

# E. TRANSPORTATION

## INTRODUCTION

The demand for a diverse selection of transportation options is growing, and the City of Rochester is striving to meet that demand. What was once a car-first mentality is shifting to a car-optional one. From its emphasis on [Complete Streets](#) that embrace bicyclists, pedestrians, and transit users, to its commitment to launch and expand shared mobility services, the City recognizes the importance of a robust multi-modal transportation system to the quality of life and economic competitiveness of this community.

The transportation world is ever evolving, with new modes of travel, business models, and technology emerging at a faster and faster rate. Whether it's the rising demand for multi-modal transportation choices and progressive street design, the impacts of ride-hailing and shared mobility, growing popularity of e-scooters and e-bikes, the emergence of "smart transportation technology" and "smart cities", or the potential arrival of automated vehicles, the City must identify ways to stay ahead of the curve to best plan for and manage change.

As part of the *Rochester 2034* project, the City commissioned the [Comprehensive Access and Mobility Plan \(CAMP\)](#) to inform the Comprehensive Plan. This section is a summary of the findings of the CAMP, combined with other transportation studies, research and best practices, and community input.

## KEY TAKEAWAYS

- Thriving cities offer a diverse range of transportation choices and invest in quality infrastructure for walking, biking, and public transportation (in addition to motor vehicles).
- Rochester has been a leader among mid-sized cities in adopting progressive, multi-modal transportation planning and engineering.
- Equity and safety should be key drivers of multi-modal transportation decision-making.
- An important part of encouraging transportation choices is to better integrate land use and transportation regulations and decision-making.
- With the growth of shared mobility services and emerging technologies, investing in better data and implementing "transportation demand management" strategies are important to help manage change and remain competitive.



### PUBLIC COMMENT

"I'd love to see a city where people walk to where they need to go."

## GREEN TRANSPORTATION

In the 21st century, it is essential that energy use and climate change be taken into consideration when managing systems. Motor vehicles are one of the largest sources of greenhouse gas emissions. Therefore, alternate modes of transportation, such as walking, biking, riding the bus, or carpooling can greatly cut down on the environmental impact of traveling.

While single-occupancy vehicles are detrimental to the environment, they may be unavoidable in many situations due to our car-oriented region, lifestyle choices, and logistical challenges. And while reduction of car usage may take generations to achieve, the following are strategies that can help cut down on the impact of automobiles now.

- **Alternative Fuel Vehicles:** Use of compressed natural gas or electricity instead of gasoline and diesel can increase the efficiency of vehicles, and reduce greenhouse gas emissions.
- **Electric Vehicle Charging Stations:** Increasing the number existing electric vehicle charging ports will further encourage the adoption of electric vehicles.
- **Anti-Idling Education:** A reduction of vehicle- idling will reduce emissions, improve overall air quality, and reduce noise pollution.

## WALKING

Creating a more walkable city is essential for a community to thrive. The more that people walk to destinations instead of drive, the fewer motor vehicles there will be on the roadways, which leads to less congestion, reduced parking demand, and fewer greenhouse gases emitted into the atmosphere. Walking leads to more interactions with neighbors, and increased patronage of

neighborhood businesses, which strengthens the bond of a community. When locals consider an area to be walkable, it is often indicative of a healthy mixed-use district with shops, services, an attractive public realm, and well-maintained architecture. Residents that walk will also be healthier, both mentally and physically. For more information, see the *Walkable City Report* in the *CAMP*.

## E. TRANSPORTATION (CONTINUED)

### WALKING CONTINUED

#### CHARACTERISTICS OF A WALKABLE COMMUNITY

High-density, mixed-use neighborhoods are conducive to walkability. For more information on strategies to plan land use and development for maximum walkability, see [Initiative Area 2, The Placemaking Plan](#).

Designing streetscapes for safety and connectivity is essential to ensure the safety of pedestrians.

