2050+ Metropolitan Transportation Plan

Technical Report #1
System Inventory

Final Report
October 2025

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Final Report 10.8.2025

This document has been prepared by Region 1 Planning Council in collaboration with its member agencies, partnership organizations, and local stakeholders.

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U.S. Department of Transportation

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The contents, views, policies, and conclusions expressed in this report are not necessarily those of the above agencies.

AN ENGINE FOR COLLABORATION IN NORTHERN ILLINOIS

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Introduction

An extensive transportation system is needed to support the movement of people and goods throughout the Rockford Metropolitan Planning Area (MPA). In order to effectively plan for the future transportation system, it is important to understand the existing elements within the system. These elements include a variety of transportations modes, as well as the underlying infrastructure, services, and technology that supports each mode. Equally as important is understanding how the interconnected nature of the transportation system works to ensure safe and efficient travel.

The following report serves as the transportation system inventory of the 2050+ Metropolitan Transportation Plan, detailing the current state of the Rockford Region's transportation system. Many elements of the system are addressed in this report, including existing and proposed transportation facilities, public transportation capital, multimodal and intermodal facilities, non-motorized transportation facilities, such as pedestrian walkways and bicycle facilities, and intermodal freight connectors. It also details elements beyond the physical infrastructure that are essential to the transportation system in the region.

This report has been broken into four chapters, including this introduction. The first chapter provides an overview of the infrastructure comprising the surface transportation networks in the region, specifically roadways and railroads. The second chapter highlights how the underlying infrastructure supports a robust multimodal network, including bicycling and walking, mass transportation, and freight. It also provides insight into the innovative mobility services that are becoming more prevalent within the region. Finally, the report focuses on management and operations of the transportation system, thus ensuring the safe and efficient movement of people and goods.

Transportation Networks

Roadways

Roadways are the most visible component of the surface transportation system and are the primary means by which people and goods travel. One of the greatest assets to the regional economy and quality of life is the region's location within the national and state highway system. The combined state, county, and local roadway network in the Rockford Metropolitan Planning Area (MPA) encompasses 2,507 centerline miles[ii] with 163 bridges and structures. According to the Illinois Department of Transportation (IDOT), these roadways had approximately 7.7 million daily vehicle miles of travel (DVMT) in 2023.

Network Overview

To aid the planning process, roadways are classified according to two functions, mobility and access. Mobility and access fall on opposite ends of the spectrum, but both functions can be found at some level on all roadways. A road whose main function is mobility will have higher speeds and fewer intersections, while an access-focused road will provide the inverse of both of those functions. The purpose the roadway serves as a component of the overall transportation determines its functional classification. The functional classification hierarchy consists of Arterial, Collector, and Local categories. Arterials provide the most mobility, local roads provide the most access, and collectors are a combination of both access and mobility.

Access and mobility are unquestionably important factors in determining the functional classification of a roadway but other factors also play a role, including efficiency of travel, access points, speed limits, route spacing, number of lanes, usage volumes, and regional or statewide significance.[iii] Applying these factors to the classification process allows for more nuance when the mobility and access functions of a roadway are assessed.

The region's functional classification network is shown in Figure 2-1 and mileage by designated functional classification is presented in Table 2-1.

Functional Classifications

Interstates: Interstates are the highest classification of arterial highways. These roadways are designed and constructed with mobility, long-distance travel, higher speeds, and high volumes in mind.

Freeway & Expressway: Like interstates, these highways are designed and constructed to maximize mobility and are not directly accessible by adjacent land uses. These roadways have directional travel lanes, usually separated by some types of physical barrier, and their access is limited to on- and off-ramp locations or a very limited number of at-grade intersections.

Other Principal Arterial: Other principal arterials serve major centers of metropolitan areas while providing a high degree of mobility and can also provide mobility through rural areas. Other principal arterials can range from limited access highways to semi-limited roadways that carry high volumes of traffic and are typically used for long trips within the region, as well as connect into statewide or nationwide networks. Access to this type of roadway is at-grade intersections or a limited number of driveways to specific parcels.

Minor Arterial: Minor arterials also provide for high-speed and/or high-volume traffic, but are typically under local jurisdiction. Minor arterials often form boundaries around recognized "neighborhoods" and collect traffic from collector streets. Minor arterials provide more land access than Principal Arterials without penetrating identifiable neighborhoods.

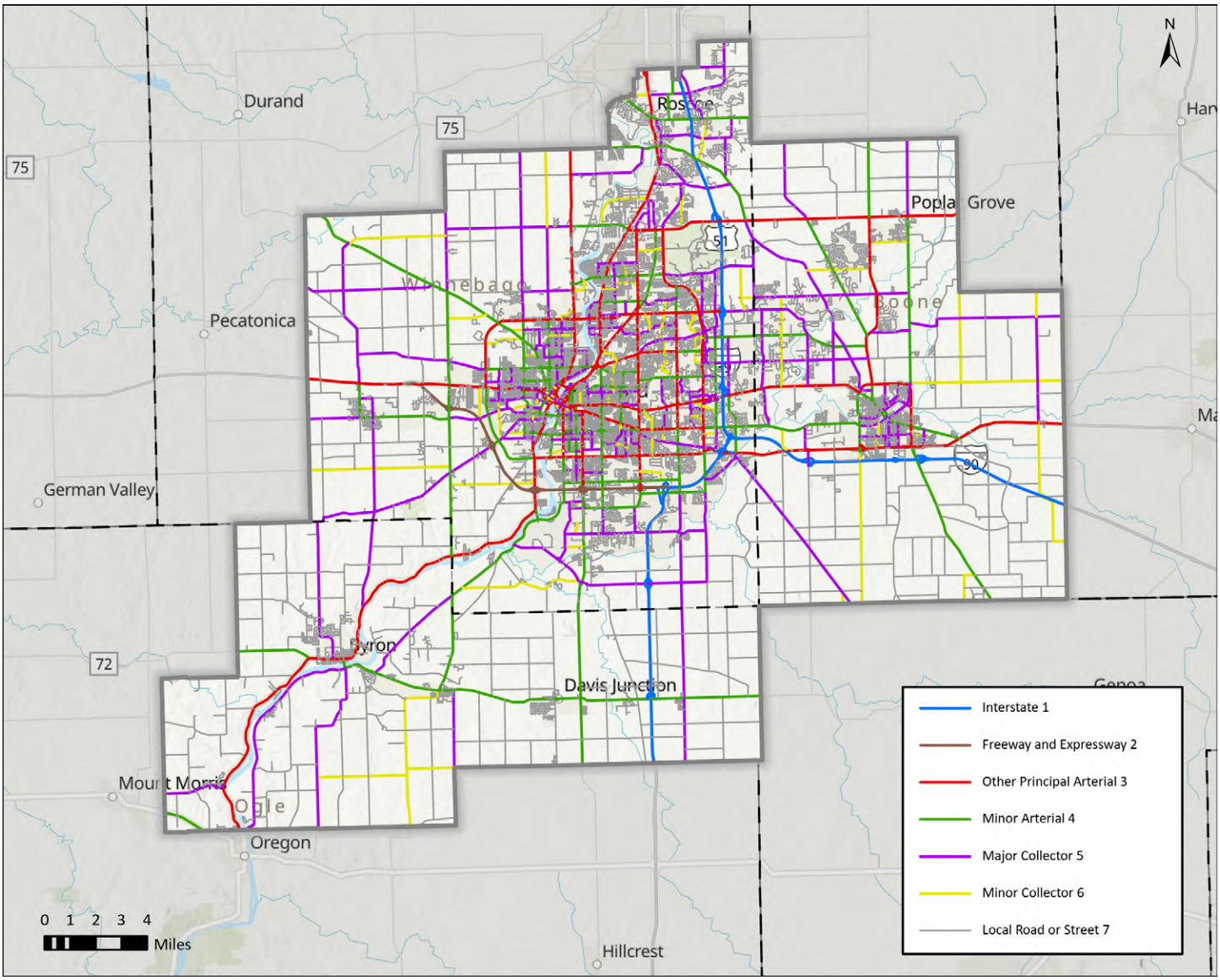
Major Collectors: Major collectors are designed for more moderate-speeds and traffic volumes than arterials. They collect traffic from the neighborhoods and direct it to the nearest arterials, usually over a distance greater than three-quarters of a mile. Access to collectors is not as strictly controlled as with arterials but often access is directed to the local streets. They serve both land access and traffic circulation in higher density residential and commercial/industrial areas.

Minor Collectors: Minor collectors have operating characteristics of lower speeds than major collectors and also fewer signalized intersections. They distribute and channel trips between local roads and minor arterials, usually under a distance of three-quarters of a mile. Minor collectors penetrate residential neighborhoods of varying densities, but often for only a short distance before connecting to a more major roadway classification. They serve both land access and traffic circulation in lower density residential, commercial, and industrial areas.

Local Roads: Local roads and streets account for the largest percentage of all roadways in terms of mileage. They allow direct access to homes, businesses, and to adjacent lands. Traffic control devices, such as stop signs, are sometimes used to discourage through traffic.

Source: Federal Highway Administration[i]

Figure 2-1: Roadway Network by Functional Classification



Source: Illinois Department of Transportation, WinGIS

Table 2-1: Functionally Classified Centerline Miles

Functional Classification	Centerline Miles
Interstate	64.9
Freeway & Expressway	20.1
Other Principal Arterial	178.1
Minor Arterial	209.1
Major Collector	326.8
Minor Collector	113.7
Local Roads	1,986.0
Total	2,898.8

Source: Illinois Department of Transportation, IRIS

Interstate & Freeway System

The Interstate Highway System has facilitated the efficient movement of people and goods throughout the United States for several decades. The origins of the system can be found in the Federal-Aid Highway Act of 1956.[iv] Congress, and then President Dwight D. Eisenhower, supported the idea that the country's physical and economic size necessitated an expansive Interstate Highway System, laying the groundwork for the system the country has today. The Interstate Highway Network allows for goods and people to be transported throughout the country with relative ease, both logistically and economically.

The Rockford Region is home to two interstates, Interstate 90 (I-90) and Interstate 39 (I-39), as well as one freeway, U.S. Route 20 (U.S. 20). These three highways play a critical role in supporting the region's economy. They provide connectivity to nearby metropolitan areas, including Chicago, Milwaukee, and Madison, and facilitate the movement of goods into and out of the region.

Interstate 90

Interstate 90, known as the Jane Addams Memorial Tollway, traverses approximately 26.4 centerline miles within the region. Interstate 90 runs north-south from the Wisconsin stateline before turning east-west near the Village of Cherry Valley, where it then travels in an east-west direction towards Chicago. This is the longest interstate in the United States by distance and provides the region with connections to both the east and west coasts.

Interstate 90, in the Rockford Region, is operated by the Illinois Tollway. The Illinois Tollway is an administrative agency of the state of Illinois and is responsible for the construction, operation, regulation, and maintenance of Northern Illinois' toll highway system. Tolls are collected by the Illinois Tollway along the interstate and at various access points within the region, and are the only source of funding the Tollway receives. The Belvidere Oasis, operated by the Illinois Tollway, provides travelers with a place to stop, rest, and refuel as they pass through the region.

While there is a cost to using the interstate, these costs are much lower in Rockford Region than in the Chicago Region. For example, a 4-axle truck traveling to Wisconsin would pay $5.20 departing from State Street (US-20 Business) in Rockford and $13.45 departing from Genoa Road in Belvidere. By comparison, 4-axle vehicle traveling to Wisconsin from Elmhurst Road near O'Hare International Airport would pay $20.65. This advantage has served as another tool the region can use to attract employers to the area.

Interstate 39

Interstate 39 also passes through the Rockford Region, traversing in a north-south direction. Interstate 39 runs concurrently with I-90 through the region, before connecting concurrently with U.S. 20 for several miles and branching to the south toward Normal, Illinois, where it terminates. Interstate 39 connects the region to central Wisconsin and facilitates north-south travel within the region. In total, it has approximately 23 centerline miles in the region. It provides connectivity to other components of the Eisenhower Interstate System, including I-88, I-80, and I-55. All of these connections are located to the south of the region.

U.S. Route 20

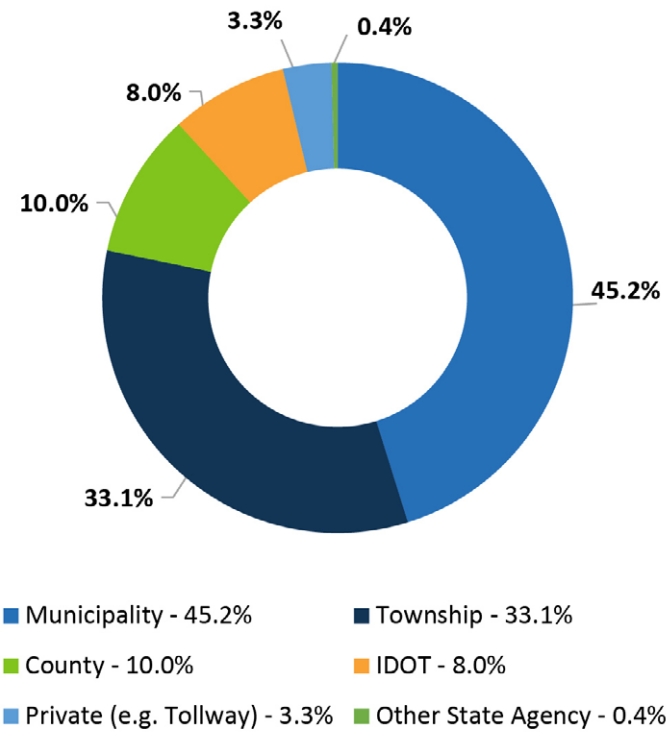
U.S. Route 20 is the third major highway found in the region. It can be used to travel through the region in an east-west direction, beginning to the east of Belvidere at Epworth Road and ending to the northwest of the Village of Winnebago. Route 20 can be used to travel all the way to both coasts, making it an important asset to the Rockford Region. Route 20 provides access to the Chicago Rockford International Airport (RFD) from I-90 and I-39. This connection means that goods can depart the airport and head in any cardinal direction along a major highway. The connectivity has played a role in RFD becoming one of the largest air cargo hubs in the contiguous United States.

Non-Interstate Roadway Network

The region's non-interstate roadway network transports more people and goods than any other component of the transportation system. The non-interstate roadway network of the region provides access to a variety of destinations and land use as well as modes of transportation, such as active transportation and public transportation. This network plays a large role in enhancing both the local economy and the quality of the life of residents.

The non-interstate roadway network is composed of several classifications of roadways, ranging from arterial to local roads. Each roadway plays its own unique role in providing connectivity within the system. Roadways fall under the jurisdiction of various different agencies requiring high levels of coordination to ensure the system fits together. This section presents an overview of the network roadway jurisdiction in the Rockford Region.

Figure 2-2: Roadway Miles by Jurisdiction



Source: Illinois Department of Transportation, IRIS

State Highways. In Illinois, the Illinois Department of Transportation (IDOT) has statutory responsibility for planning, constructing, operating, and maintaining the state's extensive transportation network, which encompasses highways and bridges, airports, public transit, rail freight and rail passenger systems. The Illinois Department of Transportation consists of 10 supporting offices and five regions (divided into nine district). The Rockford Region is located within IDOT Region 2 – District 2, which encompasses 10 counties, including Boone, Winnebago, and Ogle Counties. IDOT owns and maintains approximately 607 lane miles within the Rockford MPA, including I-39, several marked State and U.S. Routes, and some unmarked routes.

Local Roads. The largest portion of roadways within the Rockford MPA are under the jurisdiction of local municipalities, townships, and counties, totaling 2,772 lane miles or 50.4 percent of the total lane miles.

System Designations

Many of the region's roadways are part of a larger highway or roadway system. To highlight a roadway's importance within its larger system, many roadways receive a system designation. These designations are assigned at both the national and regional level.

National Highway System

The network of strategic roadways, known as the National Highway System (NHS), plays a critical role in supporting the nation's economy, defense, and mobility. Developed by the U.S. Department of Defense, in coordination with the states, local officials, and Metropolitan Planning Organizations (MPOs), the NHS includes the following subsystems of roadways[v]:

- **Interstate:** The Eisenhower Interstate system of highways retains its separate identify within the NHS.
- **Other Principal Arterials:** These highways provide access between an arterial and a major, airport, seaport, public transportation facility, or other transportation facility.
- **Strategic Highway Network (STRAHNET):** STRAHNET is a network of highways which are significant to the success of the United States strategic defense policy. They serve many defense purposes by providing continuity, defense access, and emergency capabilities.
- **Major Strategic Highway Network Connectors:** These highways provide access between major military installations and highways that are a part of STRAHNET.
- **Intermodal Connectors:** This designation of highways provides access between major intermodal facilities and the four NHS subsystems listed above.

Within the Rockford MPA, 267.4 miles of roadways are designated as part of the NHS. The NHS designated roadways are shown as a part of the Regional Goods Movement in Figure 3-7.

Strategic Regional Arterials

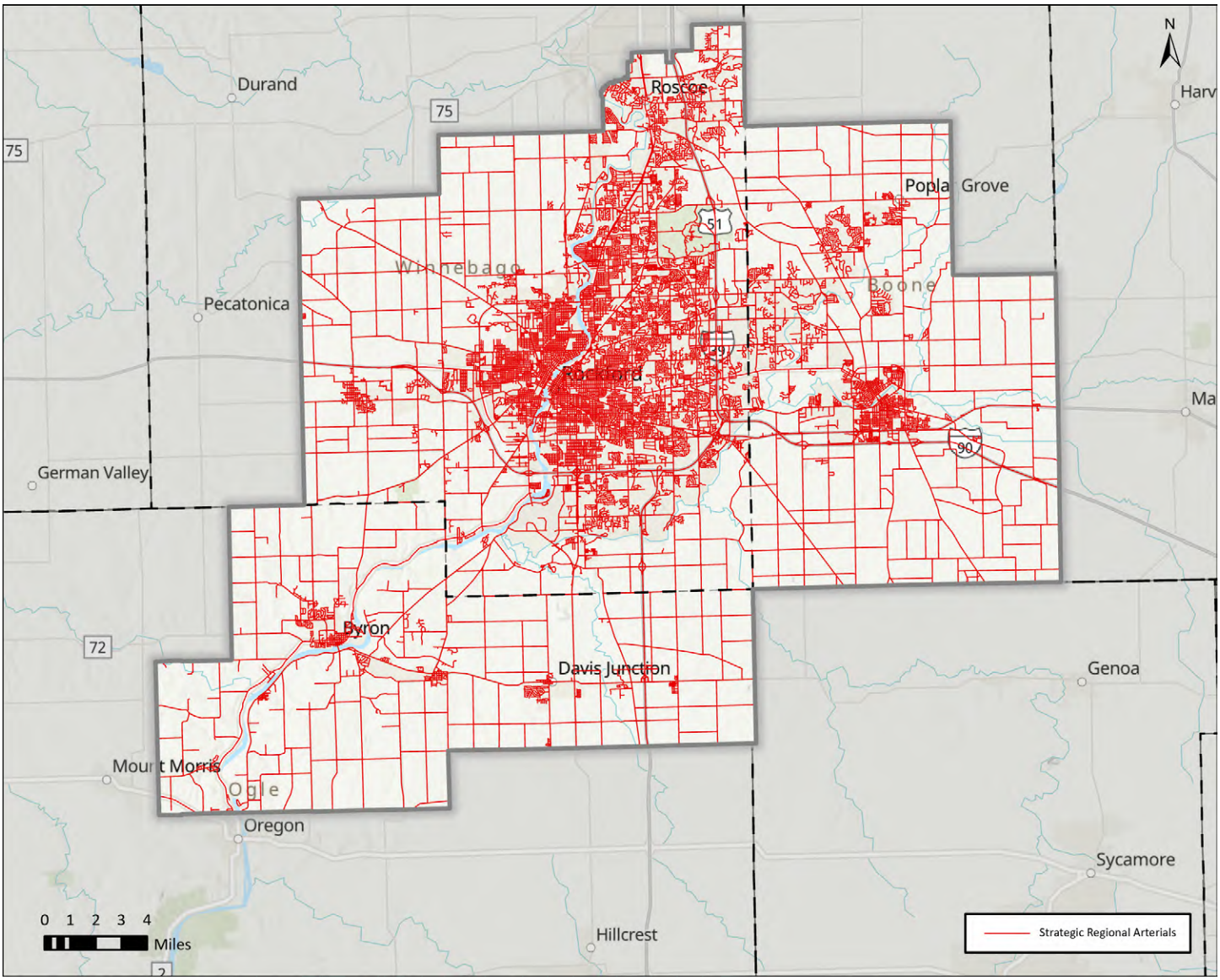
The Strategic Regional Arterials (SRA) system is a network of highways designed to facilitate long distance regional travel, to augment a region's major transit and highway facilities, and to support the freeway system. The IDOT document titled "Operation Green Light" contains the SRA concept designed for northeastern Illinois. This document, also known as the Strategic Regional Arterial Design Concept Report, can be applied to cities and regions throughout Illinois, including the Rockford Region. The Rockford MPO developed a system to similar to IDOT's SRA concept for the Chicago Region prior to the release of "Operation Green Light." Although smaller in scale, the Rockford Region's SRA system shares many qualities with the Chicagoland SRA system.

