

Introduction

Grand Rapids' transportation infrastructure supports a variety of economic and recreational activities. Providing and maintaining this infrastructure fosters economic investment and helps sustain a high quality of life for City residents. The transportation system needs to provide safe mobility for all travelers, including pedestrians, bicyclists, snowmobiles, and ATVs in addition to automobiles, trucks, trains, airplanes, and buses. This chapter presents the City's plan for developing a comprehensive, integrated, and connected transportation network that serves all travel modes. It is intended to help the City identify its transportation needs and values, make transportation-related decisions, and coordinate long-range plans with other jurisdictions.

System Overview

Functional Classification

The functional classification system, shown in [Figure 8.1](#), defines the function and role of each roadway within the transportation system. It is designed to encourage efficient travel and coordinate corridors with surrounding land uses and trip characteristics. Grand Rapids' functional classification system includes arterials, collectors, and local road roads. Together, these roads provide a balance of *accessibility* and *mobility*.

Access – The ease of approaching or entering a location.

Mobility – The ability to move without restrictions.

Roadway classification is based on several factors, including:

- Proportional balance of access and mobility
- Trip characteristics such as trip length
- Origins, destinations, and trip generation
- Continuity between travel destinations
- Relationship with neighboring land uses
- Eligibility for State and Federal funding

Arterials

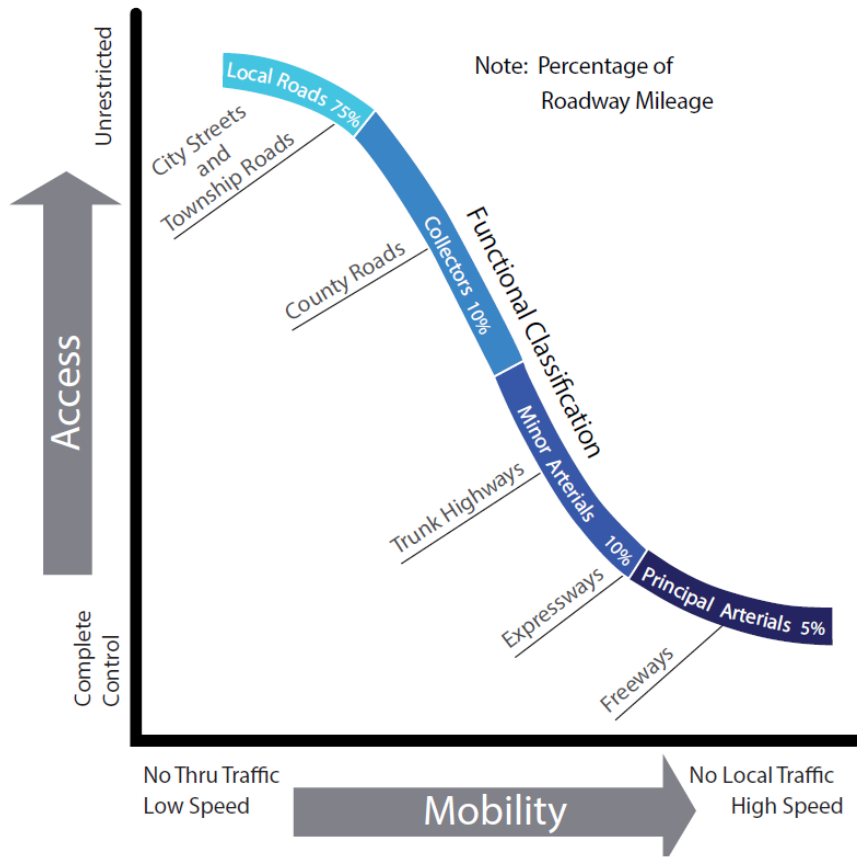
These roads form the backbone of Grand Rapids' transportation system. They facilitate regional traffic and connect to the broader interstate system outside of Grand Rapids. They also convey significant volumes of local traffic. Therefore, they must balance regional mobility needs with local functions. For example, Trunk Highway 2 provides for regional through-traffic but also connects the community to downtown. Ideally, it provides for efficient vehicular movement of people and freight as a well as a safe, comfortable environment for pedestrians and other modes.

There are some concerns related to access and connectivity:

- The density of intersections and driveways, especially within downtown corridor segments, is a key factor in crashes.
- By favoring mobility for through traffic, arterials often impede cross-highway movements for pedestrians as well as vehicles.

Within Grand Rapids, arterial corridors are jurisdictionally State and County roads. Arterials typically comprise about 10 percent of the mileage within a city's transportation system.

Figure 8.2: Mobility and Access



Collectors

Collectors provide connectivity between local city streets and the arterial roadway system. They are intended to balance mobility and access, typically at lower speeds than arterial corridors. Given their multipurpose function, collectors can be ideal multimodal streets. With higher continuity than local streets but lower speeds and traffic volumes than arterial roads, some collectors are natural bikeways. With neighborhood access, citywide connectivity, and moderate travel volumes, collectors can also support fixed-route transit and on-demand service. Some collectors parallel arterial highways and help relieve traffic on these roads; 5th Street NW/NE and 2nd Ave SE are two examples. Collectors typically comprise about 10-20 percent of the mileage within a city’s roadway system.

Jurisdictionally, collectors are a mix of City and County roadways. Collectors which provide extended connectivity beyond city limits are generally classified as major collectors. These are jurisdictionally County roads. Collectors which provide more localized connectivity are minor collectors. These are jurisdictionally City roads.

Transportation and Land Use Relationship

The functional classification system should be integrated and managed with land use in mind. Land uses of higher density or intensity, such as large commercial developments, tend to be located along higher-order streets. Land uses of lower density or intensity are located on lower-order streets. The amount of vehicular traffic that is generated or attracted by a specific set of land uses is a good indicator of roadway functional and an important consideration in site planning.

Local Streets

Local streets include municipal streets and private streets. They typically constitute 60-75 percent of the mileage within a city’s roadway system. Their purpose is to facilitate neighborhood trips between and connections to the collector/arterial system. They have the lowest travel volumes and the slowest speeds, but the highest degree of access, including direct access to property. [Table 8.1](#) shows the variety of road types in Grand Rapids and their proportional length.