Crosswalks are a key element of streetscapes that influence a person's sense of safety and accessibility. There are several ways crosswalks can be managed so that they put pedestrian safety first.

- **Continental and bar pair crosswalks** are more noticeable and visible crosswalk marking styles, improving roadway safety for both drivers and pedestrians. The crosswalks keep people visible while crossing the street and set clear limits to drivers.
- A **curb extension**, also known as a bulb out or bumpout, is an extension of the sidewalk into the parking lane which is directly adjacent to the travel lane. Crosswalks that connect curb extensions shorten the amount of time that pedestrians are crossing a street and cue drivers to slow down at the intersection.
- A **Leading Pedestrian Interval (LPI)** is a walk sign that typically gives pedestrians a 3–7 second head start when entering an intersection with a corresponding green signal in the same direction of travel. It enhances the visibility of pedestrians in the intersection and reinforces their right-of-way over turning vehicles, especially in locations with a history of conflict.
- **Rectangular Rapid Flashing Beacons (RRFBs)** are devices using LED flashing beacons in combination with pedestrian warning signs to provide a high-visibility strobe-like warning to drivers when pedestrians are actively using a crosswalk. These devices are proven to improve driver compliance with yield-to-pedestrian laws.



Streetscape improvements are an important factor for walkability, as they create a more welcoming environment for walking, improve the perception of safety, and create a barrier between pedestrians and cars driving on the street. Street trees create a buffer between walkers and drivers. Well-lit sidewalks are integral to making pedestrians feel safer. Other amenities, such as public seating, art, and plantings create a welcoming atmosphere that encourages walking.

Good wayfinding simplifies navigation and efficiently relays important information, which adds to a sense of place and makes a district more vibrant and enjoyable. Strategically-placed pedestrian-oriented signage that presents clear, meaningful information for pedestrians emphasizes non-motorized routes in map form, and guides users of multiple transportation modes, makes navigating around the city a simpler task.

Walkable communities are also more than the collection of infrastructure elements that make the pedestrian experience safe and enjoyable. They are also defined by the presence of destinations that are nearby, making walking more appealing than driving. Whether it be shops, services, restaurants, parks, or schools, having these community amenities in close proximity to residential areas allows for people to choose to walk or bike. Conversely, business districts that have many vacancies can limit the amount of trips made by walking, despite the pedestrian infrastructure in place to support those choices.



## WINTER MAINTENANCE

Rochester has a proud history of public snow removal dating back to 1861. The current and long-standing policy of sidewalk plowing after 4" of snow has been the envy of our Upstate urban neighbors. Substantial feedback was received on this topic during the community engagement process for *Rochester 2034*, as well as the *ROC the Riverway Vision Plan* and *Comprehensive Access and Mobility Plan (CAMP)*, with many in the community calling for stronger winter maintenance efforts of bicycle and pedestrian facilities, as well as transit stops. This perspective goes hand in hand with the public's overwhelming support for a more robust pedestrian and bicycle environment in the city, as well as the practical need to provide equitable access for people in wheelchairs and parents pushing strollers.

There are several practical factors that make it extremely difficult to ensure sidewalks and trails are cleared of snow to the same standard as streets.

- Rochester is among only five worldwide cities that have at least 200,000 people and average 100 inches or more of snow during the winter.
- Street snow removal is as effective as it is because of how salting complements plowing efforts. Salting the extensive network of pedestrian and bicycle facilities is a substantial expense and would be highly detrimental to tree lawns, trees, front yards, and the environment in general.
- Streets are much easier to keep clear because of high levels of friction created by tens of thousands of pounds worth of vehicles traversing the pavement all day long.
- The larger the travel area, the more efficiently it can be cleared. Expressways can be quickly cleared by large, heavy duty plow vehicles. Given the nature of narrow, low-traffic pedestrian and bicycle facilities, the costs are substantially higher per square foot compared to streets.