To adapt to the region's unique needs, the SRA system features a "ring road." Composed of Harrison Avenue, Springfield Avenue, Riverside Boulevard, and Perryville Road, the ring can be seen in Figure 2-3. State Street and Spring Creek Road, which bisect and provide interior access to the ring, can be also be seen in Figure 2-3. Jurisdiction of the roadways that compose the Rockford Region's SRA system is shared by many agencies due to the expansive nature of the system throughout the region.

The Rockford Region's SRAs are designed with limited access, wide lane widths, higher speeds, and abundant right-of-way (ROW). The SRA network receives significant volumes of passenger and freight vehicles due to commercial and industrial company's choice to locate themselves along the system. This decision was made because of the mobility it provides to the region's interstates (I-39, I-90, U.S. Route 20). The presence of commercial and industrial land uses along an SRA requires it to provide access as well. This provides the region with a challenge, as ensuring that SRAs maintain a maximum level of service (LOS) is crucial to preserving them as the most efficient way of traveling long distances within the urban area.

In recent years, many of the roadways and structures that compose the SRA system have undergone or are currently undergoing improvements. Harrison Avenue and East State Street are two clear examples of SRAs that have been enhanced through improvement projects. The region will need to continue to invest in its SRAs to strengthen their functionality, ensuring they can meet the demands imposed upon them.

Figure 2-3: Strategic Regional Arterials



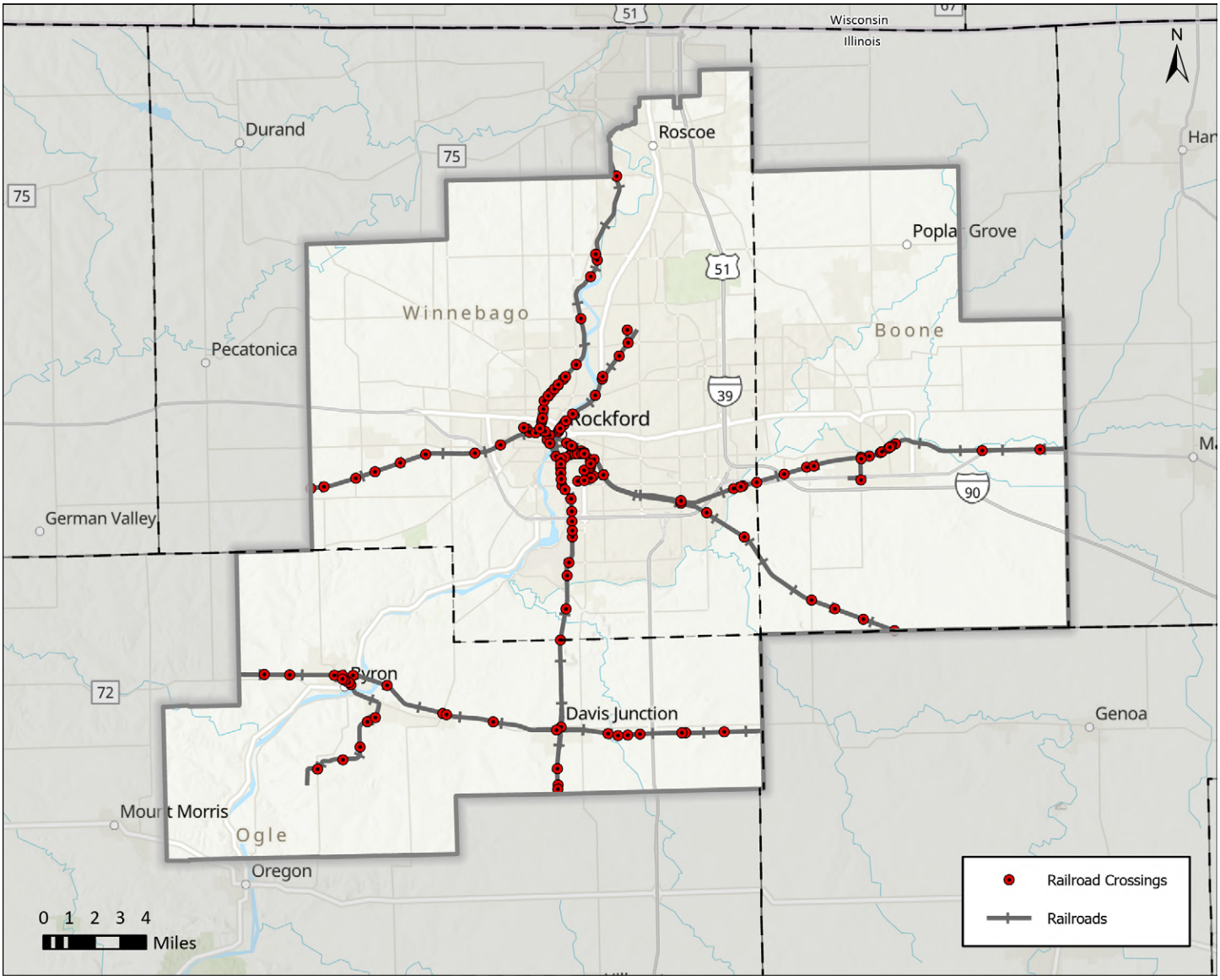
Source: Illinois Department of Transportation, Region 1 Planning Council

Rail System

Rail transportation, particularly freight, provides the region with promising opportunities for economic development, job creation, and return on investment. Rail offers opportunities to ship a large amount of goods over long distances, around 700 miles, with more efficiency and cheaper rates than trucking.[vi] Understanding and continuing to support rail is essential for the region to ensure a productive and efficient regional economy.

Within the MPA, there are 130.2 miles of railroad tracks, including 7.5 miles of privately owned tracks. These rail lines connect the Rockford Region to economic hubs across the country, including the major railroad center of the United States, Chicago. Currently, three of the seven Class I railroads operate within the Rockford MPA, including Canadian National, Canadian Pacific, and Union Pacific. In addition to the Class I railroads, the Illinois Railway, a short line railroad, also operates within the region.

Figure 2-4: Class I & Short Line Railroads



Source: U.S. Department of Homeland Security

Canadian National

Canadian National (CN) currently owns 21.9 miles of track within the Rockford Region. CN operates one of the two east-west through rail lines in the region and handles significant rail freight volume. CN has four stations within the region:

- West Rockford – Yard facility located just west of South Main Street in Downtown Rockford,
- Rockford – Located near the intersection of Kishwaukee Street (IL-251) and Buckbee Street,
- Perryville - Located adjacent to Perryville Road at an industrial park in Cherry Valley, and
- Irene - Located south of the intersection of Irene and Bloods Point Roads.

Canadian Pacific

The owner of the largest portion of trackage in the Rockford MPA is Canadian Pacific (CP) at 44.2 miles. CP operates on two distinct pieces: east-west from Chicago to the Mississippi River and a north-south corridor between Rockford and Janesville. Illinois Railway (IR) provides track rights to CP, increasing the amount of freight CP can move through the region. The CP/IR corridor travels just east of the Chicago Rockford International Airport and through the Rockford Global Trade Park, making this trackage desirable for warehousing and transload facilities. CP currently operates a rail yard located in downtown Rockford, just west of the Rock River, and a station in Davis Junction.

Illinois Railway

The Illinois Railway (IR), a subsidiary of Omnitrax, operates four rail lines in Northern Illinois. The Rockford Branch starts in Flagg Center, Illinois, which provides an interchange with BNSF Railway, to downtown Rockford covering 23.5 miles, with 19.5 miles in the MPA. The IR has three stations within the region:

- Davis Junction – Provides an interchange with the CP,
- Camp Grant – Located at the Chicago Rockford International Airport, and
- Rockford – Provides an interchange with the CN.

Union Pacific

Union Pacific (UP) operates 37 miles of track within the MPA. UP's largest portion of trackage is known as the Belvidere Subdivision. This line consists of 53.6 miles of single track between West Chicago and ends just west of South Central Avenue in Rockford. Additionally, UP operates a short spur along the east side of the Rock River from Windsor Road in Loves Park to downtown Rockford, where it connects into the Belvidere Subdivision. Both the Belvidere Subdivision and the short spur are located adjacent to significant industrial and commercial areas within the MPA, including the Windsor Lake Business Park in Loves Park and the Belford, Belvidere West, Landmark, and Townhall industrial parks in Belvidere.

System Uses

Mass Transportation

Mass transportation is the movement of people within or between urban areas. Particularly, mass transportation is the movement of groups of people carried in the same vehicle, such as a bus, or collection of attached vehicles, such as trains. Mass transportation is not a modern concept. It began with the introduction of horse-drawn stagecoaches and has taken a variety of forms, from streetcars and subways to buses. Currently, the Rockford Region is served by two mass transportation services, public transportation districts and private intercity buses, with passenger rail service beginning in 2027.

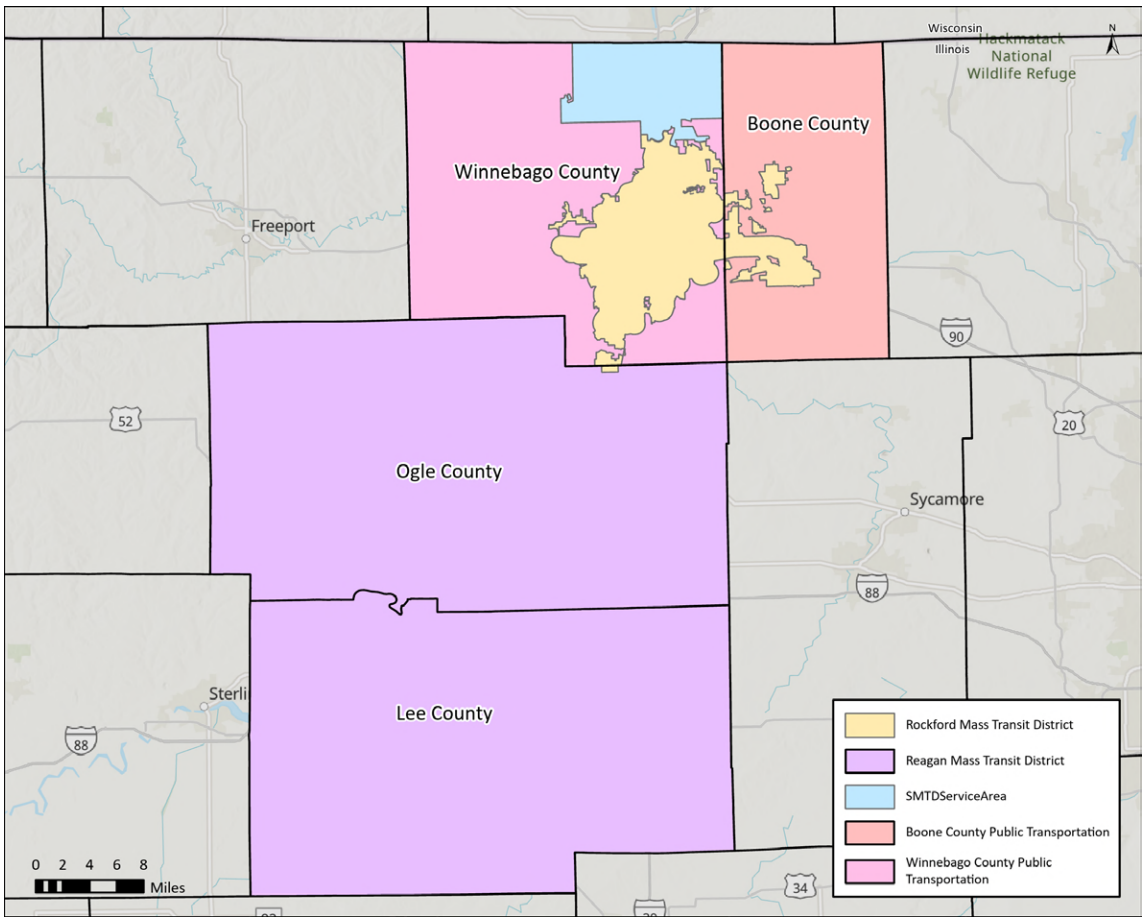
Public Transit

A public transit system is a scheduled transportation service available for use by the general public. Public transit transforms communities, spurs economic development, promotes sustainable lifestyles, and provides a higher quality of life. The Rockford Metropolitan Planning Area (MPA) is provided service by four public transit agencies, with a fifth service beginning in 2025:

- Rockford Mass Transit District (RMTD)
- Boone County Public Transit (BCPT)
- Stateline Mass Transit District (SMTD)
- Regan Mass Transit District (formerly Lee-Ogle Mass Transit District (LOTS))
- Winnebago County Public Transportation (service starting in 2025)

Additionally, the region has a collection of agencies providing human service transportation options, designed to meet the transportation needs of disadvantaged populations, including older adults, people with disabilities, and individuals of lower income.[vii]

Figure 3-1: Public Transit Service Areas



Source: Region 1 Planning Council

Rockford Mass Transit District

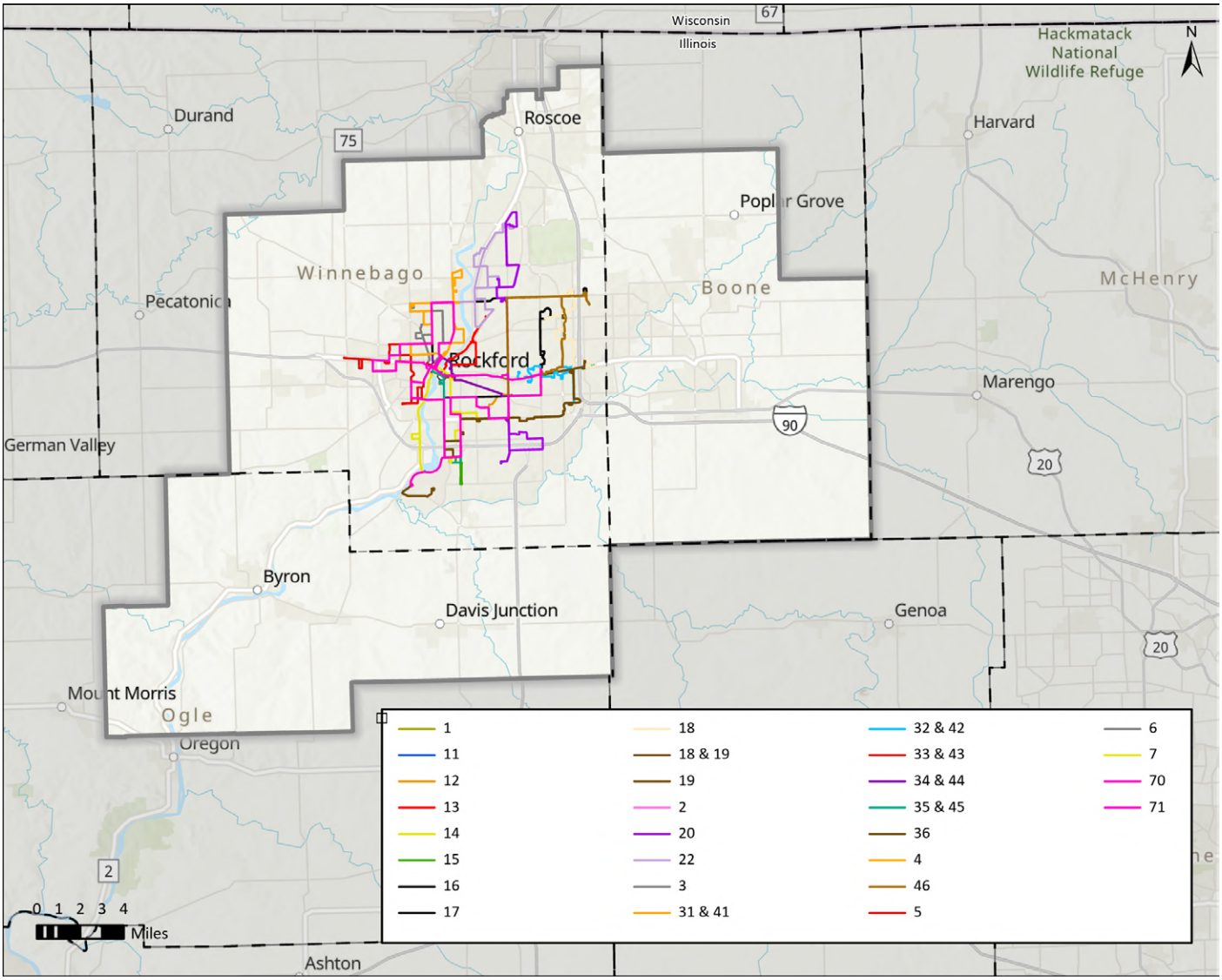
For over 50 years, Rockford Mass Transit District (RMTD) has provided federally subsidized and coordinated fixed-route transit services for the Rockford urbanized area. Rockford Mass Transit District's service area covers approximately 150 square miles and serves 281,713 residents[1]. In 2022, RMTD provided over 767,275 rides.

Rockford Mass Transit District operates 19 daily fixed-routes (Monday-Saturday), six weeknight routes, and five Sunday routes. Most of RMTD's fixed route services are provided on a hub-and-spoke radial operation pattern originating from RMTD's Downtown Transfer Center in Rockford. Service applies to all municipalities during weekdays; service to Rockford, Loves Park, and Machesney Park on Saturdays; and select areas in Rockford on Sundays. Services are not provided on Saturday and Sunday nights. During the months of May through September, RMTD also runs an additional downtown circulator route on Friday nights to help ease traffic congestion and parking during popular public events, such as the Rockford City Market.

Most fixed routes run at 60-minute headways, with the exceptions of the School Street and East State routes, which run every 30 minutes, and the Huffman and Kilburn routes, which run every 90 minutes. Rockford Mass Transit District is currently increasing the span of service and hours of operation over the next several years. Rockford Mass Transit District has also recently added an electronic ticket purchase option and cashless payment options through the Token Transit app. This app can be downloaded for free by anyone with a smartphone.

1 Population estimates are based on 2017-2021 American Community Survey Census Block Groups that touch the RMTD Service Area, and do not represent an exact figure.

Figure 3-2: Rockford Mass Transit District's Fixed Routes



Source: Region 1 Planning Council

Table 3-1: Rockford Mass Transit District's Fare Prices

Fare Type	Cost
Adult Fare (Age 15 & above)	$1.50
Disabled Citizen Half Fare[1] (w/valid RMTD Photo ID)	$0.75
Disabled Citizen enrolled in Illinois Benefit Access Program[2]	Free
Senior Citizen (Age 65 and above (w/valid RMTD Photo ID))	Free
Veteran (w/valid RMTD Photo ID)	Free
Children Under Age 5	Free
Student Age 5-14 (w/valid School or RMTD Photo ID)	Free
Student Age 15-18 (w/valid School or RMTD Photo ID)	Free
College Students (w/valid School or RMTD Photo ID)	Free
Transfers	Free
1-Day Adult Pass	$3.00
1-Day Disabled Citizen Pass[3] (w/valid RMTD Photo ID)	$1.50
Ten-Ride Adult Pass	$15.00
Ten-Ride Disabled Citizen Pass[4] (w/valid RMTD Photo ID)	$7.50
7-Day Unlimited Ride Saver Pass	$16.00

1 Any person with a Medicare Card can qualify for reduced fare service on the RMTD system. Riders must first obtain the appropriate RMTD Photo ID.