Table 8.1. Functional Class Roads

Functional Class	Total Miles within Grand Rapids	Percent of Total Miles	Average Daily Traffic (Approximate Range)
Principal Arterials	21.6	11.5%	12,000 to 20,000
Minor Arterials	3.7	2.0%	4,000 to 8,000
Major Collectors	15.9	8.5%	100 to 1,000
Minor Collectors	40.2	21.5%	--
Local Roads	90.4	48.4%	--
Private Roads	15.1	8.1%	--
Total	186.8	100.0%	N/A

Jurisdictional Classification

Ownership of Grand Rapids’ public roadway system is shared among the City of Grand Rapids, Itasca County, and MnDOT. MnDOT maintains roads which have extended continuity beyond Grand Rapids’ city limits (i.e., the trunk highway system). Itasca County maintains the regional roadway system (County Roads and County State Aid Highways). Meanwhile, most of the roads which Grand Rapids is responsible for are fully contained within city limits. This jurisdictional framework ultimately leads to efficient resource allocation. For example, the City is primarily tasked with road maintenance and small improvements, but not significant highway improvements.

Coordination between Grand Rapids, MnDOT District 1, and Itasca County is essential for effective long-term planning. Occasionally, jurisdictional transfers occur to reflect changes in the ways certain roads are utilized. This might occur due to growth and development, changes in travel patterns, or construction of new facilities. Currently, no jurisdictional transfers are planned.

Existing Traffic Volumes

[Figure 8.3](#) shows traffic counts for arterial and collector roadways in Grand Rapids. Most counts were collected in 2017. Counts for heavy commercial vehicles (trucks) are included where data is available. Within Grand Rapids, trunk highway volumes contain about 5 percent trucks.

Planning Level Roadway Capacities

Roadway capacity refers to the maximum number of vehicles a roadway can convey, beyond which the level of service will noticeably decline. It is a theoretical measure that is determined by many factors, including the number of lanes, access spacing, vehicle speeds, percentage of trucks, and other characteristics. [Table 8.2](#) provides planning level capacity ranges for several corridor types which are found in and around Grand Rapids. A range is used because the maximum capacity of any roadway design is a theoretical measure that can be affected by numerous variables, such as peaking factors, access spacing, vehicle speeds, percentage of trucks, and other roadway characteristics.

Table 8.2. Roadway Planning Levels

Facility Type	Planning Level AADT	Daily Capacity
2-lane undivided urban	8,000 – 10,000	10,000
2-lane undivided rural	14,000 – 15,000	15,000
2-lane divided urban (3-lane)	14,000 – 17,000	17,000
4-lane undivided urban	18,000 – 22,000	22,000
4-lane divided urban (5-lane)	28,000 – 32,000	32,000

These volumes are based on guidance from the Highway Capacity Manual and professional judgment. Based on these planning level capacities, all arterial and collector roadways in Grand Rapids are under capacity. No capacity improvements are warranted at this time. In fact, a few corridors appear to be wider than they need to be. For example, roughly 16,000 to 19,000 vehicles were counted on TH 169 South in 2017. As a 5-lane corridor, this road is operating under capacity. In the future, streetscaping, on-street parking, and/or multimodal improvements could be added to highway segments which are well under capacity without adverse impacts to traffic flow (i.e., a “road diet”).

Aviation

The Grand Rapids/Itasca County Airport is a general aviation airport that is open to the public 24 hours a day and used for corporate and private air traffic. It is located about 2.5 southeast of downtown on 1,400 acres. The Airport Zones, areas used for takeoff and landing, are shown in [Figure 8.4](#). The Airport is primarily used for general and transient aviation flights. The facility has the capability to serve executive and private transportation needs benefiting the community, as well as the materials and delivery needs of the city’s industries.

Currently the airport supports a variety of uses including military, government (forestry, DNR, State of MN, FAA, etc.), flight training, air charter service, corporate traffic, daily UPS delivery, medical transport, firefighting, search and rescue, and private pleasure operations. There are approximately 60 aircraft based locally. There were over 19,500 arrivals and departures for the 12-month period ending on July 24, 2019, up from approximately 15,000 annual aircraft operations that were reported in the 2011 Plan¹.

Mesaba Airlines used to provide commercial service to Grand Rapids, with connections to Minneapolis/St. Paul. This service was discontinued in 2004. Because of the loss of commercial passenger service, the Grand Rapids-Itasca County Airport chose not to renew its certification under Title 14 Code of Federal Regulations Part 139. The airport maintains its GPZ designation on the National Plan of Integrated Airport Systems (NPIAS), making it eligible for passenger service if an airline is interested in providing such service. Certification could be reinstated within 90 days.

The nearest airport with passenger service is now the Range Regional Airport (Chisholm-Hibbing Airport Authority), located approximately 40 miles northeast of Grand Rapids. The Grand Rapids airport continues to be an important part of the local and regional transportation system providing travel opportunities through charter, corporate, and government flights.

¹ Federal Aviation Administration, Airport Master Record

Rail Infrastructure and Operations

Rail infrastructure is a critical component of Grand Rapids' transportation system. It provides an efficient means of transporting the region's raw materials and industrial outputs. Access to rail is a key advantage in sustaining existing industrial capacity and attracting new industrial investment. Sustaining rail operations improves the economic resilience of the City and the region, with freight rail supplementing trucking routes and providing a buffer against potential shocks to the petroleum market.



The railroad supports local industry and regional economic activity. Integrating rail safely and efficiently with other transportation systems is a challenge that requires careful planning, investment, and coordination with BNSF and MnDOT.

It can be challenging to integrate rail while maintaining the safety and efficiency of transportation systems. Rail access and use can conflict with some land uses and other transportation modes. Resolving or minimizing those conflicts is necessary to sustaining rail access over time. Working with the BNSF railroad is an ongoing process in addressing train speed, safety, noise pollution, and emergency access. Policies and priorities for effective rail management include:

- Utilize zoning and subdivision regulations to ensure that land use and site design within the rail corridor avoid encroachment and minimize noise issues.
- Minimize at-grade crossings of the track for new projects.
- Continue to coordinate with railroad companies to provide appropriate signage, traffic controls, and public education to minimize train crossing accidents in the community.
- Continue to implement quiet zone improvements.
- Work with MnDOT and rail companies to develop ITS solutions that help improve traffic flow when trains are moving through the community.
- Develop a long-range railroad crossing master plan to enhance connectivity across the railroad.

