Chapter 6

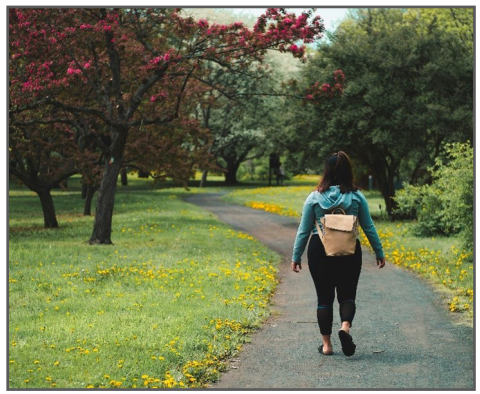
Moving Forward

This section describes the proposed 2050 transportation network for the ROCOG planning area, highlighting considerations to enhance future walking, rolling, biking, transit, roadways, freight, aviation, rail, and climate-resilient infrastructure. Informed by existing plans, member jurisdiction priorities, and community input, this vision reflects a coordinated approach to building a sustainable and connected transportation system.

ROCOG and its member jurisdictions can use this information to guide transportation decisions, prioritize projects, and coordinate regional investments. ROCOG also supports efforts to reduce the number of miles people travel in personal vehicles, commonly referred to as vehicle miles traveled (VMT), as a way to support more efficient, sustainable, and accessible transportation options across the region. While no fixed timeline exists for implementation, this information will provide a shared foundation for decision-making as partners work toward the 2050 vision.

6.1. Walking, rolling, and bicycling

As the ROCOG planning area continues to grow and develop through 2050, the ability to walk, bike, and roll safely and comfortably will play an increasingly important role in how people access daily destinations. This plan recognizes walking is the most basic and fundamental form of travel: walking connects all other modes and is the basis for mobility and accessibility. The following sections examine anticipated future



needs related to active transportation, including both network-wide connectivity and focused improvements that support accessibility.

6.1.1 Future connectivity across the area

Future connectivity needs for walking, biking, and rolling may grow as communities across the ROCOG planning area continue to expand and evolve. Increasing access to active transportation and shared transportation options could help residents reach essential destinations, particularly those without a personal vehicle or those who prefer alternative modes for shorter trips. As housing and development spread into new areas, the ability to travel safely and comfortably without driving may become more important. Understanding where the gaps exist, or where connections may not keep pace with future growth will be key to supporting a transportation network that serves a wide range of users across the planning area.

In Rochester, the county's largest and most urbanized area, future connectivity needs are already emerging. A significant portion of survey respondents in the 2022 Rochester Active Transportation Plan indicated they want to change how they move around. According to the plan, 30% of respondents want to walk to their destinations more often. 40% want to bike more, and 42% want to take transit more frequently. 35% indicated they want to drive less, while fewer than 5% said they want to drive more than they currently do. These preferences signal demand for expanded, better-integrated transportation networks as housing and development continue to spread into new areas. A good example of increased integration of the transportation network can be seen in Rochester, where Rochester Public Transit works closely with Community Development staff to assess where transit service may need to expand to accommodate new residential growth. This collaboration is reflected along Overland Drive NW, where new apartment developments are now connected to both transit service and nearby biking infrastructure. Coordinated approaches like this may help ensure that as new areas develop, residents have access to a wider range of transportation options, making it easier to travel without a car and support more flexible, sustainable mobility choices and resilient transportation networks.

Connectivity between communities across the planning area should also be a key consideration in the decades ahead. As referenced in Chapter 4, few corridors currently support long-distance walking or biking within Olmsted County. The Douglas State Trail, which links Pine Island and Rochester, is a rare example of a continuous route that supports both recreational and essential travel. Looking forward, corridors connecting other parts of the county such

Emerging trend

Electric Bikes

Micro transportation is also part of the shift to electrification. More people are using electric bikes and E-cargo bikes, these bikes make it easier to switch from cars to alternative transportation, for individuals and families. They are cheaper, promote health, and are also a great option for small business deliveries.

as Stewartville, Byron, and Chatfield, may require attention to support future non-motorized mobility needs, especially in areas with limited transit service or fewer transportation options. As population growth continues and development expands, meeting future demand for walking, biking, and rolling infrastructure will depend on understanding where connectivity breaks down within neighborhoods, at city edges, and between communities. Addressing these needs will support a more complete, inclusive, and accessible transportation system across the ROCOG planning area.

6.1.2 Pedestrian accessibility and priority improvements

Looking toward 2050, centering pedestrian access is crucially important to support mobility for all users across the ROCOG planning area: walking connects all other modes and is the building block for an accessible transportation network. Community feedback collected as part of the MTP 2050 process emphasized the importance of infrastructure that accommodates individuals with disabilities, older adults, and others with specific mobility needs. Existing plans, including the Olmsted County ADA Transition Plan (2018) and the Rochester Active Transportation Plan (2022), have identified physical and network-level barriers such as non-compliant curb ramps, missing accessible pedestrian signals, and limited safe crossings on major roadways that require improvements to support broader accessibility.

For example, the county's ADA plan found that over 40% of inventoried pedestrian ramps lacked detectable warnings (textured surfaces, typically with truncated domes) that provide tactile cues to individuals with visual impairments when transitioning from sidewalks to streets. It also noted the need to evaluate and upgrade traffic signal systems to include accessible pedestrian signals (APS), where appropriate. Separately, the Rochester Active Transportation Plan identified related but distinct challenges across the city, including sidewalk gaps, uncomfortable crossings on high-speed roads, and seasonal barriers such as snow and ice accumulation. The plan emphasized the importance of building a better-connected pedestrian network, particularly in areas with high levels of foot traffic, limited access to vehicles, or larger populations of older adults, children, and individuals with disabilities. It asserted that every street where people are permitted to walk should be viewed as part of the walking network, underscoring the importance of prioritizing the safety of vulnerable road users Together, these recent assessments offer valuable guidance for identifying priority areas where future investment can improve safety, connectivity, and accessibility.

As growth continues, gaps in the pedestrian network particularly near essential destinations such as schools, healthcare facilities, and transit may also require attention. The 2022 Safe Routes to School Plan in Rochester identified infrastructure needs around multiple middle school sites, prompting targeted improvements to support safer walking routes for students. At Kellogg Middle School, for example, the plan recommends upgrading curb ramps and crosswalk markings at 14th Street NE and 7th

Avenue NE, as well as adding curb extensions and reducing curb radii to shorten crossing distances and improve visibility.

The 7th Street NE project in Byron offers an example of how communities can approach future accessibility improvements as part of broader roadway planning. This corridor already plays a vital role by connecting neighborhoods, schools, parks, commercial areas, and serving as a key east-west route between CSAH 5 and CSAH 3. Planned upgrades will strengthen this role by reconstructing the corridor to an urban design standard and enhancing multimodal access. The project preserves an existing 10-foot multi-use trail that connects to Byron's citywide trail system and includes upgrades to ADA curb ramps at several locations. Pedestrian crossings may also be added along the corridor in response to future land use changes or increased foot traffic near key destinations. By integrating these accessibility improvements into a larger corridor investment, the City of Byron demonstrates how local infrastructure projects can support safer, more connected travel options for people walking and rolling, while positioning key corridors to meet future community needs.

Routine maintenance and resurfacing projects, such as Rochester's 2022 downtown sidewalk improvement project offers an example of a gradual way to enhance pedestrian accessibility. That project has replaced deteriorated brick inlays, eliminated tripping hazards, and brought sections of sidewalk up to ADA standards. However, projects like these also present opportunities to go beyond basic compliance, by incorporating elements that enhance overall comfort, safety and usability for all pedestrians. Applying principles from approaches like Designing for Universal Access can guide these enhancements, which may include improved lighting, tactile wayfinding, seating, or better curb design, particularly in high-use areas. Incorporating accessibility features into routine projects could help build a more inclusive, accessible public realm across the planning area.

Planning for year-round accessibility plays a key role ensuring future network reliability. Snow and ice pose seasonal challenges for pedestrians, particularly those with mobility limitations. Ongoing maintenance practices, such as winter snow removal along active corridors, may help ensure safer and more consistent access. The Cascade Creek Trail in Rochester's Kutzky neighborhood, for example, is cleared of snow and debris by the City's Parks and Recreation Department throughout the winter, allowing it to remain usable during colder months. These types of efforts suggest that seasonal maintenance strategies could also help support more reliable pedestrian access across the planning area.