2 Any person with a Medicare Card enrolled in the Illinois Benefit Access Program can ride free. Riders must first obtain the appropriate RMTD Photo ID. – RMTD Photo ID's are issued for a $5.00 fee, except for Student ID's, which are issued free with replacement Student ID's issued for a $2.00 fee.

3 Any person with a Medicare Card can qualify for reduced fare service on the RMTD system. Riders must first obtain the appropriate RMTD Photo ID.

4 Any person with a Medicare Card enrolled in the Illinois Benefit Access Program can ride free. Riders must first obtain the appropriate RMTD Photo ID. – RMTD Photo ID's are issued for a $5.00 fee, except for Student ID's, which are issued free with replacement Student ID's issued for a $2.00 fee.

Source: Rockford Mass Transit District

Rockford Mass Transit District's fixed-route fleet consists of 41, 35-foot buses and one special event trolley. Each fixed-route bus has a 12-year replacement schedule, with the entire fleet expected to be replaced by 2025. Currently, RMTD has 15 diesel buses, 23 hybrid-electric buses, and six battery electric buses.

In addition to fixed-route transit services, RMTD provides daily paratransit services. This service extends at minimum three-quarters of a mile from the fixed route system in accordance with the Americans with Disabilities Act. Where applicable, this service extends to the incorporated limits of Rockford, Loves Park, and Machesney Park, operating six days a week. Hours of operation for paratransit service are the same as those of fixed-route service. Although weeknight fixed-route service is only available in Rockford, complementary paratransit service extends to 10:00 p.m. for Loves Park and Machesney Park. Boone County Council on Aging (BCCA) provides complimentary paratransit service for RMTD's fixed-route to Belvidere.

Paratransit:

A transportation service that provides individualized rides for people who are unable to use fixed route services.

Rockford Mass Transit District's demand-response fleet is comprised of 33 medium and super-medium duty transit buses (13 diesels and 20 gasoline), each with a state or federally defined useful life of five (5) to nine (9) years. As with the fixed-route buses, RMTD is expected to begin replacing this fleet with alternative-fuel options by 2028 based on vehicle useful life with the goal of fully transitioning the demand response fleet to alternative-fuel zero emission by 2036. Over the next several years RMTD will determine a specific course of action for replacing its gasoline and diesel-powered demand response fleet with a zero-emission fleet.

Rural Demand-Response Service

For demand-response, a user can ride to and from anywhere within the respective transit agency's service area by scheduling a trip in advance, typically 24 hours. Unlike complimentary paratransit services offered by RMTD, this form of public transportation is open to anyone that resides within the respective service area. The flexibility of these systems, particularly with large coverage areas, are often preferred for low-density areas not served well by a fixed-route bus. Three demand-response services currently operate within the MPA, Boone County Transit (BCT), Stateline Mass Transit District (SMTD), and Reagan Mass Transit District (Regan MTD), with an additional service beginning in rural Winnebago County in 2025.

Demand-Response Services:

A transit mode comprised of passenger cars, vans or small buses operating in response to calls from passengers or their agents to the transit driver, who then dispatches a vehicle to pick up.

Boone County Public Transportation

Boone County Public Transportation, operated by the Boone County Council on Aging (BCCA), provides service to Boone County. Boone County Transit is chartered through Boone County as the sponsor government and reports directly to Boone County Government Board. Boone County has an intergovernmental agreement (IGA) with RMTD to provide demand-response service to the urbanized portions of Boone County. Rockford Mass Transit District has historically awarded BCCA the contract to operate since it is the existing demand-response service provider for rural Boone County. Service hours are weekdays from 7:45 a.m. to 4:30 p.m.

Stateline Mass Transit District

Stateline Mass Transit District (SMTD) operates demand-response services in Roscoe, Roscoe Township, Rockton, Rockton Township, and South Beloit. Although this service originates within the Beloit, Wisconsin urbanized area, the service area also covers portions of the Rockford urbanized area, including Roscoe and the urbanized parts of Roscoe Township. Stateline Mass Transit District requests that trips be scheduled at least 24 hours in advance, but will consider same day trips if scheduling allows. Service hours are weekdays from 5:15 a.m. to 10:00 p.m.; Saturdays from 6:00 a.m. to 6:00 p.m.; and Sundays from 8:15 a.m. to 4:30 p.m. Rockford Mass Transit District operates, maintains, and dispatches SMTD vehicles out of its downtown facilities through an IGA. SMTD is independently chartered and obtains local funding through separate jurisdictional agreements. A seven-person Board of Trustees governs SMTD, consisting of two representatives each from Rockton and Roscoe, and three representatives from South Beloit.

Reagan Mass Transit District

Demand-response public transportation service is provided by Reagan Mass Transit District within Ogle and Lee Counties. Service is provided on weekdays throughout the two counties and requires trips to be scheduled at least one day in advance. Reagan Mass Transit District offers trips into Rockford three times a month for medical or shopping purposes. Reagan Mass Transit District is independently chartered and obtains local funding through separate jurisdictional agreements. Reagan Mass Transit District has a five-person board that consists of two trustees appointed by Lee County Board, one trustee appointed by Ogle County Board, one trustee at-large from the City of Rochelle, and one trustee at-large from the City of Dixon. At the time of this plan, Lee-Ogle Transportation System (LOTS) is in the process of transitioning to Reagan Mass Transit District. This transition will establish Reagan Mass Transit District as a new transit district with a boundary of Lee and Ogle Counties.

Winnebago County Public Transportation

Winnebago County is in coordination with Reagan Mass Transit District to operate demand response services in the rural areas of Winnebago County not currently served by RMTD and SMTD. The start the service could be as early as fall 2025.

Intercity Bus

Two private intercity coach bus services, Greyhound and Coach USA, operate in the Rockford Region, providing travel to various destinations throughout the country. While there are limited options for interregional travel to and from the region, these services do provide some level of intercity connectivity.

Coach USA is the largest privately-owned, U.S. based bus company, providing ground passenger transportation and mobility solutions in the United States and Canada. "With operations in 27 locations throughout the United States and Canada and more than 3,000 employees and 2,250 buses, the Coach USA network of companies carries over 38 million passengers throughout the United States and Canada each year."[viii] Coach USA also owns and operates several subsidiaries, which provide affordable, express bus service for intercity travel to more than 280 cities, including Rockford. Operating as Van Galder, Coach USA provides commuter services and airport rides along the I-90 corridor from Madison, Wisconsin to Union Station in downtown Chicago. Van Galder operates its service out of its own facility in eastern Rockford. Starting at 3:20 a.m., Van Galder operates an average of 12 daily roundtrips to and from downtown Chicago, costing about $27 for a one-way trip per adult. Van Galder also operates an average of 26 daily trips to O'Hare International Airport, costing $26 per adult for a one-way trip. Heading north to Madison, Wisconsin, an average trip will cost approximately $13 per adult.

According to their website, Greyhound connects thousands of communities across North America by providing convenient, comfortable and affordable bus travel. Greyhound provides services to 2,300 destinations across North America. In the Rockford Region, Greyhound stops at RMTD's East Side Transfer Center. From Rockford, passengers can travel to numerous locations in the Midwest, as well as coast-to-coast. A trip to Chicago costs about $23 one-way or $43 round trip. This trip runs one time per day at 3:10 p.m. and takes approximately two hours and 45 minutes.[ix]

Passenger Rail

The Rockford MPA has been host to two intercity passenger rail lines in the past. The Land'O Corn, operated by the Illinois Central Railroad, stopped in Rockford while running between Chicago and Waterloo, Iowa from 1941 to 1967. After the formation of Amtrak in 1971, the Black Hawk restored the service between Chicago and Dubuque, Iowa from 1974 to 1981. With the contemporary rise of super-commuters, renewed interest, and statewide investment in rail transportation, there is a growing demand for an intercity rail connection for the Rockford Region.

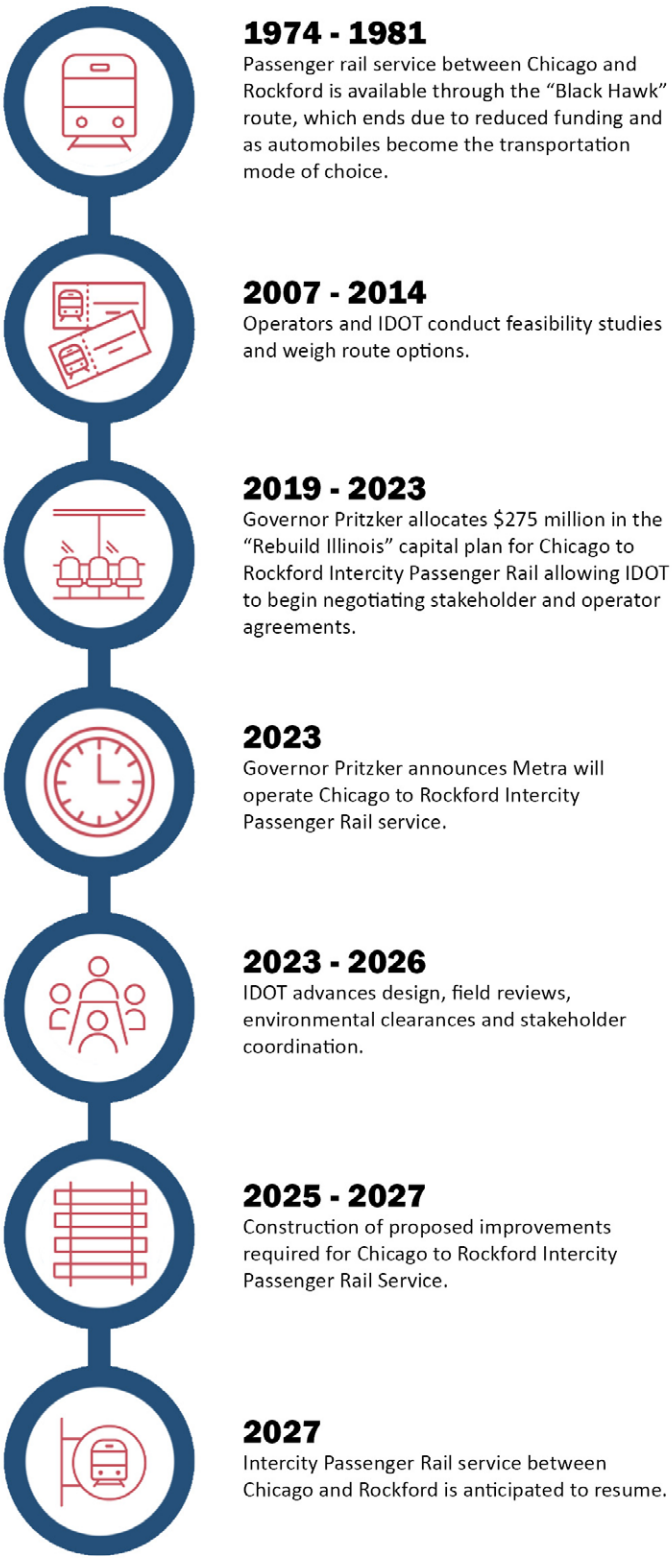
Following over a decade of planning and preparation, former Illinois Governor Pat Quinn announced on April 10, 2014 that $223 million in funding was available to restore intercity passenger rail service between Chicago and Rockford, and eventually continuing to Dubuque, Iowa. Funding for the project included track, signaling, and safety improvements, as well as the development of stations in Belvidere and Huntley. Three million dollars in state and federal funding was made available for a permanent Rockford Multimodal Station in 2012. However, a state budget impasse resulted in an indefinite hold on the project by former Governor Bruce Rauner in 2015.

Today, a passenger rail connection between Rockford and Chicago has been renewed with the passage of current Governor J.B. Pritzker's 2019 Rebuild Illinois Capital Plan. This new capital plan provides $275 million for all facets of the project, including rail stations at Rockford and Belvidere. The Governor's Rebuild Illinois Capital Plan includes the following improvements:

- Track improvements between Elgin and Rockford to support increasing speeds from existing freight operations (40 mph or slower) to passenger rail operations (up to 79 mph).
- Construction of a connection between Metra and Union Pacific tracks near Big Timber Road in Elgin.
- Enhanced grade crossing surfaces, highway approaches, and warning devices.
- Improved bridge structures, which may include the Rock River Bridge.
- A potential second siding and second main track locations, such as potential siding in Marengo and potential second main track past the Belvidere yard.[x]

In 2024, Governor Pritzker announced that Metra will operate intercity passenger rail service from Chicago to Rockford, with stops in Elgin, Huntley, and Belvidere. Rail service speeds up to 79 miles per hour (mph) will connect Illinois communities with the Chicago metropolitan area in less than two hours with two round trips per day planned. The anticipated start date for service is late 2027.[xi]

Figure 3-3: Chicago to Rockford Passenger Rail History



Source: Illinois Department of Transportation

Active Transportation

Active transportation is any human-powered method of transportation and typically refers to biking, walking, or rolling. This form of transportation is most common in completing first- and last-mile connections or shorter trips between origins and destinations. For multiple population segments, these networks may be their only means of transportation. Over the last several decades, the region has made progress in prioritizing active transportation modes and creating safe and comfortable infrastructure to encourage walking or bicycling as a viable mode of travel. In the Rockford MPA, active transportation facilities can be grouped into three overarching categories: on-street bicycle facilities, shared-use paths, and pedestrian facilities.

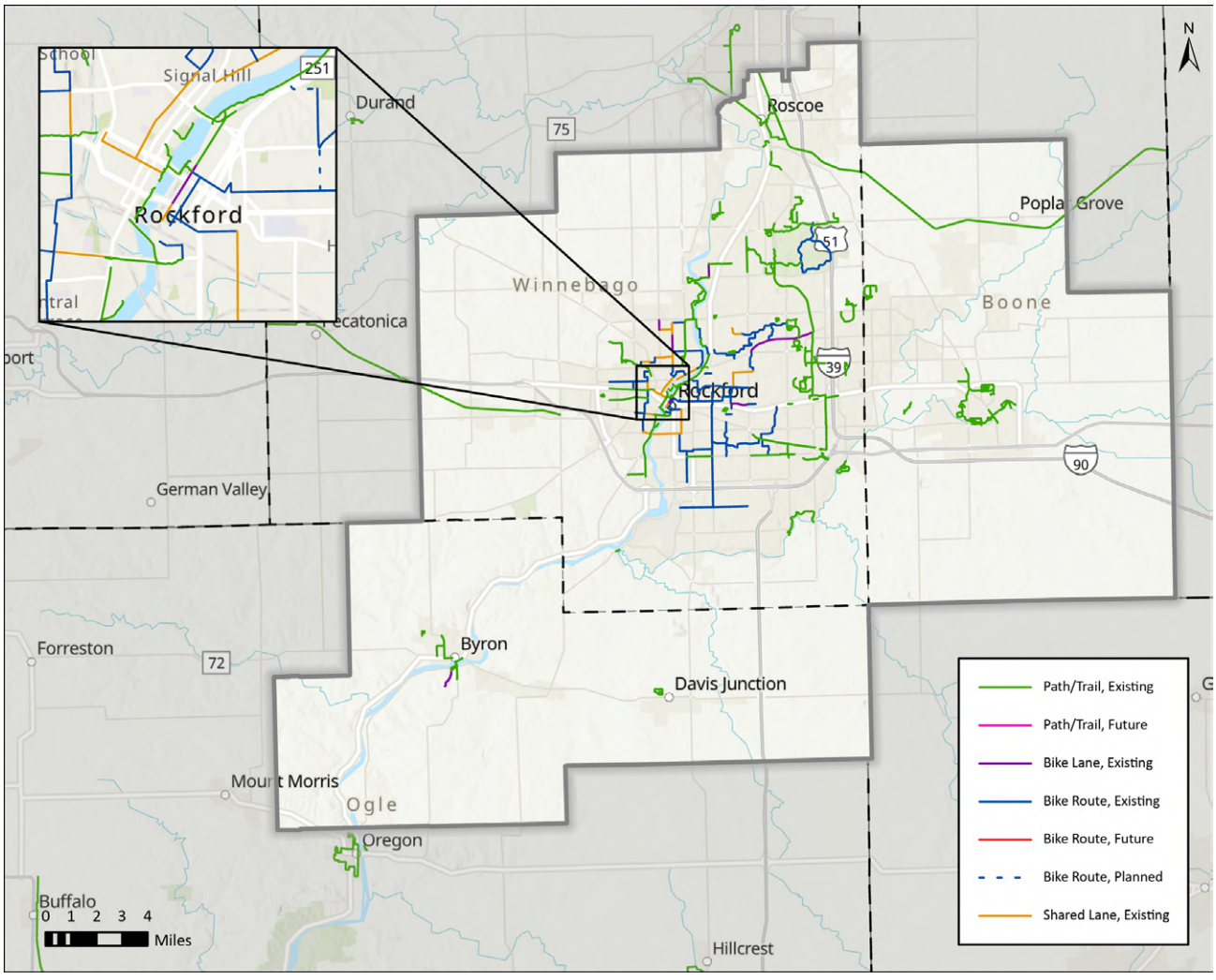
Rolling can reference a variety of transportation methods including electric bikes, roller-blading, wheelchairs, and strollers.

Bicycle Facilities & Amenities

Within Winnebago County, there are currently 63.4 miles of existing on-street bicycle facilities. Of those on-street bicycle facilities, there are 46.5 miles of bike routes designated by a route sign, 10.8 miles of on-street bike routes marked with "sharrow" pavement markings, and only 10.4 miles of on-street bike lanes in the region. At this time, the portions of Boone and Ogle Counties within the MPA do not have on-street bicycle facilities and the region, as a whole, does not have buffered or separated bike lanes.

Connectivity between facilities is one of the largest considerations for increasing the use of the current bicycle facility network, specifically a lack of sufficient east to west routes. Further development and incorporation of these east-west routes would provide greater mobility through the region and connect to existing bicycle and pedestrian infrastructure. Many municipalities are actively working on addressing these gaps. For example, the City of Rockford recently updated their 10-Year Bicycle Plan to identify and address gaps in the regional system under their jurisdiction.

