



Chapter 3: Transportation Network



3

Transportation Network

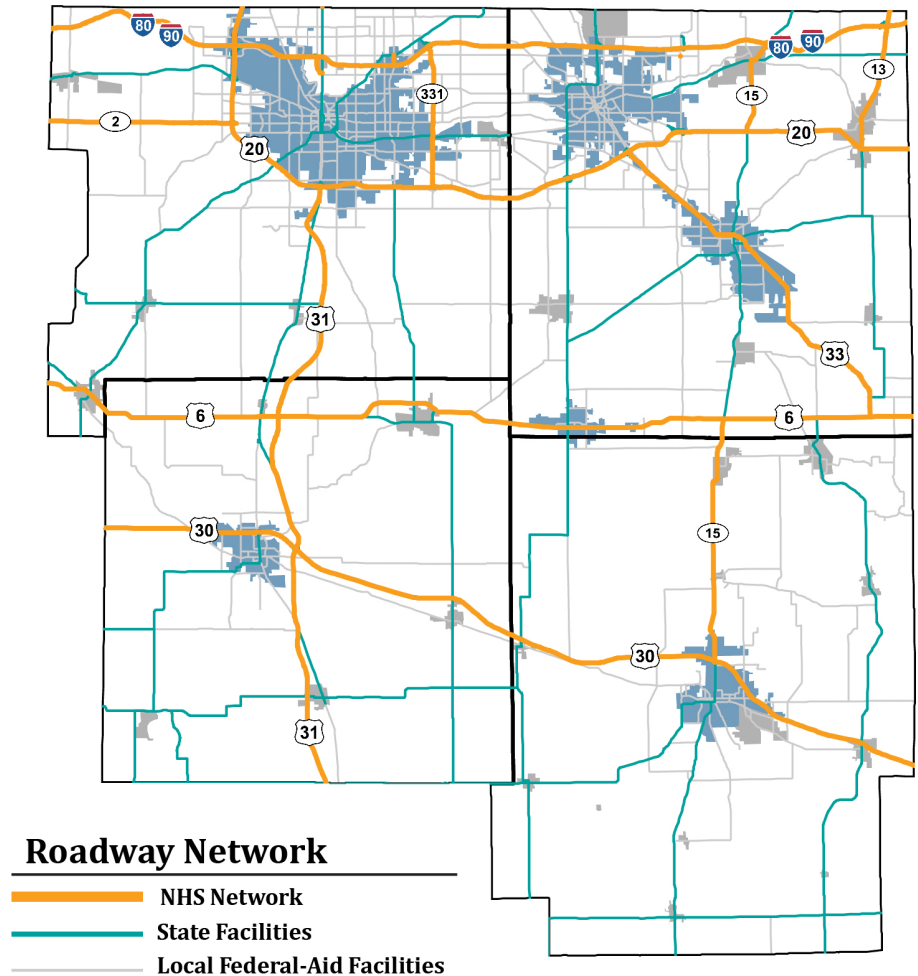
Social and economic characteristics can influence the demand on the transportation system. More people, more jobs, or more economic successes can result in higher traffic volumes and increased development. The 2045 Transportation Plan analyzes the trends and projections of social and economic characteristics, in order to better understand the future demand on the regional transportation system.

The transportation network is more than roads and highways; it includes public transportation, bicycle and pedestrian paths and the movement of freight. It is not just one of these elements, but all of them working together, to create an efficient and effective transportation network for people and products to move throughout the region. Figure 3-1 shows the major roadways within the MACOG region.

Roads and Highways

The MACOG region is comprised of over 6,548 miles of roadway, providing connectivity and access, both locally and regionally. At its most basic, the roadway network can be separated into three categories: the national highway system, state facilities, and local facilities. Furthermore, roadways are functionally classified, based upon their intended character of service, into interstates, expressways, principal and minor

Figure 3-1: RoadwayNetwork



arterials, major and minor collectors, and local roads. The transportation network is always evolving and because of this, it is important to identify and address changes, challenges, and opportunities that might occur in the future through the visioning of the transportation planning process.

National Highway System

The National Highways System (NHS) contains roads and highways important to the nation's economy, defense, and mobility and therefore should be given the highest priority for improvements and repairs. Within the MACOG region there is one corridor that is part of the Eisenhower Interstate System: I-80/I-90 (Indiana Toll Road). This interstate runs through the northern portion of the region, traveling from California to New York. Other highways that are

part of the NHS include US 6, US 20, US 30, US 31, US 33, SR 2, SR 13, SR 15 and SR 331.

Regional State Facilities

State highways are generally a mixture of primary and secondary roads intended to provide regional connectivity between the cities and towns within the state. For the MACOG region, SR 2, SR 4, SR 10, SR 14, SR 25, SR 110, SR 120, SR 933 (Lincolnway), US 6, US 20 and US 30 provide east-west connections inside and outside the region. For north-south connection, SR 13, SR 15, SR 17, SR 19, SR 23, SR 331, US 31 and US 33 provide connection inside and outside the region.

Local Facilities

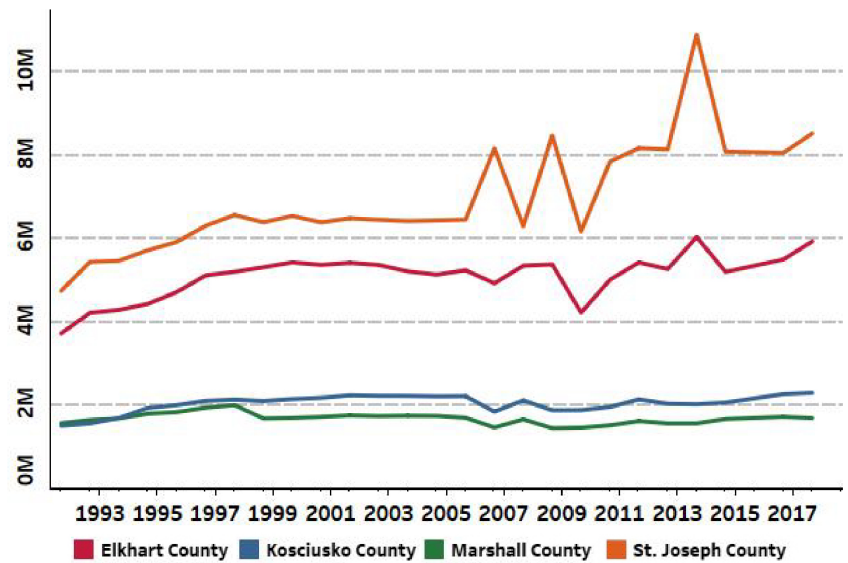
The Michiana area has an extensive network of arterial and collector roadways that provide access and connectivity for a high volume of vehicular traffic. These networks are extended to other smaller incorporated towns and cities, accommodating travel demand. In total, 35 cities and towns are connected by the network within the MACOG region.

Vehicle Miles Traveled

Vehicle-miles travelled (VMT) is an indicator of road network usage as it measures the distance in which vehicles travel over a particular length of time. VMT is a measure used in transportation planning for a variety of purposes. It measures the amount of travel for all vehicles in a geographic region over a given period of time, typically a one-year period. The Federal Highway Administration has kept records of VMT on a monthly basis since 1970. In 2007, the national level of VMT hit an all-time annual high since the start of this record keeping. By 2008, nationwide VMT dropped for the first time since 1980, and continued to flat line due to economic and social factors. Since 2015 however, VMT has steadily been increasing due to a recovering economy.

Until about 1998, all counties in the MACOG region experienced an increase in VMT at a

Figure 3-2: Total Daily VMT by County



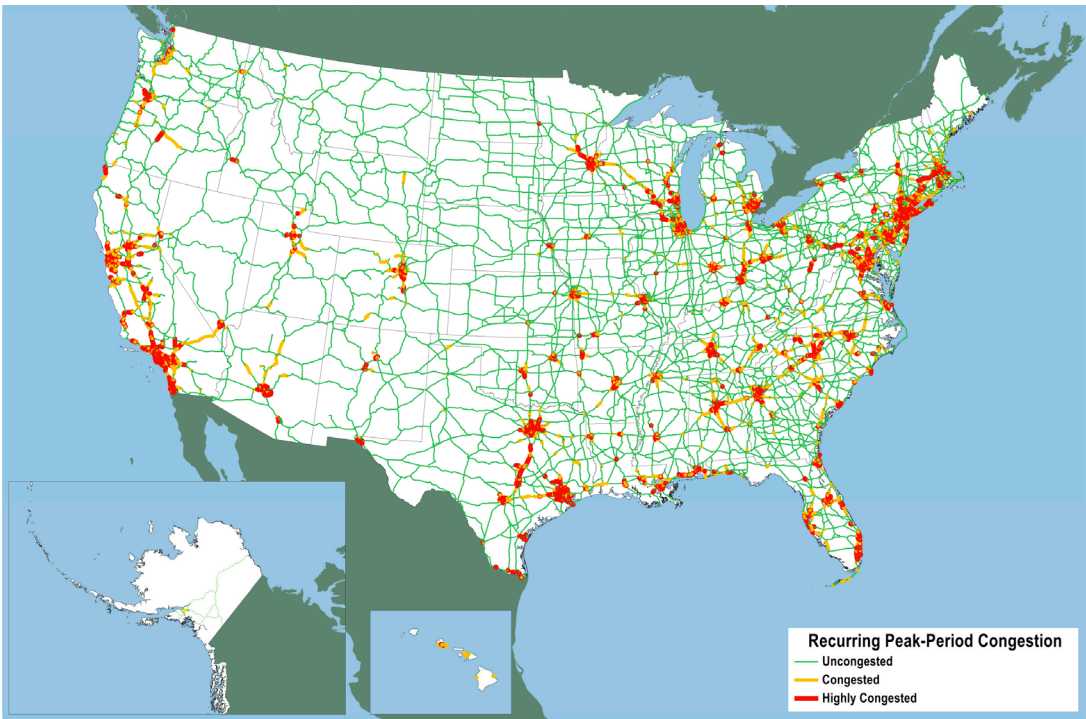
Source: 2019 INDOT

slower rate than the U.S. From 1998 to 2006, VMT stayed at a consistent level. Between 2006 and 2014, Marshall County and Kosciusko County saw a slight decrease in VMT. Elkhart and St. Joseph County showed irregular trends, increasing and decreasing VMT significantly between years. However, all of the counties in the region are showing upward mobility in most recent years. Figure 3-2 shows VMT trends for the four counties in the region.