6.2. Roadways

Designing a roadway system that can meet future mobility needs requires more than physical upgrades, it depends on a clear understanding of how corridors should function and who should manage them. Two foundational components of this planning process are functional classification and jurisdictional alignment. The functional classification system provides a structure for organizing roads based on their intended role in supporting local access, regional mobility, or longer-distance travel. At the same time, jurisdictional transfers ensure that roadway ownership keeps pace with changing development patterns and evolving transportation needs. The following sections outline how these tools are applied within the ROCOG planning area to support strategic investment, guide land use coordination, and maintain a well-functioning, future-ready transportation system.

6.2.1 Future functional classification

Planning for future functional classification is essential to shaping a roadway system that supports long-term mobility, development, and connectivity needs throughout the ROCOG planning area. As described and illustrated in Chapter 4, functional classification defines the intended role of each roadway—ranging from high-mobility corridors that connect communities and economic centers to collector streets that link local access roadways and distribute traffic. This framework guides transportation investment, supports land use planning, and helps coordinate right-of-way preservation across jurisdictions.

Each roadway in the ROCOG Functional Designation Map (see Figures 1 and 2) is assigned a future functional classification as well as a subclass—either "Maintain (M)" or "Improve (I)." The subclass reflects the expected level of physical change over the life of the plan. A "Maintain" classification indicates that a corridor is expected to fulfill its future role primarily through routine maintenance and minor improvements. In contrast, an "Improve" subclass signals that more significant modifications, such as operational enhancements, construction, or right-of-way adjustments may be needed to support the corridor's long-term function.

Among the highest functional classifications are Strategic Arterials, which prioritize regional mobility over access to adjacent land. These corridors carry higher volumes of through traffic, often at higher speeds, and provide critical connections between growing parts of the area. CSAH 11, currently a major collector, and CSAH 44, currently a minor collector, are both planned to become Strategic Arterials. Each is assigned the "Improve" subclass, indicating that changes may be needed over time to support their expanded function.

65th Street NE is another example of a corridor identified for future improvement. Currently functioning as a Major Collector, it is designated to become a Strategic Arterial as the surrounding area continues to develop. This reflects its anticipated role in providing a higher-capacity east–west connection and supporting longer-distance travel across the northeastern portion of the planning area.

Emerging trend

Electrification of Roads

Electric cars are having a moment in the spotlight. The electrification of roads is becoming more common, with electric cars gaining popularity and increasing investment in EV stations. Automakers are introducing EVs at various price points. To support this trend, transportation plans should think about including EV stations and their placement and charge type.

The functional classification framework also identifies Secondary Arterials, which provide important mobility connections within subareas of the network. These routes serve shorter trips than primary arterials but still accommodate higher volumes of traffic and support connections between residential, commercial, and employment areas. One such corridor is CR 120, located east of Stewartville. While this segment is not currently classified as a major roadway, it is planned to become a Secondary Arterial and is assigned to the "Improve" subclass. This reflects its future role in supporting local mobility and regional access needs in a growing area.

Figure 1: Functional Designation

Source: Olmsted County GIS

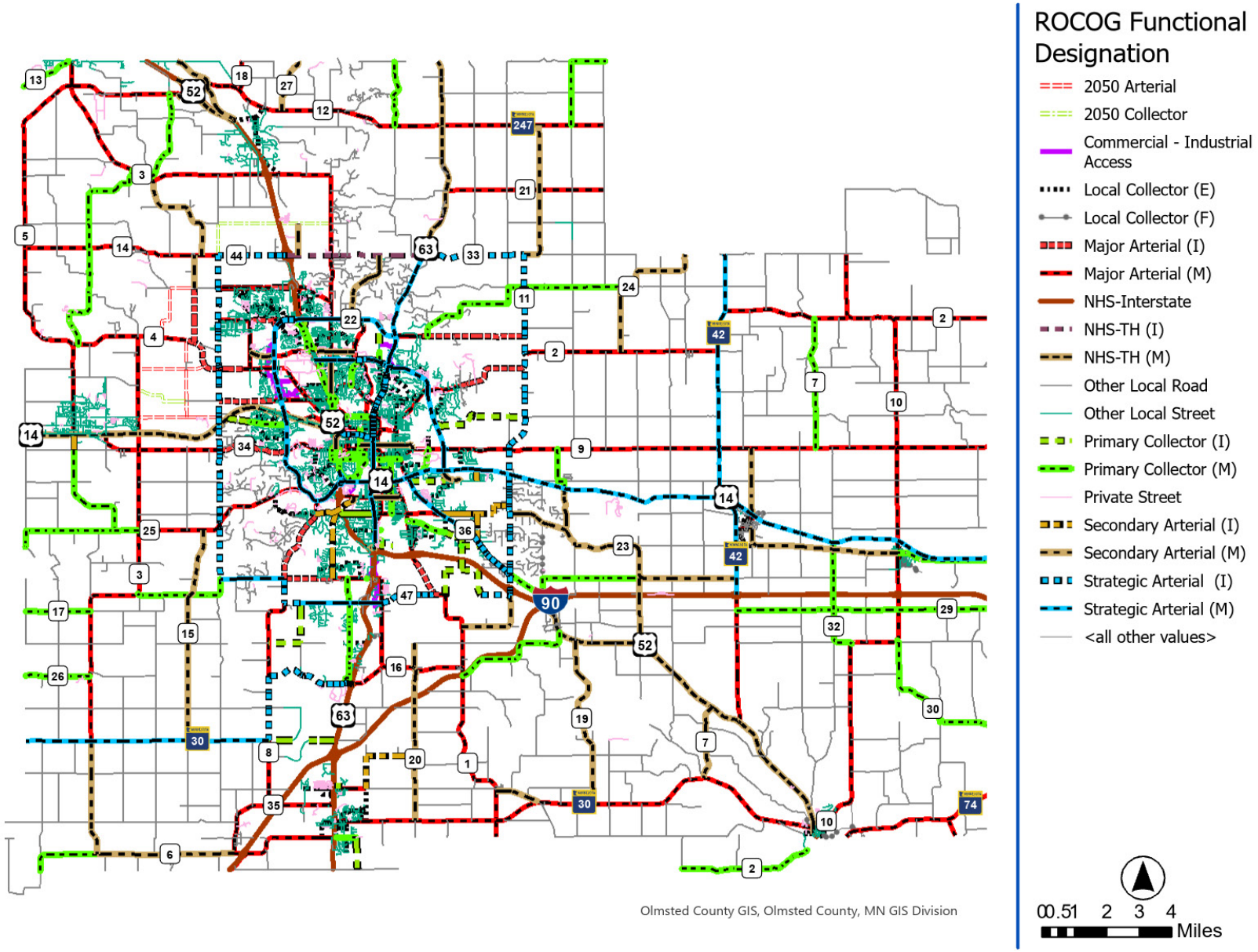
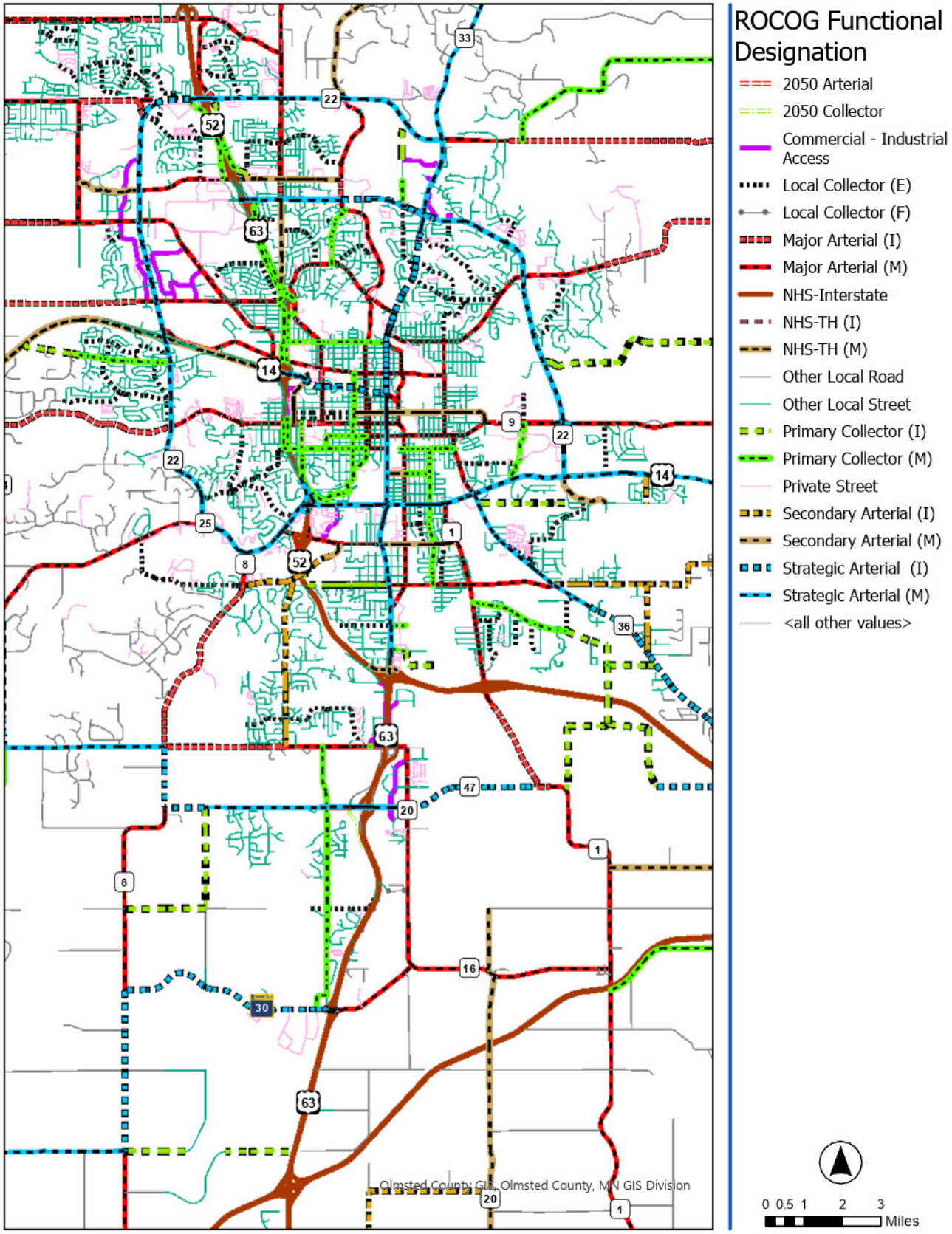