Transit

Two transit providers serve Grand Rapids. Arrowhead Transit provides a dedicated service to Grand Rapids seven days a week. Stops are scheduled at Central Square Mall, Walmart, Super 1 Foods, Target, Grand

Itasca Hospital & Clinic, Brookstone Manor assisted living, and two apartment location. The bus route will deviate to include additional locations on a call-in basis. For all stops, the headway is approximately one hour. One-way fare is \$1.75 for adults. An unlimited monthly pass costs \$32.50.

Jefferson lines connects Grand Rapids with Duluth, the Twin Cities, and other locations in the region. It provides daily scheduled service from the Super 8 Hotel at 1702 S. Pokegama Ave.

In the community survey, over 30 percent of survey respondents said that public transit service is poor and substantial improvements are needed. Another 27 percent said that system is OK, but some major improvements are needed. Overall, respondents identified a moderate need for transit services operating within/around the City.

Current funding structures and fare levels are unlikely to sustain extension of transit service to more locations in the face of increased need as the population ages. Creative solutions, including those recommended in the 2009 Itasca County Transportation Study and other alternatives to auto dependency need further investigation.

- **Work with Arrowhead Transit and other transit or para-transit organizations to expand and improve service.** In response to community growth and to enhance transit accessibility and convenience, maintain a dialogue with transit providers to strategically expand service and co-promote transit options. Education efforts can include items suggested in the 2009 Itasca County Transportation Study.
- **Consider strategic investments or pilot programs to test alternatives to existing transit systems.** The Itasca County Transportation Study recommended a number of potential alternatives to traditional transit services including car-sharing and bike-sharing programs.
- **Consider transportation criteria for standards in land use regulations.** Transit friendly infrastructure and programs can be encouraged through use of Travel Demand Management (TDM) plans for new or expanded facilities that create jobs. Direct assistance with such TDM plans and implementation can create competitive advantages for employers and the City in attracting outside investment.

Crash History

Figure 8.5 includes a map of crash data for the three-year period beginning on October 13, 2016 and ending on October 12, 2019. Overall, there were 608 crashes within city limits. Approximately 81 percent of crashes were property damage only. Nine crashes resulted in incapacitating injury and there was one fatal crash, located on N Pokegama Ave and Crystal Lake Blvd.

On the trunk highway system, higher travel volumes increase the risk of crash and higher speeds increase the risk of injury. Approximately 30 percent of crashes occurred within the TH 2 169 South corridor and 25 percent of crashes occurred along TH 2. In addition, there were six pedestrian-related crashes, mostly concentrated with the TH 2 corridor, and five bicycle-related crashes, four of which occurred on TH 169 S between SE 10th Street and SE 21st Street. Improving pedestrian and bicycle connectivity within and across the trunk highway corridors is a priority for the City.

The crash map identifies locations of potential concern. A formal crash analysis could be completed to further understand potential areas of concern along the TH 2 and TH 169 corridors. An analysis would account for travel volumes and roadway characteristics and determine whether the number of crashes for specific intersections and segments is above the norm. Better access management would improve safety on these roads, while multimodal improvements, such as high-visibility crosswalks and pedestrian priority signals, would enhance the pedestrian environment. Traffic calming techniques could be considered on

some City and County roads. There is a cluster of crashes on SE 7th Avenue between TH 2 and River Road – this area should be reviewed for traffic operations and potential design improvements.

Mode Choice

The convenience of the car travel makes this the primary mode of transportation throughout Grand Rapids. Over 97 percent of survey respondents selected personal motor vehicle as their primary travel mode. However, only 65 percent of respondents said that driving would be their preferred mode in 2040. There is encouraging support for transit and active transportation.

Table 8.3. Community Modal Preferences

Category	Travel Mode	Primary Mode in 2019	Desired Mode in 2040
Personal vehicle	Personal vehicle	509 (97.5%)	337 (65.4%)
Shared vehicle	Carpool	2 (<1%)	3 (<1%)
	Rideshare service	1 (<1%)	13 (2.5%)
Active transportation	Walk	0 (<1%)	13 (2.5%)
	Bike	3 (<1%)	22 (4.3%)
Transit	Bus	2 (<1%)	22 (4.3%)
	Train/high-speed rail	1 (<1%)	24 (4.7%)
Other	Autonomous vehicle	NA	30 (5.8%)
	Not sure	0 (0%)	51 (9.9%)

Grand Rapids acknowledges and supports the need for residents and visitors to move throughout the City by foot, bicycle, car, or transit. Street design should consider multiple modes. Facility and service needs will vary with the context of each corridor or neighborhood. However, all streets should provide some level of multimodal service.

Walking and Bicycling

Residents need to get from one place to another, and yet some do not have access to automobiles, cannot use automobiles, or prefer the healthier option of bicycling or walking. Transportation planning should consider the needs of bicyclists, pedestrians, transit riders, and automobiles recognizing that all forms of transportation must be intermodal. Almost every trip includes a pedestrian component between its origin and destination.

Historic transportation planning recognized that an efficient transportation infrastructure must include an integrated system of roadways, but the importance of providing infrastructure for alternative modes of transportation including bicycle lanes, trails and sidewalks, was rarely given the same importance. Yet the safety and mobility of pedestrians and bicyclists is dependent upon well-designed and well-planned facilities. The City can create safe, comfortable, and inviting pedestrian and bicycling environments by integrating walking and biking facilities into all appropriate roadway construction and reconstruction projects.

Benefits of a Walkable, Bikeable Community

Equity – Ensuring safe, comfortable travel options for pedestrians and bicyclists provides more equitable access to goods, services, and economic opportunity.

Economy – Walkable commercial destinations attract customers and activity. Continuing to enhance and promote walking and bicycling opportunities in Grand Rapids can help market the community to potential workers and businesses.

Environment – Promoting walking and bicycling reduces emissions of greenhouse gases and other pollutants which degrade air quality.