The latest regional VMT study shows that St. Joseph County saw the highest VMT of 8.5 million miles travelled within the region. Elkhart saw the next highest at 4.9 million miles. Marshall County saw the lowest regional VMT at 1.7 million miles traveled and Kosciusko saw 2.3 million miles. Increases in VMT have an impact on the region. The more miles that are traveled on roads means a higher cost of maintenance, increased traffic and freight congestion, higher vehicular air emissions, and a potential for higher rates of crashes. These factors are all considered when planning for future projects in this plan.

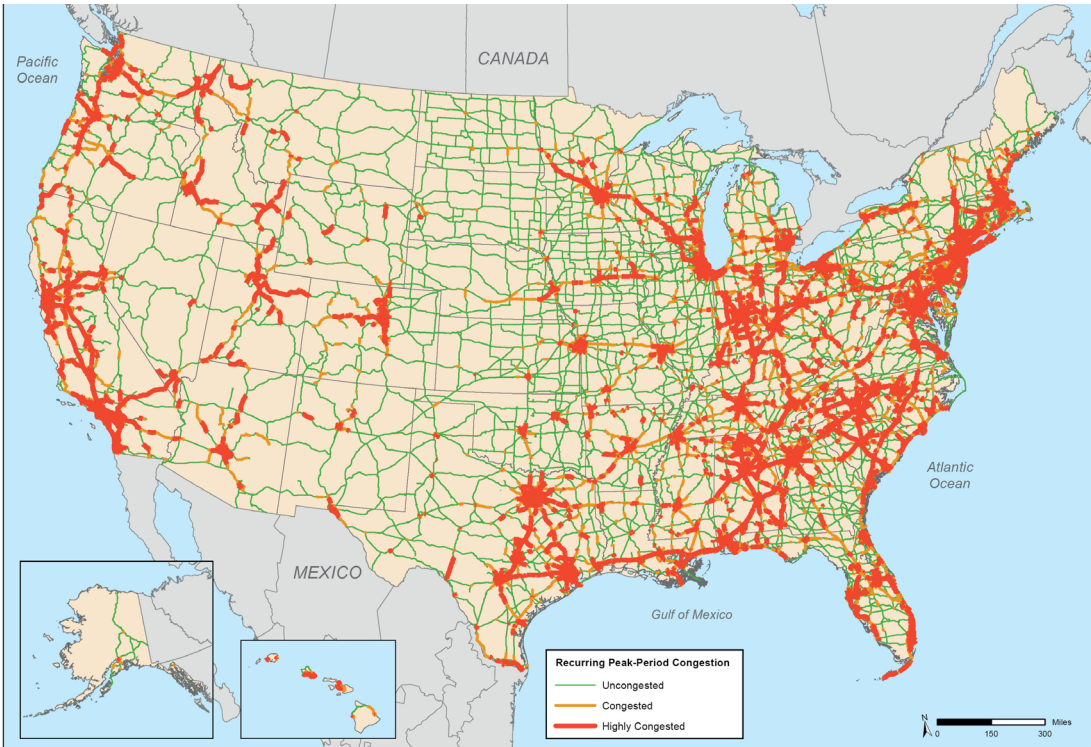
The current vehicle-miles travelled (VMT) in our region for 2018 was 17.4 million miles traveled daily, up from 16.9 million daily miles travelled in 2015. Increases in VMT has an impact on the network that may include increased traffic and freight congestion.

Figure 3-3: Peak Period Congestion on the NHS: 2007



Notes: Highly congested segments are stop-and-go conditions with volume/service flow ratios greater than 0.95. Congested segments have reduced traffic speeds with volume/service flow ratios between 0.75 and 0.95. The volume/service flow ratio is estimated using the procedures outlined in the HPMS Field Manual, Appendix N. Source: U. S. Department of Transportation, Federal Highway Administration, Office of Highway Policy Information, Highway Performance Monitoring System, and Office of Freight Management and Operations, Freight Analysis Framework, version 3.4, 2012

Figure 3-4: Peak Period Congestion on the NHS: 2040



Notes: AADTT is average annual daily truck traffic and includes all freight-hauling and other trucks with six or more tires. AADT is average annual daily traffic and includes all motor vehicles. NHS mileage as of 2011, prior to MAP-21 system expansion. Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 3.4, 2013.

Figure 3-3 shows the recurring congestion caused by volumes of passenger vehicles and trucks that exceed capacity on roadways during peak periods. In 2007, the recurring congestion is concentrated primarily in major metropolitan areas, especially along the east coast. Also in 2007, peak period congestion resulted in traffic slowing below posted speed limits on 11,700 miles of the NHS and created stop-and-go conditions on an additional 6,700 miles. Assuming no changes in network capacity; increases in truck and passenger vehicle traffic are forecast to expand in areas of recurring peak-period congestion to 36% of the NHS in 2040, Figure 3-4. This compared with 11% of the NHS in 2007.

Safety

The region has had a steady crash rate from 2015 to 2018. The largest increase in incidents was in St. Joseph County from 8,810 crashes in 2015 to 9,451 in 2016. However, since that time the county's accident rates have dropped, having 9,092 in 2018. As a whole, the region reflected a similar trend, increasing from 20,443 total crashes in 2015 to 21,506 in 2016. Like St. Joseph County though, the region then began to see a decrease in the rate of collisions to 20,767 in 2018.

Every crash is recorded as either property damage only, fatal crashes, and injury crashes. The large majority of crashes tend to be property damage only crashes, resulting in no fatalities or injuries. In 2018, 86 percent of crashes in

Elkhart, Kosciusko and Marshall Counties were property damage only crashes. St. Joseph County had a slightly higher percentage of injury and fatal related crashes with 83 percent of crashes reported as property damage only. St. Joseph County also had the highest number of fatal crashes, 29, in 2018 followed by 18 fatal crashes in Elkhart County, 14 in Kosciusko County and 11 in Marshall County. Both Elkhart and Kosciusko Counties have seen a decline in percentage rates of fatal crashes compared to the total number of crashes from 2015 to 2018, while Marshall and St. Joseph Counties have seen a steady increase of fatal collisions in that same timeframe.

The Fixing America's Surface Transportation Act (FAST Act), continued the Highway Safety Improvement Program (HSIP), emphasizing the importance of dedicating funding to increase safety conditions in the transportation network. This funding is applied to projects that will significantly reduce traffic fatalities and serious injuries. MACOG utilizes the State crash data through the Automated Reporting Information Exchange System (ARIES). Through geographic information system applications, MACOG maps and analyze the location of crashes in order to effectively determine which segments of roadway would most benefit from safety enhancements. MACOG continually strives to improve the safety of the transportation system within the region in order to reverse increasing crash rates.

Asset Management

Asset management provides local public agencies a method for compiling important information about their assets in order to be able to formulate quality management strategies for current and future periods. According to Federal Highway Administration (FHWA),

“Asset management is a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on engineering and economic analysis based upon quality information, to identify a structured sequence of