Figure 3-4: Existing & Proposed Bicycle Facilities by Type



Source: Region 1 Planning Council

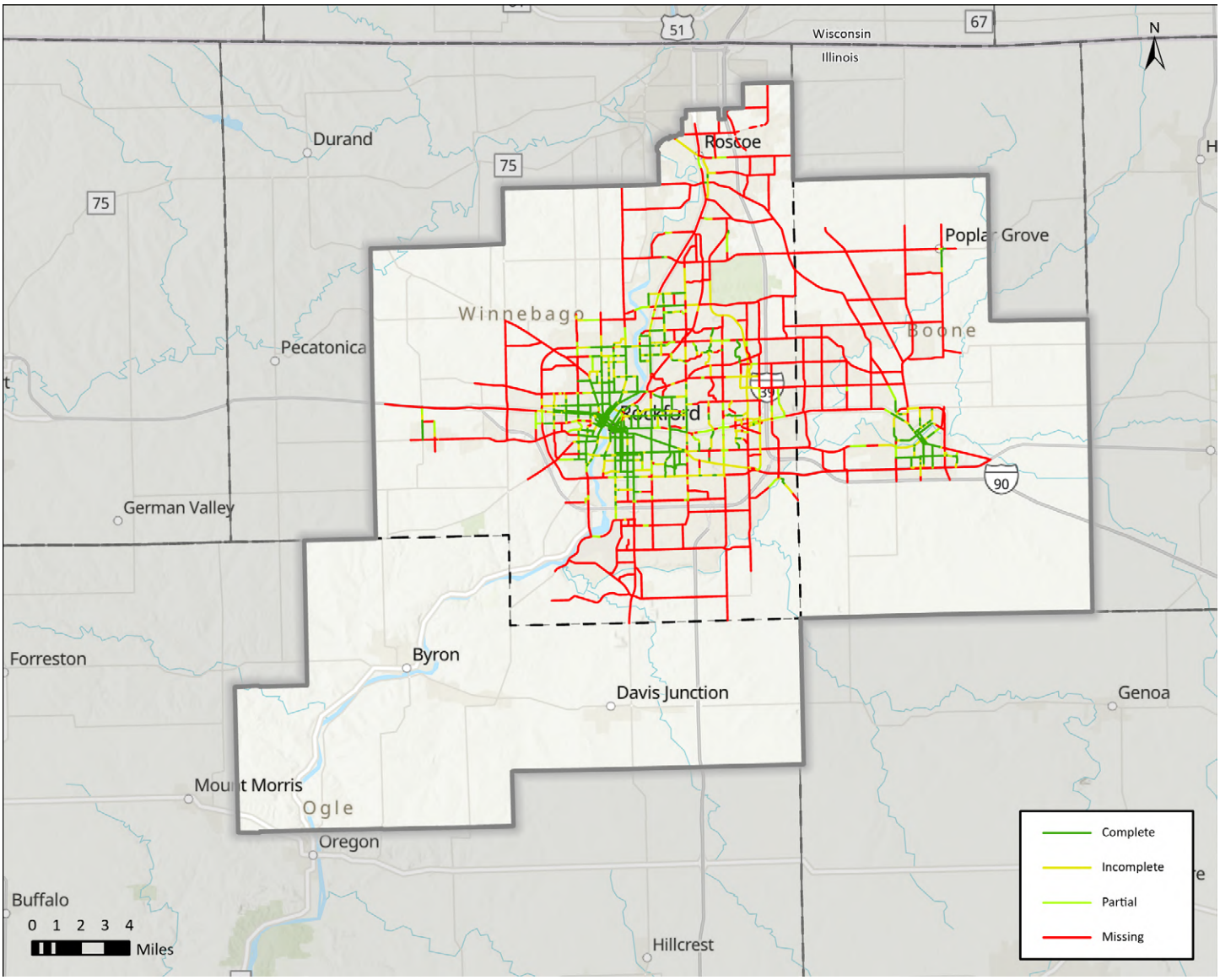
Shared-Use Paths

Shared-use paths are the predominate facility type within the Rockford Region designed for bicycle use. Approximately, 130 miles of shared-use paths currently exist within the Rockford MPA. A significant number of the region's shared-use paths have been in place for decades. Each path varies in length, pavement type, connectivity, and amenities. For example, some paths are designed for use within a specific neighborhood or park, such as Guilford County Forest Preserve, while others link together, allowing users to travel great distance with little flow interruption or vehicle crossings. An example of an interregional path is the Long Prairie Trail, which connects into the Stone Bridge Path and eventually into the Hononegah Recreational Path. To improve connectivity across the region, 227 miles of shared-use paths are proposed or planned within Boone and Winnebago Counties.

Pedestrian Facilities & Amenities

Sidewalks and appropriate pedestrian crossings are essential in creating a walkable and livable region. Of the 576 centerline miles of streets in the Rockford Urbanized Area (UA), only 113.5 miles in the urbanized area have "complete" sidewalks, meaning that sidewalks are present on both sides of the street for the entirety of the street segment. Seventy-seven miles of streets have a partial presence of sidewalks. These streets have either a sidewalk on one side of the street or at least 50 percent on both sides. Incomplete sidewalks account for 32 miles of streets segments, meaning that a sidewalk is present along the segment, but does not equal at least 50 percent of both sides of the street. Approximately 353.8 miles, or 61.4 percent of the street network in the Rockford UA, do not have sidewalks present. Figure 3-5 displays the presence of sidewalks in the urbanized area.

Figure 3-5: Presence of Sidewalks



Source: WinGIS

As part of the Bicycle and Pedestrian Plan update, a pedestrian suitability index (PSI) was completed to determine the quantity and quality of the pedestrian facilities along collector and arterial streets and intersections in the Rockford UA. The index assesses the pedestrian environment based on categories related to the demand, roadway segments, and intersections. The index provides a quantitative method for assessing the pedestrian environment related to demand, traffic patterns, and designs. Two components were examined to determine the suitability of the pedestrian network: roadways and intersections. Table 3-2 and Table 3-3 shows the overall results of the roadway and intersection suitability indicies, respectively.

More information on the Pedestrian Suitability Index can be found in the Bicycle & Pedestrian Plan posted on Region 1 Planning Council's (R1) website at r1planning.org/planning/transportation.

Table 3-2: Pedestrian Suitability Analysis- Roadways

Class	Score	Miles	Percent
High Suitability	76-100	9.6	1.6%
Medium High Suitability	51-75	166.8	27.8%
Medium Suitability	31-50	271.1	45.1%
Low Suitability	0-30	153.3	25.5%
Total		**600.7**	**100.00%**

Source: 2023 Bicycle & Pedestrian Plan

Table 3-3: Pedestrian Suitability Analysis- Intersection

Class	Score	Miles	Percent
High Suitability	76-100	22.0	0.7%
Medium High Suitability	51-75	1,548.0	46.2%
Medium Suitability	31-50	1,705.0	50.9%
Low Suitability	0-30	73.0	2.2%
Total		**3,348.0**	**100.00%**

Source: 2023 Bicycle & Pedestrian Plan

Mobility on Demand

Growth in the sharing economy and on-demand transportation services are changing the mobility patterns throughout the country, particularly in urban areas. Numerous shared mobility and goods delivery services, such as Uber, Zipcar, and Instacart, in combination with the COVID-19 pandemic, have pushed mobility on demand (MOD) from the fringe to the mainstream. MOD is an innovative transportation concept where consumers can access mobility services on demand by dispatching or using shared mobility, courier services, and public transportation solutions.[xii] It establishes an integrated and connected multimodal network of options.[xiii]

In the Rockford Region, the most common form of MOD is shared mobility; however, courier services have increased in popularity. Shared mobility is the shared use of a vehicle, bicycle, or other mode that enables users to gain short-term access to transportation modes on an as-needed basis.[xiv] Shared mobility includes a variety of travel options, including carsharing, bikesharing, ridesharing, and on-demand ride services.

Micromobility

One barrier to alternative transportation use in the Rockford Region is the lack of mobility options for small to medium distance trips. These trips are often too far to walk but too close to wait for public transportation. Many cities are overcoming this issue by offering micromobility options, such as e-scooters and bike shares.

Micromobility:

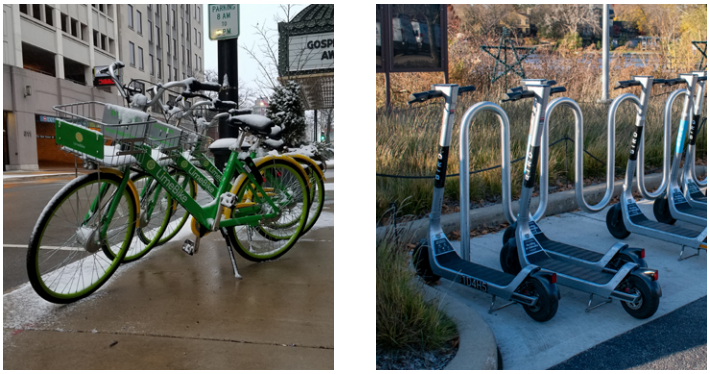
Defined as any small, low-speed, human- or electric-powered transportation device, including bicycles, scooters, electric-assist bicycles, electric scooters (e-scooters), and other small, lightweight, wheeled conveyances.

Source: Federal Highway Administration

In 2018, LimeBike launched a dockless bike share system in the Rockford Region. As with ride-hailing and ride-sharing companies, LimeBike paired innovative technologies with web-based applications to increase the options available for short-to-medium distance trips. Web-based applications and advanced GPS systems removed the need for docked systems, allowing patrons to locate, pay for, and leave a bicycle near their destination. Over the six-month operating period, LimeBike hosted more than 25,000 individual rides and around 26,000 miles' worth of bicycle travel. Unfortunately, 2018 was the only year LimeBike operated within the Rockford Region, ultimately leaving the market to focus on new technologies. Currently, dockless systems are pairing with innovative battery-electric technologies to offer shared systems for multiple light vehicles, such as electric bikes and scooters. However, the region's experience with a bike share system will continue to influence decision-making and move the region closer to its alternative transportation goals.

In 2021, the City of Rockford signed a 12-month contract with Bird Rides for the deployment of 100 electric scooters. Bird charges a $1 initial ride fee and about 35 cents per minute.[xv] The scooters are limited to a designated zone downtown, with possibilities of expansion in the future. In its first year of operation, more than 20,000 rides had been taken, covering more than 50,000 miles.[xvi] As of 2024, Bird Rides still operates an electric scooter share in downtown Rockford.

Figure 3-6: LimeBike Bike & Bird Scooters in Downtown Rockford



Source: Region 1 Planning Council

Ridesourcing

Ridesourcing provides prearranged and on-demand transportation services, which connect drivers of a personal vehicle with passengers. Typically, these transactions occur through private, third party companies, known as Transportation Network Companies (TNC). Transportation Network Companies use smartphone applications to schedule an on-demand trip, connecting ride-seekers with individuals who are willing to provide trips in their personal vehicles. Rideshare has seen an increased demand in the region, attracting more drivers and passengers. Uber was the first ridesourcing service to become available in the Rockford Region, launching in 2015, with Lyft beginning operations shortly after.

Freight

Freight plays a vital role in the economic success of the Rockford Region. The regional economy depends on the efficient movement of freight over its extensive well-established network of highways, bridges, railroads, airports, and pipelines. Freight encompasses any goods or services transported by truck, train, ship, or aircraft. According to the Bureau of Transportation Statistics' Freight Facts and Figures, the weight of shipments is expected to increase by about 1.5 percent annually between 2017 and 2045.[xvii] However, in addition to the increased weight of shipments, the freight industry is changing with the rise of e-commerce, shorter delivery times, rising demand, increasing fuel costs, increasing sustainability efforts, and advancing technology, such as automation and electric fleets.

Due to its location at a critical crossroad in the national and international movement of goods and services, freight considerations are essential in transportation planning as the region looks ahead in both short- and long-range planning efforts. To fully integrate freight considerations into planning efforts, the region needs a better understanding of the freight volumes, value, key commodities, and mode splits as they exist today and projected for the future.

Freight Assets

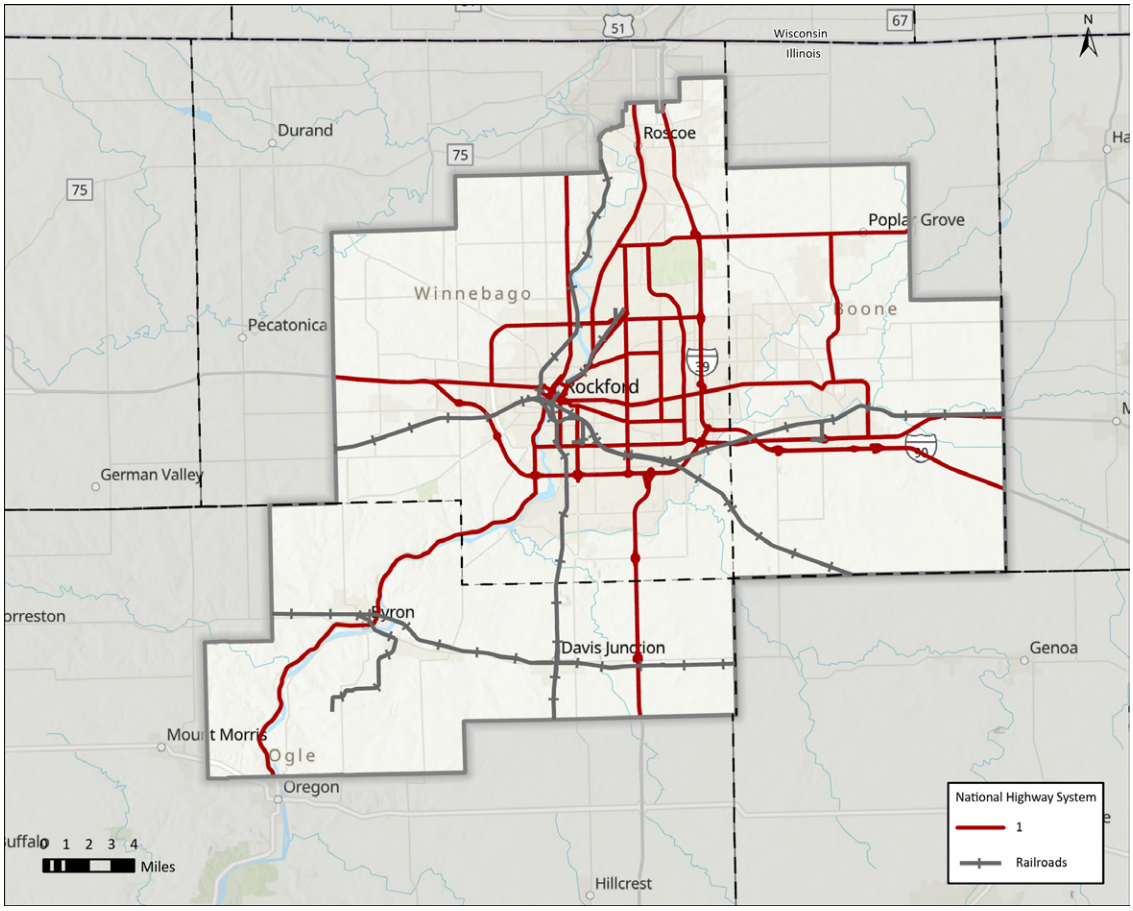
One of the top economic assets of the Rockford Region is its location in the nation at the junction of major highways, railways, and air with proximity to Chicago, Madison, and Milwaukee.[xviii] Efficient movement of freight in the Rockford MPA over its extensive network of highways, bridges, railroads, airports, and pipelines is essential. Table 3-4 and Figure 3-7 provide a look into the major components of the region's freight network. The following section highlights key statistics related to the primary components of freight movement in the region: roadways, railroads, airports, and intermodal facilities.

Table 3-4: Miles of Freight-Related Infrastructure by Mode

Mode	Miles
National Highway System	261.9
Railroads	159.6
Navigable Waterways	0.0
Pipelines- Natural Gas	264.4
Total	**685.9**

Source: Illinois Department of Transportation, U.S. Department of Energy, U.S. Department of Homeland Security

Figure 3-7: Regional Goods Movement Network



Source: Illinois Department of Transportation, U.S. Department of Energy, U.S. Department of Homeland Security

Roadways

As mentioned, the Rockford MPA has 2,507 centerline miles.[xix] According to the Illinois Department of Transportation (IDOT), these roadways had approximately 7.7 million daily vehicle miles traveled (DVMT) in 2023. A significant portion of these trips are freight-related, especially along the region's two interstates. Twenty roadways segments in particular experience high levels of truck movement. As expected, Interstates 90 and 39, along with U.S. Route 20 ranked at the top of the list. The average truck percentages and average annual daily traffic (AADT) for the top 20 roadways in the study area are shown in Table 3-5.

Due to high traffic volumes, many of these highways and roads have been designated as part of a larger freight systems. System designations are assigned to a specific roadway to highlight its importance within a broader system. Two designations are freight-specific: Truck Routes and National Highway Freight Network.

VMT vs. ADT:

Vehicle miles traveled (VMT): The number of miles traveled by vehicles for a period of 1 year.

Average Annual Daily Traffic (AADT): The total volume of traffic on a highway segment for one year, divided by the number of days in the year.

Source: Federal Highway Administration

Table 3-5: Top 20 Corridors with Highest Average Annual Daily Traffic and Percentage of Trucks

Road	Extents	AADT	Multi-Unit Volume	Percent
I-39	US-20 to I-90	28,400	10,300	36.3%
I-39	Blackhawk Rd to US-20 (Rockford Bypass)	26,486	8,273	31.2%
I-39	E Base Line Rd to IL-72	28,300	8,700	30.7%
I-39	IL-72 to Baxter Rd	30,300	8,800	29.0%
I-90/I-39	IL-173 to Swanson Rd	55,400	14,200	25.6%
I-90/I-39	Elevator Rd to E Rockton Rd	55,400	14,200	25.6%
I-90	Genoa Rd to County Line Rd	51,400	11,600	22.6%
I-39	Mulford Rd to US-20	52,200	11,400	21.8%
I-90/I-39	Mill Rd to East State Street (US-20 BUS)	59,900	12,500	20.9%
I-90/I-39	E Riverside Blvd to IL-173	69,100	14,400	20.8%
I-90/I-39	East State Street (US-20 BUS) to E Riverside Blvd	64,800	13,500	20.8%
I-90	Irene Rd to Genoa Rd	48,800	10,100	20.7%
I-90	Mill Rd to Irene Rd	49,800	10,300	20.7%
IL-72	N Mulford Rd to N Eastline Rd	1,800	325	18.1%
US-20 (Rockford Bypass)	S Alpine Rd to S Mulford Rd	33,631	5,272	15.7%
US-20 (Rockford Bypass)	W State Rd to S Meridian Rd	10,700	1,300	12.1%
IL-72	I-39 to N Mulford Rd	2,550	300	11.8%
US-20 (Rockford Bypass)	11th St to S Alpine Rd	34,500	3,850	11.2%
US-20 (Rockford Bypass)	S Meridian Rd to Montague Rd	15,500	1,550	10.0%
US HWY 20	N Winnebago Rd to US-20 (Rockford Bypass)	15,100	1,500	9.9%

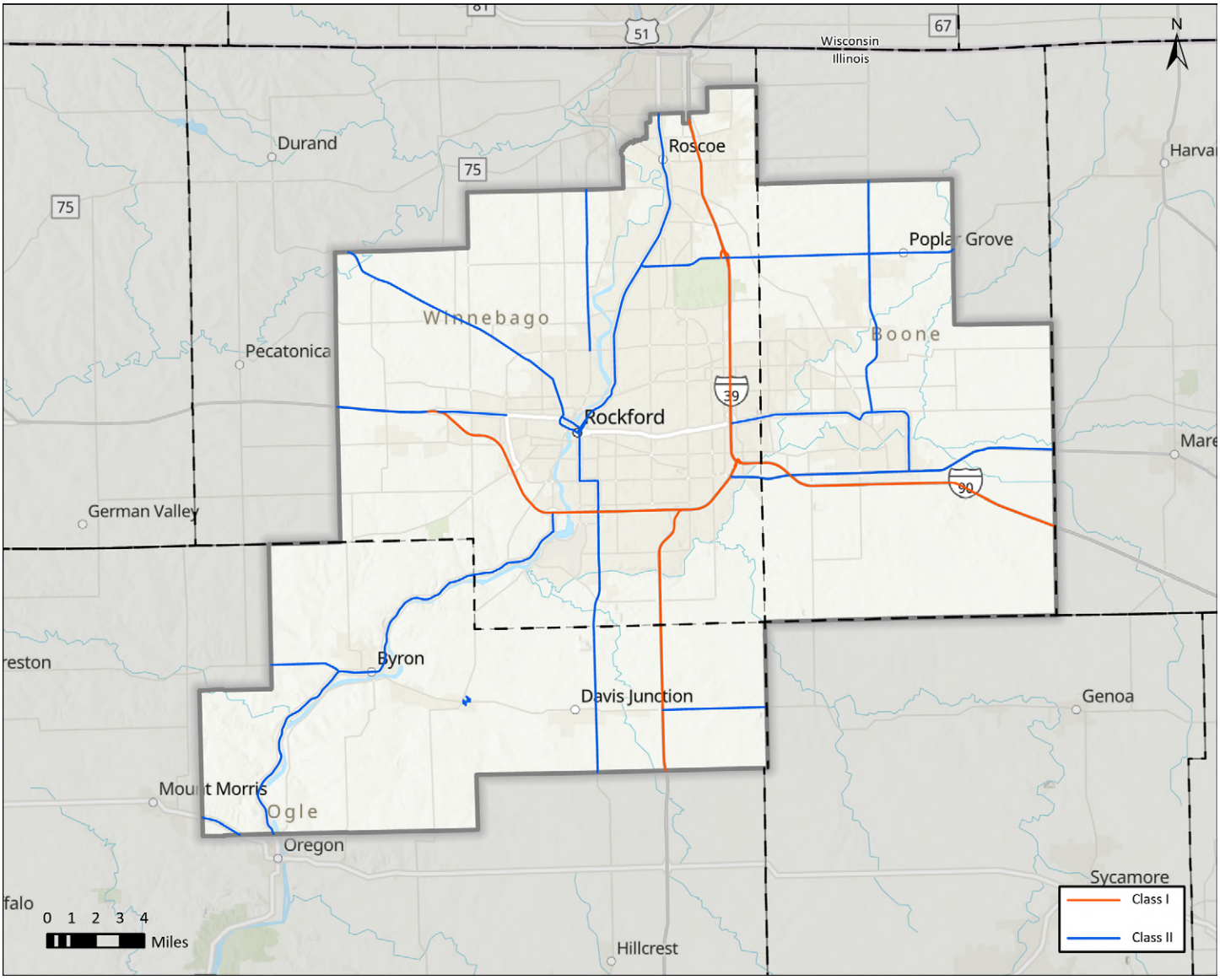
Source: Illinois Department of Transportation

Truck Routes

Throughout the Rockford MPA, a subsystem of roadways has been designated as truck routes. The purpose of this system is to focus heavier vehicle traffic on roadways that are geometrically designed and constructed to accommodate these vehicles. There are three truck route classifications in Illinois: Class I (interstates, expressways, tollways); Class II (state and local designated highways with at least 11-foot lanes; and non-designated (all other State and local highways).

