Revised July 2018

TRANSPORTATION | 2040 OUTLOOK

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EXECUTIVE SUMMARY

The Akron Metropolitan Area Transportation Study (AMATS) is responsible for regional transportation planning in the greater Akron area. As the Metropolitan Planning Organization (MPO) for the region, AMATS prepares and maintains the long-range regional transportation plan. *Transportation Outlook 2040 (TO2040)* represents the latest update to the long-range plan. The purpose of TO2040 is to examine the current and future needs of greater Akron's transportation system and develop policy and project recommendations. In order for transportation projects to receive federal, funding they must be consistent with *TO2040*.

TO2040 includes a demographic analysis of the region and summaries of reports completed in the last four years used to inform project recommendations. The plan includes long-term highway, transit, bike and pedestrian project recommendations. Performance measures for the transportation system are also included for the first time.

While *TO2040* is meant to develop a long term vision for the region, it also is based in fiscal reality. Project recommendations from the plan must be fiscally constrained, meaning that the cost of the recommendations cannot exceed the estimated funding that the region anticipates receiving over the life of the plan.

TO2040 recommends over $5 billion for highway infrastructure investment through 2040. Key projects recommended include replacing the State Route 8 Bridge over the Cuyahoga Valley, the Howe Road Interchange, and over $4.4 billion for preservation projects.

TO2040 recommends over $2 billion for the public transit system.

TO2040 recommends $33 million for bicycle and pedestrian improvements through 2040.

The following sections give a detailed summary of the analysis that has been completed in the last four years as well as more discussion about the Greater Akron area.

WHAT IS AMATS?

The Akron Metropolitan Area Transportation Study (AMATS) is the regional transportation planning agency for the Greater Akron area. Specifically, AMATS covers Summit and Portage counties and Chippewa and Milton Townships in Wayne County. The agency is tasked with regional planning and appropriating approximately $20 million annually to area transportation projects. Projects include road and bridge repairs, bicycle and pedestrian facilities and public transportation investments.

AMATS is one of 17 Metropolitan Planning Organizations (MPOs) in Ohio. MPOs were established in the 1962 Federal Aid Highway Act, which required urban areas greater than 50,000 residents to create a continuing, cooperative and comprehensive planning process in order to receive federal funds for transportation improvements.

The purpose of AMATS is to make sure that federal funds spent in the Greater Akron area are used strategically with the region's best interests in mind. AMATS plans for all forms of transportation including the motor vehicle, bicycle and pedestrian travel. AMATS offers numerous opportunities for area citizens to provide public input and is committed to ensuring input that is received is considered in all transportation planning decisions.

AMATS serves as a regional forum for discussion and cooperation between elected officials, the public, planners and engineers to work together to set transportation policies and implement various improvements. AMATS works to ensure that transportation improvements meet the needs and challenges of the region and that federal transportation funds are used in an efficient, effective and equitable manner.

The AMATS Policy Committee is responsible for directing the transportation planning process, policy and funding decisions. It is comprised of elected representatives from municipalities, counties, regional transit authorities and the Ohio Department of Transportation (ODOT).

The AMATS staff serves all the committees and is responsible for carrying out the technical work of the agency. They are responsible for developing the Regional Transportation Plan, Transportation Improvement Program and various other reports and recommendations for the consideration of the Policy Committee. The staff is made up of individuals primarily from engineering and planning disciplines.

AMATS 2040 GOALS AND OBJECTIVES

AMATS develops goals and objectives for carrying out the regional transportation planning process. These goals and objectives have been reviewed by the AMATS Policy Committee, Technical Advisory Committee and Citizen Involvement Committee. The goals and objectives are intended to guide the development of *Transportation Outlook 2040*.

MAINTAIN THE EXISTING TRANSPORTATION SYSTEM

- Give priority to resurfacing, restoration, and rehabilitation, improvements in the development of regional transportation plans and programs
- Give priority to transit vehicle replacements, preventive maintenance, and facility rehabilitations in the development of regional transportation plans and programs

MAINTAIN A SAFE, SECURE, EFFICIENT AND INTEGRATED TRANSPORTATION SYSTEM

- Minimize highway accidents and provide safe travel routes
- Minimize pedestrian, bicycle, train, and vehicle conflicts
- Improve the safety of transit facilities and operations
- Improve the security of the transportation system
- Minimize traffic congestion
- Define and Develop Performance Measures to quantitatively document AMATS successes

INTEGRATE ALL MODES OF THE TRANSPORTATION SYSTEM WHERE APPROPRIATE

- Encourage service coordination among METRO, PARTA, and the neighboring transit operators
- Encourage system operating efficiencies through the development of projects that provide direct connections between modes
- Encourage the development of a balanced, integrated, multimodal transportation system that includes highways, transit, bikeways, pedestrian, rail, and air facilities