Figure 3-5: Number of Crashes by County from 2015-2018

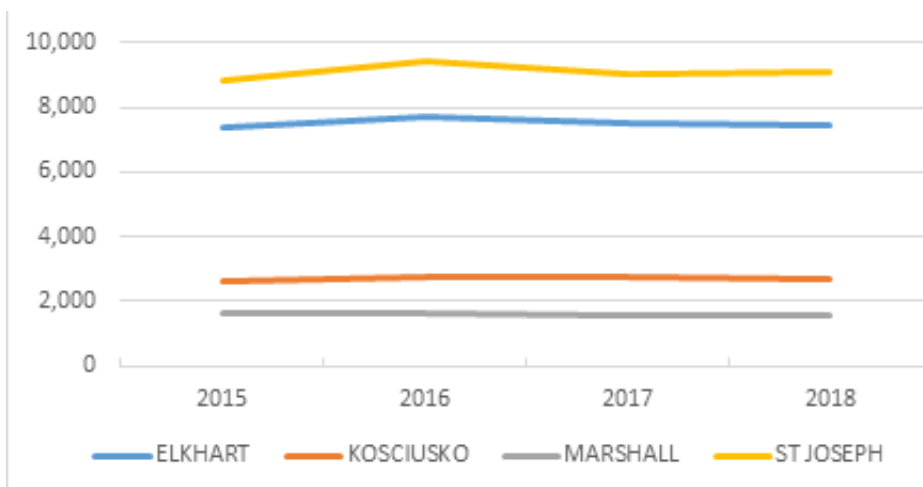
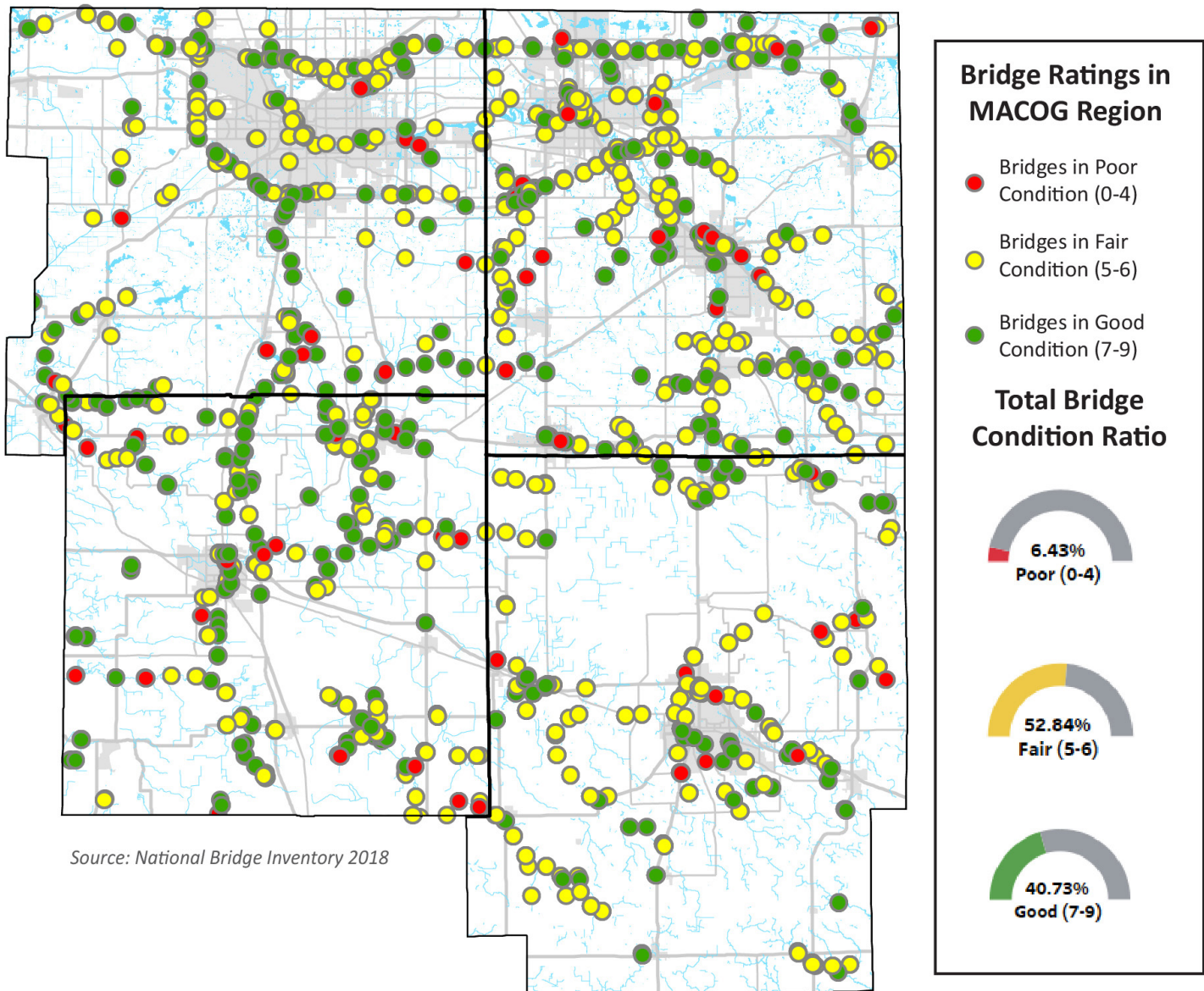


Figure 3-6: MACOG Region Bridge Ratings



maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the lifecycle of the assets at minimum practicable cost.” (23 U.S.C. 101(a)(2), MAP-21 § 1103)

The transportation network is a critical infrastructure asset for the region and local public agencies. Preservation and maintenance are key for ensuring that the network remains safe for travel, efficient, and reliable. Asset management can maximize life cycle costs,

becoming a tool for cost effective practices. INDOT estimates that \$1 spent on pavement preservation can save \$6 to \$14 on future repairs.

In 2016, INDOT introduced the Community Crossing Matching Grant. With this grant, the state began to require asset management as a part of communities planning process in order to receive monies from this grant. Since that time MACOG has trained and developed strategies to provide technical assistance to Local Public Agencies (LPAs) regarding asset management by

teaching LPAs Pavement Surface Evaluation and Rating (PASER) techniques as well as helping them to understand how roadways deteriorate based on the type of wear visible on those roads. MACOG helps LPAs develop 5-year asset management plans in an effort to help the region maintain the roadway network in a strategic manner. With those partnerships, MACOG has worked to develop tools in which LPAs can more quickly visualize road repairs and estimate costs for appropriate fixes to those issues. Figure 3-6 shows road ratings throughout the region.

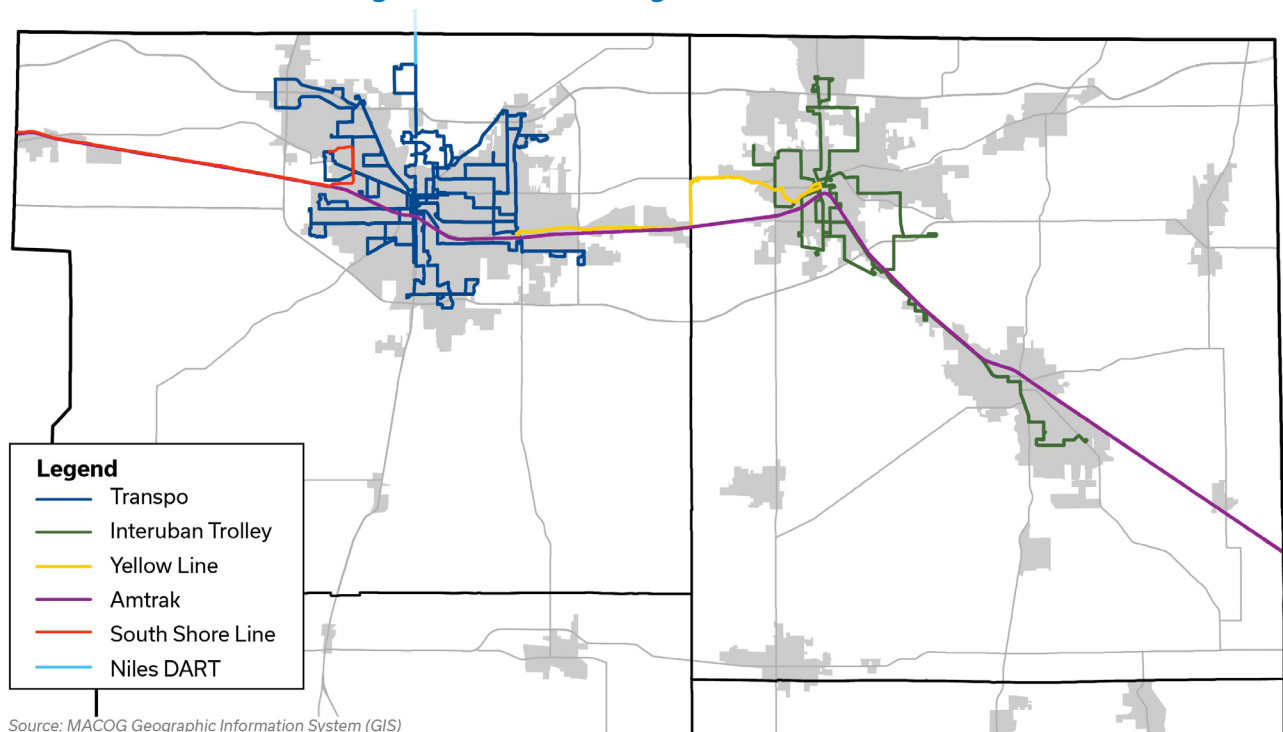
Along with maintaining a regional database for road ratings, MACOG began an initiative in 2019 to maintain current and historical bridge ratings and statistics throughout the Region. In doing so communities are able to quickly reference the status of their bridges while also giving them the opportunity to perform analysis on bridge facilities they own in order to guide their decision making while preparing bridge asset management plans and applying for grants to rehabilitate or replace bridges in the transportation network.

Public Transit

Public transit is an integral part of the transportation system, providing another mode choice for transportation. This includes providing options for senior citizens, the young, disabled and economically disadvantaged populations. Providing efficient public transit allows all populations access to businesses, health care facilities, employment, and recreation. For this reason, public transit is a crucial link to a stable economy and a better quality of life. Choosing public transit can also yield environmental benefits, lowering congestion and lessening automotive emissions.

Currently, the people living in the MACOG region are served by two fixed-route public transit services in the urbanized areas and a variety of travel options. Transpo provides fixed-route bus service throughout South Bend and Mishawaka. Transpo connects with Niles Dial-A-Ride (DART) to provide service into Niles, Michigan. The Interurban Trolley serves Elkhart, Goshen, and major points of commerce in between the two cities. Additionally, varieties of demand response services are available in Elkhart, Kosciusko, and Marshall Counties. Regionally, the Michiana area has access to two rail transit

Figure 3-7: MACOG Region Public Transit



services: the South Shore Line and Amtrak. Furthermore, proposed high-speed passenger rail services are being considered throughout the Midwest including through North Central Indiana, as well as a 700 mph Hyperloop route running from Chicago to Cleveland.

Transpo

Transpo operates twenty-one (21) fixed transit routes that serve the cities of South Bend, Mishawaka and Elkhart on 30 minute and 60 minute headways. Service runs Monday through Saturday with no service on Sundays. As of 2019, Transpo operates a fleet of forty-seven (47) revenue vehicles, which now includes twenty-two (22) Compressed Natural Gas (CNG) busses as they continue to convert their fleet. In 2018, the organization received over a 4 million dollar grant award to continue this conversion.

In the summer of 2019, Transpo also completed the installation of Automated Passenger Counters (APCs) on their entire fleet in order to gain more insights per stop for each route, allowing real time understanding of ridership. Another major change with the organization was its transition to a signed stop system. With the sign system fully in place, travel time and more efficient routing have been observed.