Figure 2: City of Rochester Functional Designation

Source: Olmsted County GIS



Other corridors are planned to take on greater network significance without the need for major construction. These roads fall under the “Maintain” subclass, even as their functional classification increases. Two examples within the City of Rochester include East River Road, between 37th Street NE and 48th Street NE, is currently a collector but is planned to become a Major Arterial. Viola Road and Valleyhigh Drive are also Major Collectors planned to transition into Major Arterials, and all three corridors are expected to meet their future function largely within their current footprint, with only routine preservation and minor upgrades.

As of 2024, the distribution of centerline mileage by functional classification in Olmsted County aligns with Federal Highway Administration (FHWA) guidelines (see Table 1). Local roads make up the largest share of the system at 67%, with the remainder divided among collectors, arterials, and interstates. Each functional class falls within FHWA’s recommended percentage ranges for urban and rural areas combined. This snapshot provides a useful baseline for understanding the structure of the current roadway system and how future functional classifications relate to national expectations.

6.2.2 Jurisdictional transfers

Olmsted County has taken a phased approach to updating the structure of its roadway system through a combination of jurisdictional transfers, revocations, and strategic designation

Table 1: Olmsted County Functional Classification Mileage

Source: MnDOT Statewide Miles by Functional Class by County, 2024; FHWA Highway Functional Classification Concepts, Criteria and Procedures 2023 Edition

Functional Classification System		Centerline Miles	System %	FHWA Guidelines Urban & Rural (combined)	Deviation
Principal Arterial	Interstate	27	1%	1-3%	Within
	Other Freeways & Expressways	23	1%	0-2%	Within
	Other Principal Arterials	32	2%	2-9%	Within
Minor Arterial		156	8%	2-14%	Within
Major Collector		244	13%	3-19%	Within
Minor Collector		140	7%	3-16%	Within
Local		1,255	67%	62-74%	Within
Total		1,877	100%		

changes. This work began with the County State-Aid Highway System Study & Mileage Request prepared in 2006, which was submitted for review and consideration by the County State Aid Screening Board, an advisor board to the Commissioner of MnDOT. The study proposed a coordinated package of long-term modifications to the CSAH system based on state designation rules, changes to the trunk highway system, regional growth patterns, and recommendations from the 2035 ROCOG Long Range Transportation Plan. Recognizing that several of the future roadway roles would depend on improvements led by other agencies, such as MnDOT, the study anticipated that implementation would take place gradually over time. ROCOG will be working with MnDOT to review and update Functional Classification changes as needed, as part of the federal review process that occurs every 10 years following population changes documented in the decennial Census.

Since that time, Olmsted County has completed many of the planned designation changes and jurisdictional transfers, particularly for corridors serving the Rochester Urban Service Area. These updates have helped establish a more consistent and functional road hierarchy as development has progressed.

More recent planning efforts have continued to examine how roadway function and ownership align in areas experiencing change. The 2024 Willow Creek Transportation Study reviewed future roadway needs in the southwest portion of the Rochester Urban Service Area and included updated considerations for jurisdictional responsibility. While not a direct continuation of the 2006 study, it overlaps with some of the same corridors and explores updated questions about which agencies might best manage specific segments moving forward.

One such corridor is 40th Street SW, a growing east-west connector currently owned by the Rochester Township jurisdiction. The Willow Creek study outlined two potential scenarios:

- Transfer to Olmsted County, to support its role as a regional route within a potential County State-Aid corridor.
- Transfer to the City of Rochester, if future urban development and city-led infrastructure investments shift its function to more localized service.

Another corridor under consideration is 18th Avenue SW, which is currently a County road. Following planned reconstruction, the County anticipates the segment could transition to City jurisdiction, as it increasingly functions as a local urban street due to surrounding development.

Studying and implementing jurisdictional transfers offers a number of long-term benefits for the future roadway network. It helps align roadway ownership with the actual function of each route, allowing each agency to focus its resources on the facilities most appropriate to its role. It also supports more coordinated investment planning and can help maximize eligibility for funding. As communities grow and land use patterns shift, proactive examination of jurisdictional responsibilities ensures the transportation system remains efficient, responsive, and capable of meeting regional and local mobility needs. Ultimately, this process contributes to a better-connected, better-managed roadway network that supports both current use and future development.

6.3. Transit

As the ROCOG planning area continues to grow and evolve, transit will play a central role in supporting economic

development, mobility, and quality of life. Planning work such as the 2022 RPT Transit Development Plan (TDP), combined with stakeholder engagement through the MTP process, revealed priorities for building a connected, reliable, and inclusive transit system.

6.3.1 Building an integrated regional transit network

As the region grows, travel demand is expected to intensify along key corridors such as Broadway Ave and US 52, Highway 14, Civic Center Drive in Rochester. These roadways serve as major north-south and east-west commuter routes and are central to both local and regional movement. Without changes to how trips are managed, future congestion could limit access to jobs, slow emergency response times, and strain local infrastructure.

Accommodating this growth will require a shift in how people move through the region, one that increases the share of trips taken by transit and other alternatives to personal vehicles. The Rochester Downtown Master Plan (2010) and the Destination Medical Center (DMC) Development Plan (2015) both called for a substantial reduction in downtown travel by single-occupancy vehicles in anticipation of major employment and visitor growth concentrated in the city's core. The Planning to Succeed: Rochester Comprehensive Plan 2040 (P2S 2040), adopted in 2018, envisioned an integrated land use and transportation framework centered around the development of a Primary Transit Network (PTN) on major corridors like Broadway Avenue and 2nd Street SW. These thoroughfares are envisioned to support increased activity density with infrastructure that encourages transit use and multi-modal travel, while reducing the need for expanded parking capacity downtown. The first phase of this primary transit network is expected to begin operations in 2027 is anticipated to significantly impact travel patterns throughout central Rochester.

Efforts like Link Bus Rapid Transit (Link BRT), a city-owned park-and-ride network, and complimentary walking and biking connections emphasized in the Rochester Active Transportation Plan are key to supporting this shift. Still, achieving a broader change in travel behavior will depend on how well the region's transit services operate as an integrated system. Multiple providers, including Rochester Public Transit, Rolling Hills Transit, and two separate Mayo Clinic shuttle services serve the area, but currently do so independently. Overlapping services to similar destinations, without coordinated planning, can reduce efficiency and limit overall ridership.