Health – Focusing on active transportation encourages residents to make healthier travel choices part of their routine. Providing safe, dedicated facilities decreases crashes involving bicycles and pedestrians.

For the 2011 Plan, residents indicated a strong preference for expanding bicycle and pedestrian access throughout the City. Since then, the City has made several bicycle and pedestrian improvements. Residents have enjoyed the expanded access and connectivity. In 2019, nearly 53 percent of survey respondents said overall accessibility/connectivity for bicycle and pedestrian facilities is good and only minor improvements are needed. The City's systems of sidewalks, trails, and on-street bicycle facilities work together to provide broad connectivity and accessibility for pedestrians and bicyclists. These various trail types and connecting transportation modes are shown in [Figure 8.6](#). However, there are still gaps and barriers within these systems. For example, the confluence of highways and rail corridors in the downtown continue to present a barrier to connectivity.

Other areas of the City have varying levels of pedestrian access and walkability. Sidewalks are required in new developments and are common in traditional neighborhoods near to the downtown and the river. Existing sidewalks in the City are shown in [Figure 8.7](#). However, a number of neighborhoods and neighborhood extensions developed in the last 40 years are less likely to have sidewalks and bicycle infrastructure.

[Figure 8.8](#) shows the existing network of trails. Bicycle facilities include both on-road and off-road components. On-street facilities are located along arterial and other selected corridors and are located in the right-of-way or along easements. Off-street facilities are located off the right-of-way and near residential areas or natural areas.

In order to have a usable system of pedestrian and bicycle facilities, Grand Rapids must integrate bicycle facilities with roadway design whenever appropriate. Corridor redevelopment projects are an opportunity to address sidewalks/trail gaps and ADA deficiencies.

It is important to require sidewalks for new development, as it is much more difficult to acquire easements and construct sidewalks in developed neighborhoods where sidewalks are lacking. Often, developers ask for sidewalk requirements to be waived if there are not existing connections to surrounding properties. The City should be firm in its commitment to provide a complete sidewalk network. Working with neighborhoods to identify the most critical gaps and barriers, the City can demonstrate its vision for improvements and show how new development should integrate sidewalks and trails. To retrofit existing neighborhoods with new sidewalks, a combination of local revenues and grants may be needed. Sidewalk connections to transit routes, downtown, schools, government services, and other pedestrian attractors should be prioritized.

Integrating Transit with Pedestrian Systems

All trips begin and end with a pedestrian. It is important to provide and maintain complete sidewalks and ADA facilities within transit corridors. Most people are willing to walk ¼ mile to ½ mile for transit, depending on the purposes of their trip. Sidewalk connections should be prioritized within ½ mile of transit stops, parks, and other key destinations in Grand Rapids. In addition, bicycle routes and storage racks should be available within or near to transit corridors.

Looking Forward

Future Roadway System

As Grand Rapids grows, new roadway extensions and connections will be needed. [Figure 8.9](#) shows conceptual improvements. This map is intended to illustrate areas of need and show general alignments that will help complete the City's roadway system. These roads will be constructed on an as-needed basis, with alignments being finalized in the future. Rights-of-way for interior local streets will be dedicated through the platting process, and no right-of-way preservation is needed. Short connections will fill in as development occurs, provided that future subdivisions are consistent with the future roadway plan, with layouts that allow for planned connections to be completed incrementally, if needed.

Right-of-way will need to be preserved for any new collector road. Two conceptual segments in the northeast quadrant of the City would potentially function as area collectors. This area is not guided for significant development; however, future extensions/connections would provide secondary access to existing neighborhoods and support resource management activities.

System Preservation

From Grand Rapids' perspective, system preservation should be the primary focus for investments in transportation infrastructure. Although some new roadway connections will be established as development occurs, no significant capacity improvements are proposed at this time, and no new alignments have been finalized. Preserving and enhancing existing infrastructure is a high priority with broad community support – more than 65 percent of survey respondents identified street maintenance as one of their top priorities for public infrastructure investments.

Pavement preservation is a key component of system management. Pavement preservation includes street maintenance activities that extend the life of the pavement and optimize available funding. It may seem counter-intuitive, but streets prioritized for maintenance attention should be ones which are already in fair condition. An ounce of prevention is worth a pound of cure, as the saying goes – it is far more cost-effective

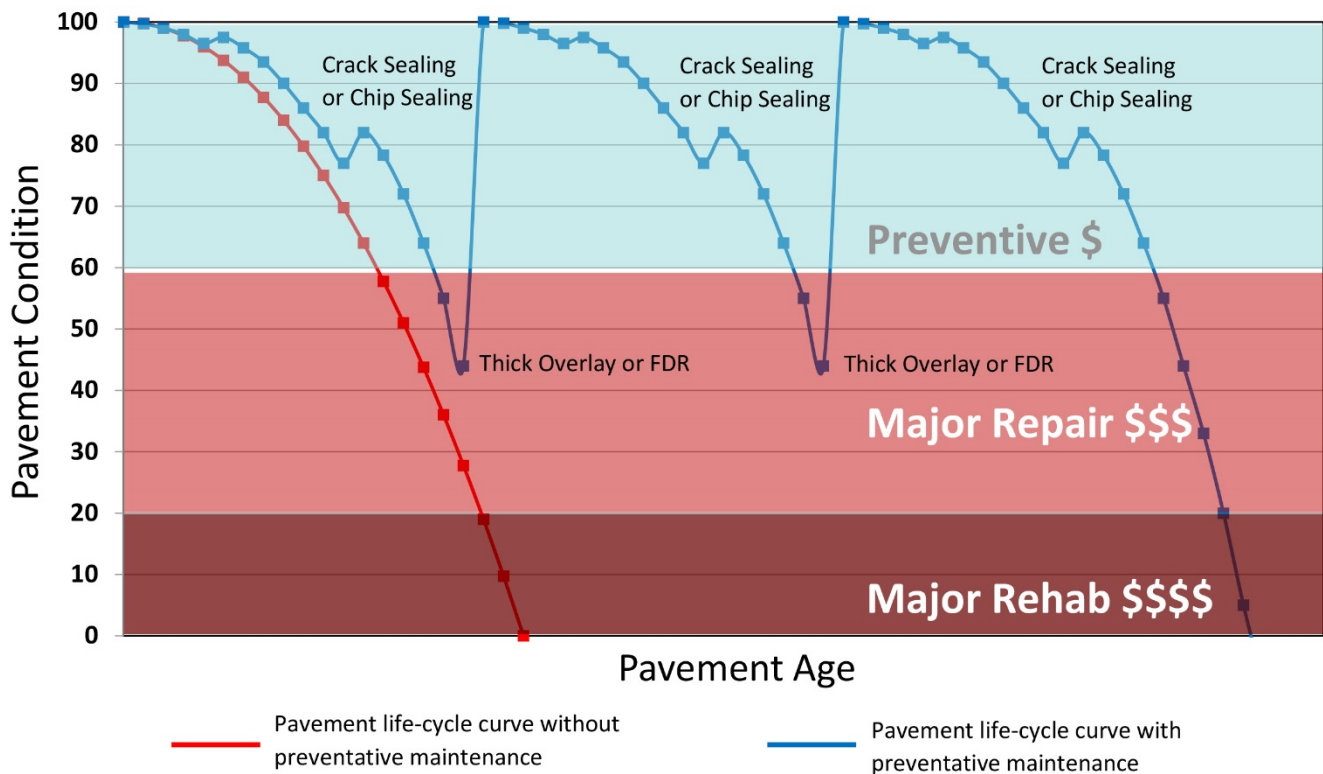
to maintain roads in good working order than to let them deteriorate to the point where more extensive fixes are needed. With a “worst-first” approach, improvements become several times more expensive.