Over time, Transpo has seen fluctuations in ridership. This is largely due to economic and

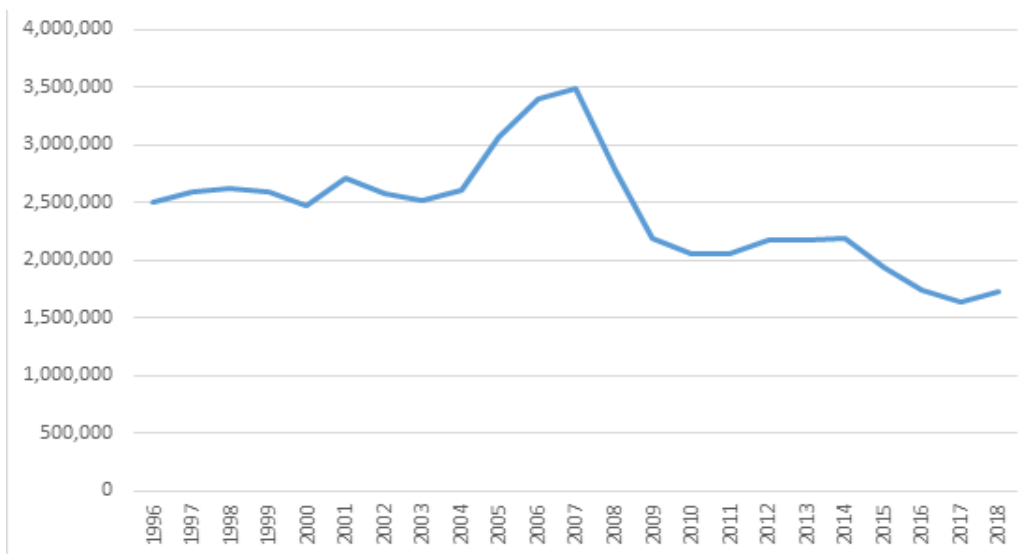
social factors as well as changes in service. Figure 3-8 illustrates Transpo's ridership trend since 1999. Transpo reached their highest annual ridership numbers in 2007 at 3,480,510 patrons. Ridership declined from 2007 to 2009 and remained relatively flat until 2018 when Transpo observed an optimistic uptick in ridership.

In addition to offering fixed-route service, Transpo also offers paratransit services, which covers a three-quarter of a mile corridor on either side of the transit routes. Transpo also provides four (4) Mishawaka School Tripper routes offered in mornings and afternoons during the school year. These are tailored towards providing students an opportunity to use public transit to get to school. A program rolled out in 2013 allowed school age children unlimited travel during the summer for a discounted rate of \$30. In 2018, in order to introduce more K-12 youth to public transportation and increase access to employment, educational, and recreational opportunities, Transpo's Free K-12 Summer Travel Program was introduced. This service provides free rides to students during the months of June, July and August. The record-setting program provided over 27,000 rides in 2018.

Although bus service in South Bend began in 1923, it was not until 1968, when the City of South Bend purchased the first bus, that Transpo was formed. Since this time, service has continued to expand. In 1998, the South

Street Station was built, serving as an intermodal transfer center. A new administrative headquarters was built in 2010 named the Emil "Lucky" Reznik Administration, Maintenance and Operations Facility. This facility is certified LEED Platinum and was the first transit facility in the country to achieve this certification.

Figure 3-8: Transpo Annual Ridership



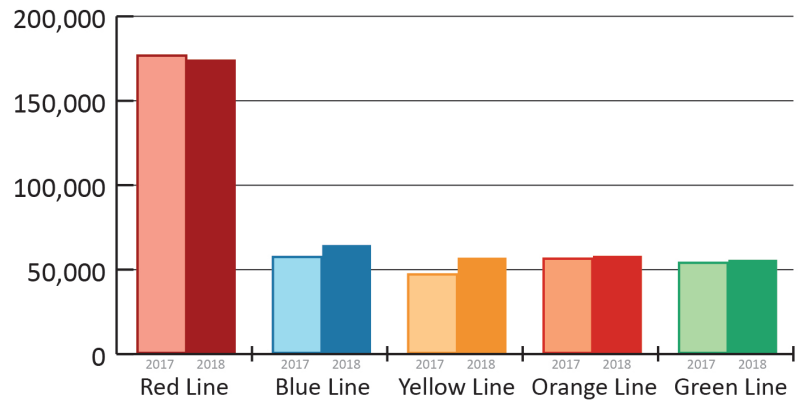
Interurban Trolley

The Interurban Trolley is a fixed-route bus service in Elkhart County, which was introduced in 1999. The Trolley operates a system of five (5) fixed routes, administered by MACOG and operated by a service provider, running on weekdays from 5:00 am to 8:00 pm and Saturdays from 5:00 am to 7:00 pm. The Interurban Trolley provides easy and affordable public transit along the corridors connecting Elkhart and Goshen as well as major points of commerce between the two cities. In 2009, the Interurban Trolley added the Yellow Line, an important route that created a common transfer point to routes operated by Transpo. This route connected public transit from Elkhart/Goshen to South Bend for the first time in over fifty years, which in turn provided access to the South Bend International Airport and Chicago via the South Shore Line.

The five routes share a transfer point in downtown Elkhart. MACOG is in the preliminary stages of planning for a permanent transfer station to be built in downtown Elkhart. This will provide a place to wait comfortably for the Trolley, while serving as a resource center as well. Currently, the corner of Franklin and Third Street has been identified as a potential location for this station. In 2015 and 2018, the Interurban Trolley procured new trolley buses that have allowed for services that are more reliable. These procurements helped replace some of the aging fleet, which now currently consists of thirteen (13) trolley buses. Also in 2019, the K-12 Summer Travel Program went regional with the Interurban Trolley adoption of the Summer Travel Pass allowing free summer rides to students.

As shown in Figure 3-9, the Red Line, which connects Elkhart and Goshen,

Figure 3-9: Interurban Trolley Ridership by Line

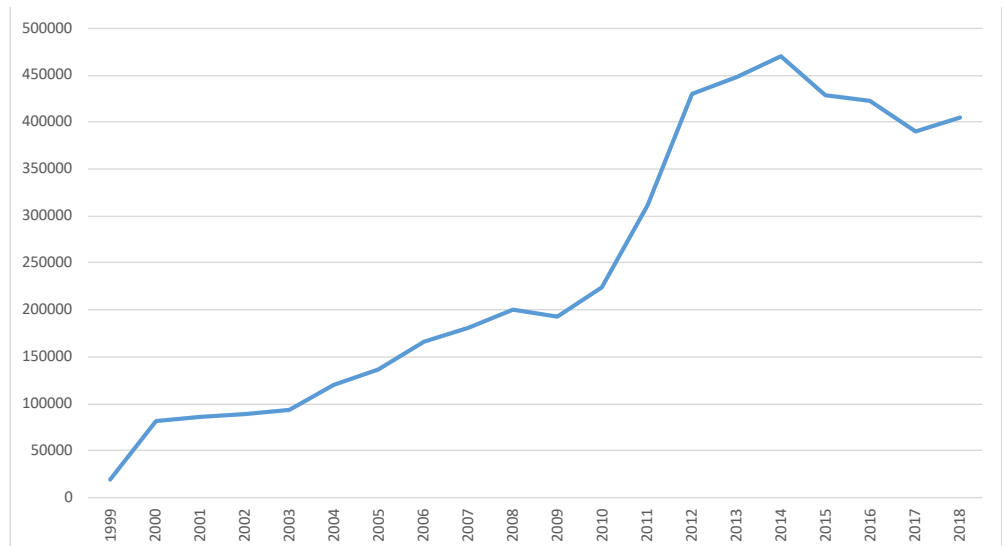


Source: The Interurban Trolley Automated Passenger Counters

boards the highest number of riders. The second most frequented line is the Blue Line, which travels to the northern part of Elkhart. From 2017 to 2018, the Red Line saw a decrease in ridership by 2,329 passengers, while the increase in ridership on the Blue, Yellow, Orange and Green Lines totaled 17,479 more unlinked passenger trips. The success of the Interurban Trolley is largely dependent upon accommodating the needs of the residents in Elkhart County. MACOG continually assesses the effectiveness and efficiency of the transit route system to ensure that the community's needs are being met.

Since 1999, the Trolley has experienced a steady increase in ridership thanks to additional fixed routes and realignments. Figure 3-10 shows the Interurban Trolley provided 470,394 unlinked

Figure 3-10: Interurban Trolley Annual Ridership



passenger trips in 2014, the highest annual ridership in its history. While the Trolley saw decreases in ridership from 2015 to 2017, the Interurban Trolley began to see an uptick in 2018.

In addition to offering fixed route service, the Interurban Trolley offers paratransit services in Elkhart and Goshen. In August 2013, the demand response services offered through the Heart City Rider (HCR) and the Goshen Transit Service (GTS) were discontinued, being replaced by what is now the Interurban Trolley Access service. The Interurban Trolley Access provides trips to disabled persons unable to use the Interurban Trolley fixed route system within the ADA Corridor. The ADA Corridor includes a 1.5-mile buffer on either side of the fixed transit routes. Ten (10) ADA accessible vans are currently available for this service, which has provided 145,331 trips to eligible riders since the service began.

Yellow Line Service

In 2018, dedicated bus routes between Elkhart and Mishawaka were formally created transforming the Yellow Line service through an extended partnership between Transpo and the Interurban Trolley. The amplified service now offers a dedicated bus from each agency, providing 30-minute headways on weekdays and 60-minute headways on Saturdays along the route. The Yellow Line collaboration provides service between the Interurban Trolley Transfer Station in the City of Elkhart to the Transpo Mishawaka Transfer Station.

Public Demand Response Services

Demand response service is a non-fixed route system that requires riders to schedule trips ahead of time. There are four of these types of services in the MACOG region provided by the Kosciusko Area Bus Services (KABS), Marshall County Council on Aging, Elkhart County Council on Aging and Elder Haus.

The Kosciusko Area Bus Service (KABS) serves the entire Kosciusko County area. Their service has a fixed route but deviates from that route to requested stops within a pre-defined corridor. KABS operates on weekdays with a peak hour fleet of eight vehicles.

The Marshall County and Elkhart County Councils on Aging operate transit services throughout their counties while Elder Haus provides service in the City of Nappanee. Their services provide trips during the weekdays to older adults who are no longer able to drive themselves. Other organizations, such as ADEC, provide additional transportation services to individuals needing assistance.

