peer agency implementation and pilot programs are provided to illustrate effective integration of TDM into planning and operations. Peer interviews were conducted with three metropolitan planning organizations (MPOs) to understand best practices for regional TDM partnership models, products and services, and performance measurement. These MPOs include the Atlanta Regional Commission (ARC), the Denver Regional Council of Governments (DRCOG), and the Mid-American Regional Council (MARC). Interview notes are provided in the Appendix of this report.

This report provides a foundation for the Southwestern Pennsylvania Commission (SPC) to consider best practice approaches as part of development of its Regional TDM Action Plan.

2. Broadening the Role of TDM

Historically, TDM has focused on trip reduction through employer partnerships and promotion of ridesharing programs aimed at individual commuters in order to manage traffic congestion and improve air quality. Increasingly, best practices are broadening the role of demand management, markets, and applications.

Using TDM to Support Diverse Regional Goals

Contemporary approaches to TDM increasingly focus on supporting a wide array of goals beyond traffic management.[1] These goals may include livability, economic development, equity, access to destinations, greenhouse gas (GHG) reduction, and other community values established in regional planning processes or local policy making.

As an example, the **Atlanta Regional Commission (ARC)** developed its [Regional Transportation Demand Management (TDM) Plan](#) with a focus on how TDM can support goals within the region's 2040 regional transportation plan (PLAN 2040). As one of the fastest growing metropolitan areas in the nation, the Atlanta region has seen significant growth along the urban periphery contributing to low-density land development patterns that have perpetuated the region's auto-dependency. Recognizing that historic land use and transportation decision making have contributed to making driving alone the easiest choice for residents, and that the region's existing TDM program was fragmented and not effectively linked to the regional planning process, the regional TDM plan sought a different way of thinking about TDM.

Using the term "TDM+", ARC emphasized expanding the role of TDM to address goals including livability, sustainability, enhancing transit, increasing walking and biking, integrating transportation and land use planning, enhancing systems operations, economic development, mitigating climate change, and supporting healthy communities and active aging.[2] The TDM Plan notes that not only will TDM+ help achieve transportation and air quality goals, but it also has the potential to have a significant economic impact on the region by maximizing the value of existing infrastructure and alleviating the need to invest in costly roadway and transit capacity expansions. Moreover, by reducing congestion associated with driving alone, TDM+ strategies support businesses and the economy in the Atlanta region. Such an outlook on TDM expands the focus beyond marketing and outreach programs to include strategies related to land use and urban design, parking management, and bicycle and pedestrian activity.

Beyond Commute Trips

While TDM traditionally focused on commuters and peak period congestion, demand management is increasingly playing a role in addressing a wide array of travel markets: commuting, special events, weekend recreational trips, and travelers in highway work zones. These different markets and audiences often require different strategies and mechanisms for communication.

For example, as shown below in Figure 1, when focusing on demand management in corridors, there are many different types of travelers. For instance, travelers may include daily commuters, long-distance travelers, and recreation and tourist travelers – yet these groups have very different travel concerns. Daily commuters reside locally and travel regularly to and from work, school or other local locations. Given the frequency of theses local trips, they may be receptive to options like ridesharing or transit, and interested in pre-trip and en-route travel updates and information about transportation options. Conversely, recreation and tourist travelers are typically non-local travelers, who are likely less familiar with local conditions and alternatives.

---

[1] FHWA. (n.d.) https://ops.fhwa.dot.gov/plan4ops/trans_demand.htm
[2] ARC. (2013). https://cdn.atlantaregional.org/wp-content/uploads/tdmplan-final-120413.pdf

For these travelers, other strategies may be more appropriate, such as route diversion programs.

Types of Travelers Key Concerns

Daily Commuters
- Reliable travel times to/from work and school
- Reliability of route and avoidance of accidents or other delays

Long Distance Travelers
- Updates on road conditions of frequently traveled routes
- Access to regular stopover points (rest area, restaurant, gas stations, etc.)

Recreation and Tourist Travelers
- Notification of travel delays due to construction or incidents; information about possible detours
- Access to regular stopover points (rest area, restaurant, gas stations, etc.)

Figure 1. Examples of Travel Markets and Concerns Addressed by TDM

TDM for Freight

Demand management can be applied beyond people to address movement of goods. Freight is an increasing share of vehicles on the road, and in some sections of the country and on specific road segments, truck traffic is a significant contributor to congestion (examples include traffic around ports, multimodal terminals, and border crossings). Moreover, with the proliferation of e-commerce and next-day or same-day delivery, the number of packages being delivered has increased considerably.

A wide array of strategies to manage demand for freight may be implemented including:[3]

- Improving rail and marine transportation infrastructure and services to make these modes more competitive with trucking;
- Organizing regional delivery systems so fewer vehicle trips are needed to distribute goods (e.g., using common carriers that consolidate loads, rather than company fleets);
- Using smaller vehicles and human-powered transport, particularly for distribution in urban areas;
- Implementing fleet management programs that reduce vehicle mileage; and
- Changing freight delivery times to off-peak time periods to reduce congestion.

New York City DOT's (NYCDOT) Smart Truck Management Plan is a comprehensive approach to improve truck delivery efficiencies across the city's five boroughs and to reduce freight-related impacts to the human and natural environments. To create the plan, NYCDOT convened a freight advisory group that examined curbside management, sustainability, compliance, enforcement, and land use policies related to truck freight. The agency also sought

---

[3] FHWA. (2012). *Integrating Demand Management into the Transportation Planning Process: A Desk Reference.* https://ops.fhwa.dot.gov/publications/fhwahop12035/

input from neighborhoods most directly affected by truck traffic through a series of community open houses. Among other strategies, the document includes a voluntary off-hour delivery program for heavily congested areas such as Midtown Manhattan, which has the potential to significantly reduce congestion and double-parking in program areas.[4]

Beyond Day-to-Day Travel Conditions: Active Demand Management

Beyond day-to-day travel conditions, the transportation system is often impacted by a range of non-recurring events, such as traffic incidents, adverse weather conditions, road closures, and work zones, which are responsible for a large portion of travel delay. Active Transportation and Demand Management (ATDM) approaches deploy information and technology on the transportation network to dynamically influence traffic flow and travel choices by time of day, mode, route, and lane/facility in response to and in anticipation of changing conditions.[5] An ATDM approach involves on-going system monitoring, assessment of real-time performance, and dynamic response to this information. As actions are implemented, real-time information on how the system responds is also assessed. Under this approach, transportation system performance is continuously assessed; dynamic actions using existing tools and assets are continuously evaluated and implemented in real time to achieve performance objectives.

Figure 2. ATDM involves proactive application of dynamic strategies

As part of ATDM, active demand management involves using technology to dynamically manage demand, such as by redistributing travel to less congested times of the day or routes, or reducing overall vehicle trips by influencing a mode choice.[6] It includes application of a wide array of approaches to optimize the efficient utilization of transportation modes and assets, such as:

- **Dynamic ridesharing** – travelers use smart phones and other technologies to arrange a shared ride on a one-time, short-notice basis.

- **Dynamic pricing** – toll rates are adjusted in real-time to respond to changing congestion levels.

- **Predictive traveler information** – travel-time predictions are provided (via multimodal trip planning systems, 511 systems, dynamic messing signs, etc.) to inform pre-trip and en-route travel choices.

---

[4] NYCDOT. (2019). *Smart Truck Management Plan*. Retrieved from https://nycdotprojects.info/smart-truck-management-plan

[5] FHWA (2019). *Active Transportation and Demand Management (ATDM) Program: Overview*. Retrieved from https://ops.fhwa.dot.gov/atdm/about/overview.htm

[6] FHWA ATDM Program Brief: ADM- http://www.ops.fhwa.dot.gov/publications/fhwahop13002/

- **Dynamic fare reduction** – transit fares are reduced in a particular corridor as congestion or delay on that corridor increases.

Active demand management is based on a fundamental understanding of traveler decisions and how best to influence them. It recognizes that *travel demand* is effectively addressing congestion before the decision is made on when, how, and whether to use a vehicle, while *managing traffic* is efficiently addressing congestion once the traveler is in the vehicle. With this new perspective, come new partners and collaborators to support a traveler's decision making.

New York State Department of Transportation (NYSDOT) developed an ATDM framework, which identified a range of different treatments applicable to different types of urban, suburban, and corridor contexts to help support transportation planners and operators to understand the role of active demand management within transportation systems management and operations.[7]

3. Targeting Demand Management Strategies

While the role of TDM is expanding to broader markets and contexts, effective application of TDM involves targeting marketing, programs, and efforts to unique local contexts in order to reach different audiences.

Tailoring Approaches to Sub-Regional Context

Demand management contexts can vary widely within regions. This is especially true for Southwestern Pennsylvania, with a mix of dense employment centers, compact historic neighborhoods, suburbs, and low-density exurban and rural neighborhoods. Recognizing these different contexts is an important aspect of tailoring programs, marketing, and initiatives to meet diverse constituent needs. For instance, while TDM initiatives often focus on shifting commuters from driving alone to transit, ridesharing, bicycling, and walking in urban areas, the more limited options for transit and alternatives to driving alone means that different strategies and messages can be important to address local needs. In more rural and suburban contexts, demand management may focus more heavily on strategies such as ridesharing and telework, and be designed to support greater access to jobs for those with limited driving options.

For instance, in **Upstate New York's** large urban areas, employer-based strategies focus on parking management within the urban core and on employee access in outer lying suburban and rural areas. Many manufacturing and distribution centers provide relatively low-wage jobs and therefore draw from a transit-dependent workforce, yet they are located in areas without transit service. As a result, vanpool programs are promoted using subsidies in some regions (Albany and Rochester), and carpool matching is heavily promoted in others that do not have specific subsidies (Buffalo and Syracuse).

Caltrans, the state department of transportation for California, partnered with US EPA and state housing and planning departments to develop a "**Smart Mobility Framework**." The Framework, which debuted in 2010, included two concepts that sought to address the wide diversity of

---

[7] New York State DOT (2016). A Framework for Active Transportation and Demand Management in New York State: The Implementation Plan. https://www.dot.ny.gov/programs/smart-planning/repository/Part%203-Implem%20Plan%20ATDM%20FINAL.pdf.

planning and geographic contexts for smart mobility throughout the state. The first concept established a continuum of **place types** that captured varying neighborhood types, development densities, and land uses across California ranging from urban core to protected lands. The second concept builds upon the place type designations to determine "location efficiency," which analyzes variations in community design and regional accessibility on a scale ranging from strong to weak (see Figure 3).[8]
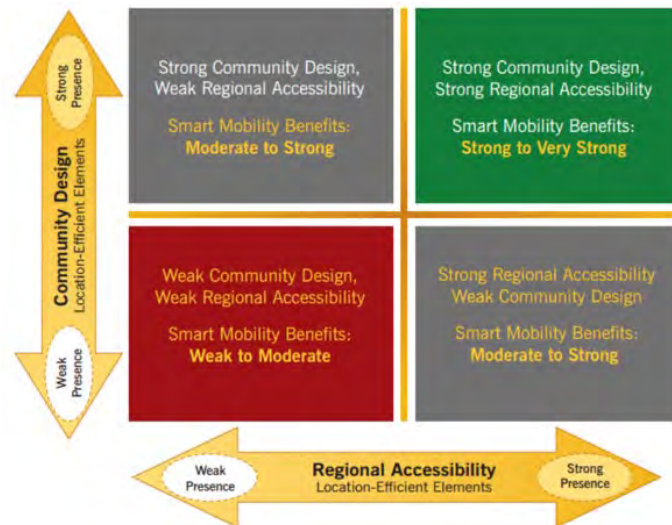

Figure 3. Location efficiency variables and smart mobility benefits. Source: Caltrans.

These two concepts provide a basis for developing context appropriate transportation and land use approaches and corresponding smart mobility priorities. For instance, in suburban parts of the state, smart mobility priorities and approaches may include transit-oriented development with managed parking and shared mobility options like carsharing and bikesharing in areas with high volume transit facilities. For rural lands, priorities may include limiting highway capacity expansions in order to avoid induced sprawl. In areas with tourism-based economies, for example, principles may include providing transportation services to visitors on weekends and holidays. In agricultural areas, implementation of smart mobility principles could include increased access for workers and agricultural logistics (e.g., suppliers and shippers). By tailoring priorities and implementation strategies to a wide range of possible transportation and land use contexts, Caltrans has provided a range of effective approaches (including demand management strategies) that jurisdictions can apply locally to support the state's smart mobility objectives.

Programs and Initiatives Targeted to Special Populations

Contemporary TDM programs are increasingly helping transportation disadvantaged populations overcome barriers to accessing essential services like jobs and healthcare.

Limited access to goods and services can negatively impact quality of life. This is especially true for veterans with limited access to medical facilities and employment assistance. To remedy this, **Rogue Valley Transportation District (RVTD)**, which serves the greater Jackson County, Oregon area, created the **Go Vets program**. This unique program,

Figure 4. RVTD's Go Vets program. Source: RVTD.

---

[8] University of Maryland. (n.d.). *Place type for transportation decision making report.* Retrieved from http://smartgrowth.umd.edu/assets/documents/research/placetype_finalreport_-_aug_14_-_1.pdf

which was developed by veterans to **overcome barriers to accessing essential services**, provided travel training for public transit use and education regarding other alternatives. The program also provided free bus passes for a limited period. An evaluation of this program found a 39 percent decrease in missed medical appointments and a 26 percent reduction in missing work/employment programs following its implementation. Through Go Vets, the Pedals for Patriots program also offers free bicycles to veterans (most donated by local police departments) to improve access to services and opportunities and instill a sense of independence among program participants.[9]

4. Local and Subarea Planning and Policy: Making Connections to Land Use and Parking

TDM can be integrated into local planning and policy through efforts that focus on development requirements and parking management strategies that strengthen the connection between the transportation system and land use. These approaches support transit-oriented development and development of bicycle and pedestrian infrastructure, as well as vehicle trip reduction measures and efforts to effectively manage parking price and supply. Examples of these practices are highlighted below.