Rochester has made tremendous strides in becoming a less car-dependent city, as well as becoming a place that embraces more inclusive policies. Part of the next chapter in advancing these efforts is extending the investment into the more challenging winter months. While it may not be reasonable to expect complete winter maintenance of all bicycle and pedestrian facilities in the near future, strides must be taken to work in that direction, such as:

- Prioritizing facilities according to higher levels of non-automobile traffic, such as mixed-use corridors, bus stops, routes to employment centers frequented by those who cannot or choose not to drive, key trail segments, and areas around large residential buildings.
- Creating partnerships with other entities to work together on snow removal.
- Researching equipment and technology available to more effectively construct and treat the surfaces of sidewalks and bicycle routes.



## E. TRANSPORTATION (CONTINUED)

### BIKING

Cultivating a bicycle-friendly culture in a city has numerous benefits. Similar to walking, the more trips made by bicycle means fewer motor vehicles on the road, which decreases congestion on our streets, lowers the demand for parking, and decreases the amount of greenhouse gas emitted into the atmosphere. Increasing the ability of residents to bike will provide residents who don't own cars with an alternative to get to work or the store. Residents bicycling instead of driving also incorporate exercise into their daily routine, which increases overall health. For more information, see the Bikeable City Report in the CAMP.

#### PUBLIC COMMENT

**"Many more people would bike to work/the grocery store/etc. if there were safer bike lanes."**

#### CHARACTERISTICS OF A BIKEABLE COMMUNITY

According to the 2018 CAMP survey, over one-third of residents say they have a desire to bike more, but are unwilling or unable to so. Building on preliminary research, stakeholder input, and data analysis, there are three key topics that impact bikeability in Rochester:

- **Bicycling Environment:** Low traffic stress is important for a welcoming bicycling environment. To do this, cities can improve traffic calming along the bike network as they add protected bike facilities, increase driver awareness regarding the presence of cyclists and their rights, and design bicycle facilities to improve the overall cyclist experience.
- **Connections:** A functional bicycle network fills in network gaps and expands infrastructure in areas with high biking demand, as well as in corridors where there are already existing bike facilities, prioritizing areas with low income, youth, and zero-vehicle households.
- **Safety and Maintenance:** It is important to design bike facilities and maintain them with safety in mind. This includes upgrading current bike facilities to protected bike lanes in high traffic volume locations, extending the bike network across intersections, employing traffic calming within bike facility design, and extending the multi-use trail network across the city.



## PUBLIC COMMENT

“Bike lanes, bike lanes, bike lanes! Less car lanes and more development so people will slow down.”

## BIKING CONTINUED

### CITY-LED EFFORTS TO INCREASE BICYCLE USE

Since Rochester’s [Bicycle Master Plan](#) was completed in 2011, the City has installed over 60 miles of bike lanes and protected lanes and has added bike boxes at six signalized intersections. Rochester’s ever-expanding trail system offers bicyclists access to 35 miles of recreational trails connecting all corners of the city.

The City also offers a range of end-of-trip amenities for bicyclists, including indoor bike lockers and sheltered bike racks at six City-owned parking garages, four bicycle repair stations in public parks, and hundreds of curbside bike racks throughout the city. The City recently opened its first bike corral, a type of bike rack installed in place of a single on-street parking space to provide bicycle parking where existing sidewalk space cannot accommodate it.

In July 2017, the City launched a partnership with Zagster to provide bicycle sharing services. Nearly 52,000 rides were taken during the first year of operation. Now known as Pace, the system was modified and expanded in 2018. Early trials of the new system, which combines dock-based and dockless bikes, showed six to seven times the ridership of similar programs in other mid-sized cities. Moving forward, the system is exploring options to integrate additional choices to grow the reach and participation in the system, including e-bikes, e-scooters, and other options as they arise.