South Shore Line

The South Shore Line, operated by the Northern Indiana Commuter Transportation District (NICTD), is a commuter rail service providing access from South Bend to Downtown Chicago. The South Bend boarding site is located at the South Bend International Airport and links the South Shore Line with airline services and other public bus services. Five (5) daily trains leave from South Bend bound to Chicago, with five (5) trains offering return service. According to the South Shore 2018 Annual Ridership report, South Bend ridership decreased from 260,794 in 2017 to 246,661 in 2018, a 5.52% decline. Service improvements such as double tracking and the potential relocation of the South Bend Station aim to make the trip from South Bend to Chicago a 90 minute-commute

Amtrak

Amtrak provides rail passenger service throughout the United States. Passenger stations within the MACOG region are located in South Bend and Elkhart. Two routes run along this line. Capitol Limited runs from Chicago to Washington D.C stopping at each station daily. Lake Shore Limited has daily service running from Chicago to Boston and New York. Passenger volumes for the South Bend station totaled 21,207, slightly lower than the Elkhart station that had a volume of 21,787 passengers for fiscal year (FY) 2018. Since FY 2015, each station has had opposite trends. The South Bend station has seen a decline of 4% in ridership and the Elkhart station has seen a 6% increase in that time. Both stations primarily serve trips to Chicago and Washington, DC with an average trip distance in South Bend being 369 miles and Elkhart at 299 miles. Both stations also serve 33 cities with direct service.

High Speed Rail

An important development occurring in the Region and the Midwest is the configuration of a high-speed rail system. Studies are still being conducted as far as which tracks will be used, but the proposed system would connect Cleveland, Cincinnati, Detroit, Indianapolis, St. Louis, the Quad Cities, Milwaukee, and Minneapolis-St. Paul to a hub in Chicago with various stops in between, including stops in North Central Indiana. The goal of the system as identified by the Indiana High Speed Rail Alliance is to reduce travel time for passengers needing to connect to cities, airports, and other forms of transportation. The majority of high-speed trains on this network would travel at 110 miles per hour, consuming less fuel than slower rail and air transportation, and be a self-sufficient system unsubsidized by the government. Amtrak service through Niles, Michigan has already been upgraded with track and signal improvements to provide high speed service (110 mph) on parts of the route.

As far as economic development is concerned, several factors make high-speed rail a lucrative addition to the region's intermodal capabilities. The construction of the system also creates jobs and revenue for companies supplying equipment and services to the project. In addition, the operation of a high-speed rail corridor would create permanent jobs and revenue for companies supplying equipment and services to it. Finally, high-speed rail offers decreased travel time, which means increased connectedness between the Region and nearby major cities – an attractive proposition for employers, employees, families, and travelers.

Hyperloop Corridor

On February 21, 2018, the Mid-Ohio Regional Planning Commission (MORPC) launched a Rapid-Speed Transportation Initiative (RSTI) to explore intercity routes that could utilize two rapid-speed transportation technology options – traditional passenger rail and /or Hyperloop

technology – between Chicago, Columbus and Pittsburgh. This was the first time in history that a Hyperloop had been included as an alternative in an Environmental Impact Study. The winner of the U.S. Government's \$40M Smart City Challenge, Columbus has drawn much attention to the Hyperloop project nationwide. Support for this initiative included Virgin Hyperloop One with more to be seen.

If the Hyperloop were constructed, it would be about 488-miles long, consisting of 306 miles of tube from Chicago to Columbus and an additional 181 miles of tube from Columbus to Pittsburgh. It is anticipated by Virgin Hyperloop One that the pods will eventually reach traveling speeds over 600 miles per hour within

Figure 3-11: Proposed High Speed Rail

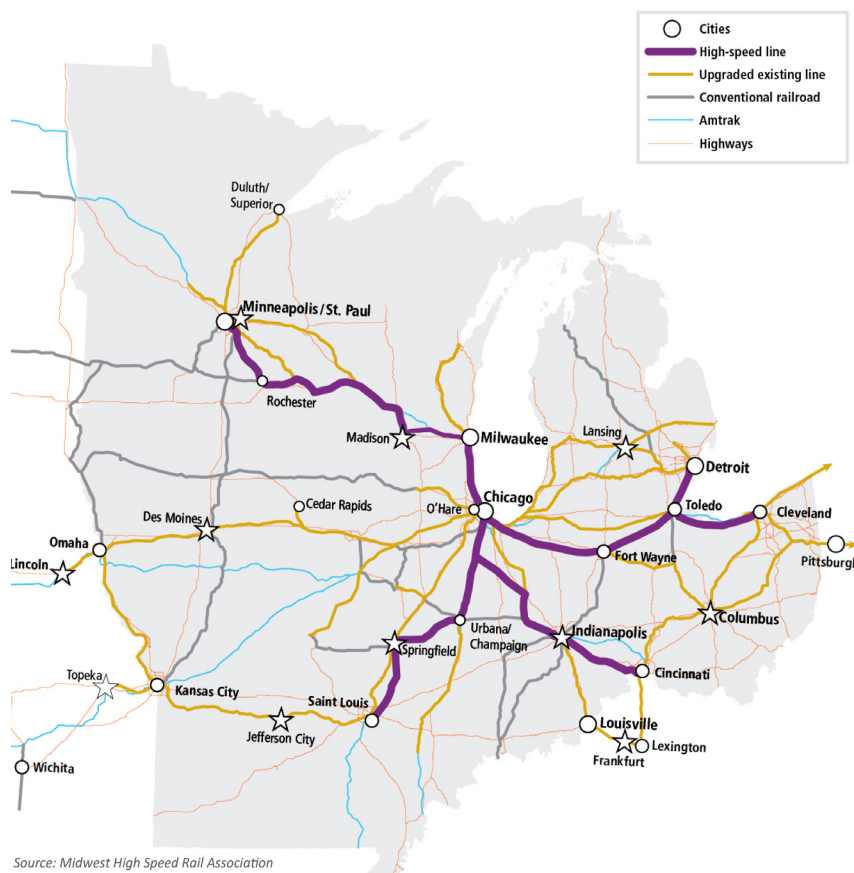
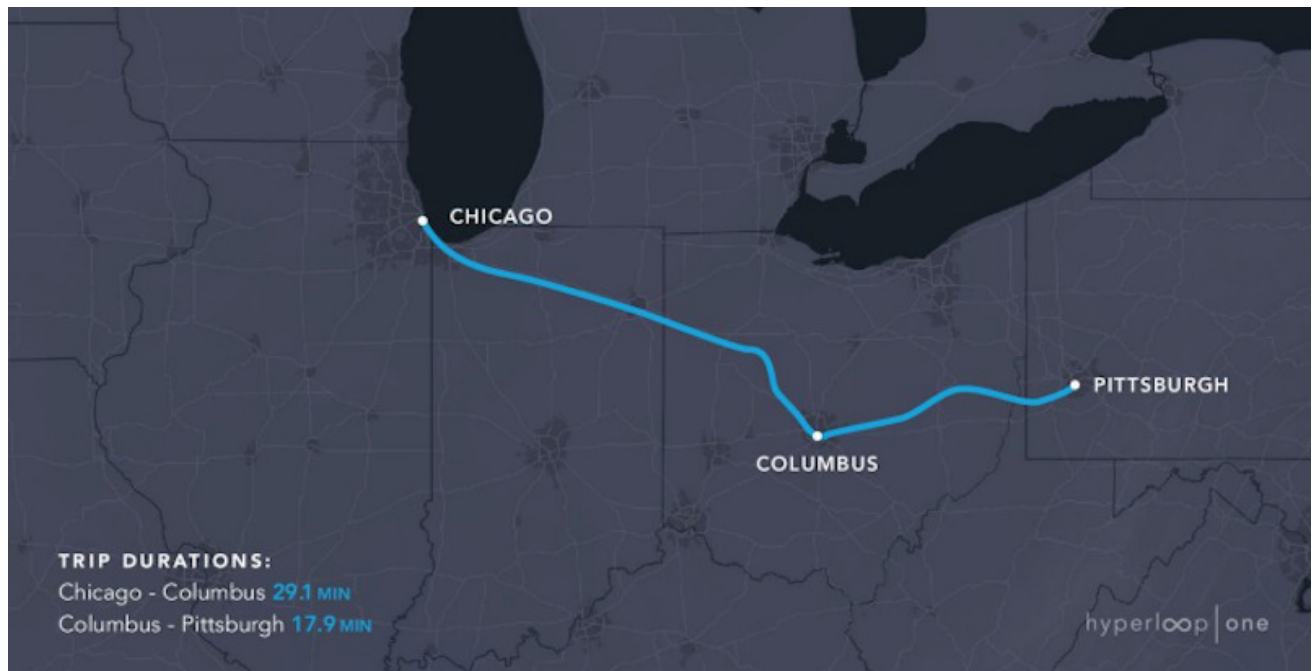


Figure 3-12: Midwest Hyperloop



these tubes, which would result in travel time from Chicago to Columbus of twenty-nine (29) minutes with only another eighteen (18) minutes to get to Pittsburgh.

An added benefit to a Hyperloop connection is the reduction of freight traffic on the road network through the MACOG region. According to the Department of Transportation, in 2015, there were 5.9 million tons of freight worth \$16.7 billion that moved between Chicago, Columbus, and Pittsburgh. By 2040, this tonnage is expected to increase to 9 million tons at nearly double the value. As there is currently no direct path to these cities from Chicago, the current freight traffic passes along east-west roadways in the MACOG region like I-80/I-90, US 20 and US 30. Utilizing the Hyperloop to reduce freight traffic along these corridors will greatly enhance the level of service throughout the MACOG region.

