



City of Rochester
Comprehensive Access and Mobility Plan

Transportation Demand Management Report



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1 Background

Transportation Demand Management (TDM) strategies are cost-effective solutions that aim to reduce drive-alone trips; increase active trips such as public transit, walking, biking, carpooling, and vanpooling; and shift driving trips away from the most congested times. Supporting bicycling, walking, using transit, and carpooling makes it easier for all users to reduce reliance on driving alone, and provides larger environmental benefits through lower emissions, health benefits through increased safety and physical activity, and community benefits through active public spaces and streets.

TDM offers a solution to the problems that plague many cities and their residents including traffic congestion, long commutes, and reduced quality of life. The programs work within the existing transportation system to expand and support mobility options that accommodate future growth while meeting larger local and regional goals.

TDM Concepts

Transportation Demand Management (TDM) refers to policies, physical amenities, programs, tools, and services that support the use of sustainable modes of travel. TDM programs collectively work together to change how, when, where, and why residents and employees travel.

- Employer- or worksite-based strategies are programs and incentives to help diversify commute options and create lower-cost options for how people get to and from work. These strategies are designed to be implemented by employers; however, experience around the country suggests that employers will need support, encouragement and technical advice to be easily initiated by employers.
- Regional TDM strategies are programs and services that are best implemented on a larger scale, such as a neighborhood (e.g., Upper Mount Hope) or a large employment center (e.g., Downtown Rochester). In some cases, regional strategies may be implemented on a much broader scale, such as throughout the Finger Lakes Region. Some regional TDM strategies require policy initiatives and coordination across multiple government entities, while others may be initiated or managed at a regional level but implemented locally.

TDM Benefits

Across the country, more and more people are beginning to identify walkable neighborhoods and convenient public transit as a priority. Communities, regions, and employers (particularly those with large campuses such as academic institutions and

hospitals, etc.) are leveraging this trend, using TDM to help manage growth, alleviate congestion, and improve the environment.

TDM programs are used by academic and business campuses to promote and provide a diverse mix of transportation choices as part of efforts to attract and retain talented students and employees. Mixed-use areas use a variety of transportation options to make places more accessible to residents and employees and, as a result, emerge as vibrant, walkable neighborhoods with desirable amenities which, in turn, increases the profitability of local businesses. Environmental reviews may also benefit from TDM programs or measures as mitigations for air quality and/or transportation impacts.

TDM Programs can have significant financial benefits as well. As a rule of thumb, a single surface parking space costs about \$3,000 to build, plus annual maintenance, taxes, and opportunity costs. A space in a covered parking structure costs a minimum of \$20,000 per space to build and at least another \$150/year to maintain. By incorporating TDM programs into planning decisions in place of parking minimums, developers and owners are able to forgo the financial burdens of providing and maintaining parking. Similarly, effective use of TDM programs can reduce existing parking demand, which could allow for excess existing spaces to be reallocated for more active and profitable uses.

TDM programs are also supportive of equity goals. Generally, people who cannot or don't drive often pay high costs to get to work – either in terms of time-consuming transit trips, high transit fares and/or long or uncomfortable bike or walk trips. TDM strategies work to level this playing field by creating options that make it less expensive for people to ride the bus, safer for people to walk or ride their bikes, and easier to create carpools or take advantage of ridesharing and vanpools.

2 Existing TDM Programs

The City of Rochester does not currently have any implemented TDM policies and does not have any TDM requirements in the city's municipal code. The city code does include some TDM-supportive policies; namely, exemptions for parking minimums in certain districts and bike parking requirements for certain land uses.

Bikeshare and Carshare

A partnership with Zagster brought a bikeshare program to Rochester in 2017, which was updated to a dockless program in 2018. The program, now called Pace, currently provides over 300 smart bikes. Pace bikes are initially located at stations within the central city, but bikes can be parked anywhere once they are checked out. Because bikes are fitted with GPS technology, the Pace mobile app allows users to locate the bikes that are nearest to them even if they are not parked at a station.

As of 2018, Zipcar is operating in a few select locations, namely on the city's college campuses. A citywide car sharing program is in development, but has not yet launched.

Vanpools

The City helped to pilot a vanpool program in 2016, and later secured a NY State Congestion Mitigation Air Quality grant to expand the program. The vanpool program is now currently being operated through a partnership between Regional Transit Service (RTS) and Enterprise Rideshare, and is currently being used by a small number of employers in the city. RTS plans to expand the program to 30 vans serving 450 users by the end of 2020.

Commute-Assistance Programs

ROCEASYRIDE

While there are no Transportation Management Associations serving Rochester exclusively, the city is the catalyst and focal point of the Metropolitan Planning Area of the Genesee Transportation Council (GTC), the Metropolitan Planning Organization (MPO) that which covers the nine-county area of the Genesee Finger Lakes Region. The MPO operates ROCEASYRIDE, a free online service that allows users who register to take advantage of trip planning assistance tools, including:

- Commute Trip Profiles – Users can create profiles for individual and/or frequent commutes patterns which will then show the user ideal routes for driving, walking, or riding a bicycle, and allows the user to set up a search for potential carpool, walk, or bicycling partners who are following along a similar pattern.

- Commuting Information – Each user's home portal provides links to the latest Greater Rochester Bicycling Map, current traffic conditions in the greater Rochester area, and public transportation services in the Finger Lakes Region.
- Commuting Statistics – Users who log their daily commutes, and modes used for each commute, can create reports showing estimates of money saved, gas saved, calories burned, and environmental pollution reduced through their use of non-driving modes. Since 2011, over 1500 commutes have been logged.