The City’s Department of Recreation and Youth Services has been providing bicycle programming, education, and community rides for more than 20 years. These includes free weekly community bike rides all summer, led by a local bike expert and designed to highlight the diverse city parks, trails, neighborhoods, and landscapes available for recreational and everyday bicyclists to enjoy. These programs have also included youth and adult bicycle safety education classes, helmet fittings, youth bike rodeos at rec centers, and implementation of a bicycle benefits program at the Rochester Public Market. These community outreach and education efforts are vital to promoting a more lively and engaged bike culture in Rochester, but have not always been well connected to the City’s other bicycle promotion efforts.

### ROCHESTER STREET DESIGN GUIDE

The Street Design Guide was created to support implementation of Rochester’s Complete Streets Policy, which calls for streets that are safe and accessible for all modes of transportation. The Guide provides information on street design considerations. This assists City staff, design professionals, and members of the public in ensuring that updates and additions to the City’s street network meet Rochester’s goals. The concept of “self-enforcing design,” where the street design itself provides environmental cues to encourage drivers to drive at slower, safer speeds, is key to development of the Guide. This approach helps to improve multi-modal safety while reducing the need for active traffic enforcement.



## E. TRANSPORTATION (CONTINUED)

### TRANSIT

Rochester's current transit system consists exclusively of buses, operated by Regional Transit Service (RTS). From 1927 to 1956, however, a single-line subway also contributed to the movement of people around Rochester, as did a network of street cars from 1862-1940. Whether or not Rochester should advance beyond a bus-only system is often discussed and may become increasingly relevant as we approach 2034.

Encouraging more people to use transit instead of driving requires constant improvements to the transit system. To that end, RTS completed the "[Reimagine RTS](#)" system redesign study in 2018. The redesign, which is anticipated to be implemented in 2020, is a resource-constrained approach to improving transit service for the majority of Rochesterians. Through use of existing resources, RTS will transform the bus route network through reassignment of service hours from low ridership corridors to higher ridership ones. This will reduce the total number of routes across the City while improving the frequency of service along busier corridors.

Ridership generally increases with increased frequency of service, so ridership is expected to grow on the frequent transit corridors, where buses will initially come an average of every 15 minutes. As ridership grows, and funding becomes available, additional frequency will be added to these routes. This outcome is supported by the land use policies in the Placemaking Plan where higher density growth is focused along transit corridors and in the downtown core. With buses eventually coming every 10 or 5 minutes, city residents will be assured that they won't have to wait long for the next trip. Depending on the growth of ridership along these corridors, the City and RTS will need to continuously examine how to accommodate and attract additional passengers. Accommodating and attracting more passengers may involve improving travel times, increasing frequency, and/or using larger-capacity vehicles. Improving travel times can

be accomplished in a number of ways that are often considered part of a bus rapid transit (BRT) system: off-board fare payment, transit-only lanes, traffic signal priority, streamlining routes, and reducing bus stops. By reducing the amount of time it takes to complete a route, transit agencies can use the saved time to increase the frequency on those routes. Increasing frequency means there are more seats for passengers and riders can expect regular, frequent service without worrying about reading conventional bus schedules. Larger vehicles can carry more people per trip.

If transit ridership begins to grow and demonstrates a sustained positive trend, Rochester should investigate implementing higher order transit service such as streetcars, light rail transit (LRT), or other fixed-rail systems. In addition to the prospect of accommodating more riders, such systems are used as an economic development investment tool for downtown, along transit corridors, and for the region in general. While these investments have mixed results in similar-sized cities, the viability and cost/benefit of a streetcar, LRT, or other fixed-rail system could be studied in the Rochester context.

A viable fixed-rail system requires a substantial capital investment and a certain level of density of population, jobs, and destinations along corridors. It will also require significant leadership and support from institutions, the business community, regional partners, and state and federal governments, along with RTS and the City. While higher orders of transit service are beneficial to urban living and should be considered in Rochester's future, advancement to a new form of transit should be explored as ridership grows. It also must not come at the expense of maintaining a high-quality city-wide system of bus service, which is accessible to far more city residents than a potential fixed-rail system.