Within the MPA, approximately 2.1 percent (51.5 miles) of the centerline miles are designated as Class I routes and 12.2 percent (304.8 miles) are designated as Class II routes, illustrated in Figure 3-8.

Figure 3-8: Designated Truck Routes, 2021



Source: Illinois Department of Transportation

National Highway Freight Network

The region's connection to the National Highway Freight Network (NHFN) is important in understanding regional freight movements. Fixing America's Surface Transportation (FAST) Act directed the Federal Highway Administration (FHWA) to establish the NHFN to strategically allocate Federal resources and policies toward improved performance of highway portions of the U.S. freight transportation system. There are four subsystem categories within the NHFN: Primary Highway Freight System (PHFS); other interstate portions that are not part of the PHFS; Critical Rural Freight Corridors (CRFC); and Critical Urban Freight Corridors (CUFC).

Within the MPA, two corridors were designated as a part of the PHFS: Interstate 90 and Interstate 39. In 2016, the Metropolitan Planning Organization (MPO) requested 45.2 miles within the MPA to be designated as CUFCs. The MPO recommended the following corridors:

- **US 20:** From IL-2 to I-39/90 – 8.6 miles;
- **Harrison Avenue:** From the Bypass (US-20) to IL-2 (South Main Street) – 7.4 miles;
- **Riverside Boulevard:** From I-90 to IL-251 (North 2nd Street) – 4.8 miles;
- **Alpine Road:** Bypass US-20 to IL-173, west on IL-173 to IL-251, north on IL-251 to Gardner Road – 19.4 miles;
- **IL-251 (North 2nd Street):** From IL-173 to East Riverside Boulevard – 3.7 miles; and
- **IL-2 (South Main Street):** From Harrison Avenue to US-20 – 1.3 miles.

The only CUFC designation in the Rockford Region was US-20 for 5.6 miles from South Main Street to I-39. The MPO will continue to highlight these corridors in the planning process as future designations may be considered and better positioned to compete for formula freight funds and discretionary funding in the future.

More information can be found in the Interstate & Freeway System and Non-Interstate Roadway Network sections of this technical report.

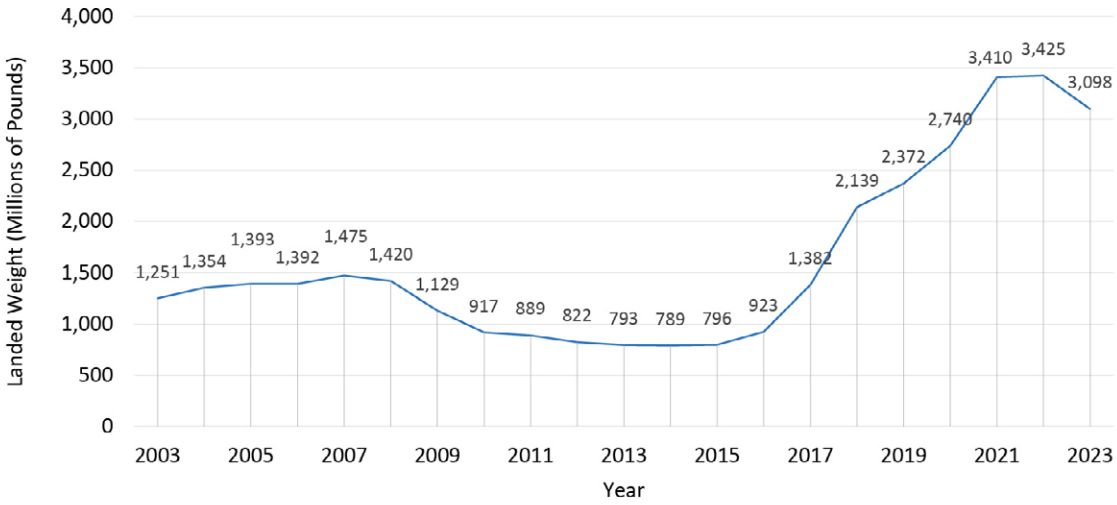
Air Cargo

The Chicago Rockford International Airport (RFD) is responsible for a significant amount of cargo that moves through the region. While RFD is both a passenger and cargo airport, a majority of its operations focuses on air cargo. Chicago Rockford International Airport is an independent municipal corporation and operated by the Greater Rockford Airport Authority (GRAA). The GRAA is led by a Board of Commissioners with seven members appointed by the elected officials of Loves Park, Machesney Park, Rockford, and Winnebago County.

As the 15th busiest cargo airport in the 2023, RFD has an average of 85 daily flights. The airport is a major hub for cargo in the nation and over the past decade has played a significant role in the attraction of logistics and warehousing industries to the MPA.[xx] Currently, UPS and Amazon PrimeAir operate daily scheduled cargo flights originating and terminating in RFD. In 2021, UPS operated 66 daily flights out of RFD, making it their second busiest hub in North America.[xxi] An additional ten charter cargo airlines provide service in and out of RFD on a regular basis. AAR Corporation, one of the largest Maintenance, Repair, Overhaul (MRO) in the world, has an operational base on site, with the capabilities to service any current aircraft. The Chicago Rockford International Airport views the addition of AAR onsite facility as a key step in furthering cargo operations.

Figure 3-9 shows the growth of cargo landed weight for RFD since 2000.

Figure 3-9: Landed Weights (2003-2023)



Source: Federal Aviation Administration

Chicago Rockford International Airport is capable of landing aircrafts in Category II/III conditions on their two runways, measuring 8,200 feet and 10,000 feet. The 10,000-foot runway has a Category II/III Landing System, which allows RFD to land any jet aircraft operating in the world today, even under the most adverse conditions. Additionally, RFD has a two million-gallon fuel station facility directly linked to an underground pipeline that ships the jet fuel necessary to maintain consistent operations at the airport.

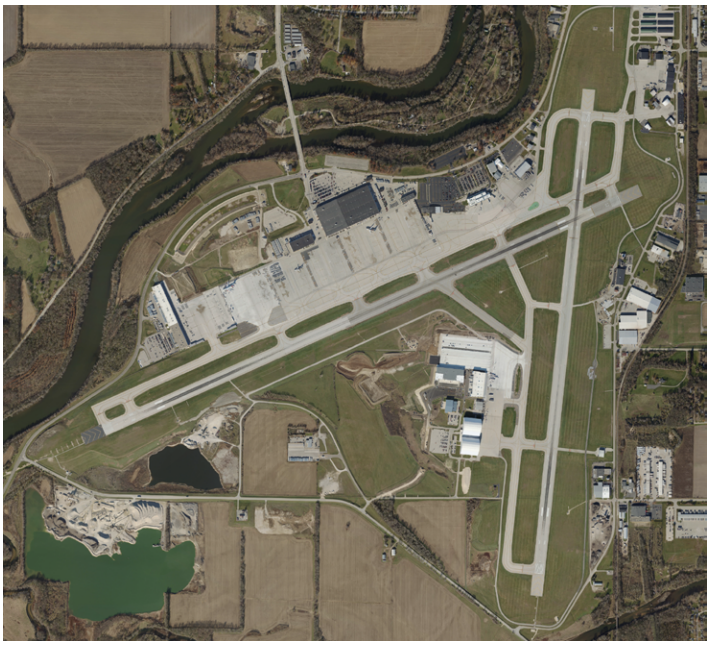
Intermodal Facilities

Intermodal travel can be attractive to companies as a means of reducing overall shipment costs and providing more reliable delivery times. It can also support environmental efforts and quality of life through lowering noise and air pollution as well as reducing congestion on highways and railroads. However, goods must be moved between various modes of transportation, such as from a railcar to a truck, at a facility. Intermodal facilities have the unique ability to incorporate multiple modes of freight and designed for loading shipping containers from one mode to another. Whether it is from rail-to-truck, air-to-rail, or truck-to-ship, these facilities are key in moving goods throughout the country.

Air-to-Truck

A notable amount of freight movement in the Rockford Region is generated or terminated at RFD. Most intermodal transfers occurring at the airport are air-to-truck. The airport has easy access to the region's five major highways, contributing to its success as one of the fastest growing cargo airports in the world. Additionally, it is a United States Customs Port of Entry and grantee of Foreign Trade Zone (FTZ) #176.

Figure 3-10: Chicago Rockford International Airport



Source: WinGIS

Foreign Trade Zones are secured, designated locations near a U.S. Customs Port of Entry that are generally considered to be outside of U.S. Customs territory. As a result, business can reduce or eliminate duty of imports.

Source: GRAA

Rail-to-Truck

In 2003, Union Pacific (UP) opened its Global III Intermodal Terminal in Rochelle. The hub was one of five UP intermodal facilities based in Northern Illinois. Rochelle was chosen due to its location at the crossroads of I-88 and I-39, just 80 miles west of downtown Chicago. UP owns approximately 1,200 acres of land, with 700 acres developed, and can handle 720,000 containers annually when fully operational.[xxii] The facility served as a critical hub and loading/unloading terminal for rail shipments moving to Iowa and Wisconsin and was responsible for helping transport a large amount of freight moving to and from the Rockford MPA. In 2019, UP announced it would be simplifying its intermodal terminal network, and operations at the Global III facility would be idled.

As a response to the closure of the Global III Intermodal Terminal, the City of Rochelle and the Greater Rochelle Economic Development Corporation announced plans to open a new intermodal container yard within one of the city's industrial parks. This facility, called the Rochelle Intermodal Transload Center (RITC), will fill the gap in rail-truck transload created by the closure and serve as a cost-effective means to moving freight through the heavily congested transportation corridor of Chicago.[xxiii]

The RITC is located approximately 25 miles south of the Rockford Region. Currently trucks leaving the Rockford Region, or vice versa, can reach the facility via I-39. From the Chicago Rockford International Airport to the RITC, the trip takes approximately 35 minutes. The transload facility can also be reached from the Rockford Region by the Omnitrax Railway, which connects to the BSNF at East Flagg Road, just north of the City of Rochelle. The rail-served industrial park, described above, is adjacent to the Omnitrax Railway, which would allow additional industrial sites to access the BSNF.

Due to its close proximity, the Rockford Region should partner with the Greater Rochelle Economic Development Corporation to promote this intermodal facility. This would eliminate the need for the Rockford Region to develop a separate intermodal facility in the Rockford Region.

Regional Commodity Flows

Approximately 25.6 million tons of goods transverse the region each year, totaling over $52.2 billion.[xxiv] Freight movement, often referred to as commodity flow, is described in terms of tonnage and value. The tonnage and value of freight moving into, out of, and within the region, along with the types of commodities, can provide a better understand of the current economy as well as have an impact on the region's future economic vitality.

Commodity:

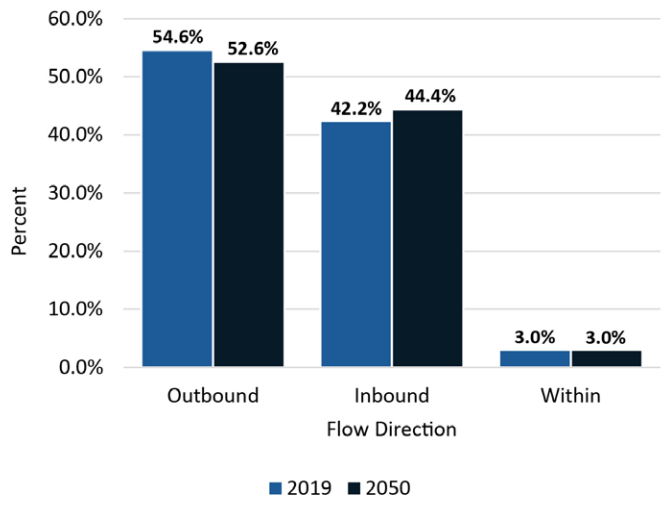
An item that is traded in commerce. The term usually implies an undifferentiated product competing primarily on price and availability.

Source: Federal Highway Administration

The following section provides a snapshot of freight flows and commodity types that transverse the region by truck, rail, and air. The data compiled for this section is provided by the Illinois Department of Transportation's Illinois Commodity Flow Dashboard. Commodity flow data is available at the county level. As such, when referring to the Rockford Region, the figures represent the full three-county area, encompassing Boone, Ogle, and Winnebago Counties.

According to Illinois Commodity Flow Dashboard, an estimated 25.6 million tons of freight with a value exceeding $52 billion moved into, out of, and within the region in 2019, the most recent information available. The largest shares of tonnage and value were moving out of the region. As shown in Figure 3-11, the share of inbound goods is anticipated to continue to grow.

Figure 3-11: Commodity Flow Direction, 2019-2050

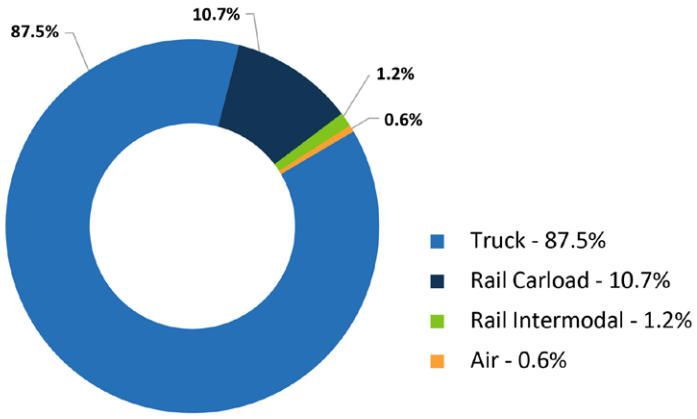


Source: Cambridge Systematics, Inc.

As shown in Figure 3-12, the domestic modal distribution of freight shows that trucking accounted for the largest share of tonnage, 88 percent, while air accounted for under one percent of all movements by tonnage. However, the domestic modal distribution of freight by value shows that truck and air were evenly distributed, each accounting for approximately 45 percent of freight value in the region.

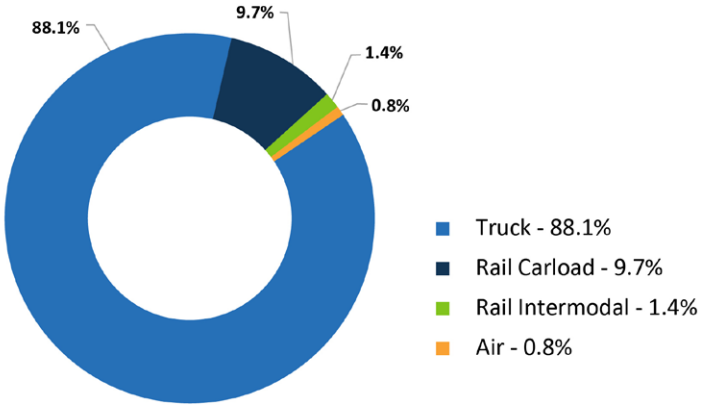
Over the next twenty years, the tonnage of freight moved into, out of, and within the region will still be largely transported by trucks, remaining at 88 percent. According to the Illinois Commodity Flow Dashboard, tonnage moved by rail will decrease while air will slightly increase. The domestic modal distribution by value will experience a shift as higher value goods traversing the region will be transported via air by 2050. In the future, air will account for 52 percent of freight value in the region, an increase of 14 percent.

Figure 3-12: Commodity Flow by Domestic Mode, 2019



Source: Cambridge Systematics, Inc.

Figure 3-13: Commodity Flow by Domestic Mode, 2050



Source: Cambridge Systematics, Inc.

The region also sees a large mix of commodity types; the leading commodities vary depending on tons, value, and mode. Table 3-6 shows the commodity share by tonnage and mode and Table 3-7 shows the commodities moved by value and mode.

Table 3-6: Commodities by Tonnage and Mode (2019)

Commodity	Truck	Rail Carload	Rail Intermodal	Air	Total
Aggregates	29.8%	58.9%	1.1%	1.1%	**32.4%**
Chemicals, Pharmaceuticals, Plastics, & Rubber	1.0%	0.9%	0.3%	13.4%	**1.0%**
Clothing, Leather, & Textiles	0.0%	-	0.5%	5.1%	**0.0%**
Crops, Livestock, and Farm Products	28.9%	10.5%	22.5%	2.8%	**26.7%**
Energy Products	7.2%	0.8%	-	0.1%	**6.4%**
Food Products	7.6%	8.4%	10.3%	2.9%	**7.7%**
Machinery, Electrical, & Precision Instruments	0.9%	-	0.3%	31.0%	**0.9%**
Metals	1.8%	1.2%	0.3%	4.9%	**1.7%**
Mixed Freight	0.1%	-	61.6%	29.2%	**1.1%**
Motor Vehicles & Transportation Equipment	2.1%	11.5%	-	6.5%	**3.1%**
Warehouse & Secondary Movements	13.3%	-	-	-	**11.6%**
Waste and Scrap	6.0%	2.1%	-	-	**5.4%**
Wood and Paper Products	1.4%	5.6%	3.1%	3.0%	**1.9%**

Note: Values may not added to 100% due to rounding.

Source: Cambridge Systematics, Inc.

Table 3-7: Commodities by Value and Mode (2019)

Commodity	Truck	Rail Carload	Rail Intermodal	Air	Total
Aggregates	1.2%	3.2%	0.0%	0.3%	**32.4%**
Chemicals, Pharmaceuticals, Plastics, and Rubber	2.4%	1.0%	0.2%	12.4%	**1.0%**
Clothing, Leather, & Textiles	0.1%	-	0.7%	0.6%	**0.0%**
Crops, Livestock, and Farm Products	4.6%	0.8%	1.0%	0.2%	**26.7%**
Energy Products	3.8%	0.4%	-	0.0%	**6.4%**
Food Products	6.5%	7.8%	3.0%	0.2%	**7.7%**
Machinery, Electrical, & Precision Instruments	12.2%	-	0.9%	43.2%	**0.9%**
Metals	5.0%	1.2%	0.2%	2.1%	**1.7%**
Mixed Freight	0.4%	-	92.6%	24.5%	**1.1%**
Motor Vehicles & Transportation Equipment	21.8%	83.3%	-	16.0%	**3.1%**
Warehouse & Secondary Movements	38.9%	-	-	-	**11.6%**
Waste and Scrap	1.4%	0.4%	-	-	**5.4%**
Wood and Paper Products	1.7%	1.9%	1.2%	0.3%	**1.9%**

Note: Values may not added to 100% due to rounding.

Source: Cambridge Systematics, Inc.

Maintenance & Operations

System Performance

The quality of life is directly influenced by the safety, capacity, and reliability of the regional transportation system, known as system performance. Essentially, performance describes how efficiently users can traverse the roadway network and can be described in three basic terms: congestion, mobility, and accessibility. One of the goals of metropolitan planning organizations (MPOs) is to link operations and planning of the regional transportation system to solve operational problems, improve system performance, and improve communication across transportation-related agencies. In order to effectively plan for future transportation system management and operation (TSMO) strategies, an analysis on current system conditions and performance is needed along with how the system is projected to operate over the next 30 years.

A variety of indicators must be monitored in order to properly manage travel demand on the region's roadways. Congestion, system efficiency, and system reliability are all measured by various sources and these measures provide insights into the overall travel demand conditions in the region. Current travel demand conditions are provided below, painting a picture of the overall efficiency of the region's roadway network.

According to federal law, metropolitan planning organizations designated as transportation management areas (TMAs) are required to develop specific strategies to address congestion, such as solving operational problems, improving system performance, and improving communication across transportation-related agencies. The Rockford Region's strategies to address these goals were identified in the Transportation System Management & Operations Plan (TSMO) for the Rockford Region, adopted by the MPO Policy Committee in January 2023.