ROCREASYRIDE also allows employers and organizations to register for the service and create organizational profile pages with their own logo, information for employees/members, and event information. The service also provides a way for administrators of employers and organizations to list their worksites/destinations and to run reports specific to their organization. Users who identify themselves on the service as employees/members of an organization can also then limit their matches to co-workers and other members of the organization.

Employer Assisted Housing Initiative

The city currently offers The Employer Assisted Housing Initiative, a program designed to encourage employers to provide home-buying assistance programs for employees who purchase new homes within the city, which can be used for down payment and closing costs. The program provides a dollar-for-dollar match of employer contributions up to \$3000. Employers must provide employees purchasing an eligible home at least \$1000 to be eligible for the matching grant. Employees must also meet eligibility requirements including:

- Meeting employer qualifications
- Not currently owning a home in the City of Rochester
- Living in the property for at least five years
- Contributing at least \$1,500 of their own funds
- Qualifying for a conventional mortgage
- Attending pre-purchase home buyer training (if a first-time home buyer)

The Employer Assisted Housing Initiative does not, however, require that employees live within a particular range of their primary employment location, a critical determinant for non-driving modes.

Employer-Based TDM Programs

There are also some TDM programs in the Rochester area that are provided by private employers, notably including the University of Rochester and the Rochester Institute of Technology.

University of Rochester

The University of Rochester is the largest employer in the city, and is one of the city's most prominent providers of TDM programs. The university's TDM program (branded as UR Connect) features a menu of mobility opportunities most of which are available to all faculty, staff, and students in the campus community (Figure 1).

Figure 1 TDM Programs Available at University of Rochester

Program	Program Details
Campus Shuttles	<ul style="list-style-type: none"> ▪ Free With Campus ID ▪ Campus shuttles are all equipped with real-time tracking equipment ▪ Shuttles are bicycle friendly
Transit Passes	<ul style="list-style-type: none"> ▪ University employees can purchase passes with a pre-tax payroll deduction ▪ Operated by RTS
Carpool	<ul style="list-style-type: none"> ▪ Carpoolers are eligible for a discounted Parking Permit ▪ 2 people carpool – 50% of rate ▪ 3 people carpool – 25% of rate ▪ 4 people carpool – no charge
Rideshare	<ul style="list-style-type: none"> ▪ Operated by Zimride
Park & Stride	<ul style="list-style-type: none"> ▪ Certain parking spaces are labeled "Park here to walk farther and be healthier". ▪ Signs display calories burned walking between parking lots and building entrances
Bicycling	<ul style="list-style-type: none"> ▪ Free bike registration ▪ Covered bike cage rental ▪ Bike locker rental ▪ Bike rack, shower, and repair station locations ▪ Bicycle maintenance & riding safety seminar

The University's "Occasional Parking Program" further encourages the use of TDM offerings among campus affiliates who own a car but do not use it for regular trips to campus. Campus users who register their vehicle in this program are eligible for a "bundle" of further benefits based on their preferred transportation mode. All of the "bundles" include:

- 26 free one-day parking passes
- Use of a Guaranteed Ride Home program

Additional mode-specific benefits available to participants in the Occasional Parking Program can be found in Figure 2.

Figure 2 UR Connect "Bundle" Benefits

Walking Bundle	Biking Bundle	Carpool Bundle	Public Transportation Bundle
<ul style="list-style-type: none"> ▪ Coordination with WELL-U programs 	<ul style="list-style-type: none"> ▪ Coordination with WELL-U Programs ▪ Cage/Locker Permit with Fee ▪ Free Access to all Bike Racks 	<ul style="list-style-type: none"> ▪ Discounted Parking Permit ▪ Prime Parking Space 	<ul style="list-style-type: none"> ▪ Payroll Deduction Yearly Bus Pass

Rochester Institute of Technology

The Rochester Institute of Technology (RIT), although not located within the City of Rochester limits, is another top-5 employer in the Rochester Metropolitan Area, and, recognizing the importance and potential of providing, and encouraging the use of, multiple mobility options, has begun expanding their TDM program. Currently, RIT provides the following services:

- Campus Shuttles – RIT shuttles make scheduled stops at all RIT apartment complexes, Residence Halls, and other key on-campus and nearby off-campus locations during the academic year.
- Walking Escorts - the Public Safety Department will provide an escort for those walking on campus during the hours of darkness, any day of the week, upon request
- Intercity Bus Transportation – the “My Bus Home” program encourages students to leave their personal vehicles at home by providing transportation for all academic breaks in private, fully insured motor coach buses with restrooms, DVD and Wi-Fi. Buses travel between campus and to/from central locations in the following regional centers:
 - Plymouth Meeting and Easton, PA, Bridgewater, NJ
 - NYC (Penn Station) and Jericho, Long Island
 - White Plains and Albany, NY
 - Mechanicsburg, PA, Baltimore, MD and Arlington, VA
 - Ludlow and Newton, MA and Londonderry, NH

RIT plans to expand its TDM offerings in the Fall of 2018 with Rideshare and Bicycle programs.

3 Lessons from TDM

Following is a review of a selection of Rochester's peer cities. The peers selected for this review were selected by the City of Rochester, and are as follows:

- Pittsburgh, PA
- Buffalo, NY
- Richmond, VA
- Spokane, WA
- Birmingham, AL
- Salt Lake City, UT
- Grand Rapids, MI
- Akron, OH

The city of Rochester's benchmarking peers were selected to reflect a mid-sized city with similar population and economic profiles that houses a major university campus environment and a large medical facility or hospital.