For additional information, see the *Transit Ready City Report* in the [CAMP](#).





**PUBLIC COMMENT**

“Extended public transit options help people in poor neighborhoods get and maintain jobs in all neighborhoods of the city.”



## E. TRANSPORTATION (CONTINUED)

### GOODS MOVEMENT

Goods movement relies on a substantial network of physical infrastructure as well as a complex logistics framework. Shippers, carriers, and receivers harness technology to maximize routing and scheduling for themselves and their customers. The movement of goods occurs on a global scale at each stage of development: production, transport, and delivery. This requires an interconnected network of the various modes of goods movement that generally begins and ends with trips by truck with transfers to trains, marine vessels, and airplanes prior to delivery to stores and residences. For more information, see the *Urban Good Movement/Emergency Service Report* in the [CAMP](#).

According to *Transportation Strategies for Freight and Goods Movement in the Genesee-Finger Lakes Region*, approximately 300 million tons of freight worth \$1.2 trillion moved into, out of, and through the region in 2017. This amount is expected to increase to 420 tons valued at \$2.0 trillion in 2035. By tonnage, two-thirds of these freight flows are through movements: they neither originate at nor are destined for a location within the region. The remaining amount is split equally between inbound and outbound movements. This distribution of movements is expected to continue into the future.

### MAJOR FREIGHT GENERATORS

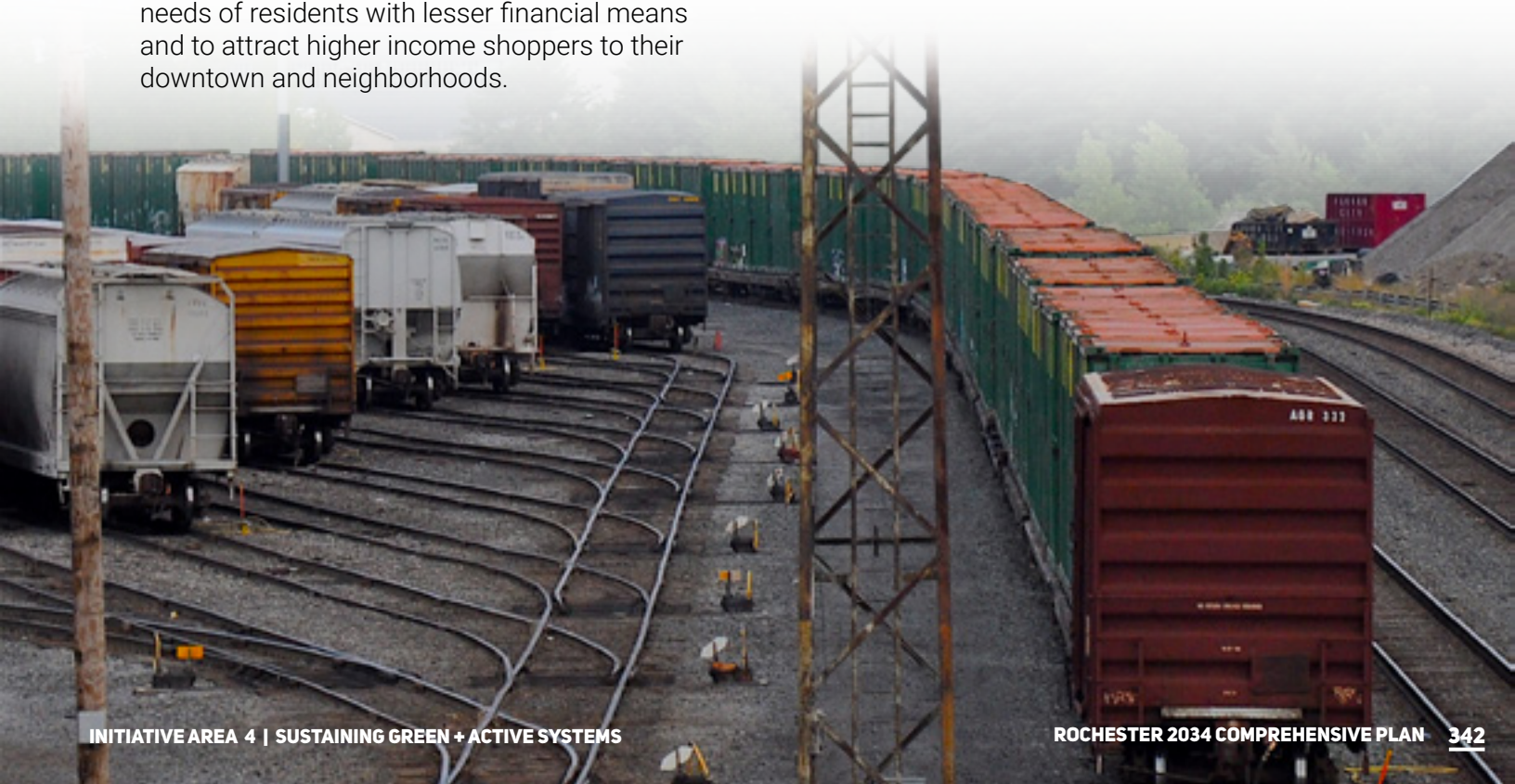
- **Manufacturing and Processing:** This includes light, industrial, and high technology operations, as well as businesses involved in salvage. Deliveries to these facilities can come from a variety of truck sizes as well as rail.
- **Storage and Distribution:** This includes warehouses, distribution centers, lumberyards, and cold storage facilities for perishable items. These facilities typically have the most loading docks relative to the amount of square footage and are usually served by large trucks and rail..
- **Retail:** This includes regional and neighborhood-level shopping centers, grocery stores, minimarts, and multiple use structures that currently house or are zoned to allow establishments that sell products to the general public. Depending on the industry, numerous shipments from multiple carriers can occur to and from each of these types of establishments daily.
- **Hospitals:** These facilities require deliveries of equipment, food, cleaning supplies, and other materials on a large-scale.
- **Lodging:** This includes hotels and motels, which require deliveries of food, cleaning supplies, and new furnishings, linens, and equipment on a regular basis.
- **Stadiums:** The large crowds that attend events at these venues require significant deliveries of food, cleaning supplies, and materials to maintain the performance surfaces, seating, and vending areas.