Congestion Management

Congestion is one of the most visually apparent measures of a transportation system's efficiency. Congestion can prevent a transportation system from efficiently moving people and goods from place to place, and can be the result of both recurring and non-recurring causes. Recurring congestion can be expected and planned for as it typically occurs during peak usage periods, often known as "rush hour" traffic. Recurring congestion is usually connected to a roadway's capacity, which may be exceeded during peak usage hours. Non-recurring congestion is the result of unexpected or special events. Examples of non-recurring events include traffic crashes, inclement weather, and construction work zones.

Congestion is more than just an annoyance to users of the roadway network; it carries economic and environmental costs for the region. In 2019, the average congestion cost per auto commuter was $417. This figure declined significantly in 2020 to $198, likely due to the COVID-19 pandemic. By 2022, congestion cost per auto consumer in the Rockford Region increased to $330[xxv].

In 2022, the annual congestion cost for the region was over $105 million. This congestion resulted in 1,696,000 gallons of excess fuel consumed, or about six gallons per commuter. During that year, trucks were delay by approximately 204,000 hours in the Rockford Region, resulting in about 388,000 gallons of wasted truck fuel. This wasted fuel leads to the release of additional CO_2 into the atmosphere, as well other contaminants such as PM2.5. Trucks made up five percent of the annual delay but 13 percent of the total congestion costs.[xxvi]

System Efficiency

The most common way that the efficiency of the transportation system can be improved is by managing and reducing congestion. Reducing congestion allows for people and goods to move more efficiently throughout the region's roadway network. Congestion causes to excess fuel consumption, so limiting it can reduce emissions and help drivers save at the pump. In order to develop and adopt strategies to improve the efficiency of the region's transportation system, the existing congestion conditions within the region must be assessed. The two most commonly used indicators for evaluating congestion are level of service (LOS) and volume to capacity (V/C).

Level of Service

The severity of roadway congestion can be expressed through the measure known as level of service (LOS). Level of service is a term used to characterize the operating conditions of a roadway based on factors such as speed, travel time,

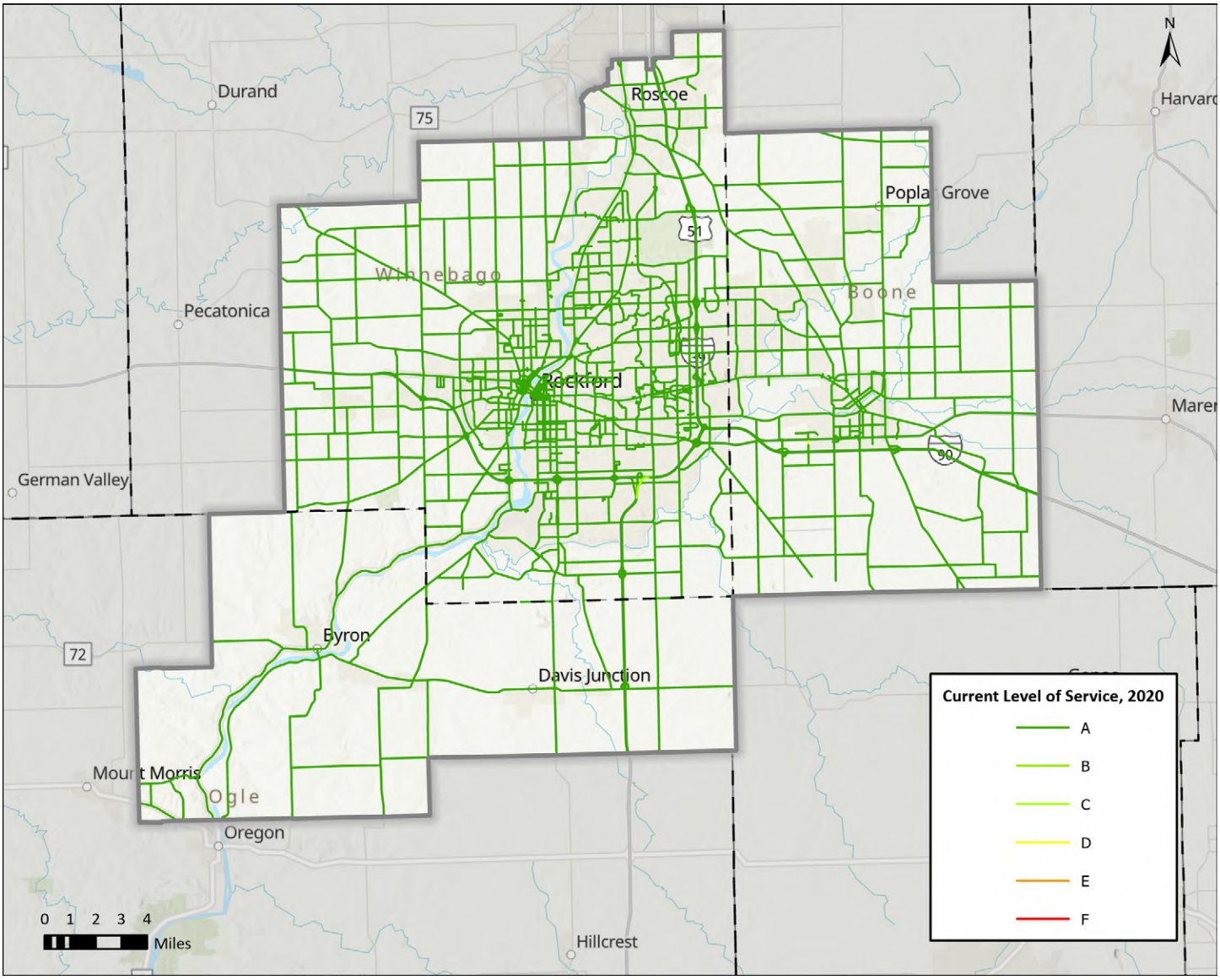
maneuverability, delay, safety, comfort, and convenience.[xxvii] Level of service is designated with a letter, A to F, with A representing the least amount of congestion and F the most. Level of service is context sensitive as it weighs factors differently depending on the functional classification and the location of the roadway whose LOS is being calculated. The LOS rating system has been used by the MPO to develop a measure for current and future congestion conditions in the region. Through the use of a travel demand model (TDM), congestion conditions were visualized for both 2020 and 2050, and can be seen in Figure 4-1 and Figure 4-2, respectively.

Level of Service (LOS):

A: Free flow, with low volumes, and high speeds. B: Reasonable flow, but speeds are beginning to be restricted by traffic conditions. C: Stable flow, but most drivers are restricted in the freedom to select their own speeds. D: Approaching unstable flow, drivers have little freedom to select their own speeds. E: Unstable flow, may be short stoppages. F: Forced or breakdown flow, unacceptable congestion, stop-and-go.

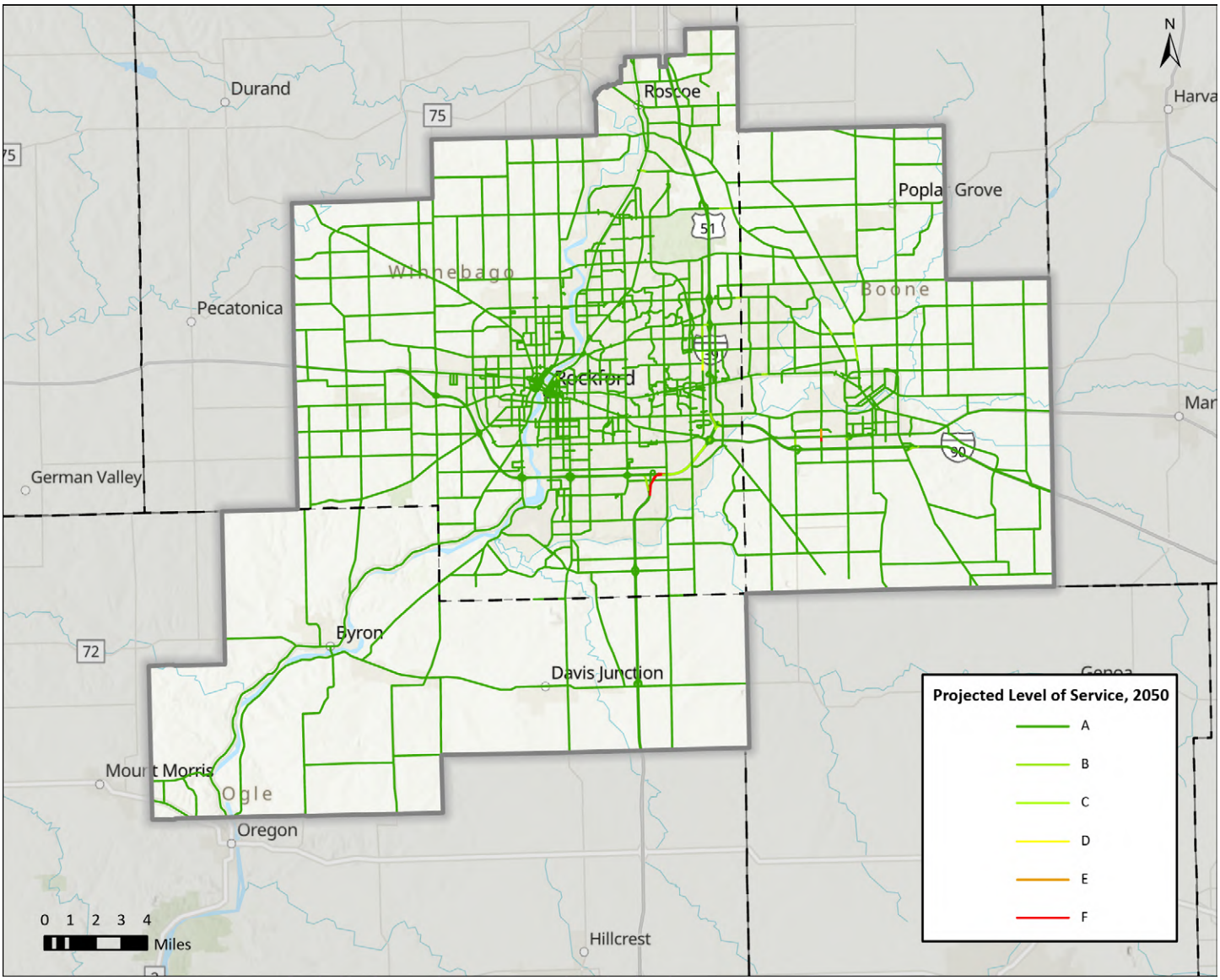
Source: Transportation Research Board

Figure 4-1: Current Level of Service, 2020



Source: Region 1 Planning Council

Figure 4-2: Projected Level of Service, 2050



Source: Region 1 Planning Council

Volume to Capacity Ratio

Another method by which roadway congestion is measured is the volume-to-capacity (V/C) ratio. This method expands upon simple traffic volumes, which do not provide a comprehensive insight into how smoothly traffic is flowing. The volume of vehicles on a roadway is placed over the capacity of the roadway to show how efficient traffic flow is on that roadway. The capacity of a roadway is derived from its design and engineering characteristics.

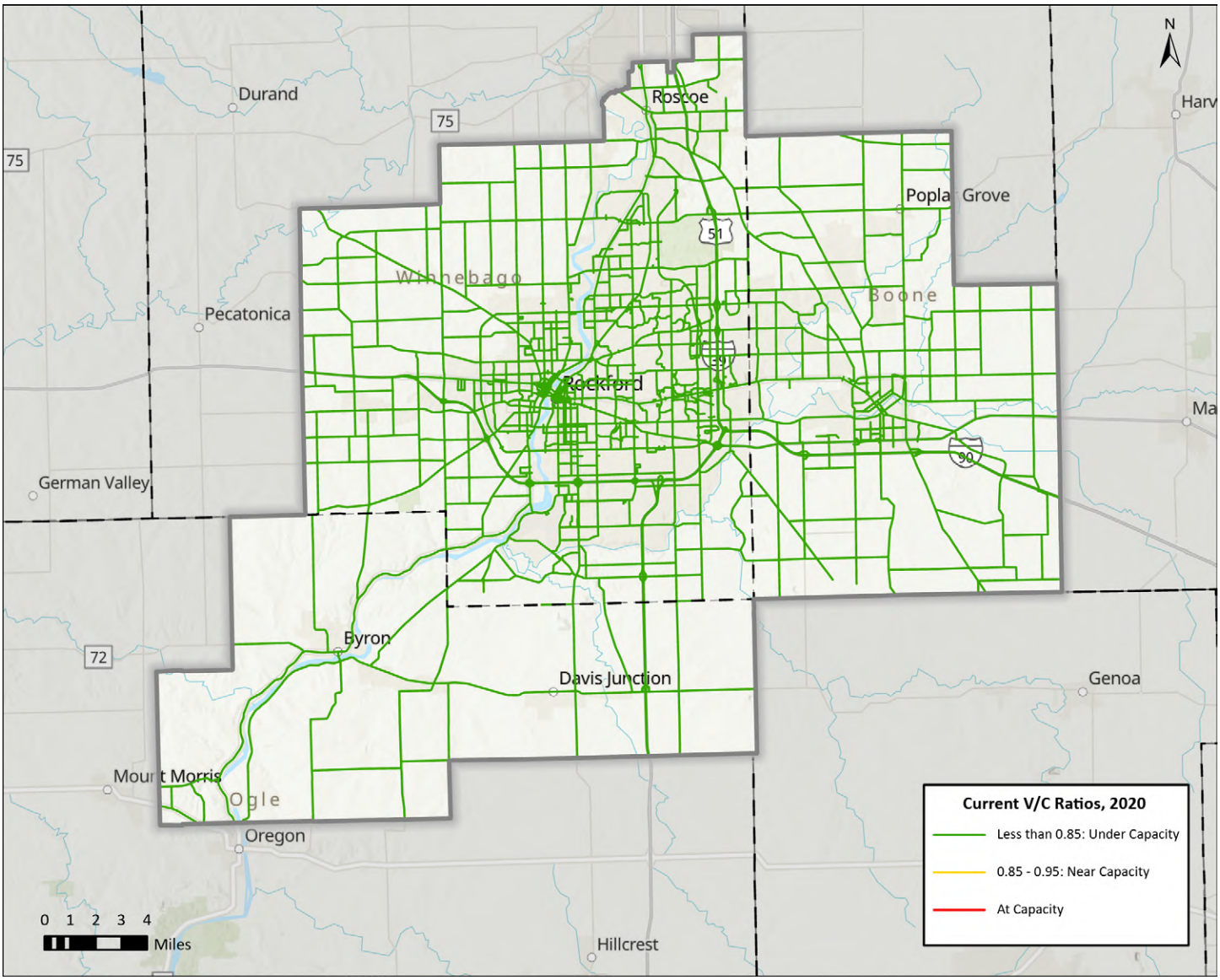
The current and projected V/C for roadways within the Rockford Region can be seen in Figure 4-3 and Figure 4-4, respectively.

Volume-to-Capacity Ratio (V/C):

0.00 to 0.60: Free-flow conditions with unimpeded maneuverability. 0.61 to 0.70: Reasonably unimpeded operations with slightly restricted maneuverability. Stopped delays are not bothersome. 0.71 to 0.80: Stable operations with somewhat more restrictions in making mid-block lane changes than V/C. 0.61 to 0.70: Motorists will experience appreciable tension while driving. 0.81 to 0.90: Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed. 0.91 to 1.00: Operations with significant intersection approach delays and low average speeds. Greater than 1.00: Operations with extremely low speeds causes by intersection congestion, high delay, and adverse signal progression.

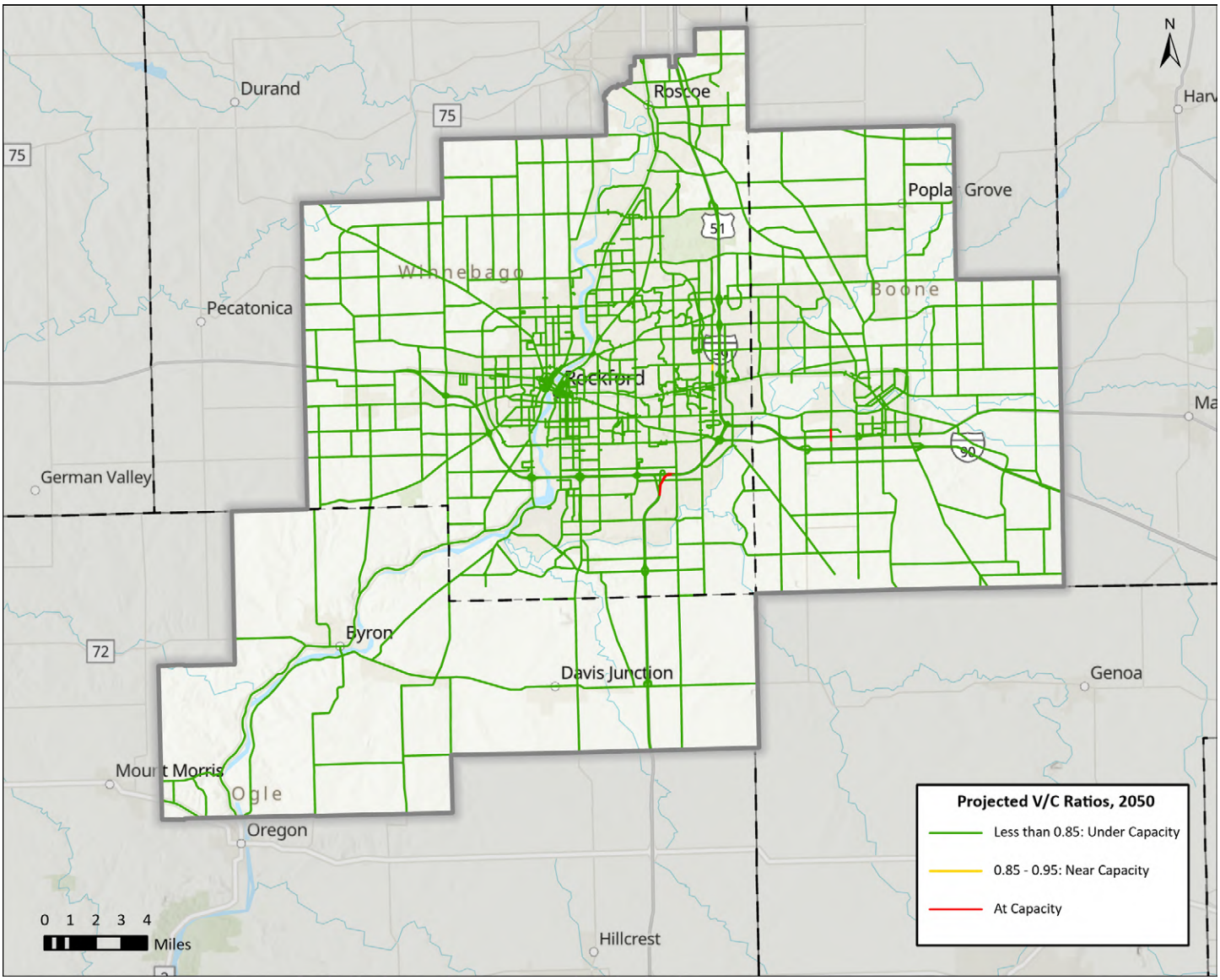
Source: Transportation Research Board

Figure 4-3: Current V/C Ratios, 2020



Source: Region 1 Planning Council

Figure 4-4: Projected V/C Ratios, 2050



Source: Region 1 Planning Council

System Reliability

Congestion indicators, such as LOS and V/C, effectively measure the efficiency of the transportation system, but they fail to consider the aspect of time. For a transportation system to be considered reliable, users must have confidence that trip lengths will be consistent and predictable. Travel time reliability directly measures the impact congestion has on roadways users, and aligns with the way humans perceive time. While the infrastructural capacity of a roadway can lead to congestion, congestion is more commonly caused by a non-recurring event. Examples of non-recurring events include inclement weather, construction work zones, and special events, such as festivals and sporting events.

Travel Time Reliability:

The consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day.