In terms of TDM policy and program availability, the City of Rochester falls behind several of its peers. In fact, outside of employer based plans, Rochester was found to have limited comprehensive TDM policies, plans, or programs that are provided and/or operated by the city, a TMA, or a transit organization; while most peers benefit from at least some policy and/or a selection of TDM-options provided by the city, a TMA, or a transit organization. (Figure 3)

Figure 3 Population and TDM Context of Peer Cities

City	Population (2016)	Municipal TDM Policy/Plan	TDM-Specific Zoning Ordinance	Municipal, TMA, or Transit Provided TDM Programs
Pittsburgh, PA	303,625	×	×	✓
Buffalo, NY	256,902	✓	✓	✓
Richmond, VA	223,170	×	×	✓
Spokane, WA	215,973	✓	✓	×
Birmingham, AL	212,157	×	×	✓
Salt Lake City, UT	193,744	×	✓	×
Grand Rapids, MI	196,445	✓	×	×
Akron, OH	197,633	×	×	×
Rochester	208,880	×	×	✓

Peer Review

Pittsburgh, PA

The Pittsburgh Municipal Code does not contain any stipulations that requires new developments or existing employers to provide TDM programs. The code does, however, have language that encourages the use of several types of TDM or TDM supportive programs by allowing parking requirements to be reduced if certain TDM programs are provided.

The City itself does not operate or manage any TDM programs, but some are provided through the semi-coordinated efforts of three major Transportation Management Associations (TMA):

- Oakland Transportation Management Association (Oakland TMA), which focuses primarily on Oakland, a large Pittsburgh neighborhood located just east of Downtown.
- Pittsburgh Downtown Partnership (PDP), which focuses primarily on the downtown area.
- Airport Corridor Transportation Association (ACTA), which focuses on suburban areas of western Pittsburgh that are located south of the Ohio River.

Most notably, these TMA's collaborated to create the Walk Pittsburgh initiative. Details of this and other TDM programs provided by these TMA's can be found in Figure 4.

Figure 4 TDM Programs of Pittsburgh TMA's

Provider	Program(s)	Program Details
Oakland TMA, PDP, ACTA	Walk Pittsburgh	Through a website and smartphone app, the program provides resources and support to encourage walking. Participants log their daily steps, and can view how their steps affects the environment and their personal health.
Oakland TMA	Oakland Smart Commute	Encourages small business owners in Oakland to promote the use of alternative commuting to their employees for commuting to work, and provides TDM information to individuals.
PDP	Bicycling Initiatives	In collaboration with Bike Pittsburgh and the community, PDP designed, manufactured and installed bike racks, and is working with the Bike Share program to identify locations for bike stations.
	Wayfinding	Currently working to develop and implement a wayfinding system the North Side/North Shore, Oakland, and Downtown areas
ACTA	Ride ACTA	RideACTA is an on demand, last mile commuter shuttle that runs along Campbell Road at the Airport Corridor, and provides nearly 80,000 rides per year.

Buffalo, NY

In January of 2017 the City of Buffalo enacted the Buffalo Green Code, a place-based development strategy that builds upon the city's existing 20-year Comprehensive Plan. The Buffalo Green Code eliminated minimum parking requirements citywide, making Buffalo the first major US city to do so, and instead replaced parking minimums with a TDM process that also takes into account multimodal access. A TDM Policy Guide was adopted in March of 2017 to provide guidance for compliance of the requirements set forth in the Buffalo Green Code. The policy guide requires projects within certain zones, and any within $\frac{1}{4}$ mile (1,320 feet) of a Metro Rail Station, to reduce anticipated vehicle trips by 20%, and requires all other projects to reduce vehicle trips by 10%. Notable, the Green Code also requires that the city's Planning Board provide a written report ensuring that any approved development meets the required TDM standards.

The Green Code requires certain developments to prepare a TDM Plan that is consistent with the requirements set forth in the TDM Policy Guide. The must be prepared by a qualified professional, and must determine anticipated travel demand and determine how anticipated travel demand will be met. This includes:

- The number of on-street, off-street, or shared vehicle parking spaces
- The number of short-term and long-term bicycle parking spaces; accommodations for pedestrians, bicycle riders, drivers, transit riders, and the mobility-impaired
- TDM strategies that will be employed to reduce vehicle trips and vehicle miles travelled, and to promote driving alternatives
- Mode share objectives that will be sought from the implementation of the TDM strategies

The TDM Policy Guide also provides a scoring metric and requirements for TDM strategies in order for said strategies to be applied towards a development's trip-reduction requirements. (Figure 5)

Figure 5 Buffalo Green Code Vehicle Trip Reduction Credits, by TDM Strategy

Category	Strategy	Trip Reduction Credit
Share Programs	Car Share Stations	2 trips per car share space
	Car Share Membership	1 trip per car share membership
	Bike Share Stations	1 trips per 5 bike share spaces
	Bike Share Membership	1 trip per 5 bike share memberships
Promotion and Outreach	Promotion and Education	Up to 2%
Employee Incentives and Programs	Alternative/Flexible Work Schedules	Up to 2%
	Transit Pass	Trips = number of passes multiplied by % of subsidy
	“Live Near Your Work” Programs	1 trip for each employee that utilizes program
	Guaranteed Ride Home (GRH)	Up to 2%
Enhanced Design Amenities	Roadway Improvements	Up to 4%
	Bike Parking	1 trips per 5 bike spaces
	Shower Facilities and Lockers	Up to 4%
	Bike Repair Station	1%
	Transit Facilities	Up to 4%
High Occupancy	Shuttles (Buspool)	Up to 10%
	Vanpool	Up to 5%
	Carpool	2%
Parking Management	Shared Parking	Up to 10%
	Parking Cash Out	Up to 10%
	Unbundled Parking	Up to 10%