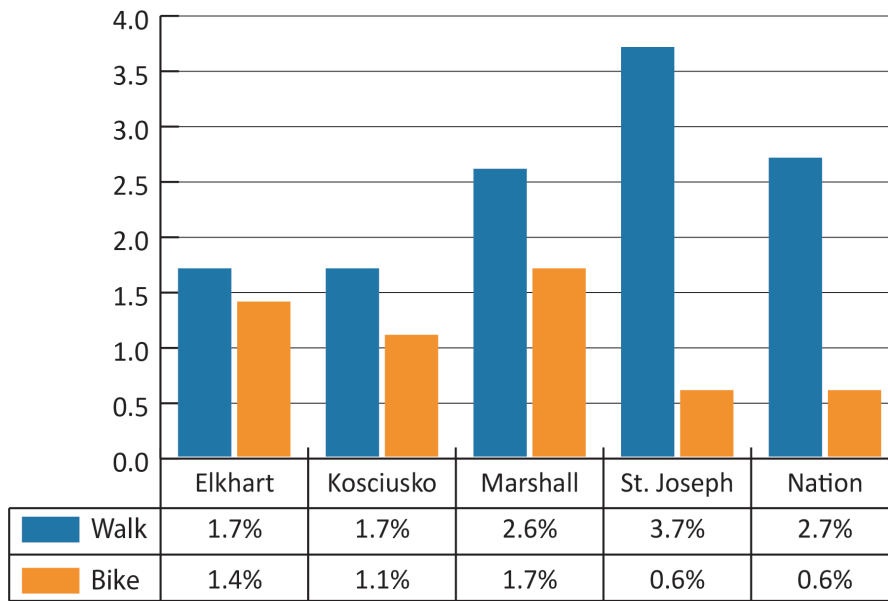
Another Hyperloop corridor being studied by the Northeast Ohio Areawide Coordinating Agency (NOACA) working with Hyperloop Transportation Technologies (HTT) stretches along a 313-mile long section connecting Cleveland to Chicago. This corridor would result in travel time from Cleveland to Chicago of less than a half hour.

Bicycle and Pedestrian

Bicycle and pedestrian projects are an important and integral component of transportation planning. A transportation system that supports bicycling and walking expands residents' mobility options and can complement multiple forms of transportation. A strong bicycle and pedestrian network can enhance a community's quality of life by providing great economic, environmental, social and health benefits. By reducing single-occupant vehicle travel, air quality improves and users can lead healthier lifestyles.

Despite the low percentage of commuters that walk and bike to work nationally, new trends identified through the 2013-2017 American Community Survey suggest that these modes of transportation are becoming increasingly popular. When comparing the number of U.S. workers who traveled to work by bicycle from 2010 to 2017, the increase was larger than any other commuting mode; a change of 696,276 workers to 890,593 workers. About 2.7% of commuters in the United States walk to work, and about 0.6% bike to work. Most counties in the MACOG region document an even higher rate of walking and bicycling to work. Figure 3-13 includes estimates by county of the percentage

Figure 3-13: % of Workers Who Commute



Source: 2013-2017 American Community Survey

of workers who commute by walking or bicycling. Elkhart, Kosciusko, and Marshall Counties all fall below the national rates for walking to work. In both Elkhart and Kosciusko Counties, 1.7% of workers commute by walking, while in Marshall County the rate is much higher at 2.6%. St. Joseph County experiences rather high rates of walking to work at 3.7%. It is estimated that all counties experience high rates of bicycling to work, ranging between 0.6% in St. Joseph County to 1.7% in Marshall County. This finding is significant, particularly to the region, because it shows that there is an interest in alternative commuting methods.

Bike Friendly Communities

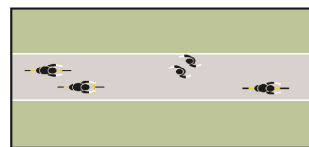
Every year the League of American Bicyclists assess voluntary applications from communities, businesses, and universities through their Bicycle Friendly America (BFA) program. Applications are reviewed based upon key benchmarks that concern bicycling including law enforcement, education, engineering, outcomes, evaluations, and encouragement. There are five levels for which Bicycle Friendly Communities (BFC) can achieve: Bronze, Silver, Gold, Platinum, and Diamond. The BFC program is meant to support communities with a mission of providing better conditions for biking and guidance for turning

visions into reality.

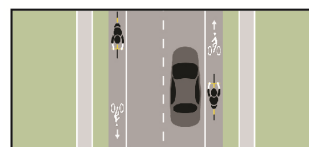
Three (3) communities in the MACOG region currently have a Bicycle Friendly status. South Bend recently achieved the Silver Bicycle Friendly Community designation in 2018, while Goshen and Warsaw/Winona Lake were designated as Bronze. These communities were designated because they demonstrated their ability in providing safe accommodation for cycling and encouraging residents to bike for transportation and recreation.

Types of Facilities

The MACOG region has several types of facilities constructed to accommodate bicyclists and pedestrians:



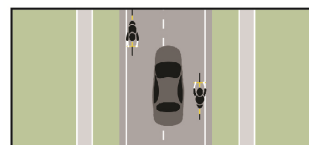
Shared-Use Paths are separated facilities used by bikers, walkers, runners, and skaters. They may follow a road or take their own path.



Bike lanes are 5' -6' lanes marked in the pavement specifically reserved for bicyclists, usually on high-traffic streets. The lane is generally marked with a white line and a bicycle icon.



Signed Routes are roads where bicycles and vehicles must share the same lane, but will include "Bike Route" or "Share the Road" signs.



Unsigned Routes are roads that have not been formally identified, but are acceptable for biking due to lower traffic conditions and wider roads.

Regionally Significant Trails

There are three regionally significant bikeways that have been constructed or are under development in the region: the Pumpkinvine Nature Trail, MapleHeart Trail, and the Indiana Michigan River Valley Trail.

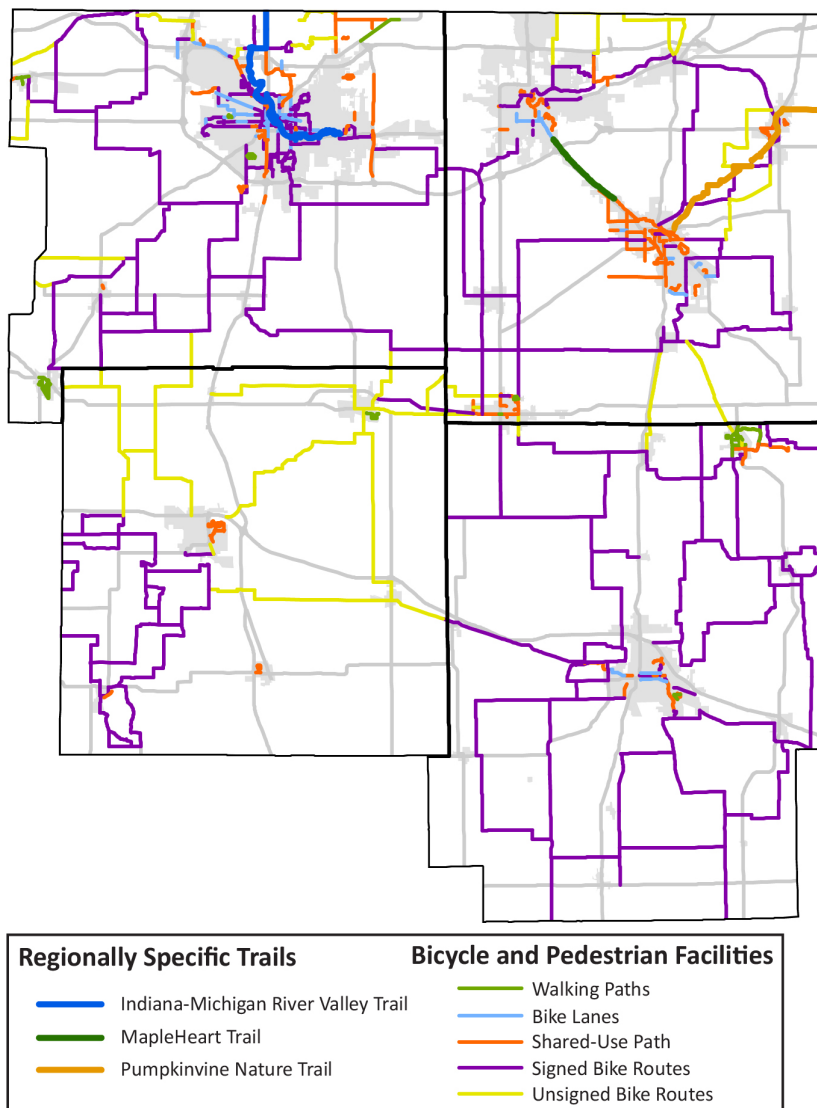
The Pumpkinvine Nature Trail is a 16.5-mile trail that connects Goshen, Middlebury and Shipshewana. This trail was built on the abandoned Pumpkin Vine Rail corridor, which was purchased from Penn Central in 1993 by Friends of the Pumpkinvine Nature Trail, Inc. Most of the trail consists of asphalt paths, however 2.25 miles currently follow country roads and 1.7 miles is packed limestone.

The MapleHeart Trail is a 4.8-mile path that connects Elkhart and Goshen. The Trail runs along CR 45 from Hively Avenue in Elkhart to the Goshen City Limits. Both ends of the trail tie into local trail systems. In total, the MapleHeart Trail, Goshen's local trail system, the Maple City Greenway, and the Pumpkinvine Nature Trail, create over 25 miles of connected trails that link Elkhart to Shipshewana.

Finally, another significant bikeway includes a variety of trails found along the St. Joseph River including the Riverwalk in Mishawaka, East Bank and Northside Trails in South Bend, and trails extending into Niles, Michigan. All of these trails are combined into one system named the Indiana Michigan River Valley Trail. Much of the

trails currently exist in the city limits of South Bend, Mishawaka, and Niles; however, connections at the county level still need to be made. In total, this trail will create a 34-mile system connecting universities and schools, city centers, parks and recreational areas, hospitals, and several historical/cultural attractions.