Source: Federal Highway Administration[xxviii]

The Federal Highway Administration (FHWA) recommends the use of four measures to quantify travel time reliability: 90th or 95th percentile travel time (travel time index), buffer index, planning time index, and frequency that congestion exceeds some expected threshold.[xxix] As of June 2024, the only travel time reliability data available for the Rockford Metropolitan Planning Area (MPA) is travel time index (TTI) and planning time index (PTI).

Travel time index is the ratio of travel time during peak conditions to travel time during normal conditions. Planning time index shows the total amount of travel time that should be planned for when an adequate buffer time is included to guarantee an on-time arrival. Table 4-1 shows the TTI and PTI for the Rockford MPA in 2022. Due to the COVID-19 pandemic, this measures fell sharply in 2020, the second most recent year for which data is available. In 2019, the TTI for the region was 1.07, and the total annual hours of delay was 5,267,000. The most recent data for 2022 shows the region's TTI and PTI are both 1.06. The total annual hours of delay in 2022 was 3,945,000.[xxx]

The amount of time lost by commuters as a result of congestion can also be measured. Annual hours of delay, which can be calculated per auto commuter, by truck delay, or as a regional total, measures the severity, duration, and extent of congestion within the region. Table 4-1 also displays the annual hours of delay for the Rockford MPA in 2022.

Travel Time Index:

A travel time index value of 1.30 indicates that a trip that would typically take 10 minutes would take 13 minutes in peak driving time (10 x 1.3 = 13 minutes).

Source: Texas Transportation Institute[xxxi]

Planning Time Index:

A planning time index of 1.5 means that, for a 10-minute trip in light traffic, the total time that should be planned for at peak hours is 15 minutes (10 minutes x 1.5 = 15 minutes).

Source: Federal Highway Administration[xxxii]

Table 4-1: Travel Time Index & Annual Hours of Delay, 2022

Year	Total Delay (Person Hours, in 000s)	Per Auto Commuter	Travel Time Index (TTI) Value	Total Dollars (MIllions)	Cost per Auto Commuter ($)	Value of Time ($/ hour)	Commercial Value of Time ($/ hour)	Commuter Stress Index
2022	3,945	13	1.06	105	330	23.12	64.68	

Source: Texas A&M Transportation Institute, Urban Mobility Reports

Transportation System Management & Operations

Historically, congestion issues have been addressed through funding major capital projects for the transportation facilities with physical capacity constraints. However, transportation system management and operations (TSMO) strategies can provide a more cost-effective way to improve the performance of the entire transportation system by optimizing system efficiency, increasing system reliability, and enhancing system choice. Transportation system management and operations is an integrated approach to optimize the performance of existing infrastructure through the implementation of multimodal, intermodal, and often cross-jurisdictional systems, services, and projects. It encompasses a broad range of strategies, that, along with context-sensitive roadway design, can provide the region with significant benefits. These benefits enhance the quality of life of citizens of the region by providing safer travel, more leisure time, improved reliability, less fuel wasted, cleaner air, and improved livability.[xxxiii]

Overall, the goal of incorporating management and operations into planning and programming is to provide system-level operational solutions that optimize the performance of the overall system. This means that successful TSMO planning looks at the performance from a systems perspective, not just one strategy, project, or corridor. However, context is still an essential consideration in determining how individual corridors impact the overall transportation system. Transportation system management and operations works best in addressing efficiency and reliability when there is an optimal mix of both physical infrastructure and operational strategies implemented.

Region 1 Planning Council (R1) recently completed an update to its Transportation System Management and Operations (TSMO) Plan. To be effective, this update was a collaborative effort between the MPO, Illinois Department of Transportation (IDOT), and local public agencies (LPA) responsible for operating the system. The following five key operational needs were identified in the TSMO plan:

1. Efficient Movement of Goods and People during Peak Hours
2. Traffic Signal Coordination and Timing
3. Improved On-Time Performance of Transit Service
4. Safe and Comfortable Multimodal Options
5. Efficient Movement of Freight and Goods

Work is already underway to address these operational needs. For example, the region is making good progress in addressing issues with traffic signal coordination and timing by conducting and implementing traffic signal coordination studies for major multijurisdictional corridors through the region, including Riverside Boulevard, from Kilburn Avenue in western Rockford to eastern Loves Park, and Alpine Road, from Machesney Park to southern Rockford.

As these respective corridors grew in importance, their intersections were developed one by one. While this developmental approach was efficient at the time, it has left these two corridors with inconsistent traffic control devices, timing parameters, and signal coordination. The studies include proposed signal timing plan for the corridors based upon the existing data and models, and also contain recommended hardware and software upgrades by which the new timing plan can be executed. Several recommendations stemming from the Riverside Boulevard Study have already been implemented.

Intelligent Transportation System

Intelligent transportation systems (ITS) utilize information, technology, and systems engineering principles to better manage and operate surface transportation facilities. When applied properly, ITS improves the operating capacities of the overall system and transportation safety and mobility across all modes. It is critical to the success of the region's transportation system that ITS technologies continue to be used, developed, and implemented.

In 2019, in collaboration with MPOs in Illinois, IDOT updated the state's Intelligent Transportation Systems (ITS) Architecture Strategic Plan. The architecture identifies the stakeholders' roles and responsibilities in managing a wide variety of the components that make up the transportation system, including traffic management, transit management, emergency management, parking management, and information service. Within the plan, the top priority ITS needs for each IDOT region are identified. The top identified needs for IDOT Region 2, which includes the Rockford Region, are enhanced interagency coordination and data sharing, and additional funding for ITS deployment, operations, and maintenance. Real time transit information, maintenance of existing equipment, and a centralized operations center for around the clock traffic management were also frequently identified needs within the region.[xxxiv]

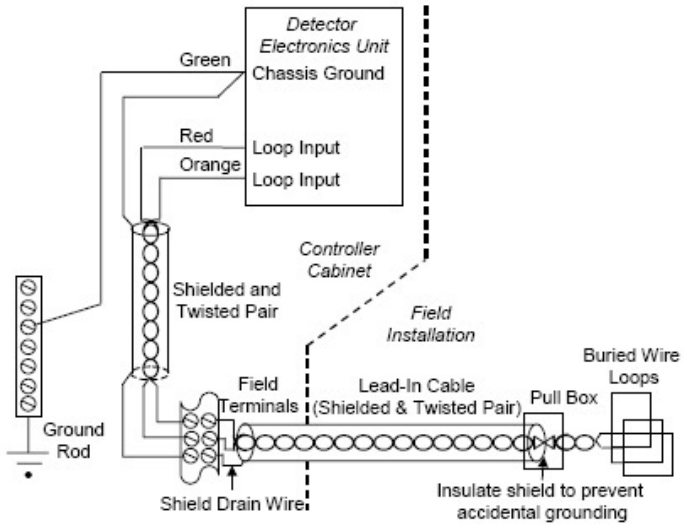
Traffic Signals

One of the most prevalent and readily apparent transportation technologies in the region is traffic control signals. Traffic signals are responsible for moving vehicles safely through intersections and ensuring people and goods travel with as much efficiency as possible. Signal timing must address the needs of all users, including, pedestrians, bicycles, and vehicles, and in some cases must specifically accommodate, freight, transit, railroad and emergency vehicles.[xxxv]

As a part of the Regional Traffic Signal Operation Program (RTSOP), a traffic signal inventory was completed. The inventory showed that a variety of old and new traffic control technology are in use within the region. Fixed-time signal control uses pre-established signal timings to control intersections, but does not allow for any variation in signal timing, regardless of current traffic conditions. If the timings are well developed, this method can be effective, especially in areas where traffic flows are consistent. Within the region, fixed-time signal control can be found in both downtown Rockford and Belvidere.

The majority of traffic signals in the region operate on fully-actuated timing intervals. Fully-actuated control allows for delay resulting from pre-timed control to be minimized, as fully-actuated timings are dependent on current conditions. For example, if the signal detects there is no call for service from one of the two roadways, its phase can be skipped and the unused time can be reallocated to the other roadway, keeping traffic moving. Fully-actuated control works best at intersections where traffic demands and patterns change frequently throughout the day.[xxxvi]

Figure 4-5: Inductive Loop Conductor



Source: Federal Highway Administration

Fully-Actuated Control:

Fully-actuated control refers to intersections at which all phases are actuated. This requires detection for all traffic movements, as current traffic conditions dictate signal timing.

Source: Federal Highway Administration[xxxvii]

Call for Service:

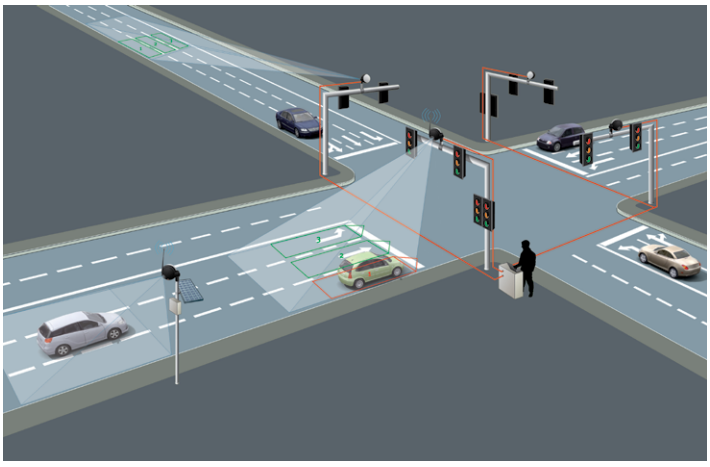
An indication with a controller that a vehicle or pedestrian is awaiting service from a particular phase or that a recall has been placed on the phase.

Source: Federal Highway Administration[xxxviii]

Vehicle detection is central to the success of fully-actuated control. The most common method of detection is inductive loop detection. Underneath the roadway, a wire loop with a live current is connected to the signal controller. When a vehicle passes over or stops atop the inductive loop, the current slows, sending a pulse to the controller, which then triggers a new signal phase.[xxxix] As of 2020, inductive loop detection was in use at 30 percent of the City of Rockford's signalized intersections.

IDOT had 264 inductive loop detectors in place within the region in 2020, but indicated they wanted to modernize its detection technology by transitioning to video image processors. Video image processers receive more information than loop detectors, allowing for more efficient traffic signal timings. In particular, video image processers can recognize large groups of vehicles and extend signal phases to allow the entire group to safely pass through the intersection. Adaptive signal control can be found at many intersections along Perryville Road in eastern Rockford.

Figure 4-6: Video Image Processor



Source: Aldridge Traffic Controllers

Semi-actuated control is a combination of fixed-time control and fully-actuated control. This method uses detection as well, but only for the minor road approaches. Best suited for intersections in a coordinated arterial system, this type of control uses fixed-timing for the major throughway while the minor approach has detectors that can trigger a phase change.[xl] Problems arise from this method when movements on the minor road occur frequently, causing delay on the major roadway. The Illinois Department of Transportation has 40 semi-actuated traffic signals in the region and 15 percent of the City of Rockford's intersections use semi-actuated control.

Transit Signal Priority

Transit signal priority gives special treatment to transit vehicles at signalized intersections. Transit vehicles can hold many more people than a typical motor vehicle, so giving transit vehicles priority can increase the person throughput of a signalized intersection.[xli] The region currently does not have any intersections equipped with transit signal priority. However, this technology may be pursued with the development of a bus rapid transit service.

Bus Rapid Transit (BRT):

High-frequency bus service on dedicated lanes that are separate from general travel. BRT combines the advantages of rail transit - exclusive right-of-way to improve punctuality and frequency - with the advantages of a bus system - low implementation costs and flexibility to serve lower density areas.

Source: Federal Highway Administration

Two main strategies exist for providing priority to transit vehicles. A passive priority strategy simply adjusts the timing of coordinated signals on roadways with significant transit use to match average bus speed instead of average vehicle speed. An active priority strategy requires the use of technology at signalized intersections to detect approaching transit vehicles. When a transit vehicle is detected, the system must predict its arrival time in the intersection and then extend the current green signal or produce an early green signal.[xlii]

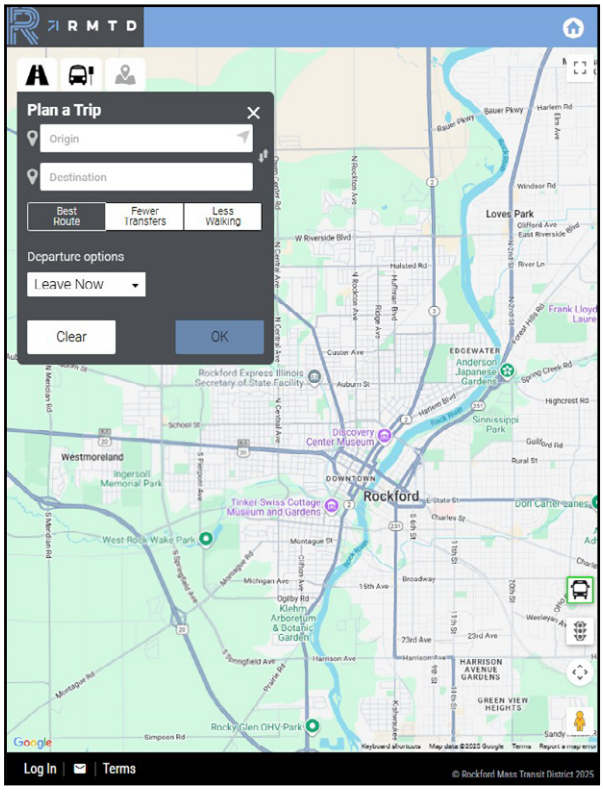
A queue jump lane can also be installed to enhance the buses' ability to take advantage of the priority signal. A right turn only lane can be configured to allow buses to make through movements from it. This method may require the installation of a special bus-only signal. A logic must be applied to the priority system as traffic conditions or stop locations may mean signal priority should not be given.[xliii]

Mobility as a Service Applications

Mobility as a service (MaaS) is a mobility platform in which a traveler can access multiple transportation services over a single digital interface.[xliv] Mobility as a service primarily focuses on passenger or goods movement, allowing travelers to seamlessly plan, book, and pay for a multimodal trip on a pay-as-you-go or subscription base.[xlv] The Rockford Region has various options for MaaS, such as Uber, Lyft, Bird, Door Dash, and Grubhub. These companies have smartphone applications that allow users to download and then request immediate transportation service or order delivery of goods.

Locally, Rockford Mass Transit District is pursuing an MaaS smart phone application called Bus Time. In the fall of 2023, RMTD deployed a trip planning software, which allows riders to check stop times, track bus location, and plan trips using the rider's origin and destination. The Bus Time app has the capability to provide passengers with real-time information regarding fixed-route arrival times and demand response trips. The app also allows passengers to determine the most effective route to their desired destination. These features allow RMTD's passengers to be better informed when using the agencies services, helping them to save time and arrive at their destination in an efficient manner. Emergency alerts can also be shared throughout the system should extenuating circumstances delay or shut down services. The application is fully accessible to all users with disabilities and was launched publically in the summer of 2023.

Figure 4-7: RMTD's Trip Planning Application



Source: Rockford Mass Transit District

Real-Time Transit Information

Public transportation agencies utilize several technologies that allow them to optimize the services they provide to the community. Many of these technologies can be packaged into a software system that creates an intelligent network when implemented. On December 21, 2023, Rockford Mass Transit District tentatively decided to proceed with one of these systems, TripSpark, to enhance its fixed route services. This decision was made after carefully evaluating proposals from TripSpark and five other companies.

Rockford Mass Transit District expects the software to automate real time scheduling functions, increasing both the efficiency of service and the accuracy of data, and reducing the amount of time spent on administrative and reporting activities. The program includes a number of features that will enhance RMTD's fixed route services, including dispatching, visual displays of vehicles, trips, and routes, and turn-by-turn directions for drivers. Rockford Mass Transit District will be able to use the data it receives from the software to find the optimal number of vehicles and routes needed to maximize service levels. The system will also be designed in a way that allows for the integration of future technologies as they become available.

To optimize its services, RMTD collects data on many internally designated performance measures. This process has been burdensome to RMTD in the past, but TripSpark will alleviate these concerns. The software is capable of recording data for a number of performance measures including: passengers per hour and per mile, revenue per mile and per time percentage, average ride time, standing order percentage, and the percentage of no-show or late cancellations. These data points help RMTD to better report on its operational performance as well as internally assess its services.

Maintenance & Preservation

Routine, scheduled maintenance is crucial to the functionality of roadways, bridges, and transit capital, such as buses. Regular maintenance of these assets is the responsibility of the entity with jurisdictional ownership, unless otherwise stated in a maintenance agreement. The main purpose of maintenance and preservation practices is to ensure all assets are operating in a safe and efficient manner, and to minimize the need for additional, unplanned repairs.

Pavement Condition

Condition ratings help decision-makers prioritize the maintenance of roadways and bridges based on current condition. A variety of factors can impact the wear and tear on roadways and bridges, such as traffic volumes, percentage of freight movement, freeze/thaw cycles, and more.

Collection of pavement and bridge condition on collector and arterial roadways occurs roughly every two years by Illinois Department of Transportation (IDOT). Utilizing pavement condition data can help inform strategies to prioritize regularly scheduled maintenance and prevention tactics to maximize roadway life cycles.

Interstate NHS

Within the Rockford MPA, there are roughly 200 miles of interstate roads that belong in the National Highway System (NHS). As of 2021, approximately 69 percent of interstate pavements were classified in good condition. Since 2017, pavement condition of interstate NHS roadways in the Rockford Region has seen little fluctuation. However, 4.2 lane miles of IDOT roadways were reclassified from fair or poor condition to good condition. Conversely, five lane miles of the tollway were reclassified as fair condition from previously good condition.

Condition Rating System Categories:

Excellent: Exhibit few if any distress levels. Little if any maintenance is needed for these pavements. Good: Exhibit low to medium levels of distress and are not in need of an immediate improvement based on surface condition. Fair: Exhibit moderate rutting, a rougher ride along with more frequent and severe cracking. Poor: Exhibit higher levels of distress over larger areas of the pavement surface. High levels of cracking lead to material loss, patch deterioration and loss of structural integrity.

Non-Interstate NHS

Within the Rockford MPA, there are just over 620 miles of collector level and above roads. As of 2021, approximately 25 percent of non-interstate NHS pavements were classified in good condition. From 2017 to 2021, the Rockford Region's Non-Interstate NHS saw 6.5 lane miles of pavement elevated to good condition, reducing the percent of lane miles classified as poor and "N/A" conditioned pavements. Additionally, just over one mile of pavement fell to fair condition during this period. The majority of these changes occurred on IDOT and City of Rockford roadways. Table 4-2 shows the change in non-Interstate pavement conditions from 2017 through 2021.

Table 4-2: Non-Interstate NHS Pavement Condition

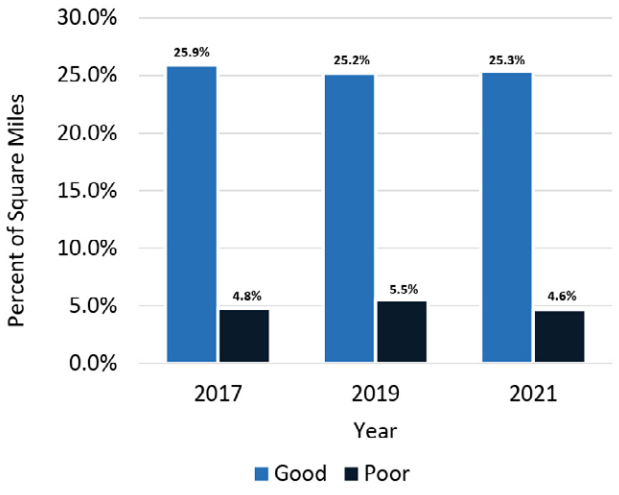
Performance Measure	2018 (%)	2019 (%)	2020 (%)	2021 (%)	Prelim. 2022 (%)
Percent Non-Interstate NHS Pavement in Good Condition	24.2	24.3	25.6	29.5	30.5
Percent Non-Interstate NHS Pavement in Poor Condition	8.7	8.6	9.4	8.0	7.6

Source: Illinois Department of Transportation

Bridge & Structures

Every two years, structures on the NHS receive a visual inspection. There is an exception for some structures in good condition, which are inspected instead on a four-year cycle. Within the Rockford MPA, there are 161 structures in the NHS. Since 2017, the condition of nine structures in the Rockford Region changed. These include two structures owned by IDOT, one structure owned by Winnebago County, and three structures owned by the Tollway were reclassified from good to fair condition. Another two structures owned by the City of Rockford and one structure owned by Loves Park were updated to good condition, previously classified as being in poor condition. Figure 4-8 shows the change in NHS structure condition from 2017 through 2021.