TDM Development Requirements or Proffers

Local governments can place requirements on new development to reduce traffic generation through a variety of strategies. A TDM proffer is a voluntary commitment by a developer or landowner to mitigate the negative impacts of a development on its surroundings. In **Fairfax County, Virginia**, site plan review staff **draft proffer agreements** as a part of the development approval process. Proffer agreements establish a general **trip reduction goal** for a development and require developers to make financial contributions to a dedicated fund for them to implement TDM strategies. Developers are required to submit annual reports on the TDM implementation and observed trip reduction performance.[10]

While some state and local trip reduction ordinances apply to existing employers, other ordinances and TDM programs have been used to integrate TDM into the development approval process in municipalities such as Arlington County, VA (1990); Cambridge, MA (1992), Contra Costa County, CA (1992); Alexandria, VA (1997); Montgomery County, MD (2002); Rockville, MD (2012); Buffalo, NY (2017); and San Francisco, CA (2017). These ordinances typically require new developments above a certain size to estimate travel demand generated, set trip reduction targets, commit to implementing TDM strategies, and report on performance.

---

[9] Mullin, H. (2019). *"Go Vets" Program Encourages Veterans to Connect with Transportation Options and Each Other*. Retrieved from https://blog.altaplanning.com/go-vets-program-encourages-veterans-to-connect-with-transportation-options-and-each-other-a52ebda1e89c

[10] Fairfax County Department of Transportation. (2015). Transportation Demand Management Plan: Fiscal Years 2016-2021. Retrieved from http://www.drpt.virginia.gov/media/1846/fairfax-county-tdm-plan.pdf

Eliminating Parking Minimums

The **Buffalo Green Code** was the first **city zoning ordinance** adopted in the U.S to **eliminate parking minimums** citywide.[11] The code requires most new developments (over 5,000 sf) and major renovations (over 50,000 sf) to prepare TDM plans committing to strategies that will reduce estimated vehicle trips and parking demand by 10-20% over two years of implementation. These requirements are detailed in the TDM Policy Guide, which assigns trip reduction credits to the following categories:[12]

- Share programs (carsharing and bikesharing)
- Promotion and outreach
- Employee incentive programs (guaranteed ride home, "live near your work" programs, transit pass discounts, alternative/flexible work schedules)
- Enhanced design amenities (roadway improvements, bicycle facilities, transit facilities)
- High occupancy (shuttles, vanpool, carpool)
- Parking management (shared parking, parking cash-out, unbundled parking)
- TDM management (TDM coordinator, membership in a TMA).

These TDM plans must be approved by the City's Planning Board as a part of major site plan review. Implementation status reports must be submitted to the City's Zoning Board Administrator after six months of occupancy and then every two years thereafter. The Green Code also **establishes minimum bicycle parking requirements for new developments** that address both short- and long-term bike storage needs and vary by land use and development size. Developments can only receive trip reduction credit for bicycle parking provided above the minimum amount required.

Dynamic Curbside Pricing
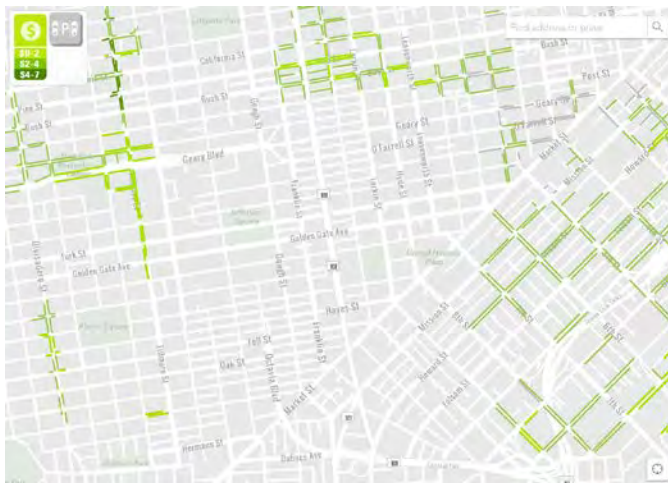
Figure 5: San Francisco Real-Time Curb Parking Price Map. Source: SFMTA.

Dynamic curbside pricing manages demand for street parking based on time of day, parking duration, and utilization in the surrounding area. With technology applications, cities can map their curb regulations and leverage other data sets such as speed, parking, transit stops, street cleaning schedules, and for-hire vehicle pick-up and drop-off data to better understand curb use. **Seattle DOT and Ford** have partnered on a pilot project to map this data using a secure data commons (SharedStreets) to support dynamic curbside pricing in the future.

---

[11] City of Buffalo. (2016, December (Adopted)). *Buffalo Green Code: Unified Development Ordinance.* Article 8.4 Transportation Demand Management. Retrieved from https://www.buffalony.gov/DocumentCenter/View/1785/Buffalo-Green-Code---Unified-Development-Ordinance-PDF?bidId=
[12] City of Buffalo. (2017, March (Adopted)). *Transportation Demand Management Policy Guide.* Retrieved from http://www.buffalogreencode.com/December_2016/TdmPolicyGuideAdopted032717.pdf

While this particular technology is still being piloted, the benefits of dynamic curbside pricing have been proven: in **San Francisco**, the **SFpark dynamic parking pricing pilot program** ran from 2011-2013 and yielded a 30% reduction in VMT and 43% reduction in parking search times. In 2017, the San Francisco Municipal Parking Transportation Agency (SFMTA) committed to a citywide demand-responsive pricing program on 28,000 curbside meters and all metered off-street lots.[13]

Parking Cash Out and Commuter Benefits Ordinances

The price of parking strongly influences whether or not a commuter drives to work. Parking cash out is a commuter benefit in which an employer offers employees the option to accept taxable cash income instead of a free or subsidized parking space at work. The idea behind parking cash out is simple: given a choice of cash or a parking space, many people would prefer to receive cash. Parking cash out may be voluntary or mandated by policy.

Since 1992, the **State of California's** Health and Safety Code has required employers with more than 50 employees in any nonattainment area to offer a parking cash out program if they subsidize employee parking.[14] In a study of 37 employers in Los Angeles, the recorded drive alone rate fell from 76 percent before employers offered cash out to 63 percent afterward. The number of daily vehicle trips to work fell by 11 percent, and total vehicle travel to work fell by 652 VMT a year per employee.[15] In **Rhode Island**, employers with more than 50 employees within one quarter mile of public transit service must offer a parking cash out program if they subsidize employee parking.[16] While existing policies requiring parking cash-out are largely statewide in scope, they have strong site-level impacts on vehicle trip reduction for the employers that are subject to their requirements.

Commuter benefits ordinances require that employers exceeding a certain size offer commuter benefit programs to workers. These programs help to incentivize travel by transit, vanpool, and other alternative modes by lowering commute costs for these trips through employer subsidies or pre-tax benefits. Mandatory commuter benefit ordinances have been enacted in cities including Seattle, Washington, DC, the San Francisco Bay Area, and New York City. **San Francisco's** ordinance, for example, requires that employers with at least one location in San Francisco who also employ 20 or more employees nationwide provide one of the following benefits:[17]

- Up to $260/month in pre-tax deductions for transit or vanpool expenses
- A monthly employer subsidy for transit or vanpool trip costs equivalent to the price of a monthly regional transit pass
- Employer-sponsored bus or van service to and from the place of work.

[13] SFMTA (2017). San Francisco Adopts Demand-Responsive Pricing Program to Make Parking Easier. Retrieved from https://www.sfmta.com/blog/san-francisco-adopts-demand-responsive-pricing-program-make-parking-easier
[14] California Environmental Protection Agency Air Resources Board. (2009). California's Parking Cash-Out Program: An Informational Guide for Employers. Retrieved from https://www.arb.ca.gov/planning/tsaq/cashout/cashout_guide_0809.pdf
[15] Shoup, D. (2005). *Parking Cash Out.* APA Planning Advisory Service. Retrieved from https://www.planning.org/publications/report/9026861/
[16] RI Gen L § 37-5-7.1 (2014)
[17] San Francisco Department of the Environment. (2019). *San Francisco Commuter Benefits Ordinance.* Retrieved from https://sfenvironment.org/commuter-benefits-ordinance-sf

Congestion Pricing

Congestion pricing tolls motorists who enter congested central city areas in order to curb excess demand. Congestion pricing was first implemented in Singapore in the 1970s and has since been successfully adopted in cities including London, Stockholm, and Milan. Following implementation of congestion pricing in London, the number of cars entering the cordoned area in Central London declined by 39 percent from 2002 – 2014 while the number of bicyclists travelling within the same zone increased by 210 percent within a similar time period. However, recent growth in ridesourcing trips from transportation network companies like Uber have offset some of these gains and led lawmakers to consider removing pricing exemptions for these drivers.[18]

Until recently, congestion pricing efforts in the US have faced considerable political hurdles. However, in March 2019 New York lawmakers approved a plan to implement congestion charging in the most congested areas of Manhattan, making it the first city in the nation to do so. The toll revenues collected through the pricing scheme will go towards improving the city's underfunded subway system. Cities like San Francisco, Los Angeles, Philadelphia, and Seattle are also considering implementing congestion pricing to combat growing congestion and fund mass transit systems. However, concerns remain that congestion pricing imposes a regressive tax on poor drivers that lack access to transit and that demand may shift to adjacent areas. In response, New York lawmakers are considering exempting certain groups including people with disabilities, low income people living within the congestion zone, and motorcyclists.[19].

5. Integrating TDM in Regional Planning and Processes

Metropolitan Planning Organizations (MPOs) are charged with carrying out a continuous, comprehensive, and coordinated transportation planning process. While traditionally the transportation planning process has focused on planning for transportation infrastructure investments and services (e.g., highways, transit services, and bicycle/pedestrian infrastructure), increasingly MPOs have recognized the important role that TDM can play in supporting regional goals and performance outcomes. Examples of effective integration of TDM in regional plans/processes are highlighted below. For considerable guidance and examples, readers are encouraged to reference Federal Highway Administration's (FHWA) publication Integrating Demand Management into the Transportation Planning Process: a Desk Reference.

Developing Regional Goals and Performance Measures that Support Multimodal Choices

Integration of TDM into the regional planning process should be considered alongside the shift to an objectives-driven, performance-based approach to transportation planning. Such an

---

[18] Badstuber, N. (2018, April 11). *London's Congestion Charging is Showing its Age*. Retrieved from https://www.citylab.com/transportation/2018/04/londons-congestion-charge-needs-updating/557699/
[19] Wamsley, L. (2019, April 2). *New York is set to be first US City to Impose Congestion Charging*. Retrieved from https://www.npr.org/2019/04/02/709243878/new-york-is-set-to-be-first-u-s-city-to-impose-congestion-pricing

approach involves developing performance measures and targets that can be used to help support prioritization of projects, programs, and activities. Specifically, the Metropolitan Transportation Plan can emphasize the important role of mobility options through goals and objectives, as well as performance measures that focus on issues such as non-single occupant vehicle (SOV) mode shares and vehicle miles traveled (VMT).

St. Louis' regional MPO, the **East-West Gateway Council of Governments,** developed its Long Range Transportation Plan, *Connected2045*, around EWG's 10 Guiding Principles. Focus groups, interviews, and group meetings directed the principles to encourage a broader understanding of the connections to transportation and how transportation can impact economic development, the environment, and quality of life. These goals serve as a foundation of the region's performance management framework in the long-range plan and Transportation Improvement Program. The goals to "Support Public Transportation" and "Provide More Transportation Choices" emphasize the region's priority of multimodal improvements by encouraging investment in bicycle and pedestrian facilities as well as public transportation. The framework performance measures that align with these principles include transit ridership numbers, transit access measure, mode split, and vehicle miles traveled per capita.

Integrating TDM in the Congestion Management Process

Beyond the region's goals or priorities in the long-range transportation plan, TDM can be integrated throughout a wide array of transportation plans, processes, and program effort. MPOs representing large urbanized areas with over 200,000 population (such as SPC) must implement a Congestion Management Process (CMP) that is designed as a systematic and regionally-accepted approach for managing congestion that provides accurate, up-to-date information on transportation system performance and assesses alternative strategies for congestion management. The CMP must include congestion management performance measures and identify travel demand reduction strategies. Moreover, in regions designated as ozone or carbon monoxide non-attainment areas, Federal law prohibits projects that result in a significant increase in carrying capacity for SOVs from being programmed in these areas unless the project is addressed in the region's CMP and includes an analysis of reasonable travel demand reduction and operational management strategies.[20]

The CMP can support TDM in a variety of ways. Most notably, the CMP must include congestion performance measures. Rather than using measures of vehicle hours of delay or roadway level of service, which tend to focus strategies on highway capacity, performance measures such as person hours of travel delay per capita help to support identification of strategies that optimize person movement (e.g., transit, HOV). Other examples of performance measures that support multimodal options include measures associated with VMT reduction, non-SOV mode share, and reliability. Now, Federal rules require measures of peak hour excessive delay and percent non-SOV travel to be reported at the urbanized area level, with targets developed for each. Moreover, the CMP can emphasize the importance of exploring TDM strategies before capacity enhancement strategies.

---

[20] 23 CFR § 450.322

The Capital District Transportation Committee (CDTC), the designated MPO for the Albany-Schenectady-Troy (New York) metropolitan area, has emphasized within its CMPs principles to:

- Support growth in economic activity and maintain the quality of life in the Capital District by limiting the amount of "excess" delay encountered in the movement of people, goods and services.
- Make contributions to the avoidance and mitigation of congestion on all modes by implementing demand management programs before performing capacity enhancements.