Figure 3-14: Trail and Facilities



Source: Regional Bicycle and Pedestrian Facilities Map

Sidewalks and Accessibility

Sidewalks are an important component of the transportation network because no matter the destination, every trip starts and ends with pedestrian travel. Sidewalks should be connected and accessible. MACOG has worked with many Local Public Agencies (LPAs) in the region to adopt Americans with Disabilities Act (ADA) Transition Plans for the Public Right-of-Way, which addresses sidewalk accessibility. The purpose of these plans is to ensure communities are creating reasonable, accessible paths of travel in the public right-of-ways for everyone, including people with disabilities. These plans provide a schedule for communities on how they should address and improve sidewalk accessibility.

As part of the plan, communities have adopted Accessibility Guidelines for Pedestrian Facilities in the Public Right-of Way. These guidelines suggest that whenever there is an intersection

improvement project or new construction project, any affected curb ramps, sidewalks, and crosswalks will be rebuilt to these ADA design guidelines, where feasible and reasonable. MACOG has created an ADA inventory database that can be used as a guide for sidewalk improvements and a resource for creating a better pedestrian network.

Aviation

There are a variety of airports located in the Region serving different purposes within the State and the Nation. There are five (5) general aviation airports, three (3) of which are regional, and two (2) of which are local. The regional airports are located in Elkhart, Goshen, and Warsaw and serve both regional and national markets with around 90 total base aircrafts. The local airports are located in Plymouth and Nappanee, serving local and regional markets with smaller aircraft.

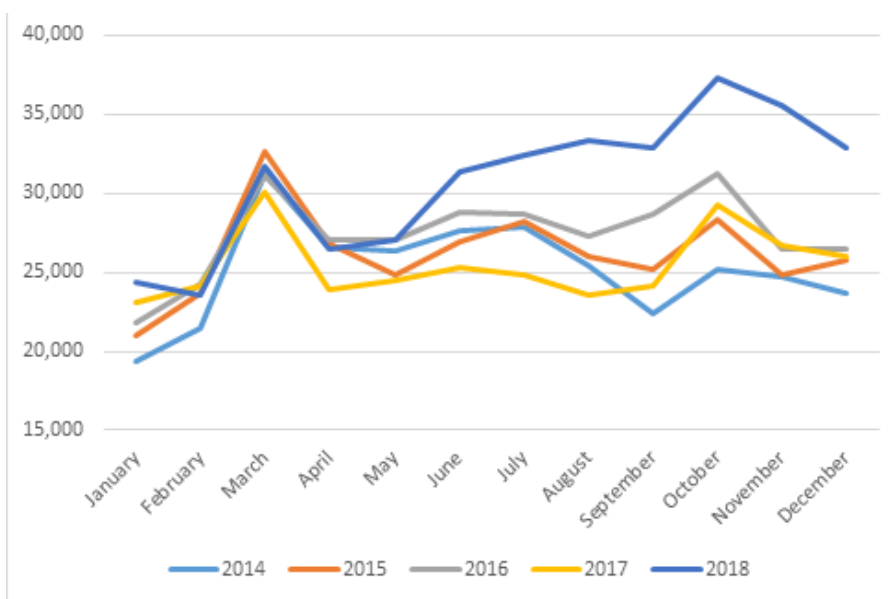
The only commercial service airport within the region is located in South Bend. The South Bend International Airport (SBN) is also the only multimodal passenger facility operating in the Michiana area. In a true coordination of travel modes, the South Shore Line boarding station for train passengers is located at the east end of the SBN facility, while three inter-city bus lines; Greyhound, Hoosier Ride and Coach USA, board

riders from the west side of the airport terminal. Transpo city buses and private taxicabs board passengers along the arrival/departure drive. SBN is a full service commercial airport categorized as a Small Hub by the Federal Aviation Administration and consists of three active runways. Four commercial airlines operate from SBN providing links to hubs and destinations such as Atlanta, Chicago, New York City, Dallas, Detroit, Fort Myers/Punta Gorda, Las Vegas, Minneapolis, Orlando/Sanford, Phoenix/Mesa, Charlotte and Tampa Bay/St. Petersburg.

From 2014 to 2018, there was a steady increase in enplanements, growing by nearly 67,000 passengers. Looking at monthly trends it can be noticed that there is heavy traffic around spring break and there is consistently a spike in enplanements in October. The South Bend International Airport has seen substantial growth in regular commuting for most months out of the year.

The South Bend International Airport provides a great impact to the region. It is estimated the Airport provides an economic benefit to the community in excess of \$1.7 Billion per year. With the change in designation from a regional to an international airport in April 2014, an even greater impact is being seen.

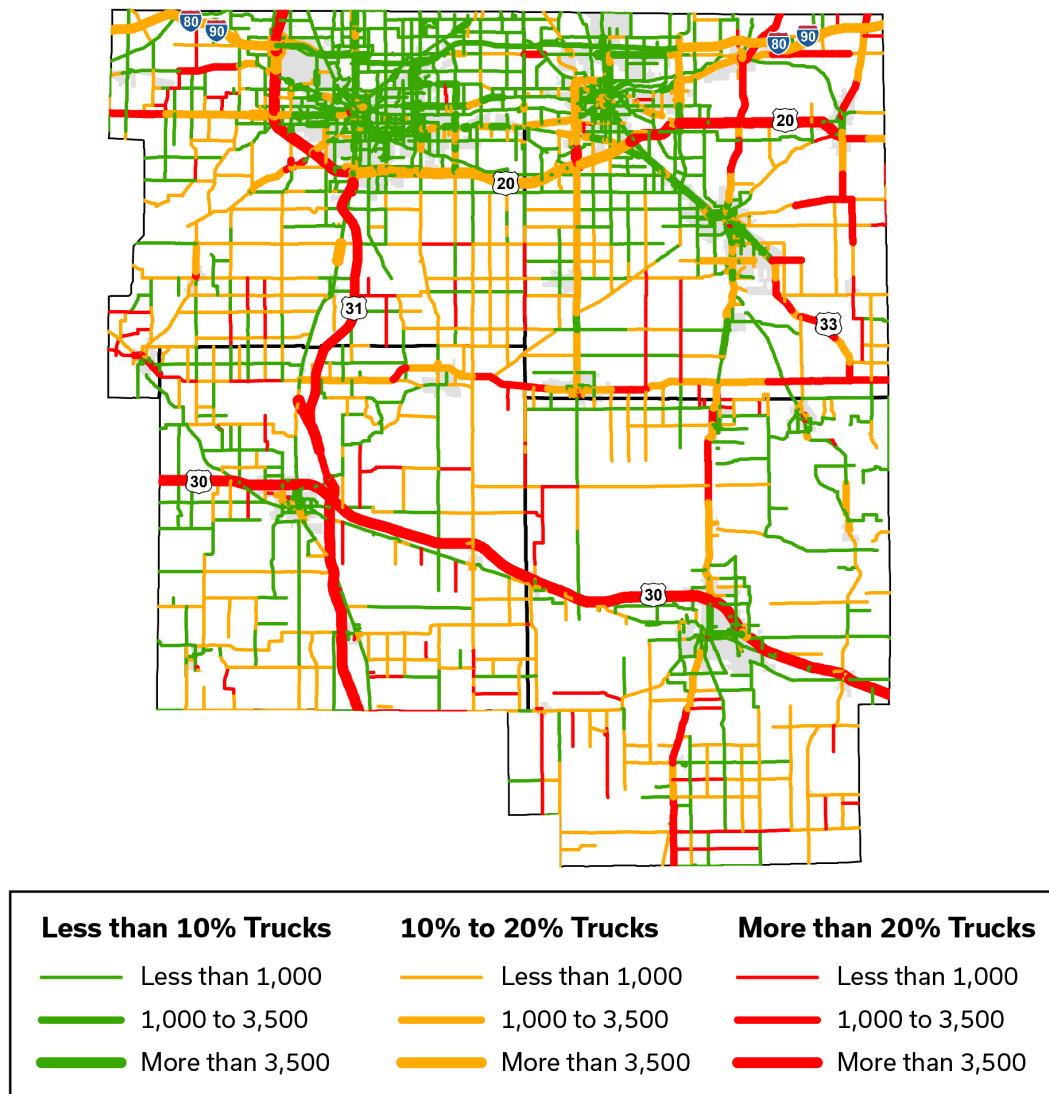
Figure 3-15: South Bend International Airport Enplanements



Freight & Logistics

Road, rail, and air networks in the region serve freight and goods movement as well as passenger travel. Being able to provide a network that accommodates these movements efficiently is critical to the region's economic well-being. In the Indiana Multimodal Freight and Mobility Plan updated in 2014, Indiana is described as a "strategic location in close proximity to larger consumer markets and an excellent multimodal transportation network." The MACOG region in particular experiences a high volume of freight traffic due to its highway and rail infrastructure.

Figure 3-16: Truck Traffic Numbers



Source: MACOG Traffic Counting Program

Roadways

The MACOG region has many heavily traveled roadways especially relating to freight movement. According to the 2014 Indiana Multimodal Freight and Mobility Plan, “Indiana’s freight flow is projected to continue to grow substantially over the coming decades (close to 60% by 2040).” The overlying indication in such a finding is that the region can, and does, benefit greatly by being able to access important routes in the freight movement industry. The other indication is that much thought should be put into these routes when planning for future

transportation projects.

Figure 3-16 is a map of truck volumes and comparisons to total traffic for the region. Roadways where trucks make up more than 20% of all traffic include US 31, US 30, US 20 east of Elkhart, US 33 south of Goshen US 6, SR 2, segments of SR 15 and SR 13, as well as some local county roads throughout the region. The Toll Road heading east and west from the region is made up of 10-20% truck traffic with more than 3,500 daily trucks; others include SR 19, SR 15 and US 20 between South Bend and Elkhart.

Designated Truck Routes

While most commercial vehicles are permitted on the majority of roadways, the Regional Truck Network identifies signed roadways geared towards efficient transportation of goods. The network includes both the National Truck Network routes and local truck routes, and follows many of the before mentioned Highways: I-80/I-90, US 20, SR 2, US 31, US 30. Other important routes include SR 23, SR 15, SR 19, US 33 and other small local segments.