INCREASE MOBILITY FOR ALL PERSONS

- Encourage a public transit system that provides basic mobility for transit-dependent persons and provides an alternative to automobile usage
- Encourage the development of a regional network of bicycle routes
- Encourage the placement of sidewalks and other pedestrian facilities where they are appropriate
- Implement complete streets principles

THE TRANSPORTATION SYSTEM SHOULD SUPPORT THE ECONOMIC VITALITY OF THE REGION

- Develop a transportation system that will provide superior mobility for the movement of freight and goods
- Encourage the implementation of transportation improvements that will promote sound economic growth

ENCOURAGE SMART REGIONAL LAND USE STRATEGIES AND DEVELOPMENT PATTERNS

- Coordinate the development of transportation facilities and land use
- Minimize the adverse effects of transportation facilities on land use, in order to protect and preserve neighborhoods and communities
- Minimize the adverse effects of land use changes on the transportation system
- Transportation and land use infrastructure should consider adverse environmental impacts

REGIONAL TRENDS

Understanding demographic and transportation trends are an integral part to developing a long-range transportation plan. The past four years has seen tepid economic and population growth in the Greater Akron area. Some communities have not completely recovered from the Great Recession as job growth has been steady, but slow. Average daily traffic in the Greater Akron area has stabilized and in some areas traffic has been increasing. Akron area roadway conditions continue to be a concern as AMATS continues to invest more funds in the preservation of the existing system.

Understanding these trends helps AMATS develop recommendations for *Transportation Outlook 2040 (TO2040).* Over the last four years AMATS has completed a number of reports and analysis to guide the decision-making process for transportation improvements in the Greater Akron area.

The trends discussed in the following section are based on the latest data available and provide the framework for recommendations included in *TO2040.* The following trends and analyses discussed in the following section include:

- Demographics
- Fix-it-First
- Freight
- Transit
- Walking
- Bicycling
- Safety and Security
- Congestion
- Environment
- Technology

DEMOGRAPHICS

In May of 2015, AMATS completed its *Planning Data Forecast.* The Planning Data Forecast examines a number of variables which impact the transportation network including population and employment. The report forecasts variables out to the 2040 horizon year. Using this data, AMATS can determine what necessary transportation improvements would be most beneficial to the region over the next 20 years.

Population

Based on AMATS population forecast, the region is expected to experience slight population growth through 2040. The region's population is expected to increase by 2.4 percent. Portage County is expected to see the bulk of the growth, as population is expected to increase by 7.5 percent. Summit County and Wayne County are expected to grow by 0.8 percent and 3.1 percent, respectively.

AMATS anticipates most population growth occurring in the northern portion of the region. One impetus for this growth is due to the convenient location between the two metropolitan regions of Akron and Cleveland.

While the population growth in the region may be slow, it can still have an impact on the transportation network. AMATS anticipates areas of population growth may have more needs for safety and congestion improvements while slower growing areas may need to focus on the preservation of the existing roadway network.

Employment

The Greater Akron area employment is expected to rise by 7.6 percent through 2040 from 305,000 jobs to about 329,000 jobs. Employment is expected to grow in Summit, Portage and Wayne Counties. The number of jobs in the Greater Akron area is expected to outpace the number of workers. AMATS projects that the region will attract outside residents to fill the jobs available in the region.