Because the CMP supports the metropolitan transportation plan's goals in their entirety, CDTC is able to ensure that these processes support the region's goals broadly to enhance community livability and quality of life.

Addressing TDM in Programming / Project Prioritization

Goals and objectives related to TDM, as well as performance measures that support non-SOV options and person movement rather than vehicle movement, can be integrated into project prioritization and programming criteria. The **North Jersey Transportation Planning Authority (NJTPA),** the MPO for the 13-county northern New Jersey region, has a Transportation Improvement Program (TIP) prioritization process with two key steps: 1) Application of Project Prioritization Criteria; and 2) Application of Additional Priority Factors.[21] Project prioritization criteria were developed with input from county engineers and planners, representatives from the environmental community, business groups, and organized labor. Projects are scored based upon how well their goals align with the 2040 NJTPA Long Range Transportation plan. Other factors such as feasibility of project delivery and funding availability and project timing also influence project scoring. These are determined by consultants and NJTPA staff, professionals, and elected officials from subregions, NJDOT, and NJ Transit staff. NJTPA also provides opportunities for public input on the scoring. Using this framework, which scores TDM initiatives highly for their ability to improve the regional air quality, NJTPA's FY 2018 – 2021 TIP allocates budget for the region's Transportation Management Associations, park-and-rides in areas of high demand, and ridematching activities.

6. Corridor-Focused Initiatives / Integrated Corridor Management

Beyond the region or business district, transportation agencies are increasingly looking at opportunities to integrate TDM into corridor-based initiatives, such as integrated corridor management (ICM) planning. ICM applies strategies to reduce congestion and optimize mobility on corridors, which are treated as complete systems across facilities, modes, and operating agencies (including state and local departments of transportation, MPOs, transit agencies, law enforcement, and first responders). ICM requires significant investments in technology and infrastructure; those investments are most effective when they leverage accommodations for

---

[21] NJTPA. (2019). *Transportation Improvement Program (TIP)*. Retrieved from https://www.njtpa.org/project-programs/transportation-improvement-program.aspx

shared and active modes of transportation such as high occupancy vehicle lanes, transit signal priority, and bicycle and pedestrian facilities.

The **Dallas ICM** consists of a 28-mile corridor of US-75 with continuous frontage roads, managed HOV lanes, a bus network, a light rail network, park and ride lots, 900 traffic signals, regional advanced traveler information system (including a regional transit schedule and planner), as well as numerous traffic management centers. The regional TDM program operated by the North Central Texas Council of Governments highlights use of the HOV lanes among the benefits of ridesharing. The program began in October 2006 and was fully operational in April 2013. Through the Dallas ICM processes, over 400 response plans have been developed and approved, with more being written and revised based on experience. These pre-approved response

Figure 6: Dallas US-75 ICM with HOV lane and light rail (Source: FHWA).

plans are provided to partner agencies both in real-time (online) during implementation, as well as offline for follow-up evaluation and adjustment.[22] Mobility performance results indicate that the ICM generates expected annual savings of 22,004 person hours in peak directions.[23]

The **San Diego ICM** covers 21 miles of I-15. It includes managed lanes and four **bus rapid transit** routes that operate in the managed lanes, which feature dynamic variable pricing to help manage traffic flow. Transit, carpools, and vanpools use the lane for free at any time, and the toll ranges from $0.50 to $8 for SOVs based on traffic flow.[24] Other TDM strategies include transit signal priority (discussed further in this report), a new transit stop, and studies to enhance transit, walking, and biking facilities.

The regional TDM program **iCommute** operated by the **San Diego Association of Governments (SANDAG)** highlights the benefits to carpools,

Figure 7: I-15 managed lanes (center) for HOVs, express bus service, and SOVs that pay a dynamic toll (Source: IBTTA)

---

[22] FHWA. (2017, November). *Elements of Business Rules and Decision Support Systems within Integrated Corridor Management: Understanding the Intersection of These Three Components within Integrated Corridor Management: Understanding the Intersection of These Three Components*. Retrieved from https://ops.fhwa.dot.gov/publications/fhwahop17027/fhwahop17027.pdf

[23] FHWA. (2016, November). I*ntegrated Corridor Management Analysis, Modelling, and Simulation for the I-75 Corridor in Dallas, Texas: Post-Deployment Assessment Report*. FHWA-JPO-16-396. Retrieved from www.its.dot.gov/index.htm

[24] Caltrans. (2019). I-15 Express Lanes. Retrieved from http://www.dot.ca.gov/d11/15express/

vanpools, and transit riders in the I-15 managed lanes. The ICM became operational in March 2013, while the incident/event response functions became operational in 2015. The ICM's Decision Support System assesses traffic conditions based on incoming monitoring data from traffic signal systems, ramp metering, transit, express lanes, and traveler information.[25] The ICM system forecasts conditions up to 30 minutes in the future with **microsimulation**, then develops proactive response plans for operations personnel to consider.[26] Forty alternative route signs were installed in April 2016 on surface streets along I-15 and provide coordinated detour messaging. In the event of a major freeway incident, these signs direct motorists off the freeway to avoid delays, and alternative route signs will guide them through surface streets and back on the freeway as soon as possible.

In the Philadelphia-area **I-76 ICM pilot**, PennDOT is leading ICM along a 25-mile segment of I-76 and adjacent corridors, which connect Philadelphia with its northwest suburbs. These corridors experience frequent congestion and average daily traffic volumes of over 200,000. Program areas of the ICM include **variable speed limit signs, queue detection/warning, dynamic junction, shoulder, lane use controls, adaptive ramp metering, multimodal improvements to transit stations and a bike/ped trail, as well as traffic signal management.** Most elements of the ICM are forthcoming in the alternatives analysis phase, though some are under construction and are anticipated to go live in Spring 2019. The State will determine whether this pilot is worthy of expansion by 2022.[27]

7. Integrating TDM into On-Going System Management and Operations

The increased emphasis on maximizing the efficiency and reliability of the highway system has led some states and regions to integrate TDM as part of on-going transportation system management and operations (TSMO) in order to improve system performance. The overlapping objectives of demand management and system management make these strategies natural complements. By integrating TDM in traveler information, event/incident management, and construction projects, traffic management center (TMC) staff and other operations personnel can influence shifts to different routes, travel times, and alternate modes to the overall benefit of the travelling public.

Integrating TDM in Traveler Information

Advanced traveler information is fundamentally a demand management strategy to help travelers learn of bottlenecks, slowdowns, and incidents, as well as travel options so that they

---

[25] FHWA. (2017, November). *Elements of Business Rules and Decision Support Systems within Integrated Corridor Management: Understanding the Intersection of These Three Components.* Retrieved from https://ops.fhwa.dot.gov/publications/fhwahop17027/fhwahop17027.pdf

[26] FHWA. (2016, December). *Integrated Corridor Management Analysis, Modelling, and Simulation for the I-15 Corridor in San Diego, California: Post-Deployment Assessment Report.* FHWA-JPO-16-403. Retrieved 10/2/2018 from www.its.dot.gov/index.htm

[27] PennDOT, FHWA, SEPTA, DVRPC, Jacobs. (2017, December). *I-76 Corridor Management: Opening Lanes and Offering Options to Regional Mobility.* Panel at the Transportation Engineering and Safety Conference. Retrieved from https://www.larson.psu.edu/assets/docs/TESC-presentations/5C-I76-integrated-corridor/5C-Draft.pdf

might avoid them by traveling a different route, at a different time, or by a different mode than driving if available, thus decreasing congestion.

Common types of traveler information include:

- Alternate Routes
- Congestion Information
- Live Traffic Cameras
- Parking availability
- Road work/construction zones
- Special events
- Traffic incident information
- Travel times
- Weather information

The **New York State Department of Transportation's** commuter and traveler services program, **511NY Rideshare,** for instance, is designed to provide New Yorkers with information on current traffic conditions, weather alerts, Park and Ride lots, and available alternative modes of transportation for their commute. A notable traveler information feature is the online Park and Ride lot database. When a user clicks a specific lot, they are provided with features including total number of parking spaces, bike rack availability, parking permit requirements and fees, directions to the lot via personal vehicle or public transit, and a digital map of the parking lot and surrounding area. Furthermore, companies who partner with 511NYRideshare have the option to host a curated portal on their company intranet, created by a 511NYRideshare team member, where employees are able to access traffic and commute information catered specifically to their work location.

TDM for Incidents, Emergency Events, and Road Weather Management

While traffic incident and road weather management has traditionally focused on providing information on traffic conditions, successful operations to maintain mobility can integrate demand management strategies. For instance, **telework** programs can be an important strategy for **emergency preparedness**. In the wake of Hurricane Harvey in Houston and Hurricane Maria in Puerto Rico, federal agencies in affected areas were able to continue operations during office closures because they had employees who were prepared to telework.[28] Businesses and employers can also implement strategies specifically designed for emergency operations. For instance, **the Walt Disney Company** has agreements with local taxi companies to ensure that employees have priority access to the service fleet to get to and from work in the event of an emergency. Agreements with private charter bus companies are also in place for special events, which could apply to emergencies if needed.

NYSDOT's "Match Me in Emergencies" program was developed during Hurricane Sandy. It is ideal for transit users who need a way to work when transit is down from flooding, power

---

[28] United States Office of Personnel Management. (2018). *Status of Telework in the Federal Government: Report to Congress, Fiscal Year 2017.* Retrieved from https://www.telework.gov/reports-studies/reports-to-congress/2018-report-to-congress.pdf

outages, or other disruptions. Also, NYSDOT's created a landing page for the emergency Penn Station Amtrak maintenance that shut down 1/4 of commuter train tracks, where NYSDOT put together a portal and landing page, with emergency park and ride lots and updates on capacity during morning rush.

Special Events Management

TDM can play an important role in planned special events management. While this is now common for major sporting events and venues in urban locations, demand management strategies can also play an important role in suburban and rural communities that host special events such as festivals that attract large crowds. Coordination may involve transportation agencies, transit agencies, law enforcement, special event promoters, venue management teams, parking facility operators, media, and any sectors of the public affected by event traffic. For instance, for less frequent events at venues without transit infrastructure, transit shuttle service may be considered. This service could use existing park-and-ride lots or new ones could be negotiated at public or private parking facilities, including retailers with large under-utilized parking lots. Shuttle stops or dedicated transit lanes can service the venue. For venues with year-round events, permanent transit infrastructure (e.g. bus routes and stops) may be considered. Service frequency may need to be increased before and after an event to handle demand.

The **Tucson Festival of Books** is a free annual book fair that draws nearly 140,000 attendees to the **University of Arizona** campus each March. Due to the event's popularity, traffic congestion and parking scarcity have become formidable issues in and around campus. To address these logistical challenges, the University partnered with a vendor (Metropia) to provide festival **navigation assistance** for drivers and encourage **carpooling**. The vendor's mobile app directed drivers to designated parking lots while factoring for event-specific road closures. Further, the app offered rewards to

Figure 8. University of Arizona provided an event navigation and carpool matching app for the Tucson Festival of Books. Source: Metropia.

festival attendees who opted to carpool using a built-in matching function. As a result of this partnership, ten percent of all trips that used the app included carpoolers. Additionally, festival organizers were able to use app data for insights regarding peak festival arrival and departure times, which allowed them to better allocate event staffing to accommodate changing periods of travel demand.[29]
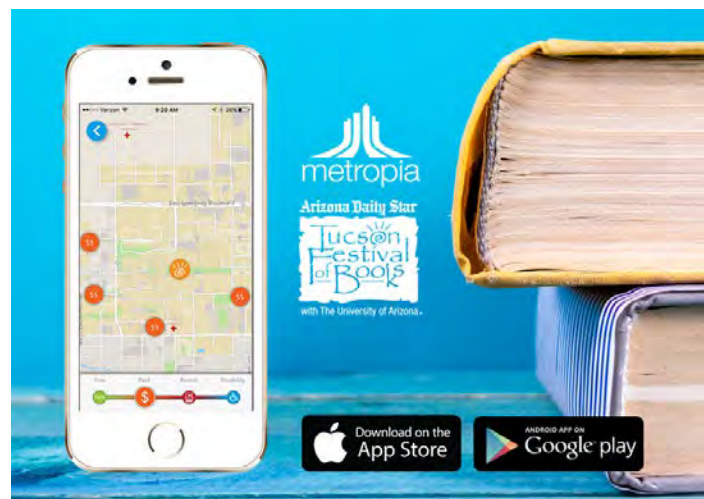
---

[29] Metropia.(2017). *Event Management: Solving Congestion and Parking Challenges for the Tucson Festival of Books.* Retrieved from http://www.metropia.com/case-studies/tucson-festival-books-traffic

TDM for Work Zone Management and Temporary System Disruptions

TDM strategies can play an important role in highway and transit construction or rehabilitation projects that temporarily reduce roadway capacity or cause disruptions to existing services. Strategies may include implementation of new temporary transit services, incentives, coordination with employers, and communications to encourage alternative options for travelers to avoid the area (e.g., detours) or switch to non-driving options (e.g., public transit, carpooling, ridesourcing), or alternative trip times.