Priorities for Grand Rapids pavement preservation program include:

- Maintain a system-wide inventory of roadway quality
- Prevent “fair condition” roads from falling into “poor condition;” avoid worst-first approach
- Prioritize preservation strategies over more expensive reconstruction fixes
- Identify appropriate life-cycle timeframe for City’s street system

Performing lower-cost (\$) preventative maintenance activities, such as seal coating, to pavements in generally good condition (scores of 60 and above), provides some life extension at a relatively low cost (see Figure 8.10). These types of treatments can typically be performed two to three times before a major repair, such as a mill and overlay (\$\$\$), is needed. Although major repairs are more costly, they provide a longer life extension than preventative repairs while improving pavement conditions significantly. Over the design life of a road (e.g., 40 years), preventative maintenance might occur 8 to 10 times, while major repairs might occur twice. Eventually, major rehabilitation (\$\$\$\$) is needed to replace streets which have reached the end of their life cycle.

Figure 8.10: Pavement Age and Condition



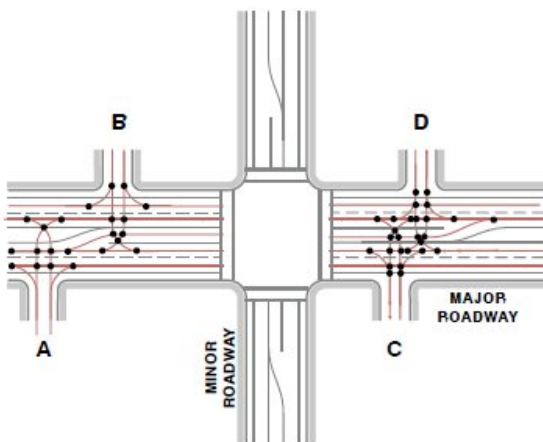
Access Management

Access management controls of cross-street spacing and driveway placement along high-volume roadways. This is a critical means to improve safety by reducing the risk of a crash. Limiting new access points and consolidating existing accesses can also preserve and enhance the efficiency of the overall roadway network, resulting in reduced congestion, preserved capacity, and postponed capacity improvements. Potential measures of access management include:

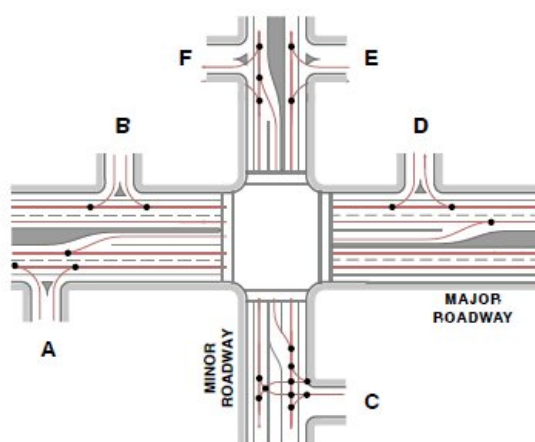
- Providing adequate spacing between access points and intersecting streets to separate conflict points and reduce the risk of crash; includes controlling the first access from corner
- Consolidating existing access points or aligning new access with existing access points
- Facilitating access through internal connectivity between property owners
- Encouraging traffic to use parallel roads, including backage or frontage roads
- Using channelization to manage turning movements and reduce the number of conflict points (see graphic)

Figure 8.11: Access Scenarios

Typical Access Scenario



Improved Access Scenario



Access management reduces the number of conflict points by limiting turning movements at intersections and driveways.

Source: Federal Highway Administration

Grand Rapids is aware that both the Minnesota Department of Transportation (MnDOT) and Itasca County have access management guidelines for their roadways. The City acknowledges these guidelines and will work with these agencies to support access management within Grand Rapids. This includes facilitating cross-access agreements and other cooperative measures along arterials. Grand Rapids follows generally accepted spacing guidelines for its roadways and attempts to minimize the size and number of driveways along collectors and local streets within its jurisdiction.

Developing Technologies and Applications

Several developing technologies and transportation applications are anticipated to impact Grand Rapids within the 20-year horizon of the Comprehensive Plan. These include connected and automated vehicles (CAVs), electric vehicles (EVs), and continued development of shared mobility, with transportation network companies (TNCs) such as Uber and Lyft leading the way. The timing and scale of technology adoption are

uncertain, but it is important to consider these developments as the City manages its transportation assets and considers future investments.

Connected and Autonomous Vehicles

Fully autonomous cars are still in the advanced testing stages, but partially automated technology and low-speed cars are beginning to embed themselves into markets across the country. In addition to fully autonomous vehicles there are connected vehicles that will interact with the transportation system (vehicles that communicate with the roadside to complete driving functions or provide information to the driver to make informed decisions). Autonomous and connected vehicle technologies are complementary and are developing in tandem (CAVs). Eventually, these technologies will become widely adopted transportation network companies (TNCs like Uber), public transit providers, and freight, where they will reduce the cost of system operations and improve delivery of services.