Richmond, VA

In the greater Richmond area, RideFinders is the regional non-profit TDM and rideshare agency. RideFinders is a division of the Greater Richmond Transit Company (GRTC) Transit System whose stated mission is to foster increased efficiency of the transportation system by influencing travel behavior by mode, time, frequency, trip length, or route. TDM programs and services provided by RideFinders to employers and commuters include the following:

- Transit Information and Transit Media
- Vanpool Formation Services
- Carpool Matching
- Telework Consulting
- Clean Air Program
- Downtown Commuter Guide
- Emergency Ride Home Program
- Transportation Planning
- Employer-Based Marketing
- Employer Relocation and Site Analysis Services
- Commuter Choice Program Development
- Bike and Pedestrian Commuter Service
- Park and Ride Lot Information

Spokane, WA

The 2006 Washington State Commute Trip Reduction (CTR) Efficiency Act requires local governments in urban areas with traffic congestion to develop programs that reduce drive-alone trips and vehicle miles traveled per capita. In Spokane, the CTR Act requirements have been inserted into the city's municipal code. The code requires affected employers¹ to make a "good faith effort" to develop and implement a CTR program. A good faith effort, as defined by the stipulations of the Spokane city code, requires a minimum of the following actions:

- Designating an Employee Transportation Coordinator (ETC)
- Displaying the ETC's name and contact information where employees are likely to see it
- Distributing information to employees about commute alternatives to driving alone
- Implementing a set of measures geared toward achieving the CTR goals
- Surveying employees about their commuting habits every two years
- Reporting annually about progress toward meeting CTR goals
- Meeting any additional local requirements that may apply

The city itself does not provide any TDM services, nor does the regional TMA.

¹ Affected employers include an employer that employs 100 or more full-time employees at a single worksite who are scheduled to begin their regular workday between 6am-9am on two or more weekdays for at least twelve continuous months. Construction worksites, when the expected duration of the construction is less than two years, are excluded from this definition.

Birmingham, AL

The Regional Planning Commission of Greater Birmingham established the CommuteSmart program to work with employers and commuters in the greater Birmingham metro area to help reduce motor vehicle trips and improve air quality. Registered users, or employees of registered employers, can log into CommuteSmart to gain access to CommuteSmart services or programs including matching services for rideshares, carpools, and vanpools, and emergency ride home, among others.

CommuteSmart users are eligible for incentive programs. The GETGREEN Incentive Program is a one-time program that offers \$1 per day for every day a non-driving alternative is taken in the first 90 days of participating in CommuteSmart, with a minimum of 20 non-driving days required to qualify for a payout. Participants are eligible for \$20-\$70 during the 90-day period. Upon completing the GETGREEN Incentive Program, users are automatically enrolled in the COMMUTERCLUB Incentive Program, which provides a \$25 gift card for commuters that log at least 20 non-driving commutes each quarter.

Salt Lake City, UT

Salt Lake City does not have any specific TDM policies, but does include some TDM supportive requirements in the city's municipal code. In general, these elements of the city code apply to any buildings constructed after April 12, 1995 that employ 100 or more people, and include the following:

- Bicycle Parking Requirements – developments are required to provide parking spaces at a number equivalent to 5% of the minimum parking requirement, and provided spaces must meet bike parking design standards.
- Carpool Parking Incentive – developments must devote 10% of the total number of employee parking spaces for vehicles participating in a car pool program, and spaces must be located to provide superior convenience.

The municipal code also allows special minimum and maximum parking requirements for developments in certain districts where alternative forms of transportation exist. These requirements are intended to reduce traffic volumes in effected zoning districts by reducing the number of parking spaces required, and in some cases, limiting the maximum number of parking spaces permitted.

Grand Rapids, MI

Grand Rapids released a TDM Plan for its Michigan Street corridor in 2013. Citywide, however, Grand Rapids currently has no municipal TDM plans, policies, or programs, nor are there any TMA-related plans, policies, or programs for TDM.

Akron, OH

There are currently no municipal TDM plans, policies, or programs in Akron, nor are there any TMA-related plans, policies, or programs for TDM.

Peer Best Practices – Lessons Learned

Dedication to Systemic TDM

The most ambitious peer cities do not approach TDM only from a position of promoting or providing individual commuters with programs or improved mobility options; they also approach TDM from a systemic level, in hopes of managing demand before it gets to the user level. This includes:

- **Clear, Specific, TDM Policy and Goals** – including city or area-specific TDM plans
- **TDM-Related Development Requirements** – including requiring site-specific TDM plans for each new development that meets certain criteria, trip mitigation fees and plans, TDM measurement and reporting
- **TDM Supportive Development Priorities** – including promotion of increased density, transit-oriented development, and mixed-use development

TDM Coordination and Management

Peer cities have more, and more useful and effective, TDM offerings when they are coordinated through a central agency following a unified strategy than when they are being provided piecemeal by various agencies, often without any overarching strategy at all. In particular, Transportation Management Associations (TMA) appear to be notably effective at providing and managing programs, as they are creations made up of, and often funded by, the very stakeholders they serve. A point person for managing programs, whether within a TMA or designated by some other means, is also integral to ensuring that an overarching strategy is being followed.

Strategic Commute-Trip Reduction Programs

Commuters in several peer cities have access to a menu of complementary TDM offerings. Many of the most effective and/or popular offerings are those which carry with them some kind of incentive for use, or those that help alleviate an existing barrier to a preferred mode of travel.

4 Performance Measurement

Performance metrics should be employed to measure the effectiveness, and maximize the long term value, of TDM strategies. Metrics inform adjustments to management strategies and provide a case for continued application in future projects.