In response to a planned partial shutdown of Metro subway service in parts of Northern Virginia in 2019, **Virginia DOT (VDOT)** has developed a comprehensive plan that includes permitting buses to operate on the shoulder of the Capital Beltway's Outer Loop, and altering pavement markings and signal timing around the Huntington Metro station to support increased person throughput with buses. Moreover, the City of Alexandria will add extra local buses, expanded trolley service hours, more bikesharing service, and increase rush-hour water taxi trips between Washington, DC and Alexandria to manage travel demand during the construction period. VDOT is investing a total of $3.6 million to support the cost of these services.[30]

In Seattle, Washington, **Seattle DOT** funded a **Rideshare to Transit pilot** from December 2018 to February 2019 during closure of the Alaskan Way Viaduct. The pilot offered reduced fares with ridesourcing companies including Uber, Lyft, and ReachNow to match the price of adult transit tickets to and from particular transit hubs in the area to ease congestion between construction closures in order to encourage transit ridership. Additionally, Uber's dockless pedal assist bikeshare company (JUMP) waived the $1 fees to unlock the bikes and increased the number of bikes for the duration of the closures and construction projects.[31]

The **Colorado DOT (CDOT)** employed TDM as part of the **reconstruction of I-25/225** in the Denver region, which included the building of a new light rail segment. A public information campaign was implemented to **increase the use of transit, vanpooling, and carpooling utilizing a temporary HOV lane.** CDOT project managers cited the existence of TDM as reducing their overall risk on the project and providing travelers with enhanced options. Market research studies found that travelers appreciated these options, even those who did not use them.[32]

8. Transportation Improvements and Technology Applications

A foundation for effectively managing travel demand is having the options available to support a wide array of travel choices. Transportation investments can support options such as enhancing transit service frequency, coverage, and reliability, as well as efforts to encourage ridesharing.

---

[30] WTOP. (2019). https://wtop.com/tracking-metro-24-7/2019/03/beltway-bus-lanes-amtrak-discounts-water-taxis-in-virginias-plan-for-summer-blue-and-yellow-line-shutdown/slide/1/

[31] Seattle DOT. (2019). Rideshare to Transit. Retrieved from https://www.seattletraffic.org/ridesharetotransit/

[32] FHWA. (2012). *Integrating Demand Management into the Transportation Planning Process: A Desk Reference.* https://ops.fhwa.dot.gov/publications/fhwahop12035/

Moreover, the growing ubiquity of smartphones and the proliferation of shared mobility providers are creating new opportunities for demand management. Together, these shared modes offer a range of on-demand alternatives with the potential to reduce SOV reliance and improve first mile-last mile connections to transit. Emerging innovations like Mobility on Demand, which promises a seamless fusion of multimodal trip planning/payment and policy levers, may have significant influence on personal travel decisions and further active demand management potential.

Giving Opportunities for and Priority to High Occupancy Modes

Transportation system improvements, including operational improvements, can be used to encourage the use of high-occupancy and shared modes.

Making Transit Faster and More Reliable (e.g., Transit Signal Priority)

Transit signal priority (TSP) gives preferential treatment to transit vehicles at signalized intersections to improve person throughput. Passive TSP strategies include assigning signal priority to roads with high volumes of transit vehicles or coordinating signal timing at average transit vehicle speeds. Conversely, active TSP uses in-vehicle transponders or other communications devices to detect the presence of an approaching vehicle and time its arrival to give an early green signal or to hold an existing one.[33]

To improve bus performance and reliability, and to reduce motorist queuing, the **District DOT (DDOT)** conducted a transit priority planning study on 16th Street NW in Washington, DC – a transit priority corridor that serves more than 20,000 bus riders on weekdays. In addition to TSP strategies, study alternatives included dedicated transit lanes, turn restrictions, and off-board fare payment. DDOT's preferred alternative includes **active TSP for 33 signals along the corridor**, which are activated when one of the corridors many buses falls behind schedule. At one of the corridor's busiest intersections, DDOT installed a **"queue jumper"** – a dedicated bus signal that gives transit vehicles a head start that allows them to pull ahead of other queued vehicles.[34]

Enhancing Park and Ride Opportunities

Park and Ride facilities help travelers, particularly in suburban locations with lower densities, to join carpools or access transit. A regional or corridor strategy can help to support use of park and rides, not only through their siting and location but also associated marketing. For instance, to encourage choice riders to commute by bus, the **Central New York Regional Transportation Authority (CENTRO)** – the public transportation provider for the greater Syracuse area – conducted a regional park and ride study resulting in a network of **12 free Park-N-Rides** where users can catch a bus. Additionally, CENTRO's Park-N-Ride website also provides an **integrated transit trip planner** and fare info for buses. Some agencies have developed partnerships with private land owners or developers to set aside space for park and ride users.

---

[33] FTA. (2016). https://www.transit.dot.gov/research-innovation/signal-priority
[34] DDOT. (n.d.) https://ddot.dc.gov/page/16th-street-nw-transit-priority-planning-study

Seamless Transit Fare Payment

TriMet, the transit provider for the bistate **Portland, Oregon region**, adopted an open architecture **regional fare payment system** called **Hop Fastpass**. Hop Fastpass uses a contactless fare card to provide interconnectivity between TriMet's bus, light rail and commuter rail systems. To reduce transfer barriers between these modes, TriMet instituted a policy that uses Hop Fastpass to charge riders only the difference between fares if they transfer from a lower priced mode to a higher priced one (as opposed to charging them for a new trip). Further, TriMet adopted a fare capping policy that eliminates upfront monthly and daily pass costs and ensures riders will never exceed the equivalent value of these passes regardless of how many trips they take.

First Mile-Last Mile Connections to Transit

Getting travelers to high-capacity fixed route transit can be a challenge, particularly in suburban areas, where jobs or housing may be located far from major arterial roadways. The examples below illustrate strategies for improving connections to transit.

Planning and Guidance for First Mile-Last mile Improvements

Los Angeles County is making significant improvements to its public transportation network to encourage alternatives to driving alone. **Los Angeles County Metropolitan Transportation Authority's (LA Metro)** First Last Mile Strategic Plan provides guidelines to implement an infrastructure improvement strategy. This strategy will facilitate safe and easy access to the improved rail network for the nearly eight million residents who will live within three miles of a rail station following completion of transit network improvements.

Microtransit

Microtransit has also shown promise to improve first mile-last mile transit connections. In **Kent, England**, for example, Arriva Bus UK uses Via's real-time ridesharing technology to provide demand responsive transit service that helps connect workers at a large employment center to a nearby high-speed rail station that would otherwise be inaccessible. Similar first mile-last mile transit connectivity efforts are currently being piloted across the US as part of FTA's Mobility on Demand Sandbox initiative.

Using Transportation Big Data to Pinpoint Multimodal Connectivity Gaps

Big data analytics platforms capture trillions of geospatial data points from Bluetooth signals, GPS devices, and a variety of other digital sources. These data sources are then deidentified and algorithmically processed to identify granular travel patterns and to provide real-time travel info (predictive analytics further extend the capabilities of these massive datasets). Big datasets can also be used to pinpoint short and circuitous trips in order to target TDM solutions accordingly. In Northern Virginia, for example, **Virginia DOT** planners used transportation big data to analyze hundreds of road segments to identify problems with pedestrian access to a Metro station. With this knowledge, planners proposed improved sidewalks and a pedestrian

bridge to discourage short trips that could contribute to parking scarcity and congestion around the transit station.[35]

Vanpool Program Support

Vanpools typically carry between seven to fifteen passengers, shuttling commuters between common pick-up locations like a park-n-ride lot and the workplace. The vans used in these programs are often supplied by an employer or agency, or otherwise subsidized to offset lease costs. Vanpools are best suited for commutes greater than 15-miles each way and for larger employers whose workers adhere to similar schedules and who arrive at a single centralized location. SPC's CommuteInfo platform provides a listing of dozens of vanpools throughout the region along with their origins and destinations, arrival and departure times, and the number of open seats for each van. The SPC provides a subsidy of $400 per vanpool per month for all vanpools in the region except for those serving federal employers, which provide employees with a fare subsidy of up to $265 per employee per month. This is a best practice, and is similar to some programs in other regions.

For instance, the **San Diego Association of Governments' (SANDAG)** iCommute program matches vanpool riders and provides a subsidy of up to $400 per month to offset lease costs for vans. In 2018, there were over 700 active vanpools in this program. Illumina, a biotechnology company headquartered in San Diego, further incentivizes vanpool use through the iCommute program by providing each participating employee with $130 per month for expenses. Illumina's program grew to 18 vanpools in 2018.[36] The Virginia Vanpool Assistance Program, sponsored by the **Virginia Department of Rail and Public Transportation** provides temporary funding for vanpools having trouble filling all of their seats. There are two different programs: the VanStart Program, which funds empty seats during the critical start-up phase of new vanpools; and the VanSave Program, which is for existing vanpools that are experiencing problems in their passenger levels due to the loss of riders.

Shared Mobility Options

Shared mobility options include recent innovations like ridesourcing, scooter/bike sharing, microtransit, and other emerging modes. These newer options complement shared mobility modes like carsharing, which have existed since the 1990s, and are distinguished from other shared modes like public transit by integration of app-based mobile tracking and by their novel service and their operational and business models, which are generally profit-driven. Society of Automotive Engineers' J3163 provides a standardized taxonomy and definitions for shared mobility options; under this standard, shared mobility is defined as "the shared use of a vehicle, motorcycle, scooter, bicycle or other travel mode; it provides users with short-term access to a travel mode on an as-needed basis." Given the greater role that shared mobility options are playing, and have the potential to play, in urban and suburban areas, public agencies increasingly have a role to play in enhancing opportunities for shared mobility.

---

[35] Hirni, J. (2017). Transportation Demand Management in the (Always Changing) Real World. Retrieved from https://www.streetlightdata.com/transportation-demand-management-a-real-world-use-case
[36] Shift San Diego. (2016). http://www.shiftsandiego.com/ShiftInsider/2016/08/29/illuminating-solutions-to-encourage-alternatives-to-driving-alone

Planning and Guidance for Shared Mobility Implementation

Seattle DOT recognized a need to leverage the benefits of new mobility options while prioritizing the city's core transportation system principles – safety, equity, affordability, and sustainability. To further this goal, the agency created the New Mobility Playbook, which provides a set of flexible plays, strategies, and policies addressing a wide gamut of shared mobility considerations from procurement to data management to broad societal implications of transportation technologies (labor market impacts, for example). The Playbook provides both strategic and tactical recommendations like the development of a **microtransit policy framework** and a pilot to assess its ability to bridge the first mile-last mile gap.

Figure 9. Seattle DOT's New Mobility Playbook. Source: Seattle DOT.

Dedicating Curb Space for Shared Mobility Options

Municipalities can support carsharing and other shared modes by providing dedicated both on-street parking spots and spots in park-and-ride lots, as well as designated space for pickups. **Portland, OR** allocates on-street parking to carsharing providers through a bidding system. **Austin** allows carsharing vehicles to use on-street parking free of charge even during active parking meter hours. **New York City** recently launched a two-year pilot that has reserved both on-street and municipal lot spaces for carshare vehicles.

Bikesharing, Scooter Sharing, and Other Options

In September 2017, **District DOT (DDOT)** launched one of the nation's first **dockless vehicle demonstrations**, in which they permitted select private service providers to operate dockless bikesharing and scooter sharing vehicles within the public right-of-way for a limited time period. The demonstration program's goal was to see if these new services could encourage shifts to active transportation modes and to extend the availability of these active modes in underserved areas. Following the December 2018 release of DDOT's Dockless Vehicle Sharing Demonstration Phase I Evaluation, the agency committed to a "broad but incremental expansion" of the District's dockless vehicle sharing program. DDOT's 2019 Dockless Vehicle Sharing Program currently provides 10 vendor permits allowing up to 6,000 dockless vehicles. If each of the selected vendors meet the District's performance requirements (including equity, ridership, parking, safety and data reporting) the program could allow as many as 16,800 vehicles by the end of 2019. Similar tests of deployment and regulation of dockless vehicles have been followed by San Francisco, Santa Monica, and Portland, Oregon.

Smartphone Applications to Support Carpooling

Carpooling apps are using real-time data and behavioral insights from other tech sectors like social media to improve matching, verification, and cost sharing.[37] Zimride, for example, provides access to a private carpool network for coworkers and university students arriving at the same destination. The app also provides cost sharing mechanisms for riders and drivers. The Sluglines app has helped to provide improved traveler and ride matching information for the

---

[37] FHWA. (2016). Smartphone Applications to Influence Traveler Choices. Retrieved from https://ops.fhwa.dot.gov/publications/fhwahop16023/fhwahop16023.pdf

Washington, DC metro area's informal "slugging" system, where drivers pick-up passengers going in the same direction at established points in order to take advantage of HOV lanes during rush hour commutes. Waze Carpool uses an interface that allows users to select prospective ride matches based on photos, profiles, and ratings. The app also allows users to filter based on same-gender and coworkers only. Further, the app functions as a digital wallet that allows drivers to charge riders at a cap of 54 cents per mile (the IRS mileage reimbursement rate). Waze Carpool has worked with **MTC in the Bay Area** to further its TDM and environmental goals. Waze Carpool has also worked with large employers like **Roche** and **Amazon** to provide solutions to reduce parking demand and promote worker retention in transit deserts.[38]

Movement Towards Mobility on Demand

Per the USDOT's vision, Mobility on Demand (MOD) is "an innovative, user-focused approach which leverages emerging mobility services, integrated transit networks and operations, real-time data, connected travelers, and cooperative Intelligent Transportation Systems (ITS) to allow for a more traveler-centric, transportation system-of-systems approach, providing improved mobility options to all travelers and users of the system in an efficient and safe manner."[39] The vision for MOD overlaps substantially with the vision for Mobility as a Service (MaaS), a term used more frequently outside the United States. Both concepts seek to integrate trip planning and booking, real-time information, and fare payment into a single user interface that provides seamless connections between shared, on-demand passenger modes. Modes connected by MOD include: public transit, ridesourcing, carsharing, microtransit/shuttle services, ridesharing, bikesharing/scooter sharing, and other emerging innovations in shared mobility.

Fusion of Multimodal Trip Planning, Booking, and Fare Payment

Figure 10. LA Metro Bike Share can be unlocked using the agency's Transit Access Pass (TAP) cards.