Plus.ai and MnDOT are working together to evaluate how driverless trucks perform in winter conditions.

Connected and autonomous vehicles stand to disrupt the norms of both transportation and land use planning. Parking needs, street design, right-of-way needs, signage and signalization, building siting and design, access management, and other standards have the potential to change dramatically over the next several decades. Autonomous and connective vehicles are likely to be smaller than existing passenger vehicles and will travel more closely together. This would permit narrower lanes. In addition, improvements in safety and travel efficiency could reduce the need for constructed medians, traffic calming, and other design interventions. By accommodating the same or more volume in less space, newly available road could be reapportioned to other road users like pedestrians and bicycles. One caveat is that widespread adoption of CAVs might increase vehicle miles traveled (VMT), due to an increased number of zero-occupancy trips and continued growth of TNCs.

Although newly available road can be configured for additional multimodal use, there are some potential drawbacks for pedestrians, bicyclists, and other road users that the City needs to be conscious of when moving towards a more automated roadway type infrastructure. The reapportioning of rights-of-way may allow for expanded sidewalks and more dedicated bike lanes. However, due to potential signal removal this

may cause longer waits at intersections dominated by free-flowing vehicles. Adding pick-up and drop-off locations could also fragment the streetscape, complicating travel for multimodal users.

Parking design will also be impacted. Accommodation for pick-up and drop-off locations within parking lots will increasingly become a consideration. Overbuilt surface parking areas could be redeveloped, helping to revitalize and transform existing neighborhoods and commercial corridors. However, more off-site parking reservoirs will likely be needed.

Grand Rapids needs to be mindful of the potential infrastructure impacts caused by adoption of autonomous and connected vehicles. As the City looks to redevelop larger corridors and destinations, thoughtful consideration for how roadway infrastructure can be enhanced to complement CAVs is crucial. Many of these considerations will be compatible with larger goals for livable neighborhoods and multimodal accessibility.

Fully developed connected vehicles communicate with one another and with other elements of intelligent transportation systems (ITS). To deeply integrate them into Grand Rapids' transportation system, the City's supportive ITS architecture would need to be expanded, requiring investments and coordination between the City, MnDOT, and other partners. Grand Rapids will consider opportunities to integrate more "Smart City" technologies when this makes good fiscal sense for the City, and when improvements are clearly needed to address a critical need.

Electric Vehicles

Electric vehicles improve air quality, support economic development, increase energy efficiency, and reduce greenhouse gas emissions (provided electricity is produced from renewables). However, America's electric vehicle fleet is growing slowly. With perceived high ownership costs, an incomplete charging network, and a lack of incentives for EV buyers and manufacturers, supply and demand are limited for electric vehicles. In 2018, roughly 7,000 EVs were registered in Minnesota². Nevertheless, Minnesota is working to advance EV use throughout the state. In 2019, the Minnesota Department of Transportation and partner agencies set a goal of 20 percent EV use by 2030.



Expanding access to electric vehicle charging stations will help create an EV-ready community.

² Accelerating Electric Vehicle Adoption: A Vision for Minnesota (2019)

Increasing access to electric vehicle charging stations in Grand Rapids would expand opportunities for EV growth in the City and region. As a regional center that is somewhat isolated from other sizeable cities and metro areas, Grand Rapids is a logical location for charging stations. An electric vehicle with a 100-mile range could make it to Bemidji or Duluth. The City will coordinate with MnDOT, which plans to install charging stations in all interstate and highway corridors by 2030. Trunk Highway 2 is currently funded, while Trunk Highway 169 is proposed.

In addition to highway-oriented locations, Grand Rapids needs to consider the increased need for charging stations within parking lots associated with city-owned buildings, city parks and schools, and other destinations. The placement of charging stations should promote EV usage and complement existing land use. For example, charging stations are often coupled with accessible commercial businesses so that EV owners can keep an eye on their vehicle and have something to do while they wait. The City could also consider updating its development standards to require charging stations in new multifamily, mixed-use, and commercial developments of a certain scale, or at a minimum require conduit so that charging stations can be added in the future.

Electric Vehicle Charging Stations

Direct current (DC) charging stations significantly lower charging time. It takes a Level 1 charger 18 hours to provide a 100-mile charge. A 50 kilowatt DC charger can do this in 35 minutes; a 350 kilowatt charger takes as little as 5 minutes.

Shared Mobility

Shared mobility includes bikesharing, carsharing, and ride sourcing services provided by companies such as Uber and Lyft. In Grand Rapids, a ridesharing service would help reduce car dependency and support other alternative modes, including walking and transit. The City would support the introduction of a ride-sourcing platform such as Uber or Lyft. These services have not expanded to the Grand Rapids area yet, but they could in the future, particularly if CAV technology enables industry growth. In the meantime, the City could encourage a smaller car-sharing program to provide mobility options to a cross-section of residents who would not otherwise have access to a vehicle. Encouraging shared vehicle arrangements and/or shared parking arrangements would reduce the of parking needed to accommodate residences or workers. The Zoning Ordinance can support shared-parking arrangements, reduce minimum parking requirements, and encourage developments of a certain size to incentivize car-sharing arrangements.

Goals and Objectives



As noted within Chapter 3, goals and objectives were developed for each plan element in support of the 2040 Vision and Guiding Principles. The goals and objectives defined within

these chapter should be considered as transportation and mobility decisions are considered.

Goal – Statement of a desired vision (i.e., what is the future of the various elements within).

Objective – Statement of a defined action or policy that provides guidance in achieving the established goal.

Goal 1: Maintain a safe and efficient city-wide transportation system. The local transportation infrastructure meets local and regional access and mobility needs for Grand Rapids citizens, industries, and visitors. Public right-of-ways are designed for efficient and safe movement for all modes and economic purposes.