Figure 4-8: Non-Interstate NHS Bridge & Structure Condition



Source: Illinois Department of Transportation

Transit Capital

Rockford Mass Transit District currently has a total of 41 35-foot buses operating their fixed-route service, including 20 diesel buses, 23 hybrid buses, and six battery electric buses. All of these buses are on a 12-year replacement schedule, with diesel buses being replaced with battery electric or hybrid buses. Rockford Mass Transit District has a total of 33 medium and super-medium transit buses, made up of 13 diesel and 20 gasoline buses, used for their paratransit services. Each of these buses has a life-span of roughly five to nine years and are expected to be replaced with battery electric or hybrid buses by 2028.

As stated in RMTD's Zero Emission Transition Plan, zero emission buses (ZEBs) started to roll out in 2022 and RMTD will reach 100 percent zero emission vehicle (ZEV) procurement by 2029. Each of the vehicles are replaced with a battery electric vehicle once they reach the end of their effective life cycle, as denoted previously. Some hybrid bus investment is also in the plan to deal with range limitations from battery electric buses, but the plan is to eventually replace the entire fleet with battery electric vehicles. Rockford Mass Transit District is expected to have their entire fleet replaced with a zero-emission fleet by 2038.

Resiliency

Transportation resiliency is important to the social, economic, environmental, health, safety, and operation of the transportation system. A resilient transportation system will perform well under both normal conditions and hazardous events[xlvi]. Region 1 Planning Council, for planning purposes, defines resiliency as the ability for a transportation system to adapt to, recover from, and respond to threats of all kinds. A vulnerability assessment was developed for the Regional Transportation Resiliency Study, completed in 2023, to determine the vulnerability region's transportation system to natural and human hazards. The assessment used both asset criticality and risk factors to quantify the vulnerability of a given roadway. Key data and attributes of the physical infrastructure were utilized in combination with socioeconomic factors to score and compare the roadways. The assessment locates areas where vulnerabilities in the network exist and allows for a more analytically-driven prioritization effort of future infrastructure investments that could have the greatest network-wide impact.

The first part of the analysis quantified asset criticality, or, how important the asset is relative to the overall system. Asset criticality was divided into two categories: mobility, efficient and reliable movement of goods and people, and accessibility, population characteristics and areas of interest. The higher the asset criticality score, the more essential the road segment is considered to the overall system.

The higher-ranking segments are the most critical in the recovery after a disruption.

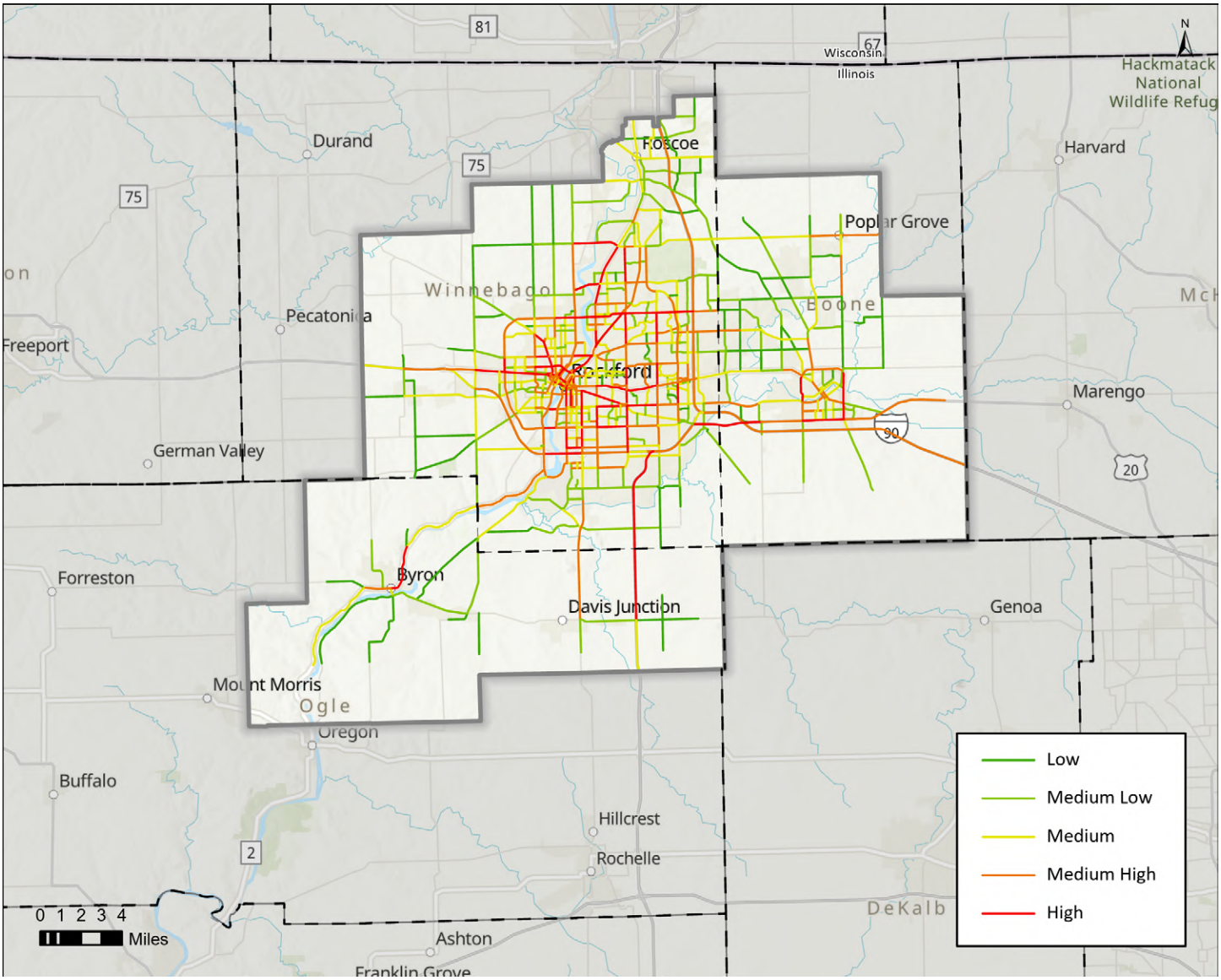
The second part of the analysis was to quantify risk, how likely an asset is to experiencing hazards. Risk was divided into two categories: exposure, the likelihood of experiencing a hazard, and sensitivity, amount of damage if exposed. The higher the risk index score, the more at risk the road segment is to hazards.

The vulnerability assessment identifies the degree to which an asset is vulnerable to natural and manmade hazards. The vulnerability score is an accumulation of the asset criticality analysis and risk index. The results of the vulnerability assessment for the roadways network in the Rockford MPA are shown in Figure 4-9. Ten miles of roadways received very high vulnerability score and can be considered the most critical and susceptible roadways in the overall network.

More information on the vulnerability analysis can be found in the Transportation Resiliency Study in the R1 website at: r1planning.org/planning/transportation.

The next step for addressing resiliency in the Rockford Region is to complete a Resiliency Improvement Plan. This plan will use the vulnerability analysis results to develop mitigation strategies and create implementation tactics for the most critical infrastructure in the region. The Resilience Improvement Plan will demonstrate a systemic approach to surface transportation resilience and be consistent with state and local mitigation plans; it will also include a risk-based assessment of vulnerabilities of transportation assets and systems to weather and natural disasters, such as severe storms, flooding, drought, and extreme weather, including extreme temperatures. It will also describe resilience improvement policies, include an investment plan of priority projects, and use data to support project priority.

Figure 4-9: Vulnerability Score by Traffic Analysis Zone



Source: WinGIS

Safety

Safety is defined by the United States Department of Transportation (USDOT) as freedom from harm resulting from unintentional acts or circumstances on roads, structures, and multi-modal facilities of a transportation system. This is important in ensuring a sustained quality of life for all users of the transportation network.

Safety is measured and analyzed in a number of ways, including the number and severity of crashes that occur at particular locations, as well as the type of crash. The following section provides a high-level analysis of traffic safety in the region over a six-year period with data provided by the Illinois Department of Transportation. In total of 34,795 traffic crashes occurred within the region between 2017 and 2022, with an average of 6,959 crashes annually.

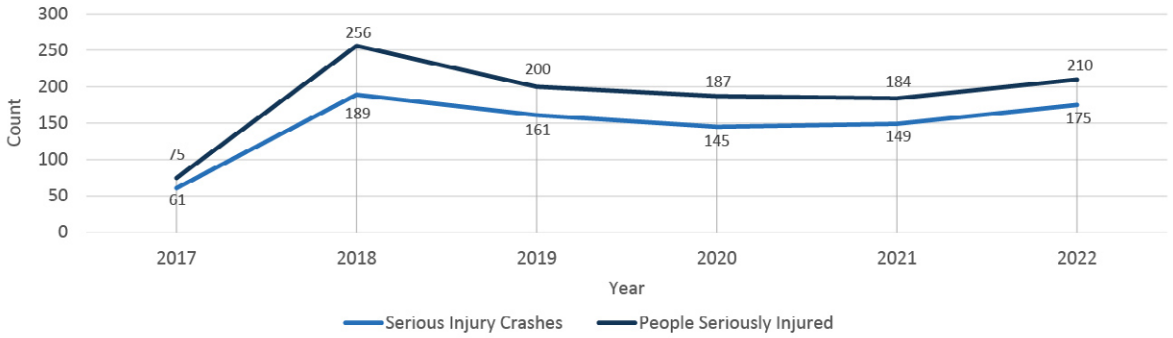
Crash Severity

Crash severity is crucial in traffic safety analysis because it can indicate the potential for serious injuries and fatalities in a collision, which assists in identifying road safety issues and lead to effective mitigation strategies.[xlvii] Crash severity is determined by the most severe injury sustained in a crash, regardless of the number of injuries. A severe crash is one resulting in a fatality or incapacitating injury.

Over the six-year period between 2017 and 2022, 1,060 severe crashes occurred in the Rockford Region, accounting for three percent of all crashes. Of the 1,060 severe crashes, 180 of those crashes (17.0 percent) resulted in at least one fatality. As shown in Figure 4-10, the number of fatalities jumped between 2017 and 2018, before slightly decreasing in 2019 and 2020. However, in 2021 the number of fatal crashes peaked at 58 crashes, double the number of fatal crashes in 2020, before dropping again in 2022. The spike in fatal crashes in 2021 is consistent with statewide and national trends of that same year.

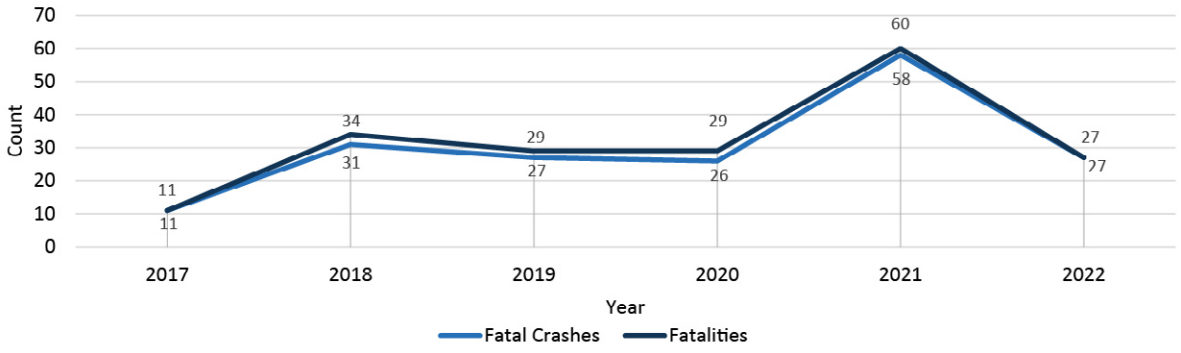
During the same time period, 880 crashes resulting in a serious, incapacitating injury. During the six-year period between 2017 and 2022, serious injury crashes peaked at 189 crashes in 2018, an increase of 210 percent over the previous year. After 2018, the number of serious injury crashes was decreasing between 2019 and 2020. However, the number of serious injury crashes began to increase again in 2021 and appears to be continuing in an upward trend, as shown in Figure 4-11.

Figure 4-10: Serious Injury Crashes and Number of Serious Injuries



Source: Illinois Department of Transportation

Figure 4-11: Fatal Crashes and Number of Fatalities



Source: Illinois Department of Transportation

Crashes are inevitable; therefore, minimizing the severity of those crashes should be a key element considered when planning for roadway safety. These numbers could be further reduced through the strategic and systematic implementation of countermeasures throughout the region.

Crash Severity Index:

Fatal – a traffic crash involving a motor vehicle in which at least one person dies within 30 days of the crash. A: Incapacitating Injury – a traffic crash resulting in an injury, other than a fatal injury, which prevents the injured person from walking, driving, or normally continuing the activities he/she was capable of performing before the injury occurred. B: Non-Incapacitating Injury – a traffic crash resulting in any injury, other than a fatal or incapacitating injury, which is evident to observers at the scene of the crash.

Source: Illinois Department of Transportation [xlviii]

Crash Type

In addition to crash severity, data provided by IDOT also identifies the 'type' of crash that occurred. These are categorized based on the first object the primary vehicle makes contact with in a collision. Based on the data available, region-wide crash type trends can be identified, allowing countermeasures to be examined throughout the MPA.

Regionally, rear-end, or front-to-rear, crashes are the most common single type of crash in the Rockford Region, accounting for 24.9 percent of all crashes between 2017 and 2022. Rear-end crashes are closely followed by turning crashes, which accounts for 21.0 percent of all crashes. However, turning crashes resulted in second highest fatalities and serious injuries of any other single crash type. Fixed object crashes accounted for only accounted for 11.5 percent of all crashes, but 20.4 percent of all severe crashes.

Often multiple types of crashes will be combined into a larger categorization, such as roadway departures. Roadway departure crashes are defined as being those where a vehicle collides with a fixed object off the roadway, overturns, strikes another vehicle head-on, or contacts the side of another vehicle that is traveling in the opposite direction. Between 2017 and 2022, 5,164 roadway departures occurred, representing 14.8 percent of all crashes. These are of particular concern in the region for not only the number of them that occur but also the increased severity of those crashes. Approximately 37.8 percent of fatal crashes were a result of a roadway departure, while 31.6 percent of serious injury crashes were a result of roadway departures.

Urban vs. Rural

The prevalence of crashes, severity, and type of crashes occurring can vary greatly between urban and rural landscapes due to a number of factors. For example, urban areas tend to have lower operating speeds, higher volume of vehicles, and more conflict points, such as intersections and driveways. Conversely, rural areas typically have higher operating speeds, lower volumes of traffic, and fewer intersections.

Due to higher volumes of traffic, urban areas typically have more total crashes, as is the case in the Rockford Region. The majority of the crashes in the Rockford Region were located within urban areas, 79.3 percent, with the remaining 20.5 percent occurred in rural portions of the planning area. However, a higher number of rural crashes resulted in a fatality or injury (3.5 percent), compared to crashes in urban areas (2.9 percent).

Vulnerable Roadway Users

In recent years, the region has seen increases in the number and severity of crashes involving pedestrians, cyclists, and other non-motorized users of the transportation system, known as vulnerable road users (VRU). However, this trend is not unique to the region and can be seen throughout the state and nation. There are numerous factors that can contribute to this increase, including the rise in popularity and diversification of alternative modes of transportation, an increase in vehicle miles traveled (VMT) within the region; and lack of education on how vehicles, cyclists, and pedestrians should properly interact.

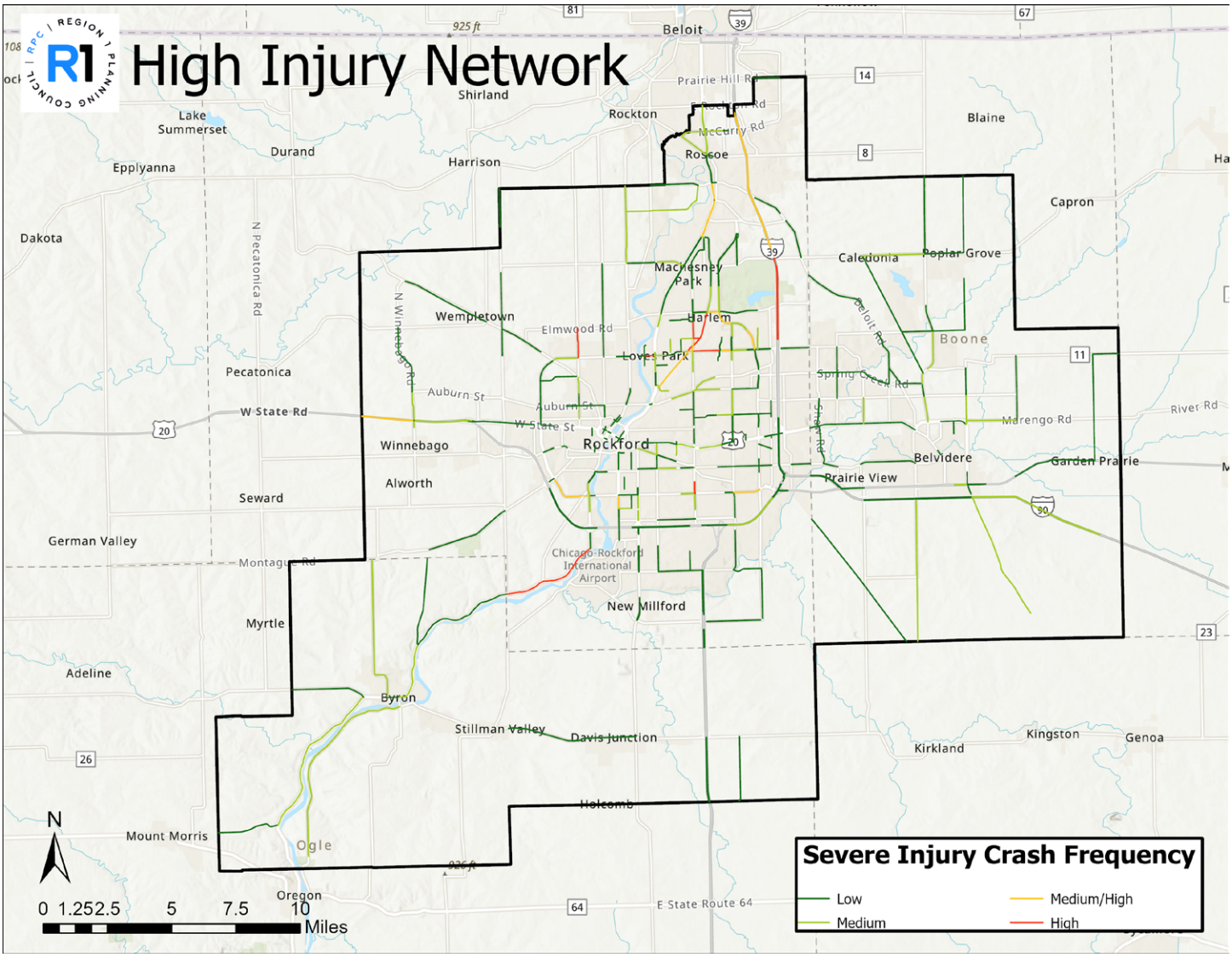
Vulnerable roadway users (VRU) are non-motorists who are walking, biking, or rolling, as well as highway workers on foot in a work zone.

Just over 1.3 percent of all crashes in the Rockford Region between 2017 and 2022 involved a pedalcyclists or pedestrian. However, these crashes represented 12.2 percent of all severe crashes. Just over 24.4 percent of all fatal crashes involved a pedestrian or pedalcyclists. Roughly 88 percent of severe crashes involving a VRU occurred in an urban area. Nine of the 44 fatal crashes were hit and runs.

High-Injury Network

A high-injury network (HIN) identifies where increased occurrences of traffic-related deaths and serious injuries occur. Eleven corridors were identified in the Rockford Region's high-injury network, accounting for 40 percent of all severe crashes. This network is shown in Figure 4-12.

Figure 4-12: High Injury Network



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