LA Metro recently announced interoperability between transit and Metro Bike Share using the agency's **contactless regional Transit Access Pass (TAP) card**. With this option, transit riders can book, pay for, and unlock a Metro Bike Share by simply swiping their card. LA Metro is also working to integrate fare payment with private sector service providers like Via as part of the USDOT MOD Sanbox grant.[40] Similarly, **Chicago Transit Authority (CTA)** is integrating Chicago's Divvy bikeshare system with the CTA app to allow userse to book and pay for Divvy trips. Further, CTA recently announced that iPhone users will be able to pay transit fares from their devices using Apple Pay.[41]

Lyft has added real-time transit feeds to its app for **Washington, DC** and other select cities. Uber and Lyft have also added scooter sharing and bike sharing to their apps where they have

---

38 Fried, J. (2019). CommuteCon 2019 [presentation].
39 USDOT. (n.d.). https://www.its.dot.gov/factsheets/pdf/MobilityonDemand.pdf
40 FTA. (2019). https://www.transit.dot.gov/research-innovation/fiscal-year-2016-mobility-demand-mod-sandbox-program-projects
41 Chicago Sun Times. (2019). https://chicago.suntimes.com/news/apple-pay-ventra-card-chicago-transit-authority/

acquired these services. In January 2019, **Denver's Regional Transit District (RTD)** announced a partnership with **Masabi and Uber** to become the first transit agency in the nation to offer the ability to purchase transit mobile tickets using a ridesourcing app. Using a new "Transit" option in the Uber app, Uber riders in Denver will soon be able to plan, book and pay for journeys that incorporate both public transit trips and Uber ridesourcing trips using just their smartphone.[42]
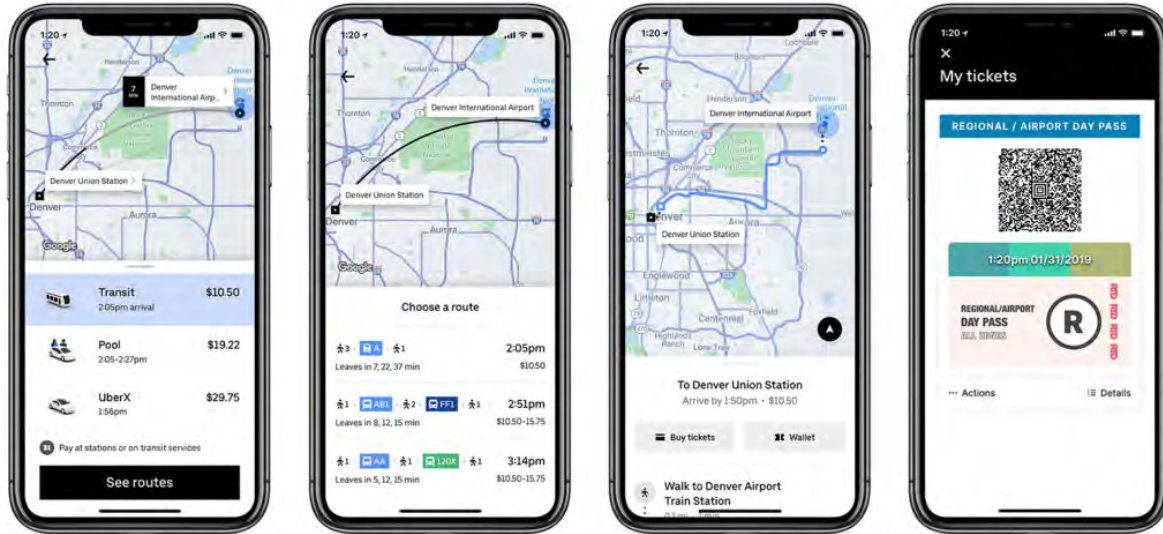

Figure 11. Integration of Denver RTD transit ticket booking and fare payment in the Uber app. Source: Masabi.

Advanced MOD to Actively Manage Local Travel Demand

Despite the growing ubiquity of travel data, the availability of shared mobility data has been limited due to privacy concerns and the desire to protect industry trade secrets. This is especially true for ridesourcing data. However, some cities like **Washington, DC** and **Seattle** are beginning to pilot systems that would allow them to use shared mobility service provider data to actively manage demand at a granular level. These cities have partnered with SharedStreets, a digital commons that **ingests and anonymizes proprietary data** from transportation network companies and other shared mobility service providers to identify aggregate traffic and travel trends in the data including for-hire vehicle speeds and pick-ups and drop-offs using a standard linear referencing system. Figure 12 provides an example of one such application at Washington, DC's Union Station. With these insights, agencies can begin to lay the foundation for dynamic curb pricing and other strategies to actively manage travel demand on urban streets. MOD data and application programming interface (API) standardization efforts like LA Metro's Mobility Data Specification will further support ingestion and analysis of real-time mobility service provider data to further mobility management potential.

---

[42] Masabi. (2019). http://www.masabi.com/2019/01/31/denver-rtd-to-be-first-agency-to-offer-public-transit-mobile-ticketing-in-uber-app-using-masabis-justride-sdk/
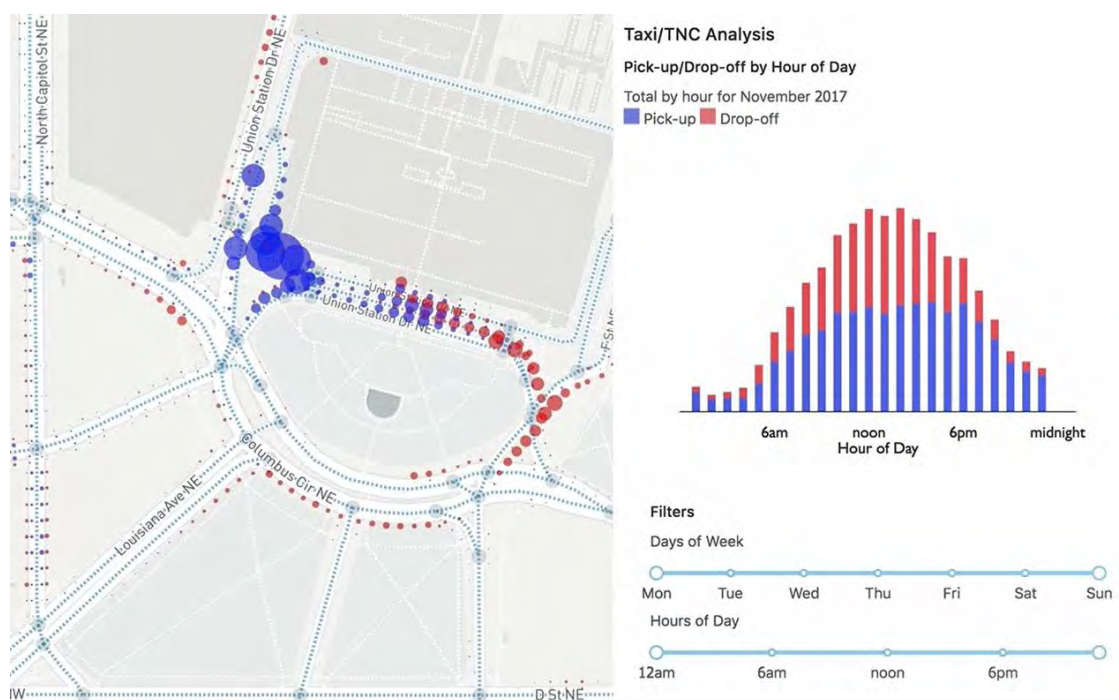
Figure 12. Analysis of taxi/ridesourcing pick-ups/drop-offs at Washington, DC's Union Station using the Shared Streets platform. Source: Shared Streets.

9. Marketing, Outreach, and Incentives

Marketing and outreach are essential to raise awareness of travel options and promote the benefits of shared and active modes of transportation. A key audience is employers because of the powerful role they play in how employees choose to commute to work, as well as commuters themselves. However, as noted earlier, there may be several different audience segments.

Regional Marketing

Regional outreach and marketing are major components of most TDM programs, and these activities typically include a combination of outreach to employers, commuters, and the general public. Examples include events with employers such onsite lunch n' learn presentations, and can also included customized support such as development of employee ZIP Code maps that may help to identify employees who could join rides or create vanpools. The **511NY Rideshare Program** includes digital outreach by working with a company to share information via the company's intranet or email system to educate employees about transportation options and encourage them to use the program's online tools and customer service staff to find a carpool, vanpool, bike buddy, transit routes, and other benefits such as Guaranteed Ride Home. Standardized fliers are customized for onsite events and rewards campaigns with dates and other details, as well as the company logo, such as the flyer shown in Figure 13.

Employer Outreach

Due to a greater focus being on outreach to employers, in order to then market the program to the larger population of employees, a specific focus is placed on a company's culture, physical location, and corporate priorities when strategically developing messages that will resonate successfully both with the employer's management team and with employees as users. Messaging can be tailored to address sustainability goals, wellness programs, issues with parking and traffic congestion, or employee recruitment and retention. The 511NY Rideshare region outreach team uses the S3 Systematic Sales Strategies to contact employers, set up meetings, get leads for onsite events, attend events, register new 511NY Rideshare members (commuters), which translates to carpools/vanpools formed and VMT reduced, the ultimate measure of success for the program.

Figure 13: 511NY Rideshare Customizable Rewards Campaign Flyer.

Emphasizing Environmental Benefits

511NYRideshare's sister program, **Clean Air New York**, has proven to elicit greater participation from companies with sustainability goals to adopt TDM programs and benefits, as it can provide that company a designation of being a "Clean Air Champion" if certain criteria are fulfilled. When engaging employers, the outreach teams have found this program to be a catalyst for partnership because eco-friendly status is increasingly desirable for many employers and institutions.

Marketing Guaranteed Ride Home and Commuter Benefit Programs

For communities with significant public transit and ridesharing options, marketing commuter benefit programs and **Guaranteed Ride Home** yields greater interest and engagement from commuters because these benefits add value to their everyday routine. The Metropolitan Washington Council of Governments' Commuter Connection Program focuses considerable regional marketing efforts on the GRH program due to surveys suggesting that the program addresses a key concern about ridesharing and transit use.

Targeted Marketing

Within TDM programs that cover large geographies with subarea variation, a regional marketing strategy with customizable collateral and outreach teams that serve specific subareas helps to build relationships with employers and stakeholders. Targeted marketing to commuters and employers on select corridors and bottlenecks has been used to address recurring congestion and to mitigate the impacts of work zones.

Oregon DOT's statewide TDM program **Transportation Options** is moving towards a **corridor-based marketing and outreach approach** to mitigate the impacts of construction projects and reduce recurring congestion. Marketing tactics include a mix of traditional and digital (targeted emails and Facebook ads), while the outreach strategy has been to target employers' human resources and facilities staff with the message "here's how we can help."

Outreach is delivered across the state by nine local Transportation Options partners that include transit agencies, council of governments, and nonprofits.

For example, an upcoming construction project on I-5 will close several travel lanes between Woodburn and Salem, and there will be a marketing campaign to get people to carpool and drive more during off-peak times. Another example is an exit interchange in Southern Oregon that was rebuilt five years ago and is already backing up onto the freeway travel lane for 15 minutes in the morning. ODOT is supporting the local Transportation Options provider in delivering a marketing campaign to change commute habits in the corridor to try and spread peak traffic and prevent back-ups. This approach is also bringing other parts of DOT along to engage ODOT district managers and project delivery staff, so that the next time congestion issues arise, ODOT call their local Transportation Options partner to recognize the TDM solution in-house while building relationships at the local level.

Digital Outreach & Social Media Marketing

As Americans continue to spend more time online, digital outreach and social media marketing have proven to be cost-effective strategies to direct users to TDM program websites and registration. Social media advertising provides the additional benefit of targeting ads to users based on demographics, geography, and other characteristics. It also provides agencies with a venue to interact with travelers directly as well as allows user-to-user exchanges of traveler information.

The **511NYRideshare** program utilizes digital outreach in multiple ways. One digital outreach practice being explored by 511NYRideshare consists of responding to Craigslist posts for carpool partners, telling them what their options are in the 511NYRideshare system and asking if they would want to sign up to be a 511NYRideshare member. Moreover, Next Door, an online platform that allows public agencies a free account that can be used to make posts to very specific neighborhoods, is being explored. 511NYRideshare plans on utilizing this platform to post "ads" about carpooling and signing up for 511NYRideshare to find ride share matches, to potentially get more people in a small area that would have better chances of matching with each other.

The **511NYRideshare marketing team** had also conducted a paid social media campaign with several images, attempting to bring in the emotional aspect of TDM with **consumer-focused messaging** such as: "Time to stop for coffee? Yes please" and "Get home in time to read your kids a story before bed" as shown in Figure 14 and Figure 16 In addition, the **employer-focused ads** on LinkedIn spoke to doing good for the community, employee job satisfaction, and getting and keeping the best talent, as shown in Figure 15. The campaign delivered

4,472,508 impressions across Facebook and LinkedIn, and the Google banner ads delivered 39,756 clicks. Since then, the 511NYRideshare team has been working to increase this type of messaging in regular social media posts, and to incorporate it into collateral.
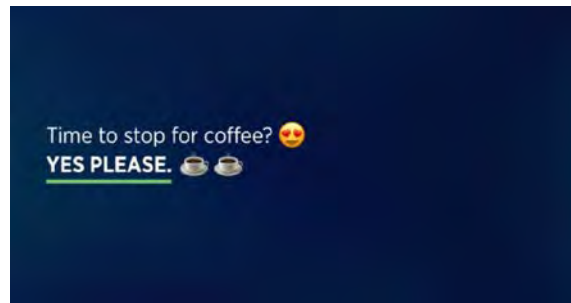

Figure 14: Consumer-Focused Facebook Ad
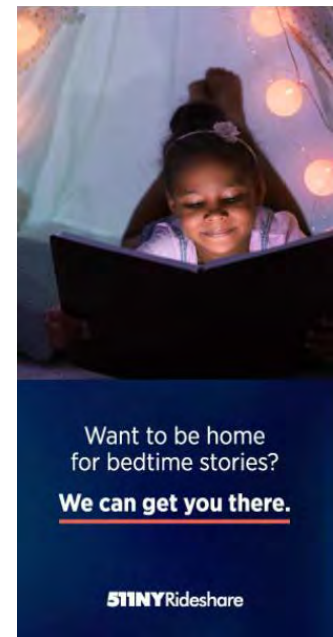

Figure 16: Employer Focused LinkedIn Ad

Figure 15: Consumer-Focused Google Display Banner Ads

Incentives

A variety of incentives can be used to encourage commuters to ride with others and travel during off peak hours or to forego commuting in favor of telework.