This challenge is particularly significant for public systems that depend on fare revenue and coordinated capacity to expand or sustain service. For example, Mayo Clinic operates an intra-city shuttle that transports employees from its dedicated shuttle lots to downtown Rochester and the Saint Mary's campus. Although these shuttle lots are separate from Rochester Public Transit's park-and-ride facilities, both systems serve the same major employment and activity centers. This duplication along similar corridors can split ridership, reduce efficiency, and impact RPT's ability to maintain strong fare revenues needed to support broader community service. Another added challenge is that with multiple systems converging in downtown Rochester, there is limited space available for passenger drop-off and boarding. This can further affect service efficiency and create operational constraints.

Separately, Mayo Clinic has recently reinitiated a regional employee commuter bus program operating from centralized

hubs in cities such as Kasson, Stewartville, and Winona. This service could draw riders who might otherwise use Rolling Hills Transit for longer regional trips, further complicating efforts to balance service coverage and demand. Coordinating capacity by aligning service times, sharing hubs, or focusing each provider on different trip purposes would help match service to demand more effectively, maintain higher ridership on public routes and publicly available services, and strengthen the long-term sustainability of the regional transit system.

Emerging trend

Artificial Intelligence (AI) for Transit
AI could revolutionize transit by dynamically adjusting routes to match real-time rider demand - whether for work commutes, weekend events, or daily errands. Predictive AI might optimize schedules for weather disruptions or peak travel times, while integrated apps could seamlessly connect buses, biking, and ridesharing. For passengers, this means shorter waits and more reliable trips for every kind of journey.

Sustaining and expanding transit to meet this demand will also require a closer look at funding. In 2025, the Minnesota State Legislature approved greater cuts to transit funding, including increases in local match requirements, compounding financial pressures on local systems. As funding structures evolve, the Greater Minnesota Transit Plan will play a key role in aligning with MnDOT's statewide priorities and providing a foundation for identifying strategies, performance measures, and future transit needs. In addition to the Transit Plan, proactively coordinating service, aligning priorities, and building strong partnerships will help the region respond to change and develop a transportation system that is more accessible, efficient, and resilient.

6.3.2 Advancing system modernization

The future transit system in the ROCOG area is expected to rely more heavily on technology to deliver reliable, high-quality service. Expanded service types such as Link BRT along the PTN will depend on systems operations technology, transit signal priority, and real-time signage to inform riders of upcoming bus arrivals. These features are expected to become increasingly necessary as new services such as Link Rapid Transit begin operation and transit volumes grow in key areas like downtown Rochester and along major arterials.

Without modernization, existing limitations in technology may create challenges in meeting future service expectations. For example, current paratransit services like ZIPS, designed specifically to serve riders with disabilities who cannot use regular fixed-route transit, require advance scheduling and do not allow same-day bookings. This can limit access for individuals with unpredictable or urgent travel needs, especially as demand for flexible mobility options increases.

RPT is currently piloting a microtransit program called RPT GO, which runs through July 2025. Unlike paratransit, microtransit is an on-demand transit service available to any rider within a defined area, offering real-time trip requests through technology-enabled platforms. This model provides greater flexibility and broader access than traditional fixed-route or paratransit services. The on-demand technology used in the microtransit pilot could help inform future transit services, including potential improvements to ZIPS and other

flexible service models as system needs evolve.

In addition, an aging population will likely lead to higher demand for accessible services, placing greater pressure on the transit system to provide low-floor vehicles, accessible stops, and real-time information.

Modernization needs are not limited to new services; they also have implications for maintaining and enhancing the usability of existing services. Riders are likely to expect more convenient mobile fare payment options, better real-time vehicle tracking, and responsive scheduling tools as basic components of transit systems. Without these features, public transportation may struggle to compete with private mobility options that offer greater convenience.

Future transit service performance, ridership, and user satisfaction are expected to be closely linked to how successfully system modernization keeps pace with service expansion and changing rider expectations.

6.3.3 Aligning transportation, land use, and economic development

Land use and transportation are invariably connected. The type, density, and diversity of land uses drives the cost of implementing transportation investments and the viability of expanded travel options. Sequentially, transportation investment shapes private development interest and often determines future land use decisions. Achieving an integrated and sustainable approach to managing land use and transportation will necessitate supporting the region's current and planned high-volume activity centers with reliable transportation systems. As the region grows, the relationship between transportation access, land use patterns, and economic development will become increasingly clear. For example, in recent surveys, limited transit access has been identified as a factor that makes it harder for employers to attract and retain workers, particularly those who do not have access to a personal vehicle or who are not provided with on-site or nearby parking. This dynamic may reduce the size of the available labor pool and place greater pressure on employers to address transportation barriers independently.

Future land use patterns are anticipated to shift with more development along major corridors such as Broadway Avenue and 2nd Street SW. These areas are part of the Primary Transit Network (PTN), which is planned to support higher-density, mixed-use development. Transportation systems that do not align with these emerging development patterns may face challenges in connecting workers to job centers, particularly in areas where car ownership is less feasible.

The Link Rapid Transit system, expected to begin operations in early 2027, is designed to improve high-frequency service access in downtown Rochester and along key employment corridors. However, its service area is limited to the urban core and will not provide direct connections to outlying communities across the broader ROCOG region. Commuters from smaller towns and rural areas may continue to face barriers in reaching major employment centers without additional regional service options.

As residential and employment growth occurs outside the current downtown-centered transit network, gaps in service coverage may become more apparent. Without transportation options that match where and how people live and work, commuting challenges could increase, and economic growth could be constrained by limited worker mobility. Future BRT

link lines are expected to follow the PTN, which could help guide expansions that align with key corridors and areas of planned growth.

6.3.4 Supporting long-term sustainability and coordination

Funding will continue to play a major role in how the regional transit system grows and adapts over time. As projects like Link Rapid Transit, the Primary Transit Network, and a larger city-owned park-and-ride system move forward, both operating and capital costs are expected to rise. At the same time, transit providers are facing higher local match requirements for state funding, which may make it harder to move projects forward. Future uncertainty around federal transportation programs also adds complexity to long-term planning. Without stable and predictable funding sources, it may become more difficult to maintain service levels or respond to growing demand.

As new services are added and more providers operate in the region, keeping systems aligned may also become more challenging. Earlier sections have noted examples of overlapping service areas and independent planning efforts. These types of gaps may have a growing impact as the network becomes more complex and more people rely on transit to get where they need to go.

6.4. Freight

Truck freight is expected to continue playing a central role in the region's economy as population and commercial activity grow. Freight movement already depends heavily on key corridors such as Highways 14, 52, and 63, and demand on these routes is likely to increase. As truck traffic grows, more pressure could be placed on existing road and bridge infrastructure, especially in areas with frequent heavy vehicle use.

Increased freight activity will result in higher wear on pavement and structures, affecting maintenance demands and system performance over time. Heavily used corridors like US 52 and US 63 are already key components of the regional freight network, and future increases in truck volumes will contribute to more frequent pavement stress.

Increased freight volume may cause additional bottlenecks, particularly at intersections and rural two-lane highways. Areas like the Highway 14 segment between Eyota and Lewiston or interchanges such as I-90 and US 52 could experience more frequent slowdowns as freight volumes increase. These types of bottlenecks can contribute to inconsistent travel times and reduce the overall reliability of freight operations.

As freight volumes grow alongside regional development, understanding where freight pressures are most likely to occur will be important for anticipating future system demands and supporting efficient goods movement. And, as the demands for public right-of-way increases to accommodate regional growth, it will become increasingly important to balance the needs of freight movement with other modes of transportation.

6.5. Aviation

Rochester International Airport (RST) plays a regional role in both passenger travel and freight movement. It benefits from strong highway access and foundational infrastructure but faces ongoing access limitations that could shape its long-term ability to serve the region. Early morning departures starting around 5:20 AM and late-night arrivals near 11:00 PM fall outside the hours covered by most rideshare and transit services, which may affect how easily travelers and employees can reach the terminal.

Currently, RST is not served by any RPT fixed routes or ZIPS paratransit services. However, the service area for RPT's microtransit pilot, RPT GO, was recently expanded to include the airport and did see passenger use, though this pilot will end in July 2025.

Access challenges may be more pronounced for those without a personal vehicle or who travel during off-peak hours. As flight schedules continue to include early and late departures, gaps in transportation options could become a growing concern for both airport users and airport employers who rely on predictable staffing.