Transportation system performance has traditionally and most commonly been defined solely by vehicle level of service (LOS). LOS is a measure of vehicle congestion at intersections reflected by letter grades that range from A to F. LOS as a measure of street performance has a number of limitations.

LOS is strictly an evaluation of the free movement of motor vehicles. Stopped transit vehicles or pedestrians in crosswalks can degrade vehicle level of service but are precisely the kinds of activities and users the Comprehensive Access and Mobility Plan seeks to support and encourage. LOS does not reflect the street's performance for non-drivers or drivers who are searching for parking, turning into a driveway, or otherwise not driving through. LOS assigns the same importance to all vehicles regardless of the number of travelers they are transporting. In vehicle LOS, the same weight is given to a single-occupant vehicle as a city bus carrying 30 passengers. LOS can also present an incomplete picture of the value or impact of a street enhancement.

Multimodal Level of Service

Noting that TDM program benefits are intended to alter the community's mode share through decreased single occupancy vehicle activity, rather than reducing the quantity of all trips made, Multimodal Level of Service (MMLOS) offers a suite of metrics, which can be aggregated, that take all streets users account. While the absolute number of trips may not decrease, as trips become shorter and more often utilize more sustainable modes, the overall quality of the transportation system is strengthened.

In late 2013, the City of Ottawa completed a full update to their Transportation Master Plan (TMP). The TMP includes recommendations and actions that support the development of Complete Streets to provide safe and efficient roads. One of the tools identified to support the process was the development of an MMLOS framework, which is intended for use in the assessment of road design and the allocation of street right-of-way.

Draft guidelines were released in 2015 to build upon the high level direction of the TMP and to provide a detailed overview of how the service indicators are to be used and interpreted for each mode—pedestrians, cycling, transit, freight trucks, and motor vehicles—as part of the transportation impact assessment process.

The MMLOS tools should be applied to a variety of projects whenever detailed analysis of transportation impacts is required. The MMLOS criteria allows for comparison of modes in order to evaluate trade-offs by assessing the relative attractiveness and comfort of any particular mode along a corridor. An overview of these varying factors are described in Figure 6.

Figure 6 Multimodal Level of Service Components

MODE	ELEMENT	LEVEL OF SERVICE	
		←	→
Pedestrians (PLOS)	Segments	High level of comfort	Low level of comfort
	Intersections	Short delay, high level of comfort, low risk	Long delay, low level of comfort, high risk
Bicycles (Mapped BLTS)	Segments	High level of comfort	Low level of comfort
	Intersections	Low level of risk/stress	High level of risk/stress
Trucks (TkLOS)	Segments	Unimpeded movement	Impeded movement
	Intersections	Unimpeded movement/short delay	Impeded movement/long delay
Transit (TLOS)	Segments	High level of reliability	Low level of reliability
	Intersections	Short delay	Long delay
Vehicles (LOS)	Intersections	Low lane utilization	High lane utilization

Source: City of Ottawa Multi-Modal Level of Service Guidelines

Note vehicular level of service is evaluated only at intersections per City transportation impact assessment guidelines

The bicycle level of service tool evaluates both roadway segments and signalized intersections for the level of traffic stress (LTS) experienced by cyclists using the corridor. Results are mapped to level of service A-F in order to allow comparison with other modes.

Transit level of service evaluates the relative attractiveness of transit based on transit travel time, transit priority provided to transit vehicles on varying facilities, and cross-conflicts such as driveways.

While traditional LOS accounts for heavy vehicles by considering the percentage of trucks and buses in the traffic volume, some elements of roadway segments and intersections clearly affect the operational ability of freight vehicles. Truck level of service (TkLOS) attempts to complement LOS by considering the physical space available for trucks to negotiate corners and operate safely within travel lanes. The objective of evaluating TkLOS is to facilitate goods movement. The evaluation of TkLOS is not necessary for all streets and should be limited to key delivery access routes.

The ultimate objective of developing a MMLOS program is to enable designers and the public to evaluate transportation choices. All MMLOS tools should be used and presented in relation to each other. Different streets with different associated land-use contexts will experience varying levels of service for each mode.

As it is neither possible nor desirable to achieve LOS A for all modes on every street, any City implementing a MMLOS program should develop modal level of service targets. In order to introduce local context, these targets should be based on the City's Placemaking Plan Character Area designations and street typologies. The character area designations provide a sense of the surrounding land use, density, and desired level of commercial activity while street typologies represent approximate vehicular volume capacity and speed. The target-setting process provides an understanding of how trade-offs can be made to support the goals and policies laid out in the Placemaking Plan. There are two important potential outcomes to consider:

- Targets are not intended to create wide corridors that achieve LOS A for all modes along new or relatively unconstrained rights-of-way. The implementation of MMLOS should also be considered in relation to other factors influencing street design, including urban design and built form characteristics.
- In constrained environments, an MMLOS framework is intended to facilitate modal prioritization decisions. The framework guides and supports decisions to provide high quality facilities for certain modes, even at the expense of others.

5 Recommendations

Systemic TDM Policy

Citywide or Area-Specific TDM Plans

Rochester does not currently have a citywide TDM Plan or policy in place, but previous planning efforts recommend and are supportive of TDM program usage in the city. A citywide policy, and citywide and area-specific plans, could be particularly useful to provide clear policy directives and/or guidance in the downtown, or in other areas with constrained parking or anticipated development.

The City should also maintain control over the provision and behavior of new mobility service providers. A new technology attraction and adoption process should be defined that includes policy language addressing shared electric scooters and autonomous vehicle use.