Incentives for Carpooling or Transit Use

San Diego Association of Governments' (SANDAG) Carpool Incentive Pilot Program provides a $50 gift card to new carpool drivers who sign up through the **Waze Carpool app** and complete ten trips within the first 90 days.[43] The pilot also covers passenger fees for ten trips over a 90-day period. The program is available to employees who work for companies that participate in the region's **iCommute program**.

In the **Buffalo Niagara region** (Erie and Niagara Counties), a digital outreach strategy was branded as "Commute Perks with Go Buffalo Niagara" and ran during the month of December 2018. Using the **e-rewards vendor** TangoCard, threshold-based incentives of $10 rewards cards were offered to users who tracked at least 10 trips in the **Trip Tracker New York app** and to users who referred a registrant to 511NYRideshare. TangoCard distributes rewards via email and allows users to choose from dozens of brands and nonprofits to spend their reward at, either online or in stores.

Employer and Employee Incentives for Commuter Benefits

In the Washington, DC region, a range of local governments offer incentives for employers to start offering a commuter benefits program to their employees. For instance, Montgomery County, Maryland offers a Fare Share program, to help companies start or boost their commuter benefits programs. Fare Share matches 100% of a company's contributions to commuter benefits up to $50 per employee per month, for up to a one-year

---

[43] SANDAG. (n.d.). https://transportation.ucsd.edu/_files/CarpoolIncentiveParticipationAgreement.pdf

period.[44] Fairfax County, Virginia offers a similar SmartBenefits® "Plu$50" incentive program that directly offers employees who are new to transit and do not already own a SmarTrip® card a free $50 card to try transit. The program sends the SmarTrip® card to the employer and works with the employer to load the free $50 benefit, as a way to encourage employees to take advantage of commuter benefits.

Partner Incentives

The nonprofit TDM program **Commute Seattle** partnered with a philanthropic organization of business leaders, Challenge Seattle, to distribute **prizes to transit riders during Ride Transit**

Figure 17: Ride Transit Month Prize Patrol in the Seattle metro area. Source: CommunityTransit.

Month in June 2018. Inspired by Willy Wonka and Oprah, prize patrols dressed in super hero costumes randomly distributed "golden tickets" and donated gift cards to transit riders across Washington State during a campaign called "Transit for the Win". This whimsical effort had a big media impact, which helped Commute Seattle to build a stronger partnership with Challenge Seattle group, and now they work with Commute Seattle frequently to provide commuter incentives.

Gamification

Gamification is the use of gaming elements in a non-gaming context.[45] Within a TDM context, gamification can be used in mobile apps to engage commuters and encourage more sustainable travel choices. For example, an app that encouraged environmentally-conscious commute choices during Earth Month (April) or National Bike Month (May) could employ leaderboards, badges, and other game elements to encourage friendly competition among the app's users leading to increased program engagement. Gamification was used to great success by Motivate, the company that runs **New York City's Citi Bike bikesharing program**, with its Bike Angels initiative. The Bike Angels program engaged Citi Bike riders to help address challenges related to rebalancing of bikes. Participants were awarded points by moving bikes from full stations to empty ones with point totals tracked on an online leaderboard. The top 5 Bike Angels were then awarded gift cards ranging from $100 - $25 each month. One participant famously averaged more than 500 miles a week of riding while rebalancing bikes in a competition to top the leader board.[46] By gamifying the rebalancing problem, and pairing the gamification with modest incentives for participants, Motivate was able to improve the overall efficiency of the system and reduce its operating costs (rebalancing efforts initially constituted half of the Citi Bike's operating costs). Similar strategies can be used in mobility tracker apps employed by TDM programs to encourage friendly competitions to reduce commute-related

[44] Montgomery County Department of Transportation, https://www.montgomerycountymd.gov/dot-dir/commuter/fareshare/

[45] FHWA. (2016). Smartphone Applications to Influence Traveler Choices. Retrieved from https://ops.fhwa.dot.gov/publications/fhwahop16023/fhwahop16023.pdf

[46] NPR. (2018). Citi Bike Angels Keep Wheels Turning for Other Bike-Share Users. Retrieved from https://www.npr.org/2018/09/11/646567194/citi-bike-angel-keeps-wheels-turning-for-other-bike-share-users

greenhouse gas emissions or accumulate the most bicycle commuting miles within a given time period.

Toll Credits

Although the Pittsburgh region does not have toll roads outside of the Pennsylvania Turnpike, it is worth noting that some regions have also created incentives for shared modes through toll credits or similar programs. In the San Francisco Bay Area, **Metropolitan Transportation Commission (MTC**) provides qualified vanpools with **"non-revenue transponders"** – a process they already have in place for public transit buses that go through toll crossings. The transponders let the vanpool go through the toll crossings without incurring any expenses and without having to wait in line for a tollbooth attendee to verify the vanpool qualified for toll waivers.

To reduce congestion and SOV use along the heavily traveled I-85 corridor, **Georgia's State Road and Tollway Authority's (SRTA) Shift Commute Commuter Credits pilot program** offered existing HOT lane users a $3 weekly toll credits for reducing their weekly peak period commutes from 4 or greater to 3 or fewer. Likewise, existing Express Lane users were offered daily $3 toll credits for carpooling and $2 toll credits for taking an express bus during peak periods. Following a successful pilot period that saw noticeable shift to off-peak periods and alternate modes among participants, SRTA continued the Commuter Credits program on a permanent basis. Program participants can now earn up to $120 in toll credits over a three-month period by shifting their commutes to off-peak hours.[47]

Employer Feebate Programs

Feebates are a type of pricing mechanism that penalizes unfavorable consumer decisions and rewards favorable ones. In the transportation demand management context, feebates charge drivers who commute alone and pass the collected revenues along to transit commuters. This approach is largely untested in the United States, however with funding from FTA's Mobility on Demand Sandbox initiative, the City of Palo Alto's Bay Area Fair Value Commuting Demonstration is testing and evaluating a feebate scheme with 11 area employers that employee more than 27,000 workers. The pilot project includes the following five components:

- Vendors provide Enterprise Commute Trip Reduction software to automate employer commute trip programs
- Use of a Mobility Aggregation app integrates multimodal trip planning
- A "revenue-neutral workplace parking feebate" charges SOV commuters who park at participating workplaces a fee and rebates that revenue to non-SOV commuters at no cost to participating employers
- "Gap Filling" identifies commutes with limited alternatives and provides appropriate remedies (e.g., an e-scooter "loan-to-own" to provide transit first mile-last mile connectivity)

---

[47] IBTTA. (2017). https://www.ibtta.org/awards/commuter-credits

- Institutional and systemic barriers are analyzed to further remove obstacles to multimodal travel choices[48]

Evaluations of this program are underway at the time of writing.

10. Advancing Implementation

Public-private partnerships (P3) with shared mobility service providers can be an effective means of advancing TDM program goals without the need for significant public expenditures. Likewise, pilot programs and projects allow implementing agencies to evaluate feasibility of rapidly evolving shared mobility options on a limited scale and with limited risk. This section of the report highlights a few examples of agencies that have effectively used P3s and pilots to advance MOD and shared mobility options to meet local goals and needs. For further info, **Shared-Use Mobility Center's** [Policy Database](#) provides a continuously updated catalog of new mobility P3s and pilot programs (these can be filtered by mode, topic, and geography).

Partnerships with Private Sector Mobility Service Providers

Partnerships with private sector mobility service providers like Uber and Lyft can improve connectivity to trunk-line transit for workers and residents located beyond a reasonable walking distance. Conversely, partnerships with private sector mobility service providers can potentially substitute for transit routes where existing lines have low demand or lack cost effectiveness.

In addition to providing first mile-last mile transit connections and substituting for low-performing transit routes, partnerships between public agencies or employers and private sector mobility service providers have sought to further the following objectives:

- Provide a guaranteed ride home for ridesharing program participants
- Extend transit service hours
- Improve the cost effectiveness and responsiveness of paratransit service
- Alleviate demand at overcrowded parking lots used by rail commuters
- Move employees between nearby job sites

This section provides a few noteworthy examples of employers and public agencies that have formed partnerships with private sector mobility providers to meet these aims.

---

[48] FTA. (n.d.). Mobility on Demand (MOD) Sandbox: City of Palo Alto Bay Area Fair Value Commuting Demonstration. Retrieved from
https://www.transit.dot.gov/sites/fta.dot.gov/files/FTA%20MOD%20Project%20Description%20-%20Palo%20Alto.pdf

Partnerships Between Transit Agencies and Ridesourcing Companies

In 2016, the **Pinellas Suncoast Transit Authority (PSTA)** piloted the [Direct Connect program](#), which uses subsidized ridesourcing and taxi services to provide **first mile-last mile connections** to trunk-line bus routes for the **St. Petersburg, Florida** area. Following initial

success, the program expanded its geographic coverage beyond the pilot service area and saw ridership increase by more than 400 percent within the span of a five-month period in 2017. In 2019, the program provided $5 discounts on ridesourcing trips with Uber and taxi trips to many designated pick-up and drop-off points in the area.

Figure 18. PTSA staff demonstrates use of the agency's Direct Connect program. Source: PTSA.

In addition to PTSA's DirectConnect program, the agency's [Transportation Disadvantaged (TD) Late Shift program](#) offers **door-to-door service** for workers whose jobs begin or end between 10pm – 6am (participation in the program costs riders just $9 more than the standard monthly bus pass fare). Door-to-door service is also offered for qualified individuals who cannot use the bus for some of their trips at a cost of $3 per one-way trip. As part of the Federal Transit Administration's [MOD Sandbox program](#), PSTA is also partnering with for-hire vehicle companies to provide paratransit service to individuals with disabilities.

Ridesourcing Partnerships to Alleviate Parking Congestion

In 2016, **the City of Summit, New Jersey** partnered with ridesourcing providers to **increase commuter rail ridership**. As part of the program, Summit residents with existing parking permits at the railway station have their ride costs to the station waived thereby freeing additional parking capacity. Participants without a parking permit pay $2 each way, which is equivalent to the cost of daily parking ($4). Following initial success, the program was expanded from 250 to 300 participants in November 2018.[49]

---

[49] Patch. (2018). https://patch.com/new-jersey/summit/summit-expands-commuter-ridesharing-program

Replacing Bus Routes with Microtransit

Arlington,TX, a city of approximately 400,000 residents in the Dallas-Fort Worth metro area, partnered with ridesourcing company Via in December 2017 to **pilot a program that would replace the city's sole bus route**. The pilot provides a geofenced area in which riders can travel anywhere for a $3 flat fare in 10-person passenger vans (the pilot also includes a few paratransit vehicles). This area serves approximately 120,000 residents and over 80,000 jobs. Rides can be hailed with smartphones or through a call center and can be paid for using a reloadable credit card and other digital payment options. Riders can also purchase a $15 ViaPass that allows them to ride up to four times a day throughout the week (service hours are from 6 am to 9 pm on weekdays and 9am to 9 pm on Saturdays).

Within the first year of its launch, the program provided more than 85,000 rides with an average wait time of less than 12 minutes. Given the program's success, the City renewed its contract with Via for one-year at an estimated cost of $1.8 million, with FTA covering slightly less than half of program costs.[50]
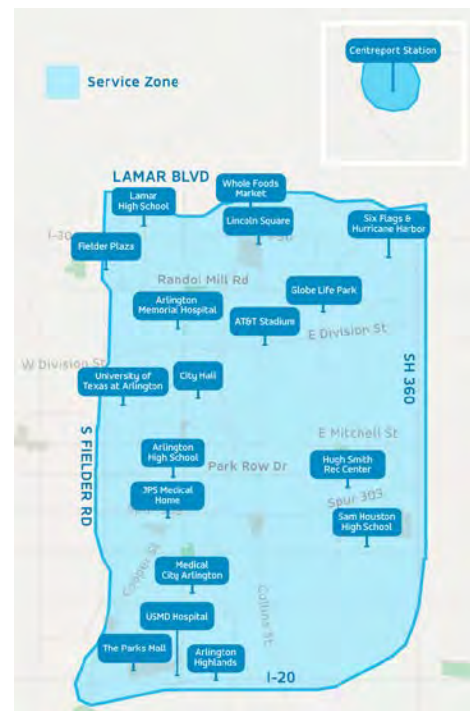

Figure 19. Via's geofenced service area in Arlington, TX. Source: City of Arlington.

Employer Partnerships with Shared Mobility Service Providers

Kite Pharma, a pharmaceutical firm headquartered in **Santa Monica, CA**, has partnered with **Lime** to help address the **last mile challenge** and to move employees between the company's sites using shared bikes and e-scooters. As of January 2018, just weeks after the program's launch, more than 100 employees have participated in Kite Pharma's bicycle and scooter safety training program.[51] This represents over 22% of the firm's 447 employees.