- a. **Continue to implement the recommendations of the Complete Streets study to better create and retain streets that promote a mix of uses such as car travel, transit, and bicycling.** The Complete Streets study will assist in making design and policy recommendations for the full range of travel modes.
- b. **Promote land use policies and roadway design that limit access as necessary to maintain safe and efficient operation of the existing road system.** Access management includes elements of road design (spacing of curb cuts and access points; restriction of movements at driveways or intersections) and thoughtful land use planning that does not create the need for access at inappropriate locations. However, it is important to balance access management with connectivity goals and Complete Streets policy, so that access management does not impede connectivity and produce auto-dependency.
- c. **The street layout of new developments shall continue to be coordinated with the streets and parking of surrounding areas, including Suburban Residential and Highway Commercial areas.** The City should continue to require new development to ensure connectivity with existing and future surrounding areas. Development should consider alternatives to cul-de-sacs that improve connectivity while minimizing local traffic.
- d. **Protect road system investments and ensure efficient use of the road system by giving high priority to operational maintenance, safety improvements, and capacity improvements that are cost-effective and improve the level of service.** Prioritizing maintenance and enhancements of the existing road systems is fiscally responsible. Capital improvements should not be made without consideration of operational costs. Projects with demonstrable benefits to safety, level of service, and/or economic development should be prioritized.

Goal 2: Promote the development of a multimodal transportation network and supportive land use arrangements that create a walkable environment. Properly planned and designed pedestrian facilities allow Grand Rapids residents and visitors to walk rather than drive for short trips. Promoting walking as a transportation mode contributes to better personal health and increases the capacity of the city's transportation infrastructure by taking vehicles off the road. Land use planning can support walkability in many ways – for example, by encouraging compact development, promoting aesthetically appealing environs, and encouraging policies to reduce excess surface parking.

- a. **Maintain a pedestrian-friendly environment. Construct and maintain facilities, services, and programs that encourage walking.** Grand Rapids is building both pedestrian infrastructure and programmatic efforts through organizations such as “Get Fit Itasca” to encourage walking and biking. Continue to build more inviting pedestrian environments with benches, trashcans, planters and other streetscape amenities.

- b. **Educate the general public on the importance of the sidewalk and bikeway system and its safe use.** Educate bicyclists, pedestrians, and drivers regarding safe use of shared space and new facilities which may cause confusion when they are introduced.

Goal 3: Promote bicycling for commuters and recreational riders. A safe, convenient, efficient, continuous, and aesthetically pleasing transportation environment is conducive to encouraging bicycle use for recreational and work-related purposes.

- a. **Improve pedestrian and bicycle access to and between local destinations, including public facilities, schools, parks, open space, employment districts, and shopping centers.** Expanding the bicycle and pedestrian system to address system gaps is the first step to enabling more walking and bicycle use. Bicycle facilities must also be designed to maximize safety and rider comfort in order to appeal to the majority of potential bicyclists who are “interested but concerned” about riding more often.
- b. **Promote bicycling as an alternative mode of transportation.** Continue to pursue partnerships and programs that promote bicycling and access to equipment, such as the City’s bike loan program. Encourage wide use of bike-walkways and educate cyclists, pedestrians, and motorists about safe interactions with other modes.
- c. **Maintain existing trails and bike routes.** Trails and bike routes have maintenance needs that may be distinct from maintenance needs of automobile lanes. Conduct regular safety assessments and community surveys to better address barriers, perceived and real, that limit use of bicycles.

Goal 4: Maintain, expand, and enhance the transit system. Travel by transit is part of an overall system that recognizes the multi-modal nature of travel where all transit trips begin and end with a walking trip. Transit provides an alternative travel option for those who cannot drive or choose not to, including persons with disabilities and those without access to a personal vehicle.

- a. **Work with local and regional transit and para-transit organizations to expand and improve service.** In response to community growth and to enhance transit accessibility and convenience, maintain a dialogue with transit providers to strategically expand service and co-promote transit options.
- b. **Promote rideshare transportation options within Grand Rapids.** Mobility options and desires are expanding as new markets and options are developed. The rideshare market has expanded throughout the country and efforts should be supported for rideshare options within the community.
- c. **Consider strategic investments or pilot programs to test alternatives to existing transit systems.** The Itasca County Transportation Study recommended a number of potential alternatives to traditional transit services including car-sharing and bike-sharing programs.
- d. **Consider transportation criteria for standards in land use regulations.** Transit-supportive infrastructure and programs can be encouraged through use of Travel Demand Management (TDM) plans for new or expanded facilities that create jobs. Direct assistance with such TDM plans and implementation can create competitive advantages for employers and the City in attracting outside investment.

Goal 5: Provide an airport that safely and efficiently meets local and regional demands. The Grand Rapids-Itasca County airport is an economic development generator that meets the needs of passengers, the City, charter airlines, airport-dependent businesses, and general aviation flyers. The airport needs to be treated as long-term economic and transportation infrastructure that has inter-generational value.

- a. **Guide future airport development so that it will satisfy aviation demand.** Work with the airport to create new value in the existing airport facilities.
- b. **Support airport economic development activities.** Economic development in and around the airport will support the long-term viability of airport infrastructure.

- c. **Create infill development around the airport that is compatible with airport use.** A number of sites are available for development in the “B” airport zone. Work with the Airport authority to maximize value such that airport uses are supported in the long-term.

Goal 6: Promote safe and efficient rail service to Grand Rapids. Overall, the state of Minnesota continues to move more freight tonnage than the national average. Continued uncertainty regarding future petroleum prices makes rail capacity an excellent transportation hedge, as rail is an energy efficient means of transporting the area’s extracted natural resources and industrial outputs. Integrating the rail system safely into the City’s street, highway, and pedestrian systems provides a challenge that can be met through careful planning and investment.

- a. **Protect the existing railroad system and encourage improvements that could benefit potential industrial development.** Access to rail is a key advantage in sustaining existing industrial capacity and attracting new industrial investment.
- b. **Continue to work with BNSF and rail users to integrate rail operations with the rest of the City’s transportation infrastructure.** Rail access and use can conflict with some land uses and other transportation modes. Resolving or minimizing those conflicts is necessary to sustaining rail access over time. Recent efforts have included at-grade crossing improvements allowing for the implementation of a quiet zone (no train horn) and increase in rail speed.