TDM-Specific or Supportive Development Requirements

The municipal zoning code should be revised and updated to promote increased density as well as transit-oriented and mixed-use development. Other zoning code updates could include revising parking requirements to include parking maximums, and encourage or require shared parking and unbundled parking where appropriate. These changes could be coupled with TDM and traffic mitigation requirements in the code. The City may also choose to create licensing and tax incentives to influence site selection and ultimately travel behavior.

TDM Coordination and Management

Transportation Management Association (TMA)

Regional or local governments, chambers of commerce, and/or the management of major facilities (such as malls, hospitals, or universities) can help create a TMA and provide seed funding. A variety of services can be provided by Transportation Management Associations to encourage more efficient transportation and parking resource usage. These services include:

- **Access management:** TMA's can be involved in land use planning, active-transportation planning processes, transit improvement plans, and roadway design practices to encourage smart growth development and create people-friendly streetscapes.
- **Commuter programs:** TMA's can provide various programs that allow employers to incentivize their employees to reduce their automobile trips including commuter financial incentives such as parking cash-out and transit allowances, rideshare matching, alternative scheduling, telecommuting options, Guaranteed Ride Home programs, and walking and cycling encouragement facilities and programs, among others.

- **Coordination between employers and facilitation with public agencies:** TMA's can serve to provide effective coordination of programs and projects with and between employers and the various public sector entities. A TMA Coordinator can help administer TDM programs at particular businesses or developments.
- **Parking management and brokerage:** TMA's can provide parking brokerage services, allowing businesses to share, trade, lease, rent and sell parking facilities.
- **Direct service provision:** TMA's can directly provide some services to employers such as shuttles, special event planning and transit services, public and community relations programs, etc.
- **Standard and guidelines development:** TMA's can aid in the development of contextually appropriate strategic TDM standards and guidelines for employers, such as the allocation and design of bike parking.
- **Wayfinding and multimodal navigation tools:** TMA's may facilitate the implementation of multimodal navigation tools such as signs, maps, guidebooks, internet resources, and mobile applications that provide useful travel option and destination information to consumers.
- **Marketing and promotion:** TMA's can help determine the needs and preferences of consumers through a variety of means including surveying, creating contextually appropriate targeted products, and providing information and promotional materials about products to consumers.

Applicability to Rochester

The Genesee Transportation Council (GTC) is currently performing many of the duties that could be performed by a TMA, including providing some TDM programs. A Rochester-specific TMA made up of key local stakeholders, however, may be better suited to develop and manage the TDM needs and responsibilities facing the city, including developing, implementing, and managing programs; collecting, analyzing, and reporting data on TDM performance; and advising on new and updated TDM policy, including zoning recommendations. The downtown area and the University of Rochester/Collegetown/Upper Mt Hope would most likely form the most effective boundaries for TMA's in Rochester

Potential stakeholder-partners for Rochester-focused TMA's include, but are not limited to:

- City of Rochester
- Monroe County
- Greater Rochester Chamber of Commerce
- Genesee Transportation Council
- Regional Transit Service
- University of Rochester
- Rochester Regional Health (including Rochester General Hospital/Unity Hospital)
- Eastman Business Park

- Bausch & Lomb
- Wegmans Food Markets (corporate)
- Paychex (corporate)
- Rochester Institute of Technology
- Xerox Corporation (corporate)

TDM/Mobility Coordinators

A TDM or Mobility Coordinator provides a single point of contact that oversees the creation and day-to-day administration of all of the various programs and initiatives intended to promote non-driving modes of transportation and manage parking demand in the city.

Coordinators can be effective at various levels, and are increasingly commonplace at TMA's, large university campuses, and municipal transportation departments. In settings where there is not a designated person to oversee transportation and TDM programs, they are typically managed by various employees over various departments without overall guidance on how they are, or should be, impacting each other, or reflecting the overall transportation goals. A Coordinator, on the other hand, ensures that programs are being planned and managed in unison to effectively complement each other in pursuit of these overall goals.

A coordinator is most successful if employed full time as a stand-alone position focused solely on TDM projects, programs, and initiatives, but can have success as a part-time employee if there is a strong support network of involved employers and stakeholders.

Applicability to Rochester

Rochester is home to several large campuses and employers, several of which have employees or visitor numbering in the thousands. A coordinator could be beneficial to each of these organizations, but would particularly benefit the college/university campuses, hospital/health campuses, and local and county government campus areas. A coordinator could also be crucial to the efficacy of a TMA, or for the management and implementation of any citywide TDM policies.

A Coordinator should have specialist knowledge of TDM programs and services. Some typical duties of a successful TDM or Mobility Coordinator include:

- Development and day-to-day management of existing TDM programs
- Organizing and participating in promotional events and orientations
- Providing marketing, promotions, and education/training at new employee on-boarding/orientations (or during new student orientation during start-of-school activities)
- Coordination with local and regional transit operators

- Providing personalized commuter counseling.
- Serving and representing TDM interests on travel and construction advisories
- Developing, documenting, and reporting program metrics
- Collecting, managing, and analyzing various transportation and other related data
- Consulting and assisting new and existing developments on compliance with TDM and traffic mitigation related policies

Program Finance

A critical question in moving forward with TDM strategies is potential funding. TDM programs tend to be very low-cost as compared to other transportation projects and programs, and offer relatively cost-effective solutions to regional transportation issues. In most cases, TDM expenditures equal or can reduce the investments employers are already making in parking. However, implementation still requires at least an initial investment in time, resources, and money.

Many of the strategies outlined above are employer-based strategies, and as such they could be initiated and led by employers, and in most cases, employers may also be required to invest in these programs. There are some strategies, such as transit and vanpool fare subsidies, where investments made by employers are tax deductible, helping to reduce or minimize the financial impacts. Actual costs will vary based on employment size and the number of employees who participate in the program.