Using Pilot Programs/Projects as First Steps

Pilot programs and projects offer implementing agencies an opportunity to test and evaluate new mobility options while limiting risks and expenditures. The examples below illustrate approaches that agencies can take to identify opportunities, develop and implement pilots, evaluate pilot results, and expand incrementally where these pilots are shown to be successful.

---

[50] City of Arlington. (2019). Arlington's Via Rideshare Transportation Program to Continue in 2019. Retrieved from http://www.arlington-tx.gov/news/2018/12/06/arlingtons-via-rideshare-transportation-program-continue-2019/
[51] Fuhrer, T. CommuteCon 2019 [presentation].

Figure 20. San Joaquin RTD VanGo! service areas include coverage for rural residents.

Serving Rural Residents with Shared Mobility Options

The **San Joaquin Regional Transit District (RTD)** serves the Stockton region in California's Central Valley. RTD's 1,426 square mile service area includes significant rural and agricultural areas. In October 2018, RTD launched VanGo!, an **on-demand service that uses wheelchair accessible agency vehicles** that run throughout the week from 8am – 5pm. The service includes free transfer to fixed-route bus service (excluding express and commuter buses). RTD partnered with Ecolane to develop the technology enabling the VanGo! **mobile application**. Significantly, the service allowed pick-ups and drop-offs in rural areas of the pilot service area. Riders could book trip using the mobile app or by calling a 1-800 number.[52]

In 2019, RTD extended the pilot to include 4 service areas, all of which provide coverage for rural residents. Additionally, service hours and days were extended from 6am – 6pm on weekdays and from 6am – 10pm on weekends.[53]

Testing a Mobile App that Rewards Travel Shifts to Off-Peak Hours

Bay Area Rapid Transit (BART) is the rapid transit provider for the San Francisco Bay Area. With funding from a Federal Transit Administration grant, the agency's BART Perks Beta seeks to **shift more BART travel to off-peak hours to alleviate overcrowding** issues. The second phase of the BART Perks Beta builds on lessons from an earlier pilot. For the second phase, BART partnered with an app developer (Metropia) that uses insights from behavioral economics to influence traveler behavior. Users of the app are offered progressively higher reward points for travel behavior that supports the program's objectives. Reward points can be redeemed for gift cards to stores and local restaurants.[54] The second phase of BART Perks Beta is scheduled to end on May 31st, 2019 after which BART will evaluate the pilot program's effectiveness and explore next steps with the agency's Board of Directors.

Moving from Priority Project Identification to Funding and Implementation

Bellevue is a mid-sized city located across Lake Washington to the east of Seattle. The **City of Bellevue's** Smart Mobility Plan (2018) focuses on six technological drivers of change expected to impact its transportation system in the next 5 years.

- Shared Use Mobility
- Autonomous & Connected Vehicles
- Electric Vehicles

---

[52] SUMC. (2018). https://learn.sharedusemobilitycenter.org/overview/van-go-rural-on-demand-service-san-joaquin-countycalifornia-2018/
[53] San Joaquin RTD. (n.d.). http://sanjoaquinrtd.com/vango/
[54] Metropia. (n.d.) https://metropia.com/metropia-mobile-app

- Real-Time Traveler Information
- Data Management
- Traffic management

Within these six initiatives, the Smart Mobility Plan identified 30 priority projects for implementation that will demonstrate Bellevue's technology leadership and attract partnerships with the private sector. Building on one such priority project identified in the Smart Mobility Plan, the cities of **Bellevue** and nearby **Kirkland, Washington** submitted a USDOT grant application in May 2018 to cover a third of costs associated with implementing an autonomous shuttle program called CommutePool Network (CPN) that would support Vision Zero along with these municipalities' GHG and VMT reduction goals. Figure 21 illustrates the envisioned functionality of the CPN network, which would provide many of the Smart Mobility Plan's desired accessibility, sustainability, and mobility benefits.

Figure 21. CommutePool network example. Source: City of Bellevue/City of Kirkland.

The application includes support from dozens of deployment partners (including public sector stakeholders, Amazon, and the commute management platform Luum), employer partners (including many major companies headquartered in the region), and research evaluation partners (including UC Berkeley and University of Washington). The CPN grant application is pending USDOT approval at the time of writing.[55]

---

[55] WSTC. (n.d.). http://wstc.wa.gov/Meetings/AgendasMinutes/documents/Oct16/1016-BP9-BellevueBrochure.pdf

Appendix: MPO Interviews on Regional TDM Efforts

Atlanta Regional Commission (ARC)

Interview Details

The phone interview took place Monday April 1 from 10:00 AM – 10:45 AM.

Interviewees:
Malika Reed Wilkins
Managing Director, Mobility Services Group + Georgia Commute Options
Atlanta Regional Commission

Rosalind Tucker
Principal Program Specialist
Atlanta Regional Commission

Interviewer:
Katie O'Sullivan, ICF

Partnership Models/Support

What agency(ies) operates TDM services directly?

- ARC operates TDM directly with the region, including:
    - Ridematching system
    - Funding and partnership with TMAs
    - Georgia Commute Options (GCO), which has a robust marketing component, a robust schools program, incentive program connected to ridematching system and marketing to commuters.
- About three years ago, ARC began managing Georgia Commute Options (GCO), which is now a very large part of the organization's TDM footprint. The program is funded by CMAQ through GDOT and then funneled to ARC. Prior to this transition, ARC was very invested in the TDM community through management of the regional ridematching system and awarding grants to TMAs in the Atlanta area that implement TDM. Currently, there are seven TMAs in Atlanta that ARC issues biannual grants to, which pay for labor only.

How do you work with employers, TMAs, and the private sector generally?

ARC reaches out to employers through TMAs while Georgia Commute Options covers areas not served by TMAs and establishes relationships with employers to implement telework, transit subsidies, and survey employees to examine needs and strategic approaches. Georgia Commute Options has levels of partnerships that are tied to mode shift. By allowing GCO to survey their employees, employers enable the program to track mode shift. Platinum partners are surveyed annually, some twice a year at their request. ARC is currently studying the partnership program within Georgia Commute Options.

What are the biggest challenges with these partnerships and what successes have you seen overcoming them and in forging better partnerships?

- *Trust:* Depending on where partners are located, one of the greatest challenges is with the largest companies, who want to be a Platinum partner, but they have difficulty getting

the employee information needed to complete a survey. A level of trust is needed for the company to give employee information (such as home address or zip code) to the program. Once GCO can show a map of where employees live, the company can make informed decisions about transportation strategies. This opens doors for further engagement with the program. Some companies are suspicious that the program is free.

- For example, one company has 5,000 employees at one location. They had parking issues and had to build a surface lot, but still ran out of parking space. They set up a telework program and incentives over time, which created opportunities and now they're a Platinum partner. They now rely on Georgia Commute Options.
- *Identifying the right employer contact:* This is a challenge for large and small employers alike and must be handled on a case by case basis. It is important for the program to build a relationship with the right person or right representative: for some, it's a C suite executive, for others it's Human Resources, for others, it's an employee that is gung ho about TDM. It's also important to understand the organizational culture and how TDM fits in.
- When leaders of an organization are bought into the vision of TDM, then there is greater success. But sometimes other corporate goals counteract TDM. For example, an employer that that recently moved into the Midtown area previously had a strong telework program, but when they moved, the CEO wanted to bring everyone back in the office. The immediate shift in thinking requires program staff to get creative to help advise and shift commute modes. Georgia Commute Options has benefited from having **built a great brand in the region** - employers seem to trust the program more than private mobility services, and they let Georgia Commute Options broker relationships more.
- *Lack of transit options:* Another challenge with partners outside of the TMA (which Georgia Commute Options services directly) is that there are fewer transit options.

Products and Services

What approaches do you use for TDM in outlying areas (small urban towns, or rural areas outside of the urban centers/core)?

- Commuter Programs:
    - *Incentives:* Commuters can earn cash by logging commute trips by alternative transportation on the Georgia Commute Options website or app.
    - *Ridematching:* browser-based form providing carpool matches from database of over 20,000 commuters.
- Employer Services:
    - Program Consultation, Reporting Program Results, Onsite Events, Telework/Flexwork Consulting, Pre-tax Benefits to Lower Commute Expenses, Employee Commute Survey, Employer Recognition, Employer Education Series, Case Studies, and Relocation Commute Planning
        - *Worksite Advisors:* ARC staff serve as worksite advisors, creating an image of a consultant for about two years. This approach conveys to employers that the Georgia Commute Options program can offer a range of services depending on the worksite's needs.

- ▪ *Surveying:* Surveying commuters within an organization allows the program to tailor the best options: ridematching (carpooling and vanpooling), telework.
- ▪ *Telework assistance:* Requires organizational buy-in and an internal champion. Telework can be rolled out in phases: a pilot with 60 people, then 300, then everyone. ARC recently released a lengthy Employee Transportation Coordinator (ETC) survey and got back good results and feedback about ARC's customer service.
- ▪ *Partnership Program and Recognition:* ARC is assessing its partnership program right now and how to initially engage employers through their Sales Guide. Employers generally engage with partnership because they are looking for recognition. However, recognition takes many forms, and it's important to understand what kind of recognition is desired by each employer. ARC reassesses the partnership program every so often because expectations change with corporate environments and management.
- Georgia Commute Schools: analyze transportation options for students and teachers and provides incentives for teachers.
- Guaranteed Ride Home: Provides up to 5 free rides from work by taxi per year to those who use alternative transportation in the event of unexpected circumstances.

Messaging

- ARC has been working through different messages to see what sticks. The hook/message for the program has evolved over the past few years; it used to focus on environment, air pollution, and climate change. Focus has since shifted to quality of life and stress-free, and now we're seeing more emphasis on productivity and efficiency. Employers see teleworking as much more productive than having employees come in every day and stress out about traffic. Productivity ties directly into an organization's bottom line.
- Driving behavior change campaign focused on three elements: meaningful change (taking cars off the road), behavior change, literal change (incentives, cash, money saved). With a targeted campaign, sometimes you lose broader audiences because the campaign isn't agile enough to connect. ARC has found a sweet spot with younger generations and millennials, and found that the variable message (meaningful impact, behavior, and money) with unifying thread (change) speaks to different audiences.

How does/will your program integrate emerging mobility strategies/services, including shared mobility, smart cities and on-demand technology (MOD/Maas)?

- The pace of technology change is so rapid that policy must catch up. Autonomous vehicles (AV) and scooters are already on public streets and now we're trying to figure out policy and regulation. Do it first and think about everything later.
- With TDM, going back to Waze, is that we need to have data and information about those modes and technologies. And because they are often disruptive/emerging and not necessarily tied to where we can get information to tell a story and get data, it becomes a barrier to engage or to see it through.
- ARC is approaching new technologies by deploying pilots, because there is responsibility to use tax payer dollars wisely and think through the needs for the constituency and commuters.

- ARC is about to partner with Waze on a pilot, and Waze is exploring how to get data through employers and potential indemnification. Implementation requires that we drill down to the details of a how a partnership will work and evolving responsibilities. The region is embracing Lyft Line and Uber Pool and is thinking about major changes with Guaranteed Ride Home, being able to offer TNC options. But to partner and use emerging technologies, ARC needs data and information to pay larger role in the overall evaluation process. Companies will need to share the data/information they produce.
- ARC is now in the RFP process for ridematching, a space where technologies continue to evolve. In Atlanta, a corridor (North Ave) has been tested as a smart corridor. In attempting to aggregate data, the data volume was so big that it was difficult to analyze.

Performance Metrics

Generally, how does your TDM program conduct performance monitoring/evaluation?
- Georgia Commute Options covers 20-county maintenance area and uses internal systems like Salesforce to keep track of employers, engagement, mode shifts, and data that TMAs put into the system along with worksite advisors to track the program and modes.
- Commuter incentives are tied to a trip tracker to collect information on impacts.

Does your region relate TDM performance to regional transportation goals, and if so, how is this done?
- ARC has started to think through a regional TDM evaluation framework, which hadn't been done at the regional scale before. This involves exploration of activities needing evaluated and how to leverage local efforts at a larger scale. ARC initiated an evaluation charrette with TMA partners, transit operators, and others in the region to discuss potential baseline evaluation metrics. This is currently a work in progress. ARC has a potential baseline metric for the Atlanta region, but that will differ from region to region. The first step is to get all the partners together and have a facilitated discussion around primary drivers and ancillary drivers (health, equity, and others that aren't tracked directly but do influence TDM). The evaluation framework is still in development. Once it's finalized, this will be groundbreaking for TDM.
- Salesforce allows for analysis of areas that have increased/decreased in use of telework, carpool, and other alternative modes.
- The long range transportation plan (LRTP) update is a vital piece in terms of linking TDM to performance. ARC has developed a TDM plan, but it hasn't yet been integrated into the LRTP. ARC is also working to establish a TDM coordinating committee that will report to the Board through the Transportation and Air Quality Committee. This will help elected officials and MPO reps to keep TDM top of mind.
- ARC has an annual trip called LINK where high-ranking officials visit different cities to learn about many different facets of planning. 100 people go from ARC to learn about the transit system. The MPO has seven legal designations, including water district, agency on aging, and workforce development. The Southwestern Pennsylvania Commission will be visited this year.

Denver Regional Council of Governments (DRCOG)

Interview Details

The phone interview took place Tuesday April 16 from 12:00 PM – 12:30 PM.

Interviewee:
Steve Erickson, Director of Communications and Marketing
Denver Regional Council of Governments

Interviewer:
Katie O'Sullivan, ICF

Partnership Models/Support

What agency(ies) operates TDM services directly?

- Way to Go is the regional TDM program operated directly by DRCOG and is a partnership with local TMAs. DRCOG provides a lot of the overarching TDM activities (managing relationship with advertising agency, running guaranteed ride home program, vanpool program is subbed out) for the nine-county metropolitan Denver area that DRCOG serves.