## GOODS MOVEMENT CONTINUED

### GOODS MOVEMENT CHALLENGES

→ **Retail Challenges:** The nature of retail (i.e., the sale of goods to the final consumer) continues to change at an accelerating rate as does the wholesale market (i.e., the sale of goods to businesses that resell goods in smaller quantities than they receive). The supply chains that serve those industries also continue to evolve. The public is purchasing more goods via the internet and expect delivery in hours or days, not weeks. There is no disputing that the numbers of direct deliveries to residences has and will continue to increase. However, the frequent reports of “bricks and mortar” closings and financial difficulties paint a broad brushstroke of the retail sector that misses nuances affecting cities. Certain chains such as Dollar General and Dollar Tree continue to open new stores at a steady rate, and higher end retail is becoming more experiential, offering cities the opportunity to meet both the needs of residents with lesser financial means and to attract higher income shoppers to their downtown and neighborhoods.

→ **Bridge Clearance:** There are railroad bridges in the city where the vertical clearance under them is less than the minimum of 14 feet and desired 14 feet, 6 inches for non-National Highway System roadways. Clearances like these allow the highways below them to accommodate some trucks but can represent impediments to efficient operation of the highway network. In the event of a bridge strike, extrication of the vehicle that struck the bridge and an inspection to affirm the bridge’s structural integrity can result in rerouting of all traffic potentially causing backups and delay in the vicinity of the incident and beyond.