There are other strategies, such as development of park-and-ride lots, and improvements to pedestrian and bicycle facilities, that are typically funded by the public sector. Moreover, other strategies, such as ridesharing or vanpool programs or a guaranteed ride home program, are of a scale on which the public sector can typically take the lead in developing and managing supporting infrastructure or systems. The public sector may also take responsibility for marketing and encouraging participation in any implemented programs.

TDM programs are eligible for funding under some of the traditional federal transportation programs, including those administered by the Federal Transit Administration (FTA) and the Federal Highways Administration (FHWA). Because TDM strategies typically reduce drive-alone commuting, many regions fund their programs with Congestion Mitigation Air Quality (CMAQ) funds. Fixing America's Surface Transportation (FAST) Act funds are also eligible for projects that increase vehicle occupancy rates (i.e. carpooling, etc.) or otherwise reduce demand for peak period travel, some expanded use for transit operations and workforce development, training, and education activities.

Transportation Management Associations are uniquely suited to provide or manage funding for TDM programs, as they can leverage both private and public funding

sources. Initial TMA funding normally comes from local governments, highway or planning authorities, major private businesses, etc. Federal funds, such as the Congestion Mitigation Air Quality (CMAQ) program can be used to support TMA start-up costs and up to three years of operating assistance². Later, TMAs are typically funded by dues paying member businesses, as well as government grants. Some funding can also be obtained by charging certain fees for services they provide, such as shuttles, parking management, etc.

Many TMAs rely on public, government-controlled funding mechanisms, such as the CMAQ program or local city or county sources, to fund their organization. City Business Improvement Districts (CBID) can provide funding for businesses to implement tailored TDM strategies. Foundation funding is also sometimes available to fund specific projects and programs. TMA's can respond to foundation opportunities individually, or they can coordinate with area partners on a joint application.

Commute Reduction Programs

Parking Cash-Out

The cost of providing parking is often hidden from the user, but a Parking Cash-Out program remedies this by revealing or prescribing the value of parking spaces to their users. In a Parking Cash-Out program, employers continue to offer parking, but offer the cash value (full or partial) of the parking subsidy to any employee who chooses not to use it.

Applicability to Rochester

Many of Rochester's employers offer parking to employees and affiliates free of charge. This contributes to problematic inducing of parking demand, particularly in places where parking is limited. By offering a cash-out program, employers and the city can help curb demand by allowing users to choose between a parking space or receiving a rebate on the value of the space for not using it.

Carpooling, Rideshare, and Ride-Matching Services

Carpooling arrangements and schemes involve varying degrees of formality and regularity. Carpools may be formal - arranged through an employer, public website, etc. - or casual, where the driver and passenger might not know each other or have agreed upon arrangements.

Applicability to Rochester

These services are in use at several employers in the city, and are a key component of ROCEASYRIDE. Tighter coordination of these services, both at individual employers

² <http://www.fhwa.dot.gov/fastact/factsheets/cmaqfs.cfm>

and citywide, could help to increase their use. Employers could also provide incentives to help incentivize the use of these carpooling and ridesharing, such as preferred reserved premium parking spaces.

Vanpools

Vanpools are a type of ride-sharing, similar to carpooling, but typically involving more people and a shared, provided vehicle. In most cases, vans are owned or leased by a sponsoring organization and riders share the cost of operating the vehicle to and from work. Vanpools have had the most success where employees travel longer distances along corridors with limited or no existing transit service.

Applicability to Rochester

As noted in the previous chapter, Enterprise Rideshare is currently operating in Rochester under a partnership with RTS. The City continues to provide federal and state grant funding to help subsidize the service. Plans to expand the program should be continued.

Guaranteed Ride Home Program

Guaranteed Ride Home (GRH) programs can be the key to making many other TDM programs run effectively. This initiative recognizes that for workers to commute without their own private vehicle, there will be times when they will need a reliable travel alternative. Whether a commute is made by bike, transit or vanpool, there will be an occasional need to work late, make unplanned trips home, or have an alternate plan due to inclement weather. The Guaranteed Ride Home program allows for a taxi or other ride home under these circumstances, making the use of alternative travel arrangements on a daily basis more palatable and feasible.

Applicability to Rochester

Guaranteed Ride Home programs are crucial to the efficacy of strategic TDM programming, and as such should be included as a key element of any TDM program at any level in the city. Currently the University of Rochester offers GRH to its affiliates, and a GRH program is provided by RTS to eligible employees of organizations that form partnerships with RTS.

Live-Near-Your-Work/Homebuyer Programs

Live-near-your work programs are home-buying assistance designed to encourage employees to purchase homes within a minimum distance of their place of work, thereby reducing or altogether eliminating the need to use an automobile to commute to work. The programs are typically provided by major employers such as universities, hospitals, and city and state agencies, and typically funded through public-private partnerships and grants.

Private-public partnerships between major local or regional employers and the city, state, or regional governments wherein the employment centers are located utilize live-near-your-work programs as a tool to combat traffic congestion and sprawl. Through these partnerships, employers can offer financial incentives to participating employees in a number of ways, including:

- Grants are provided to employees and paid by the employer, the participating public agency, or a combination of the two through a fund matching program
- Payment of down payments and/or closing costs
- Forgivable and/or no-interest, low-interest, or fixed-interest loans

Applicability to Rochester

The Employer Assisted Housing Initiative provides an opportunity to promote housing choices that are more favorable to non-driving modes. The current program could be redesigned to provide a scaled incentive based on the range of distance from the primary working location, based on likely commuting distances. The top tier of such a structure could fall into a typical walking range (up to 15 minute walking distance, or half-mile); the next tier within a typical bicycling range (about one-half mile to two miles); and the third tier within a typical transit range (about 30 minutes ride). The effectiveness of this program could be further enhanced with strategic parking policies and fee structures at major employers.