RST tracks who its travelers are and where they're flying from using U.S. Department of Transportation (DOT) catchment area data. This includes traveler origin and destination zip codes, which help define the airport's service area and show how many potential passengers are using other airports. Understanding these patterns helps the airport identify demand and illustrate market potential to airlines. However, because the airport does not set airfares, its ability to influence airline service decisions depends heavily on traveler behavior and market data.

Planned infrastructure projects, including a new airport master plan and runway reconstruction, are part of RST's long-term efforts to maintain and expand its capabilities. How these investments interact with future transportation access and plans for the area may affect the airport's ability to connect with more travelers and support future growth through 2050.

Emerging trend

Urban Air Mobility Urban Air Mobility, or Advanced Air Mobility (AAM), involves aerial vehicles, both crewed and automated, that can travel across urban, suburban, and rural areas. Local trips can be within 50 miles and regional trips could span several hundred miles. This emerging trend requires a new way of thinking about mobility and connectivity.

6.6. Rail

Freight rail and passenger rail serve distinct roles within Minnesota's overall transportation system. Freight rail focuses on the movement of goods and materials, supporting industries such as agriculture, manufacturing, and logistics by offering high-volume, long-distance shipping capacity. In contrast, passenger rail provides scheduled travel options for people,

connecting cities and regions with services that emphasize convenience, mobility, and environmental benefits. While Minnesota has an extensive freight rail network, its passenger rail service is currently more limited.

Looking ahead, the upcoming Minnesota State Rail Plan, anticipated for adoption in spring or summer 2025, is expected to outline future priorities for freight and passenger rail. During public engagement for the plan, feedback indicated there is interest in expanding passenger rail service to new destinations, including Rochester. This feedback potentially reflects broader interest in improving regional travel options and may inform long-term considerations about how passenger rail could enhance access and connectivity between southeastern Minnesota, other cities in Minnesota, and the greater Upper Midwest.

6.7. Resilient and adaptive transportation network

To foster a safe and efficient transportation system, ROCOG must assess the threats and hazards that affect our network and adopt fiscally responsible policies, design standards, and construction practices that will help our community withstand and rapidly recover from natural disasters and system disruptions. While ROCOG can't prevent such events as flooding, wildfires, and toxic chemical leaks, we can incorporate strategies into the MTP and other MPO plans that will help limit harmful physical, economic, and social impacts on our community.

6.7.1 Emergency and disaster preparedness

As introduced in Chapter 5, the 2024 Olmsted County Hazard Mitigation Plan Update (HMP) evaluated and prioritized the major natural hazards affecting the county based on frequency of the event, economic impact, deaths, and injuries. Thirteen major disasters and two emergency declarations have been made in Olmsted County between 1957 and July 2024; details of these can be viewed on the Olmsted County HMP website.

While the HMP focuses on preventing or reducing the impact of future disasters, local agencies and facilities may also adopt an Emergency Operations Plan (EOP), focusing on the immediate actions needed to protect lives and property during response and recovery. The Olmsted County EOP, for example, is updated on a regular basis and addresses functions that support both mitigation and response to natural disasters, including public information and warning, operational coordination, mass care sheltering, evacuation, and access to resources.

The State of Minnesota's Hazard Mitigation Plan (2024) and the Olmsted County HMP do not map evacuation routes, though, primarily because the best response for the vast majority of Minnesota's natural hazards is to shelter in a safe

place. The EOPs are the documents that incorporate such plans. Flooding, tornadoes, hazardous material scenarios, and terroristic threats and actions are events that local agencies have considered as priorities for evacuation planning. Figures 3 and 4 delineate the routes that Olmsted County and the City of Rochester are most likely to use based on their EOPs. These roads can support a large influx of vehicle traffic and reduce the need for control devices at intersections if an evacuation becomes necessary. The actual routes used for evacuation would be assigned based on the needs of the current incident and surrounding conditions.

6.7.2 Climate adaptation and resiliency

Transportation in the ROCOG planning area is designed to support economic development and provide for the safe and efficient movement of people and goods. Knowing the risk factors most likely to negatively impact our transportation system will help us improve system resiliency and project prioritization.

6.7.2.1 Likely events and trends

According to the MnDNR Climate Trends website, Minnesota has gotten warmer and wetter since 1895. Although weather conditions vary from year to year, frequent and intense storms are now occurring more than any time on record. The southern parts of the state, in particular, have seen an increase in annual precipitation. The greatest changes have come in the past several decades; each of the top 10 combined warmest and wettest years on record occurred between 1998 and 2020. These trends are projected to continue in Minnesota through the 21st century, with hotter summers and increased drought severity during dry periods (Olmsted County HMP).

An intricate network of seasonal and permanent waterways blankets the Olmsted County landscape. This means the ROCOG planning area routinely deals with flooding and has historically experienced numerous small- and large-scale flooding events. Completed in 1996, Rochester's flood control project remains effective in helping mitigate large-scale flooding but the rest of Olmsted County is still susceptible to flooding. Significant growth experienced in many of our cities has contributed to increased flooding potential by adding hard surfaces and structures that keep precipitation from being absorbed where it falls. As a result, recent years have also seen a surge in vulnerability to flash flooding.

Despite fewer extreme cold events, increasing temperatures and atmospheric moisture has led researchers from the MnDNR State Climatology Office to conclude that the changing climate is increasing heavy snowfall events even as other winter characteristics decline. Projections also show that parts of Minnesota could experience less total frozen precipitation by mid-century, but the amount of precipitation during each event is expected to increase. By late century, heavy winter storms in the southern part of the state will likely result in more rain rather than accumulating snowfall.

ROCOG, MnDOT, and local transportation partners strive to provide connections that prioritize people's movement and quality of life, but increases in extreme weather events are already impacting aging infrastructure and are expected to impair surface transportation, increase travel safety risks, and strain the electrical grid. As part of their 2024 Resilience Improvement Plan (RIP), MnDOT analyzed natural hazards and assessed the potential impact to Minnesota transportation system assets over time. These include:

Extreme precipitation: Extreme precipitation events result in

Figure 3: Potential Evacuation Routes for the City of Rochester

Source: City of Rochester Emergency Management

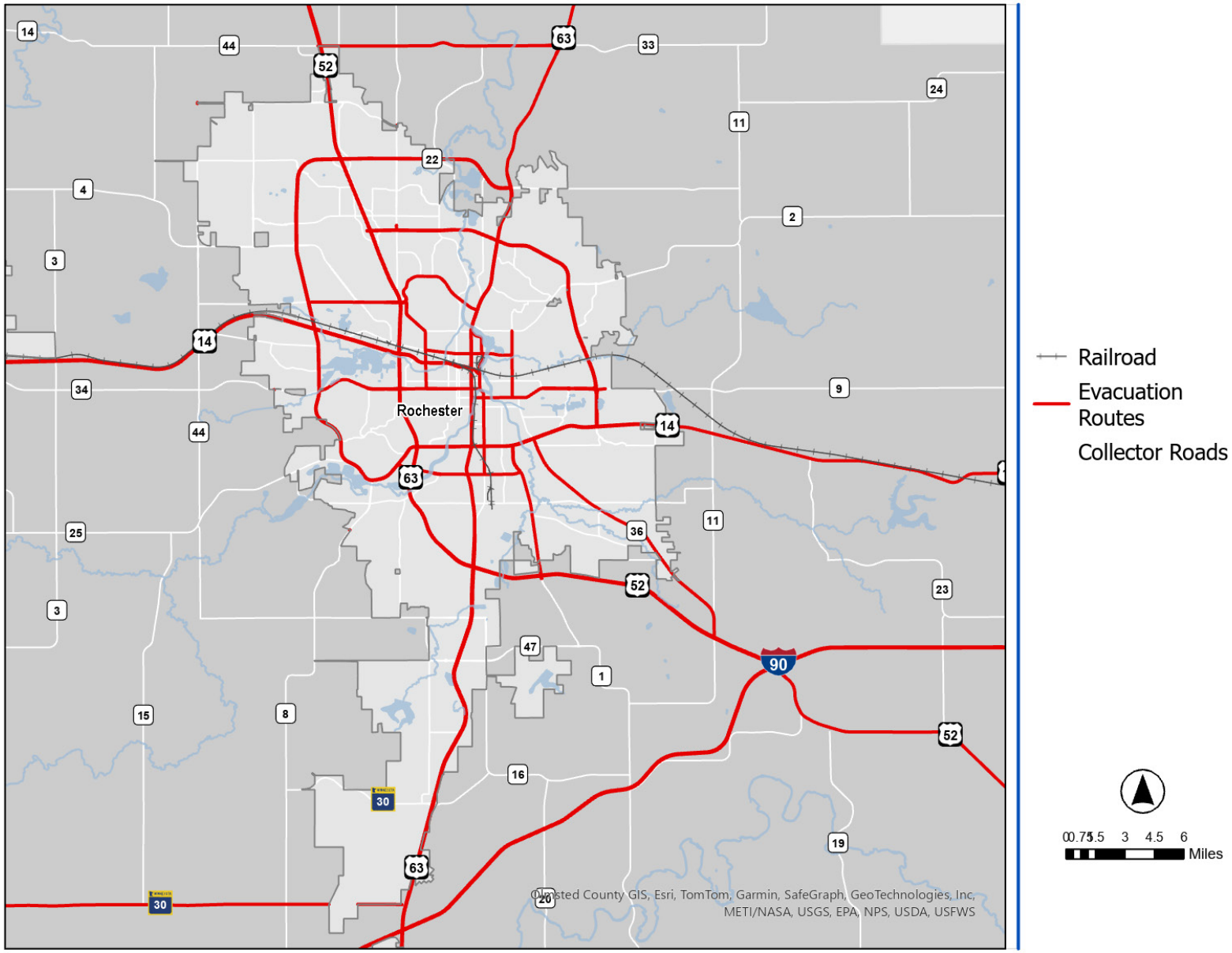
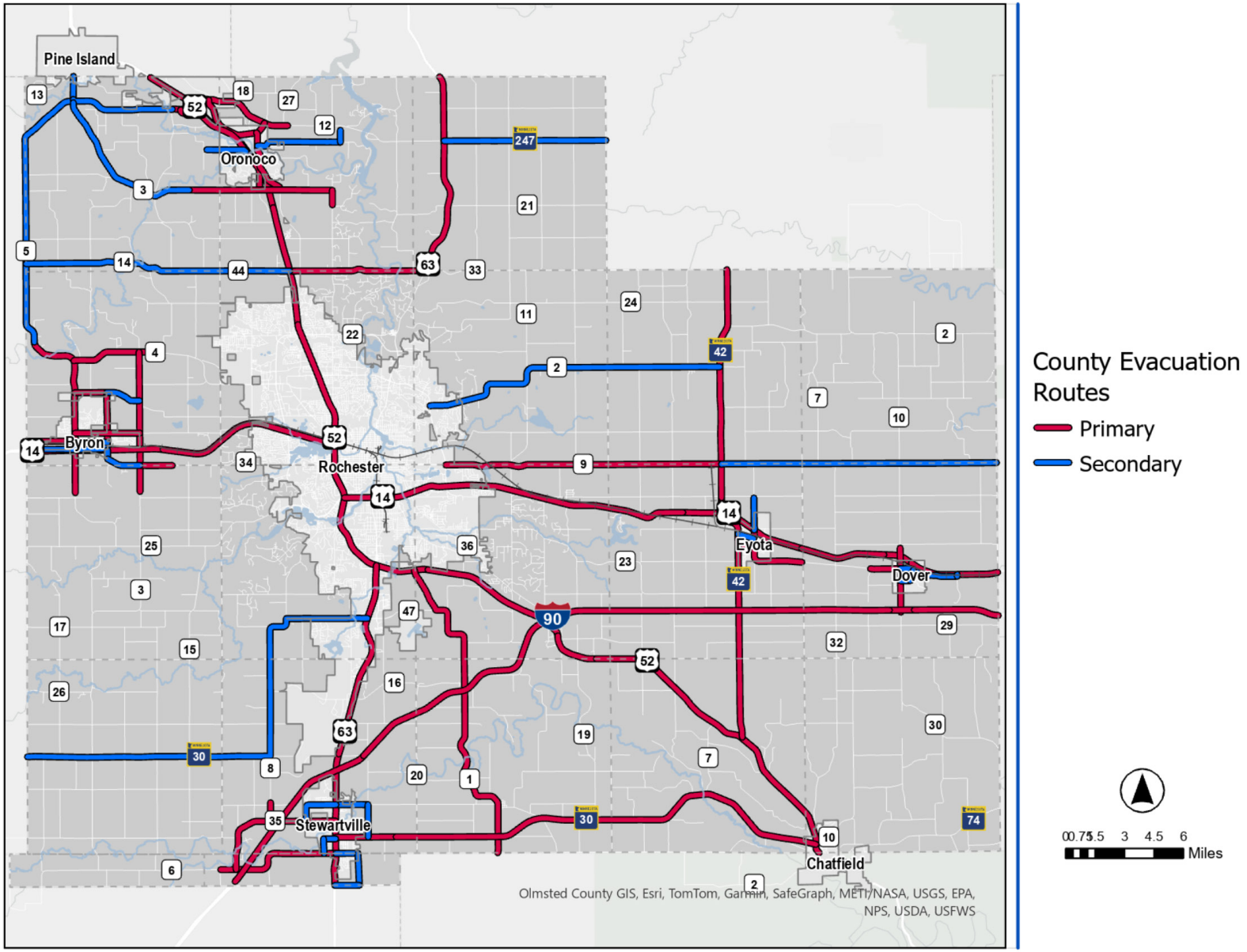


Figure 4: Potential Evacuation Routes for Olmsted County

Source: Olmsted County Emergency Management



flooding, slope failures, damaged roads and bridges, and unsafe driving conditions.

Extreme temperatures: Extreme temperatures impact pavement and bridge performance, including the selection of the pavement binder that holds asphalt together and shrink/swell parameters for bridge design. Extreme heat also strains the electrical grid, leading to power outages that disrupt transportation services and network function, resulting in congestion and safety concerns.

Freeze-thaw cycles: Freeze-thaw induced road closures (primarily from rockfalls or slope failures) could have localized impacts on first responder access, increasing community vulnerability. Changes or increases in freeze-thaw cycles can also lead to ice accumulation, which poses slip hazards and reduces accessibility for people walking and rolling.

6.7.2.2 Carbon emissions

According to MnDOT, the transportation sector is Minnesota's largest source of carbon emissions, with surface transportation sources, such as cars, trucks and buses making up about 24% of carbon emissions in 2022. These are primarily the result of fossil fuel combustion in vehicles and are most significantly influenced by:

- Fuel type and fuel efficiency of the vehicles used (such as conventional gasoline or diesel, biofuels or other alternative fuels).
- The multimodal transportation options (such as transit or biking) people have to get to their destinations (such as homes, business, and schools).

In 2007, Governor Tim Pawlenty signed the bipartisan Next Generation Energy Act, setting a goal to reduce greenhouse gas (GHG) emissions in the state by 80% by 2050 (from a 2005 baseline). This act also adopted interim goals of a 15% reduction by 2015 and a 30% reduction by 2025; the 2015 was missed and we are still behind schedule. To help get us back on track, MnDOT set interim GHG emissions targets in the recent Statewide Multimodal Transportation Plan (SMTP) for 2025, 2030, 2035 and 2040. The legislature updated the State goal to include these interim targets and align with the State's Climate Action Framework. These interim targets will help Minnesota reach net zero emissions by 2050.

In 2023, the Minnesota Legislature created new requirements to ensure transportation projects that expand the highway system offset carbon impacts. Projects that expand the number of lanes on the highway system or add new interchanges must conform with the state's greenhouse gas emissions reduction and VMT reduction targets. The legislation requires projects to address the impacts by either modifying the scope or design, halting the project, or implementing offset impacts.

In response to the state legislation, in 2024, MnDOT set statewide and MPO specific GHG reduction targets. For the Rochester area, the targets are:

- 2030: Reduce by 936,000 metric tons of CO2e
- 2035: Reduce by 1,688,000 metric tons of CO2e
- 2040: Reduce by 2,276,000 metric tons of CO2e
- 2045: Reduce by 2,955,000 metric tons of CO2e

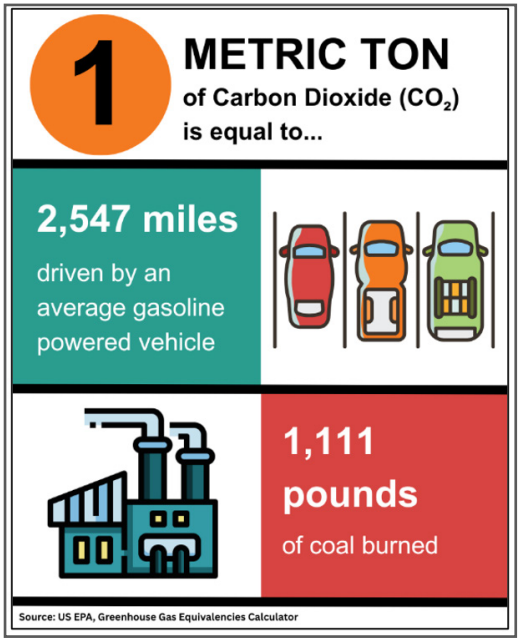
- 2050: Reduce by 3,515,000 metric tons of CO2e

To figure out how to meet these goals, MnDOT asked each MPO to identify an ongoing emissions reduction strategy. ROCOG chose to support Rochester Public Transit agency's ongoing efforts, which include switching to electric vehicles and increasing revenue miles traveled. An increase in revenue miles traveled indicates an increase in ridership with a corresponding decrease in single occupancy vehicles.