Rail

CSX Transportation (CSX), Norfolk Southern (NS), Canadian National (CN), South Shore Freight (operated by NICTD), Elkhart & Western (EWR), Grand Elk (GDLK), and Chicago, Ft. Wayne & Eastern (CFER) all own tracks and operate freight trains within the region.

Norfolk Southern operates the most miles of rail in the four counties, with east/west lines through South Bend and Elkhart as well as the southern part of Marshall and Kosciusko County. Norfolk Southern also operates a north/south line that splits into two sections in Goshen.

Canadian National, Grand Elk, and Elkhart & Western operate in the northern sections of St. Joseph and Elkhart Counties. Both Canadian National and Grand Elk connect to areas of Michigan. Elkhart & Western operates locally from Elkhart to the eastern portion of St. Joseph County.

Lastly, there are two more east/west railroads operating south of the urbanized area. CSX Transportation operates an east/west railroad that intersects smaller communities such as La Paz, Bremen, Nappanee, and Syracuse. Chicago, Ft. Wayne & Eastern operates a line parallel and south of CSX travelling through the middle of Marshall and Kosciusko counties, intersecting communities such as Plymouth and Warsaw.

Due to increases in population, freight travel is also expected to increase, putting additional strain on existing transportation systems. In 2007, the Association of American Railroad National Rail Infrastructure Capacity and Investment Study stated primary rail facilities in the region were functioning below capacity, providing a level of service A, B, or C. The report continued by saying if there were no improvements made to the primary rail facilities, large portions will be functioning above capacity, at a level of service F.

Figure 3-17: Tracks in the MACOG Region

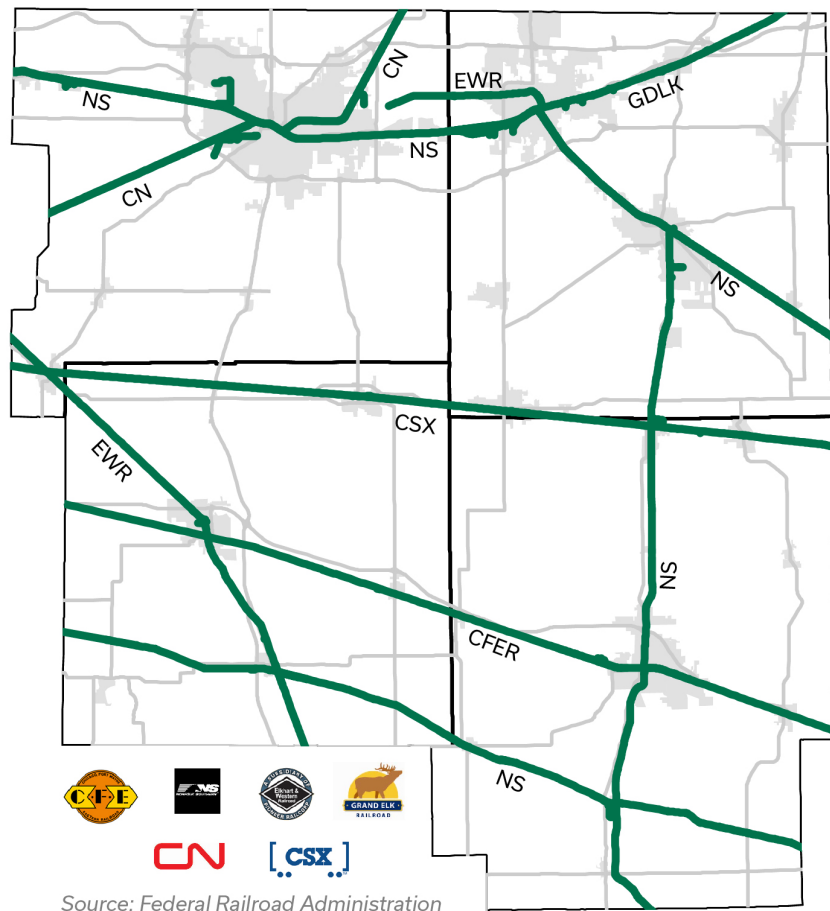
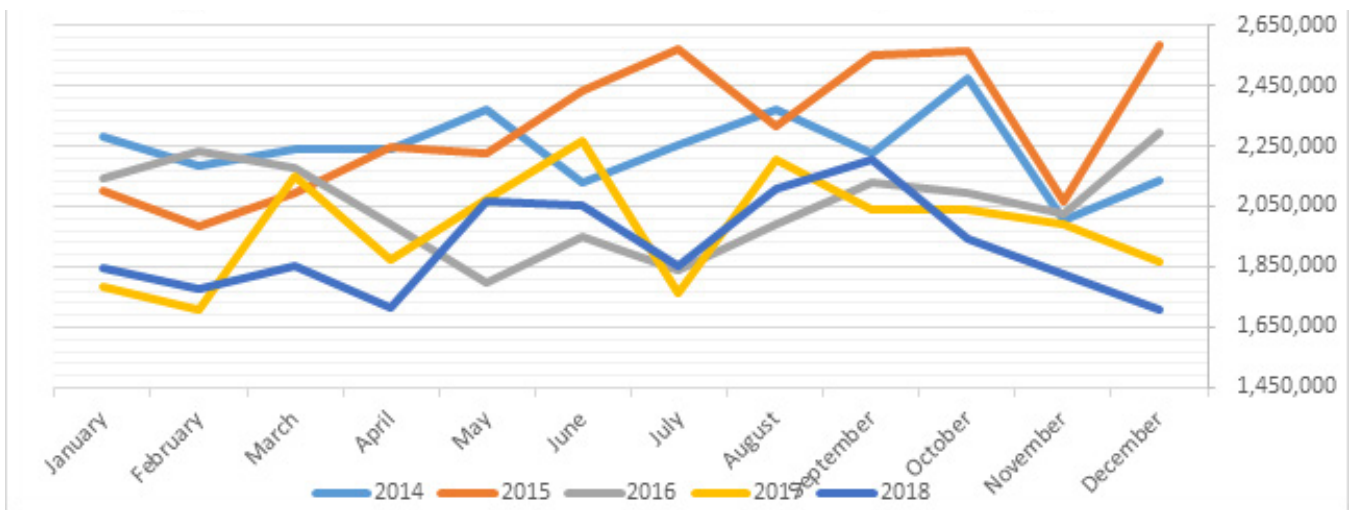


Figure 3-18: South Bend International Airport Cargo in Tons



Air

Airports also play a part in the movement of freight. The South Bend International Airport serves as the only commercial airport within MACOG's boundaries and transports a significant amount of freight into and out of the region. FedEx and UPS use the South Bend International Airport for air and ground parcel distribution.

DHL formerly used the airport as a major terminal, however in late 2008 they terminated services throughout the United States. Figure 3-18 provides a monthly tracking of total cargo at the South Bend International Airport from 2014 to 2018. The chart shows a steep drop in freight shipments by May 2016. That rate of decay has slightly increased, however in both 2017 and 2018 cargo shipments around the Christmas holiday has declined from previous months as well as a steep decay from years prior.

According to a white paper developed by the International Air Transport Association (IATA), due to the nature of more online retail, cross-boarder e-commerce volumes are growing. The International Post Corporation (IPC) suggests that global internet sales have grown 25% annually on average. This is causing a shift in cargo tonnage, supplementing heavier cargo with light-weight packages. This trend will likely impact the future of air cargo and the logistics and supply chain dynamic that accompany.

Priority Recommendations and Future Network

Regional input into the Transportation Network

As part of the development of Michiana on the Move: 2045 Transportation Plan a series of stakeholder meetings and public surveys were held. The first stakeholder meeting was designed to identify the locations of residential, commercial and industrial growth anticipated to occur over the next 20 years. Based on the information collected an additional meeting was held with transportation stakeholders, planners and officials in which meeting the transportation needs of the previously defined growth was emphasized. During which, an activity took place where those involved could identify transportation projects that would accommodate the population growth and identify illustrative projects that would add desired additions to the transportation network; whether it be roads, trails, bridges or sidewalks. During this meeting, a project list, along with accompanying maps were developed and can be found in Appendix A. This list is federally required to show projects that may negatively affect air quality or that are regional in nature in order to include them in the Transportation Improvement Program (TIP).

From the list, MACOG was able to perform various types of analysis on how the additional projects would affect the regional transportation and address a growing population and demand on the transportation network. Several scenarios were developed to test the projects provided by the stakeholders. By investigating these projects, MACOG can collaborate with municipalities to further assist with project development by providing current traffic volumes, crash data, network performance and asset plan analysis.

- Update US 31 to a Freeway from Indianapolis to US 30
- Improve traffic flow on SR 13 through Middlebury
- Improve traffic flow on SR 15 through Goshen and Warsaw
- Continue a north-south route from SR 15 (south of Warsaw) to US 6

State Transportation Programs

The Indiana Department of Transportation (INDOT) and MACOG are required to establish a State TIP and Regional TIP. Exchange of information during the development of these programs benefits the commuting public. While INDOT has performance measures and goals in which they develop project lists, it is important that localized input be considered during program development. For both programs, public input hearings and comment periods help shape the transportation network's future.

The INDOT 2045 Long Range Transportation Plan is a broad-based policy document that is used to guide the development of Indiana's transportation system. The purpose of the Long Range Transportation Plan is to assure that the transportation infrastructure network will adequately serve future 2045 needs. By way of this plan, INDOT identifies existing and emerging transportation challenges; establishes long-term goals and performance measures; defines what is needed to meet such future transportation demands over the forthcoming 20-plus years; recommends strategies to ensure regional mobility; and maps a course for meeting Indiana's transportation vision.

Local Priorities for State Projects

Through the various meetings conducted for the Michiana on the Move: 2045 Transportation Plan, various local priorities on State owned facilities were discussed. At this time, the following projects are local priorities to further develop the regional transportation network.

- Upgrade US 30 to a Freeway from Ft. Wayne to Valparaiso