The University of Rochester and Rochester Regional Health (including Rochester General Hospital/Unity Hospital) are the most likely candidates for effective Live-Near-Your-Work programs in Rochester. However, more employees in other areas of the city could be eligible with a strategic expansion or restructuring of the Employer Assisted Housing Initiative, or if further programs were operated through a TMA.

Employer Shuttles

Employer-specific or site-specific shuttles connect high-employment areas with important transit stations or centers. Shuttles often connect to a major transit service, potentially providing employees with a solution to the important first-mile/last-mile challenge of getting from a transit station or stop that may be near, but not within walking distance to, their job. Employer shuttles usually operate at work-shift times and can be operated by a TMA, an employer or group of employers, or as a partnership with a transit agency. Shuttle services typically serve a well-defined area, or specific route, and provide convenient and direct service to desired destinations. If the service receives public funding, then it must be open to the general public, but routes and schedules can be customized to the needs of the employer.

Shuttles serving a single employer are typically managed and operated by said employer. If a shuttle serves employment centers or corridors, TMA's can coordinate

groups of employers to operate the service. TMA's can also provide effective third party design and cost allocation for the service, and balance needs among multiple stakeholders. Alternatively, TMA's can operate the service themselves, or facilitate a contract with a public or private service provider. Most employer shuttles operate "fare-free" as riders are typically associated with the employer or institution.

Applicability to Rochester

The University of Rochester and Rochester Institute of Technology currently offer free shuttle services to campus affiliates.

The Rochester Regional Health System (including Rochester General Hospital/Unity Hospital) is another ideal candidates for employer shuttles in Rochester.

Pre-Tax Transit/Vanpool Passes

Federal tax law allows employers to offer tax-free benefits for the purposes of taking transit, vanpooling, and paying for parking. These benefits are deducted from corporate gross income for taxes paid by the employer, allowing both employers and employees to save on taxes because neither pays federal income or payroll taxes on these benefits.

As of 2018, up to \$270 per month is excludable for vanpooling and transit

Applicability to Rochester

Any employer can offer this benefit to its employees, and many employers are able to manage their own program internally. Some employers, though, particularly those with very high numbers of employees, have success using third-party vendors to help manage their program.

Pedestrian and Bicycle Facilities and Programming

Walking and riding a bicycle to work are becoming more popular as cost-effective, environmentally friendly, and healthy ways to commute. The expansion of related infrastructure opens up walking or riding a bicycle to more commuters.

Infrastructure is only one part of encouraging walking or riding a bicycle, as walkers and bicycle riders also need to be supported once they reach their destination. This is especially true of bicycle riders, who are more likely to have come from greater distances, and have equipment that may need to be tended to and stored. In many places, employers are providing on-site bicycle amenities for use by employees and visitors. Bicycle facilities are included as part of new construction, but can also easily be retrofitted into existing buildings and employer campuses.

Types of End-of-Trip Facilities

Bicycle Parking

Bicycles can cost anywhere from a hundred to several thousand dollars, but all bicyclists seek safe, secure, weather-protected, bicycle parking for their bicycles. Parking could be located inside the building, in a parking garage, or in a weather-protected facility in a parking lot. Bicycle parking should be located near a convenient, desirable employee entry point.

Shower and Changing Facilities

Shower, changing, and locker facilities promote bicycle commuting by providing a convenient place for commuters to deal with the occasional effects of active transportation and weather elements, and/or a secure place to store clothing and other necessities. Existing locker rooms can serve this purpose, or simple, secure facilities are can be an easy addition to many buildings.

Bicycle Repair Facilities

A simple, do-it-yourself bicycle stand is an inexpensive investment that provides essential support for cyclists, especially when tire gauges, air pumps, and wrenches and other tools for minor repairs are also provided. A bicycle stand can fit in a small space in the building or co-located with bicycle parking.

Additional Considerations

Developing bicycle facilities is all about understanding the needs of people who wish to ride a bicycle and removing barriers that conflict with said needs.

Considerations to be reviewed/applied on a site-specific basis should include:

- **Wayfinding Signage** – Prominently placed, easily readable signs directing pedestrians to key areas, and directing bicycle riders to/from parking areas.
- **Lighting** – All walking and bicycle paths should be well lit to provide added visibility and protection, as should bicycle parking areas.
- **On-site connections** – Once past the entry gate, facilities should have paved, accessible paths to building entries and/or bicycle parking.
- **Off-site connections to regional facilities/transit stops** – The “last mile” between an employer’s front door and key bicycle or transit connections can be the most difficult, and should be reviewed and improved on as needed
- **Low-cost design improvements** – Walking and riding a bicycle can be encouraged and improved through simple design changes, some of which can be implemented at little additional cost, including:
 - Providing access from residential neighborhoods to regional facilities
 - Adding pedestrian gateways to employment complexes at strategic locations (near bus stops, crossings)
 - Creating continuous sidewalks and crosswalks at intersections

- Accessible curb ramp design
- Highly visible pavement markings
- Designing tight curb radii

Applicability to Rochester

According to public outreach, aside from safety, Rochester residents choose not to bike due to the weather, travel distances, a lack of places to store their bike, not having the time to bike, a need to transport people and things, no place to shower at work, and snow plowed into bike lanes. Many of these issues, including safety, could be addressed through improved facilities and programming. Further analysis of walking and riding a bicycle in Rochester, as well as walking and bicycle riding recommendations, can be found in the respective companion reports for walking and biking in Rochester.