Implementation Strategies



The implementation strategies defined within the following pages provide specific actions and measures that the City can deploy to meet the goals and objectives of this chapter. The strategies identified in the following table should be reviewed on a regular basis to ensure that the City continues to take action towards its desired future.

Additionally, this list should be updated and modified as strategies are accomplished.

Implementation Strategy –
Defined action or measure that the city will work towards to achieve the goals and vision of the Comprehensive Plan.

Implementation Strategy	On-Going Action	Short Term Action	Long Term Action	Responsible Parties
<p>Safe and Efficient City-Wide System</p>	<p>Continue to implement the five-year Capital Improvement Plan projects.</p> <p>Continue to maintain roadways to allow for the planned functionality and performance at reasonable levels of service.</p> <p>Consider all transportation modes through long range system planning.</p> <p>Continue to collaborate with local, regional and state partners regarding transportation improvements.</p>	<p>Improve road access to allow for multiple routes or access points into developed areas of the City. Update the planned roadway improvements as necessary.</p> <p>Implement the recommendations of the Complete Streets Study. Collaborate with others and pursue funding opportunities.</p> <p>Use traffic calming design, where appropriate, to promote transportation choice, to reduce the negative impacts of car travel, alter driver behavior, and improve conditions for non-motorized street users.</p> <p>Increase street tree plantings and landscaping in medians and along arterials to calm traffic, soften the effects of arterial streets, and where appropriate, provide separation between pedestrians and other modes of transportation.</p> <p>Consider creating standards for residential development that distinguish the road connectivity options for Suburban Residential and Traditional Neighborhood areas, consistent with the Future Land Use Map categories.</p> <p>Consider standards (in addition to the existing subdivision standards) for development or redevelopment that enhance connectivity of streets, sidewalks, and trails.</p>	<p>Same as Short Term Actions</p> <p>Monitor emerging technologies and considerations that should be made for the transportation system.</p>	<p>Primary: Engineering</p> <p>Secondary: Community Development, Parks and Recreation</p>

Implementation Strategy	On-Going Action	Short Term Action	Long Term Action	Responsible Parties
<p>Mobility System: Walkability</p>	<p>Continue to use current regulations to require the inclusion of sidewalks in all new development.</p> <p>Continue to plan for bicycle lanes and sidewalks or off-road non-motorized trails when new roads are planned and in all reconstruction plans for city streets.</p> <p>Continue to connect sidewalks to create direct paths to destinations.</p> <p>Continue to monitor traffic and pedestrian patterns to determine needs.</p>	<p>Create maintenance standards for bike lanes and City-maintained pedestrian ways that recognize and address the barriers to use that are maintenance related.</p> <p>Consider regular maintenance such as sweeping, snow removal, and safety assessments of existing sidewalks, trails, and bicycle lanes.</p> <p>Consider tools and regulations to keep walkways open for all users and free of obstruction. Consider special tools such as Special Assessment Districts for critical areas with multi-modal transportation infrastructure such as the downtown.</p> <p>Create trail ROW requirements for Suburban Residential land use areas.</p> <p>Take advantage of street resurfacing projects as an opportunity to install or enhance sidewalks, bicycle lanes, raised medians, and painted crosswalks, where feasible.</p>	<p>Same as Short Term Actions</p> <p>Monitor emerging technologies and considerations that should be made for the transportation system.</p>	<p>Primary: Engineering</p> <p>Secondary: Community Development, Parks and Recreation</p>
<p>Mobility System: Bicycling</p>	<p>Continue to explore opportunities to expand bicycle infrastructure, use and available facilities for both recreational and transportation use.</p>	<p>Extend the separated trail system into new neighborhoods as the city grows. Connections should be made to schools, parks, and other activity areas.</p> <p>Link existing trails to form a continuous network, especially when new development occurs. When considering improvements, include a review of the overall system and future potential connections.</p>	<p>Same as Short Term Actions</p> <p>Monitor regional bicycle network improvements and investigate connection opportunities.</p>	<p>Primary: Engineering</p> <p>Secondary: Community Development, Parks and Recreation</p>

Implementation Strategy	On-Going Action	Short Term Action	Long Term Action	Responsible Parties
<p>Mobility System: Transit/Shared Mobility</p>	<p>Continue to explore opportunities to provide shared mobility services for Grand Rapids residents and visitors.</p>	<p>Work with transit providers to promote transit services and educate the public about transit options. Incorporate transit considerations into “complete streets” designs and policies. Investigate options for working with new large employers or in the development or expansion of job centers through Travel Demand Management planning.</p>	<p>Monitor and lead regional transit improvements and studies. Explore emerging shared mobility options and the feasibility for use within Grand Rapids.</p>	<p>Primary: Engineering, Grand Rapids Area Transit Secondary: Community Development</p>
<p>Air Travel</p>	<p>Continue to provide and monitor air services at the Grand Rapids/Itasca County Airport. Monitor usage and needs and explore growth opportunities.</p>	<p>Enforce airport safety zone restrictions through the zoning ordinance to prevent hazards or obstructions to planned air space and citizens. Support efforts to enhance the airport’s revenue stream through new or expanded services. Encourage airport attractions to increase tourism in Grand Rapids and enable the town to be a frequent stop for small plane travel.</p>	<p>Same as Short Term Actions Expand and improve airport facilities to better serve existing users and attract new users. Monitor emerging technologies and considerations that should be made for the transportation system.</p>	<p>Primary: Engineering, Grand Rapids/Itasca County Airport Secondary: Community Development</p>

Implementation Strategy	On-Going Action	Short Term Action	Long Term Action	Responsible Parties
<p>Freight: Rail Service</p>	<p>Use and promote rail service as an economic development tool. Maintain and evaluate the quiet zone improvements and effectiveness.</p>	<p>Review the land use plan, zoning and subdivision standards along the existing rail corridor to ensure appropriate land uses and site design to avoid encroachment and noise issues. Minimize at-grade crossings of the track for new projects. Continue to coordinate with the railroad companies to provide appropriate signage, traffic controls and public education to minimize train crossing accidents in the community. Promote rail services as an economic development tool.</p>	<p>Same as Short Term Actions</p>	<p>Primary: Engineering, BNSF Secondary: Community Development</p>