MPOs, like ROCOG, assist in the implementation of this legislation through assisting with regional emissions monitoring and using a travel demand model to project future emissions. Additionally, ROCOG can manage GHG emissions by including GHG measures in the selection of projects, both STBG and other programs, funding strategies for multimodal transportation projects, and partnering with local partners to prioritize projects that reduce GHG emissions as well as promote safety, health, access, and the economy.

6.7.3 Building a resilient future network

As an MPO, ROCOG has opportunities to build resiliency into our transportation network by incorporating hazard mitigation strategies into transportation plans. Publications at the local and state levels provide useful tools.



6.7.3.1 Local publications

- The Olmsted County Hazard Mitigation Plan analyzes the natural hazards most common to the ROCOG planning area, rates their likelihood and potential impact, and lists mitigation actions for each city and the county as a whole.
- Rochester Public Works maintains detailed dam breach maximum depth assessment reports for the seven flood control structures. The reports contain a total of 27 map panels describing potential inundation areas, structures, and critical infrastructure. The analysis details the estimated extent of flooding, flow velocity, and travel time after a sunny day scenario breach.
- Local ordinances provide standards that must be met when building in a floodplain.

6.7.3.2 State of Minnesota publications

- MnDOT Flash Flood Vulnerability and Adaption Assessment Pilot Project (2014) was supported by FHWA and coordinated vulnerability assessments to measure the sensitivity of Minnesota's trunk highway systems from flash flood events in Districts 1 and 6.
- Slope Stabilization Guide for Minnesota Local Government Engineers (2017) investigated 14 sites representing destabilized roadway slopes in Minnesota and recommended eight slope stabilization techniques that local engineers can use without the help of outside geotechnical

engineers.

- MnDOT Extreme Flood Vulnerability Analysis (2022) developed a methodology to characterize the vulnerability of state bridges, large culverts, and pipes to flooding. This will aid in prioritizing adaptation actions.
- Effect of Warmer Minnesota Winters on Freeze-Thaw Cycles (2023) analyzed how freeze/thaw cycles have changed in MN; how air, surface, and sub-surface freeze/thaw cycles are correlated; and how these cycles may be impacted by climate change.
- MnDNR provides technical support for local infrastructure projects at road-waterway intersections. Applying the Geomorphic Approach to Infrastructure Design at Road-Watercourse Intersections design approach to projects will foster natural system processes and will establish stable watercourses through time.
- MnDOT Statewide Multimodal Transportation Plan (2022) provides objectives, performance measures, strategies, and actions for Minnesota's transportation system over the next 20 years. Its climate action objective includes two resilience-related strategies:
  - Protect people and communities through regional approaches to mitigate risk from the changing climate and extreme weather.
  - Increase resiliency of people and communities by adapting infrastructure to withstand the changing climate.
- MnDOT Transportation Asset Management Plan (2022) the TAMP helps MnDOT effectively manage transportation assets by using the best available information and tools to mitigate risks and optimize return on investment.
- MnDOT Resilience Improvement Plan (2024) is Minnesota's first statewide plan focused on building climate resiliency into the transportation system, creating a framework for broad collaboration and action to prepare for and recover from climate impacts.
- The Minnesota Department of Transportation (MnDOT) completed a statewide slope vulnerability assessment in 2019. This assessment sought to identify slope failure risks along state trunk highways in several MnDOT districts. Using GIS modeling, researchers mapped and ranked slopes along highways according to failure vulnerability and developed a method for MnDOT to quantify failure risk for asset and emergency management planning.
- In Olmsted County, 3089 acres of highway corridors are at a moderate or high risk for slope failure.
- USGS historical research found that over half of Olmsted County cities and townships are susceptible to landslides.
- The new Minnesota CliMAT—Climate Mapping and Analysis Tool is an interactive online tool that provides highly localized climate projections for Minnesota. MN CliMAT is based on data from the latest global climate models and is at a scale that users can see how even small cities will likely be impacted in the future.

6.7.3.3 Funding

In their 2019 report, Natural Hazard Mitigation Saves, researchers at the National Institute of Building Sciences

determined for every $1 spent on hazard mitigation funding in the nation, $6 is saved in future disaster costs. While it is currently unclear what federal dollars may be available for transportation resiliency, available local funding options include:

- The MnDNR is making funds available from the Clean Water Legacy Fund in the form of 25% cost-share grant to local units of government to replace bridges and culverts at river crossings. Funding is intended to offset potential increased costs associated with adopting the geomorphic design approach outlined within; in-kind projects are not eligible.
- To increase access to electric vehicles (EV) in all parts of Minnesota, MPCA is using funds from the State's share of the national Volkswagen settlement to build an EV charging network across the state. The next phase of this funding will expand the charging network by more than 2,500 miles, enabling EV drivers to travel longer distances throughout the state without worrying about where they can recharge.

6.7.4 Resiliency strategies

Our climate is getting warmer and wetter, and our community is growing. As we plan for our transportation future, Constructing agencies should anticipate likely threats to our transportation system and begin integrating resilience into plans, studies, and evaluation criteria, thus ensuring that safety, accessibility, and mobility standards continue to be met. Potential strategies include:

- Reduce the costs of responding to natural hazards by proactively investing in resilient infrastructure.
- Use local and state tools and reports to develop hazard mitigation strategies for transportation plans. In particular,
  - The Olmsted County HMP is a key local hazard mitigation document that should be consulted as part of the planning and design process for transportation policy and improvements in the ROCOG planning area. This is particularly important when addressing such items as repetitive flooding mitigation, dam breach zones, stormwater facilities, opportunities to bury power lines, road surfaces, and bridge design specifications.
  - MnDOT's Resilience Improvement Plan encourages the use of such strategies as enhancing bridge design to absorb flood impacts and provide more clearance for debris, raising road grade in flood prone areas, and using vegetated slopes to slow erosion.
  - MnDOT's Statewide Multimodal Transportation Plan encourages incorporation of strategies such as corridor and regional vulnerability assessments, stormwater management partnerships, and infrastructure resiliency prioritization along critical freight corridors into planning and design projects
  - MnDOT's Transportation Asset Management Plan informs capital and operations planning efforts, analyze life cycle planning, establish asset condition performance measures and targets, and develop investment strategies.
- Collaborate on strategies to incorporate the use of transit in evacuation plans, particularly in highly populated areas and those with concentrations of people without access to a personal vehicle.
- Update winter maintenance and road treatment plans and

policies.

- Investigate maximizing the use of FEMA and other funding sources when planning for and designing applicable transportation projects.
- Use policy incentives and infrastructure investments that allow ROCOG and its partners to plan carbon offsets consistent with local needs and state requirements. Strategies such as transit expansion/improvements, active transportation infrastructure, transportation demand management, and natural systems can be used to account for new State GHG and VMT standards for capacity expansion projects.

6.8. Transportation systems management and operations (TSMO)

6.8.1 Goals

The FHWA defines Transportation Systems Management and Operations (TSMO) as a set of strategies that focus on transportation operational improvements caused by congestion, travel delays, and bottle necking into major corridors. TSMO focuses on optimizing operational improvements, along with maximizing the safety, reliability, and efficiency of the existing transportation systems.

6.8.2 Approach

TSMO is an approach to solving transportation challenges using an operational mindset, rather than focusing on traditional capacity enhancement solutions that are geared toward accommodating more vehicles through road expansion. The TSMO approach is to maintain and restore the performance of the existing transportation system before extra capacity is needed. The Resilient Communities Project out of the University of Minnesota states that TSMO incorporates multidisciplinary and multijurisdictional input, which require collaboration among several agencies.