## E. TRANSPORTATION (CONTINUED)

### EMERGENCY SERVICES

Providing the necessary services to save lives and reduce property damage resulting from natural and human-created hazards is a critical function of the City. Regardless of the emergency, response time is key and reducing it is a top priority for all responders. The ability to provide emergency response and ensure public safety requires predictability in the transportation network because emergency responders cannot choose when they travel and direct routing is critical.



#### PUBLIC COMMENT

**“The fire departments must learn how to be successful even with narrower streets.”**

#### INTERNATIONAL FIRE CODE AND COMPLETE STREETS CHALLENGE

The International Fire Code (IFC) provides construction standards to ensure that fire safety is a consideration through the proper design and separation of incompatible uses within buildings. Adherence to the IFC, however, means that the construction of buildings four stories or more could require that the surrounding streets have widths that are not consistent with the principles of Complete Streets to provide for bicyclists and pedestrians. There are a few ways to work around this conflict:

- Bicycle lanes expand the width of streets, providing space for fire apparatus and creating wider turning radii for their turns.
- Inset parking provides on-street parking while maintaining limited lane widths
- Speed cushions are speed humps or speed tables with cuts that are spaced for tires of fire engines and fire trucks, allowing unencumbered mobility for the largest emergency vehicles while slowing most other vehicles
- Incorporating apparatus access roads in site design alleviates the need for wider public streets.

## TRANSPORTATION DEMAND MANAGEMENT

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. 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 and other transportation policies and strategies are not intended to completely eliminate driving – they recognize that alternatives to driving are simply not feasible for many Rochesterians. Rather, they are intended to promote car-free or car-light lifestyles and choices for more people than currently make those choices. For more information, see the *TDM Focus Area Report* in the [CAMP](#).

### PUBLIC COMMENT

**“By building dense, walkable neighborhoods, communities will become healthier. Investing in infrastructure for people, not cars, leads to better health outcomes.”**





## E. TRANSPORTATION (CONTINUED)

### TRANSPORTATION DEMAND MANAGEMENT CONTINUED

#### EMPLOYER OR WORKSITE-BASED STRATEGIES

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:



##### Parking Cash-Out

Employers continue to offer parking but offer the cash value of the parking subsidy to any employee who chooses not to use it.



##### Carpooling, Rideshare, and Ride-Matching Services

Carpooling is an arrangement with coworkers to travel to and from work in the same vehicle.



##### Vanpools

Vanpools are a type of ride-sharing, similar to carpooling, but typically involving more people and a shared, provided vehicle. The City of Rochester launched the [Commuter Vanpool Program](#) in 2016. RTS now administers the program and it continues to grow.



##### Guaranteed-Ride-Home (GRH) Programs

Circumstances such as working late or traveling on the job often make it difficult for employees who do not drive a personal vehicle to work. Oftentimes, employees are discouraged from using alternative modes of transportation because of these scenarios. GRH programs present alternative travel arrangements for employees to use as needed, such as a taxi or other ride home, which makes a non-driving commute more palatable and feasible.



##### Live-Near-Your-Work/Homebuyer Programs

Live-near-your work programs are home-buying assistance programs designed to encourage employees to purchase homes within a short distance of their place of work. The City of Rochester manages a version of this program called the [Employer Assisted Housing Initiative](#).



##### Employer Shuttles

Employer-specific or site-specific shuttles connect high-employment areas with important transit stations or centers.



##### Pre-Tax Transit 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.

## TRANSPORTATION DEMAND MANAGEMENT CONTINUED

### EMPLOYER OR WORKSITE-BASED STRATEGIES

TDM programs can be implemented on a regional scale, such as a neighborhood or a large employment center. 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.

One common program that oversees Regional TDM strategies are Regional Transportation Management Associations (TMA), which are a collaboration between local governments, agencies, and major employers to provide services such as organizing commuter programs, access management, parking management and brokerage, standards and guidelines development, wayfinding and multi-modal navigation tools, and marketing and promotion. The Genesee Transportation Council (GTC) is currently performing many of the duties of a TMA, including providing some TDM programs.