How do you work with employers, TMAs, and the private sector generally?

- There are seven TMA partners with Way to Go, and DRCOG services the areas that are not covered by a TMA. DRCOG takes CMAQ funds and provides two-year grants to TMAs primarily for outreach. They provide localized advertising and promotion.

What are the biggest challenges with these partnerships and what successes have you seen overcoming them and in forging better partnerships?

Ongoing challenges with partnership have been effectiveness and coverage. There is a memorandum of understanding that governs relationship between DRCOG and the seven TMAs but there are not many carrots or sticks to get partners to follow through completely on commitments.

As an example, in a two-year scope of work, a TMA's outreach staff may leave their position and it can take six months to fill that position. If that is the only outreach staff at the TMA, then the TMA is unable to do employer outreach during that time. The TMAs only invoice for the work that is done, so CMAQ funds are not being used during that time of transition. Each TMA is a small nonprofit with idiosyncrasies; some are easier to work with and more effective than others. The CMAQ grants to the TMAs are $80,000 per year or $160,000 every two years. These grants fund outreach positions, some administrative requirements, and maybe a small share of an executive director's compensation. I don't think any TMAs rely solely on CMAQ for operating. Many have membership revenue sources and other grants.

Products and Services

Guaranteed Ride Home: DRCOG contracts with taxi companies but is Looking into TNCs. Guaranteed Ride Home utilizes a call center for users; it's not a reimbursement model. DRCOG offers users a free taxi ride home if something comes up. Taxi cabs invoice DRCOG and DRCOG reimburses them. This is beneficial to the users because they don't have to provide any cash upfront.

Vanpool: The Vanpool program used to be owned and operated by DRCOG. Now DRCOG is contracting with Enterprise, which was previously vRide (3-4 years ago). This works pretty well.

There are 110 to 120 vans on the road. DRCOG also works with two other vanpool providers in the region: one in Fort Collins to the North managed by the Front Range MPO and one to the South in Colorado Springs (managed by the City) of the transit service Mountain Metro. Colorado Springs program has 30-40 vanpools that come into the region.

Trip Planning: The trip planning platform (My Way To Go .org developed Ride Amigos) is able to show and sell open seats with the DRCOG vanpool program and with the two over vanpool providers. The sweet spot of the platform is carpool matching. The biggest request of the Ride Amigos platform is to develop a mobile app. The website is mobile friendly, but is not as simple or fast as an app might be. An app has been in development for 6-9 months, but is not yet ready to be launched. There are many apps that can be used for planning trips and tracking trips, but the fact that carpool and vanpool matching is a part of the Way to Go platform is a huge value added. This platform does ridematching very well, and it also supports in a separate module the Way to Go schoolpool program, which is one of the most successful in the country.

- Denver was one of the first major metro areas to launch on the Ride Amigos platform about six years ago. Since then, Ride Amigos has launched similar platforms in 10 other metro areas.
- Before, DRCOG was using iCarpool out of Seattle, which had pretty good traction in certain areas (Washington and Oregon jointly had contract), but there were significant shortcomings in iCarpool. The RFP/RFQ for the Way to Go trip planning platform defined specific features that would improve the platform.
- Because commuters' schedules are so busy and dynamic, carpooling is one of the more difficult modes to promote. Carpool numbers have declined a bit overall over the past six years, but Denver has done better than the national markets. About six months ago, Denver brought in Waze Carpool, which is a dynamic carpool application where users can enter their needs in the night before and adjust accordingly. Dynamic ridematching is not the sweet spot of the Ride Amigos platform. It has been added, and Waze can be integrated with My Way to Go to track trips. However, Waze is not yet sharing data with DRCOG. A few hundred thousand users were using Waze traffic, but it's unclear how many in the region are using Waze Carpool.

Full Suite of TDM Services: DRCOG promotes a range of TDM activities, including bike to work day (second largest in the country). DRCOG just developed a regionwide active transportation plan, which ties into the TDM program. Biking and walking are important, and DRCOG is much more active in promoting telework and alternate work schedules. The Denver area already has one of the highest rates of telework in the country. There wasn't as much need for hand holding for telework, so it's a much more mature aspect of the program. Initially, the program had a consultant to work with large employers. The most impactful use of CMAQ funding has been to focus on the population in employment centers and working with large employers.

Transit Promotion: DRCOG works with RTD to cross-promote and encourage people to get transit passes.

What approaches do you use for TDM in outlying areas (small urban towns, or rural areas outside of the urban centers/core)?

There are people that are travelling into MPO region that are more rural/suburban and with longer trips of 15 miles or more (vanpools can make more sense for these trips). Outlying areas

are typically limited in terms of transit opportunities. Vanpools fit in in place of fixed transit routes. Carpool formation can become more difficult because there are fewer potential matches.

In outlying areas, Way to Go primarily delivers TDM through exposure to advertising campaigns, participation in bike to work day or employer campaigns. There is no full-time resource like outreach staff, and because the program is not spending as much time in these areas, it is difficult to form relationships. These areas don't have significant traffic problems. DRCOG is focusing in particular on traffic mitigation on busiest corridors at the busiest times of day, because that's when traffic idling is creating the worst air quality impacts.

How does/will your program integrate emerging mobility strategies/services, including shared mobility, smart cities and on-demand technology (MOD/Maas)?

DRCOG along with CDOT and RTD just completed a study, Mobility Choice Blueprint, which focuses on disruption of emerging technology, including autonomous vehicles. The study identifies areas for the region to look further into for the Way to Go program as well as traffic planning and operations. Each recommendation in the study has an "initiator" organization for implementation, and DRCOG is the initiator for about half of the recommendations. One recommendation is to create a position and an advanced mobility committee a subcommittee of the DRCOG Board and Transportation Advisory Committee. This subcommittee would look at potential projects and pilot projects that advance the region and capitalize on new technology, up to and including the "holy grail" of apps that integrates every mobility provider, building on the My Way to Go app. This is less of a tech challenge and more of a coordination and agreement challenge. Ideally, the app would provide every mobility option with the potential to reserve and buy fares across modes, and compare trip duration, cost, environmental impacts.

Waze Carpool is another provider moving the region in the right direction. Advancements tend to happen in their own silos, but it would be better to coordinate for travel planning and fare payment. The challenge is getting big successful companies like Uber and Lyft to agree to be on one platform along with transit, scooters, electric bikes, and other potential competition.

Performance Metrics

Generally, how does your TDM program conduct performance monitoring/evaluation?

DRCOG reports on the Way to Go program activities and results to CDOT and FHWA. For some of this, DRCOG looks at other data such as the American Community Survey and extrapolates. For travel time delay, DRCOG uses Inrix data from cell phones to see if that aligns with findings in other other areas. DRCOG is trying to pull data sources together to determine whether the region is trending in the right direction. Because the region has been growing so quickly, SOV travel has levelled off (it had been declining).

DRCOG is trying to pull data sources together and determine whether the region is trending in the right direction. Because the region has been growing so quickly, SOV travel and VMT reduction have levelled off (had been declining).

What topline program outcomes (impacts) do you track?

DRCOG focuses on reducing VMT and reducing SOV mode share, and measures the most significant performance improvements on congested corridors.

Does your region relate TDM performance to regional transportation goals, and if so, how is this done?

- The region's existing plan for growth and development goes to 2040, and DRCOG is now working on the 2045 update that identifies specific goals applicable to TDM.
- Currently for SOV travel, the region is trying to reduce to 75% today to 65% by 2040.
- For VMT reduction, overall VMT reduction isn't possible (because the regional population is at 3 million now and will grow to 4 million by 2040), but the region can reduce VMT per capita. The target is to reduce VMT per capitta by 10% by 2040.
- Secondary goals in the plan include peak period travel delay time and greenhouse gas emissions. However, if the region reaches primary goals for VMT reduction and SOV trip reduction, then achieving the secondary goals would follow.

Mid-America Regional Council (MARC)

Interview Details

The phone interview took place Tuesday April 30 from 4:30 PM – 5:00 PM.

Interviewee:
Jenny O'Brien, RideshareKC Employer Outreach Coordinator
Mid-America Regional Council

Interviewer:
Katie O'Sullivan, ICF

Partnership Models/Support

What agency(ies) operates TDM services directly?

MARC operates the regional TDM program RidshareKC, which manages a website for ridematching and multimodal options, as well as employer outreach to help promote commute options to employees. This is a low-cost benefit that the program offers to employers. RideshareKC engages with municipalities to help them promote local commute options on their websites. The program also works with workforce development and mobility partners to do outreach at community events such as job fairs to educate job seekers about their commute options. The Green Your Commute Challenge is an employer-based initiative that runs from early June to the end of August, in conjunction with ozone season. Employees earn points for their team by logging their commute trips.

How do you work with employers, TMAs, and the private sector generally?

There are no TMAs in the region, but there are some agencies and organizations that are logical hosts for potential TMA or local TDM programming. The Kansas City Downtown Council is supported by businesses and provides security and marketing of downtown. The KC Streetcar opened in 2016 and has brought a huge increase in density to the downtown are, with residential developments popping up. There is a clear argument that if we don't get out in front of the development and density with TDM, then we'll have congestion issues in the futures. Organizations like the Downtown Council may house TDM initiatives, but they likely won't have their own TMA. Instead, they'll leverage and promote regional TDM resources like the RideshareKC platform through outreach.

What are the biggest challenges with these partnerships and what successes have you seen overcoming them and in forging better partnerships?

RideshareKC is just starting to focus on job access, and has found that there are two major categories of employers: 1. those in dense urban areas with high demand for parking, and 2. Those on the outskirts of town that need a lot of space, and locate where land is cheap. It is very difficult to serve these outlying areas by transit, though these employers have been speaking up about jobs access issues. The RideshareKC program is putting together a jobs access working group and potentially forming a TMA with a jobs access focus, though this is still in the initial stages and focused on developing a convincing economic argument. Some employers are onboard with this effort and are willing to contribute financially. The program surveyed employers about their transportation challenges and how it impacts their ability to recruit and retain workers. The survey was also sent out to people who were actively looking for work and asked about their challenges to get and keep a job, and if they had cars, whether they were willing to share ride. A surprising finding was that 31% of people who are looking for jobs don't have their own car.

Products and Services

What TDM products/services do you offer?

- RideshareKC.org and the companion mobile app provides ridematching, a regional park and ride facilities maps, information and links to regional transportation options, and trip tracking for the annual Green Commute Challenge.
- Regional Guaranteed Ride Home program is available on a reimbursement basis for registered carpoolers, vanpoolers, some transit riders and bicyclists.
- A commuter assistance phone line provides assistance and referrals to other transportation services.
- Through employer outreach, program staff advise employers of alternative commute options for their employees, coordinates on-site events, and provide digital and printed outreach materials

The program has had a lot of success with commute options pages for employers, which lists all transportation options available to the worksite, serving as a one-stop shop for employees. The commute options pages can be used in new employee packets, social media, and as a recruitment tool

The program is exploring "train the trainer" efforts: educating staff within organizations (such as workforce development organizations or HR within employers) who are already working with individuals to help them find their commute options. The program is hosting webinars this Fall to "train the trainers".

What approaches do you use for TDM in outlying areas (small urban towns, or rural areas outside of the urban centers/core)?

- The regional vanpool program has had a lot of success working with a staffing agency called QPS (for light industrial and manufacturing). QPS has an employer client that needs dozens of workers, and QPS finds five to six workers that live close to each other and also pays a driver. QPS handles NTD reporting and as a full-time vanpool coordinator. QPS clients (employers) contribute to the vanpool costs.

- The vanpool program is subsidized through the transit agency under contract with Enterprise for operations.

How does/will your program integrate emerging mobility strategies/services, including shared mobility, smart cities and on-demand technology (MOD/Maas)?

- The program supports all new and emerging technologies and services that reduce dependence on driving alone.
- Johnson County transit is piloting an on-demand microtransit service to address jobs access needs for a 6-month period. The service area is designed to transport people to and from fixed route transit service. Users can hail a small van via a mobile app using TransLoc technology, and pay $1.50 fare. This may be applicable for first/last mile gaps in industrial areas.
- E-scooters are becoming very popular since Kansas City finalized a contract that legalized them. As a result, e-scooters were made an official green commute mode in the Commute Challenge. However, they can't be integrated into the RideshareKC map because there are no docking stations.

Performance Metrics

Generally, how does your TDM program conduct performance monitoring/evaluation?
- Ridematching system shows:
    - Number of new users registering each year.
    - Number of commute partner emails that users send. It's unclear how many get answered or how many are forming carpools, but this shows how many reach out.
    - Guaranteed ride home registrants
- Green Commute Challenge metrics are reflective of behavior change:
    - How many employers/participants sign up.
    - At end of the challenge a survey is distributed to participants that asks how many are trying alternative transportation for the first time and if they are more or less likely to continue after the challenge is over.
- CRM software provides metrics on employer outreach and all related activities, such as events.
- Website engagement
- Inquiries received via the commuter assistance phone line.

Does your region relate TDM performance to regional transportation goals, and if so, how is this done?
- Greenhouse gas emissions will be included as a performance measure in the Long Range Transportation Plan (LRTP), and will be tracked through the Rideshare KC program to help make the case for existing TDM strategies and potential future ones such as HOV lanes.
- As a part of the LRTP Smart Moves 3.0, MARC and regional partners distributed two sets of jobs access surveys: one for job seekers and one for employers in five industrial areas. The results showed that employers reported high urgency of workforce transportation challenges, yet low willingness to implement many of the proposed solutions, except for promoting existing options. As a next step, MARC and partners will create a toolkit of existing options that will best support workforce transportation. However, the report notes that existing options alone are will not improve jobs access without innovative solutions, coordinated efforts and financial support from employers.