Delaying the need for a road expansion project enables agencies to stretch their limited funding to other transportation projects and areas. TSMO tools are generally much lower in cost when compared to the option of adding additional street capacity, below are TSMO tactics examples from MnDOT's TSMO Office for small suburban and rural areas.

6.8.3 Benefits

According to MnDOT there are many benefits of implementing TSMO strategies including but not limited to:

- Enhancing safety for all users.
- Preserving and maximizing existing capacity.
- Promoting mobility and multi-modal travel.
- Improving reliability for commuters, transit, freight and everyday travelers.

Intelligent Work Zones – Intelligent work zones, or "smart work zones," use real-time sensor technology and messaging to inform drivers of work zone conditions. Traveler information provided in advance of work zones warns drivers of upcoming conditions, enables drivers to re-route, and promotes safer driver behavior.

Improved Pedestrian and Bicycle Service at Signals – Intersections can also be improved with signage, accessibility, crossing, or timing enhancements where signalized, to better accommodate pedestrians and bicyclists. These improvements are particularly important at intersections that are not fully equipped for pedestrian access.

Complete Streets – Complete Streets is an approach to planning, designing, building, operating, and maintaining streets that enables safe access for all people who need to use them, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. Complete Streets principles such as walkways, bicycle facilities, and safe pedestrian crossings have been implemented across Minnesota.

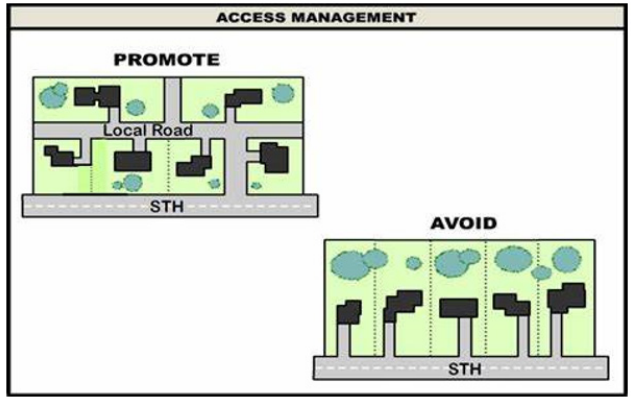
Reduced Conflict Intersections (RCIs) – High-speed roadways with wide medians and stop controlled side streets can present a safety concern as side street traffic tries to cross the high-speed roadway or turn left onto it. Crashes at these intersections often result in fatalities or severe injuries. RCIs limit the number of points within an intersection where the paths of two or more vehicles intersect. Limiting the number of points of intersection reduces the likelihood of severe crashes. A before and after analysis of RCIs in Minnesota showed a 69% decrease in fatal and serious injury crashes.

6.8.4 Access management

Access management allows agencies to manage vehicle access points, like driveways and intersections, to help road users safely and efficiently access desired locations like residences and businesses.

The frequency and location of access connections, along with traffic signal spacing, are key elements for efficiently managing traffic flow and minimizing traffic conflict along highway corridors. They are most beneficial in the management of major urban and regional highways. The justification for control of access is based on several factors, including safety, capacity, economics, and aesthetics. The economic potential of development corridors can be enhanced by a coordinated program of access management.

The functional life of roads can also be extended through higher utilization of the roadway's design capacity, thus permitting funds that might have been spent on road widening to be spent on road maintenance and operations. Studies have found that appropriate control of left and right turns, the impact of unregulated driveways, and the speed of access and egress can improve capacity by 25% over uncontrolled conditions.



6.8.5 Intelligent transportation system planning

Intelligent Transportation System (ITS) technology plays an important role in enabling many TSMO strategies that rely on various communications and information systems in order to monitor conditions, collect and disseminate transportation system information, and provide the ability to adjust systems in response to changing travel conditions. The integration of advanced communications technology in transportation infrastructure and vehicles to enhance mobility and safety across modes. ITS solutions are cost effective and can be quickly implemented when compared to traditional capacity improvements. ITS solutions can also collect data toward insights on safety and performance of the transportation network.

Current ITS examples in our region include:

- Freeway management: Freeway variable message signs at 8 locations on US 52 and US 14.

- Automated telephone system to provide real-time, route specific, on demand information via telephone managed from Traffic Operations Communication Center (TOCC).

- Traffic signal interconnection, control, monitoring, and timing for the arterial street network.
- Mobile Data Terminal (MDT) system for the State Patrol Rochester office.

6.8.6 Active traffic management on key corridors

The future of traffic management on important arterial corridors such as Broadway and West Circle Drive is likely to include elements of an ITS service package called Active Traffic Management (ATM), also referred to as Active Expressway or Active Arterial Management. ATM service packages typically involve the application of multiple real-time strategies that provide the ability to dynamically manage traffic based on current and expected conditions. Among the individual types of applications that can be combined in ATM package for a corridor include:

- Adaptive ramp metering
- Dynamic speed limits
- Queue warning system
- Dynamic shoulder lanes
- Adaptive traffic signal control

The benefit of deploying ATM infrastructure is that from a cost perspective it provides a significant cost savings over capacity expansion projects, particularly in highly developed corridors such as Broadway Ave or 2nd St SW where right-of-way is at a premium.

6.8.7 Travel Demand Management

Transportation Demand Management (TDM) is a process of developing a plan to maximize transportation system efficiency of the existing street network by encouraging a shift from single occupant vehicle (SOV) trips to non-SOV modes, shifting trips out of peak travel periods, or roadway congestion and parking demand. TDM offers a collection of strategies including transit, micro transit, biking, walking, parking management, trip-chaining, and carpooling.

To make alternative travel options more appealing, TDM programs use pricing, service improvements, and incentives to offer diverse choices. Shifting travel to high-capacity modes like transit or alternative commuting mode options like biking and walking are vital to prevent excessive land use for parking, while preserving and encouraging vibrant community core areas.

6.8.7.1 Benefits of TDM

TDM benefits include economic, environmental, and health. Encouraging fewer SOV using major thoroughfares reduces the need to expand roadways, which can be costly capital investment projects. Moreover, reducing the need for parking minimums allows cities to reduce the need for large-scale parking garages, thus turning the focus to economic development initiatives to enhance the area, such as affordable housing, open space, and new businesses.

Air pollution can be reduced through emission reduction from fewer vehicles making fewer trips and reduction of stormwater

runoff to our local water bodies. TDM strategies can encourage the use of active forms of transportation such as walking and biking, which can lead to improving physical health and reducing stress and air pollution.

6.8.7.2 TDM examples

- RPT Park & Rides: The City of Rochester, along with Byron and Stewartville, offers Park & Ride locations to support access to both local and regional transit services. In Rochester, a partnership between RPT and Mayo Clinic allows all Mayo employees to ride RPT routes that connect with designated park-and-ride lots, 75th Street, Fairgrounds, RCTC, and North Broadway, at no cost by showing their Mayo Clinic ID badge. Local weekday routes serving these facilities include 204, 203, 101, 412, and 21 (Route 21 also operates on evenings, weekends, and holidays). Express service is provided by 150X and 550X, with Route 550X offering the most frequent service, running every 10-15 minutes on weekdays during AM and PM peak periods.

- RPT and RCTC Partnership: Through a partnership between RPT and Rochester Community and Technical College (RCTC), students can ride RPT at no cost by swiping their student ID when boarding. Routes 203 and 204 both serve the RCTC Park and Ride lot adjacent to campus. Route 203 operates on weekdays from approximately 5:30 a.m. to 10:00 p.m., with 30-minute service throughout the day. Route 204 runs on weekdays from approximately 5:30 a.m. to 7:00 p.m., with 30-minute service during peak hours and hourly service during non-peak times. Also, as part of this partnership RCTC provides use of the on-campus Park and Ride lot at no cost to RPT.

- RPT GO Micro Transit Pilot: On-demand transit service is designed to offer flexible and accessible transportation options for residents in southern Rochester including the Rochester International Airport, which does not yet have fixed route or paratransit service. The pilot program is scheduled to run until July 18th, 2025.

- Micro-Mobility: Is a category of transportation including bikes, electric bikes, and electric scooters, either personally owned or shared or rented. Typically, micro-mobility options refer to transportation used for short distance trips less than two miles that offer riders an alternative to single occupancy vehicles in downtown or congested areas. Shared micro-mobility allows rides a last mile options as an add-on to public transit. Some of the commonly used micro-mobility options are bikeshare, carshare, scooters, micro-transit, and autonomous transit.