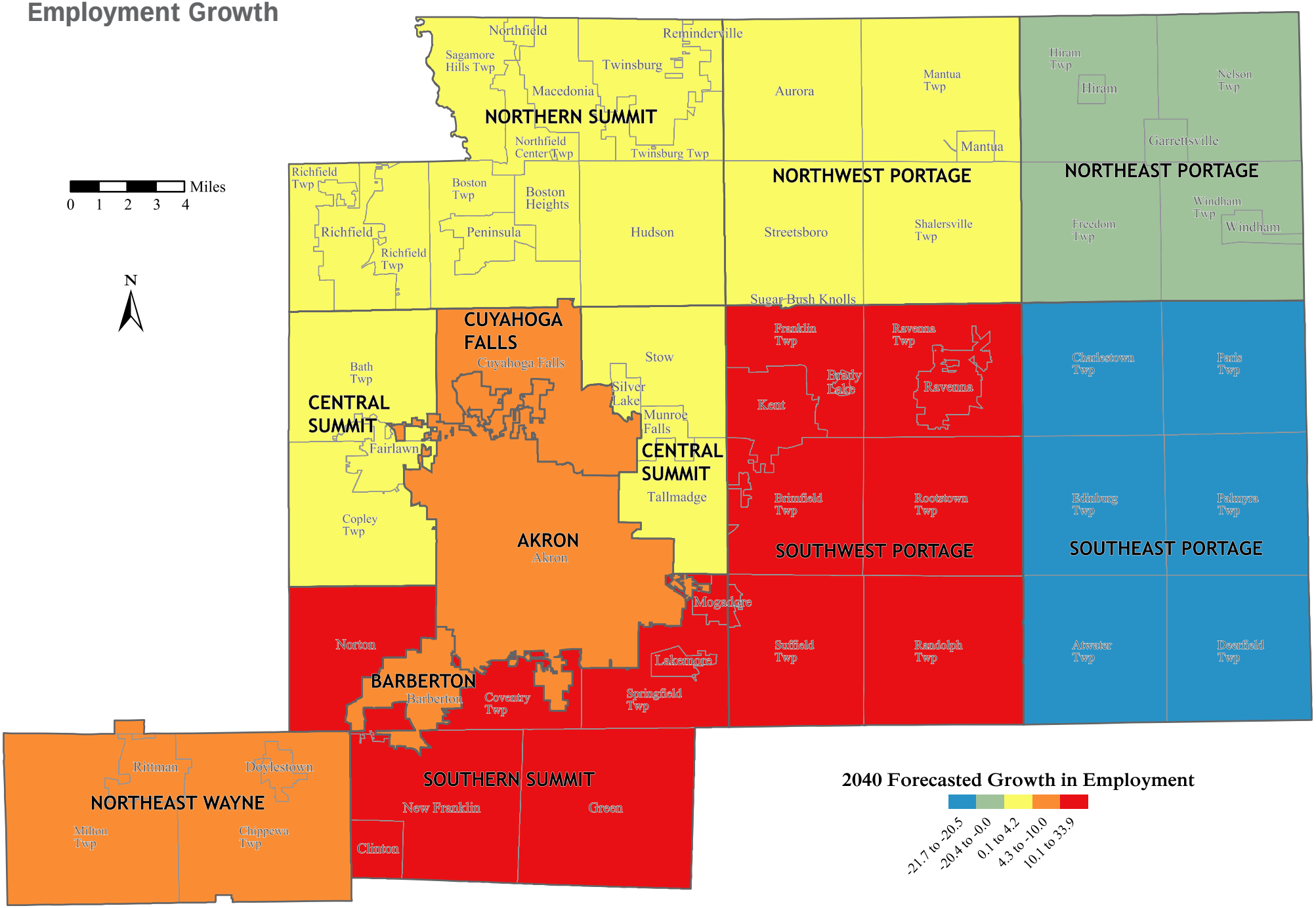
In the AMATS region healthcare, manufacturing and retail are the largest employment sectors. That is projected to remain the same in 2040. Only public administration, education services and agriculture employment is anticipated to decline. High growth sectors in the region are forecasted to be in transportation, warehousing, information, finance and insurance and construction.

Job growth is expected to put additional strain on the existing transportation system. With the region forecasted to import workers, it can be anticipated that the transportation system in an out of the region will experience growth. Growth of employment can also put a strain on existing transit service, as it is difficult for transit providers to serve outside of their respective service areas.

Employment Forecast

Employment	Base Year: 2010	Plan Year: 2040	% Change	Description
NAICS 11	445	437	-1.8%	Agriculture, Forestry and Hunting
NAICS 21	223	349	56.5%	Mining
NAICS 22	2,191	2,274	3.8%	Utilities
NAICS 23	10,453	12,166	16.4%	Construction
NAICS 31-33	37,240	40,554	8.9%	Manufacturing - Aggregated
NAICS 42	16,721	16,992	1.6%	Wholesale Trade
NAICS 44-45	37,359	39,260	5.1%	Retail Trade - Aggregated
NAICS 48-49	9,776	13,406	37.1%	Transportation and Warehousing - Aggregated
NAICS 51	4,873	5,892	20.9%	Information
NAICS 52	8,679	10,446	20.4%	Finance and Insurance
NAICS 53	3,115	3,415	9.6%	Real Estate and Rental and Leasing
NAICS 54	15,531	17,420	12.2%	Professional Scientific and Technical Services
NAICS 55	14,872	17,430	17.2%	Management of Companies and Enterprises
NAICS 56	17,378	22,160	27.5%	Administrative Support, Waste Management and Remediation Services
NAICS 61	29,020	26,625	-8.3%	Education Services
NAICS 62	49,099	48,925	-0.4%	Health Care and Social Assistance
NAICS 71	4,221	4,385	3.9%	Arts, Entertainment and Recreation
NAICS 72	25,336	27,658	9.2%	Accommodation and Food Services
NAICS 81	9,733	9,933	2.1%	Other Services (except Public Administration)
NAICS 92	9,599	9,497	-1.1%	Public Administration
NAICS 99	-	-	-	Other
Total Employment	***305,864***	***329,224***	***7.6%***	

Employment Growth



FIX-IT-FIRST

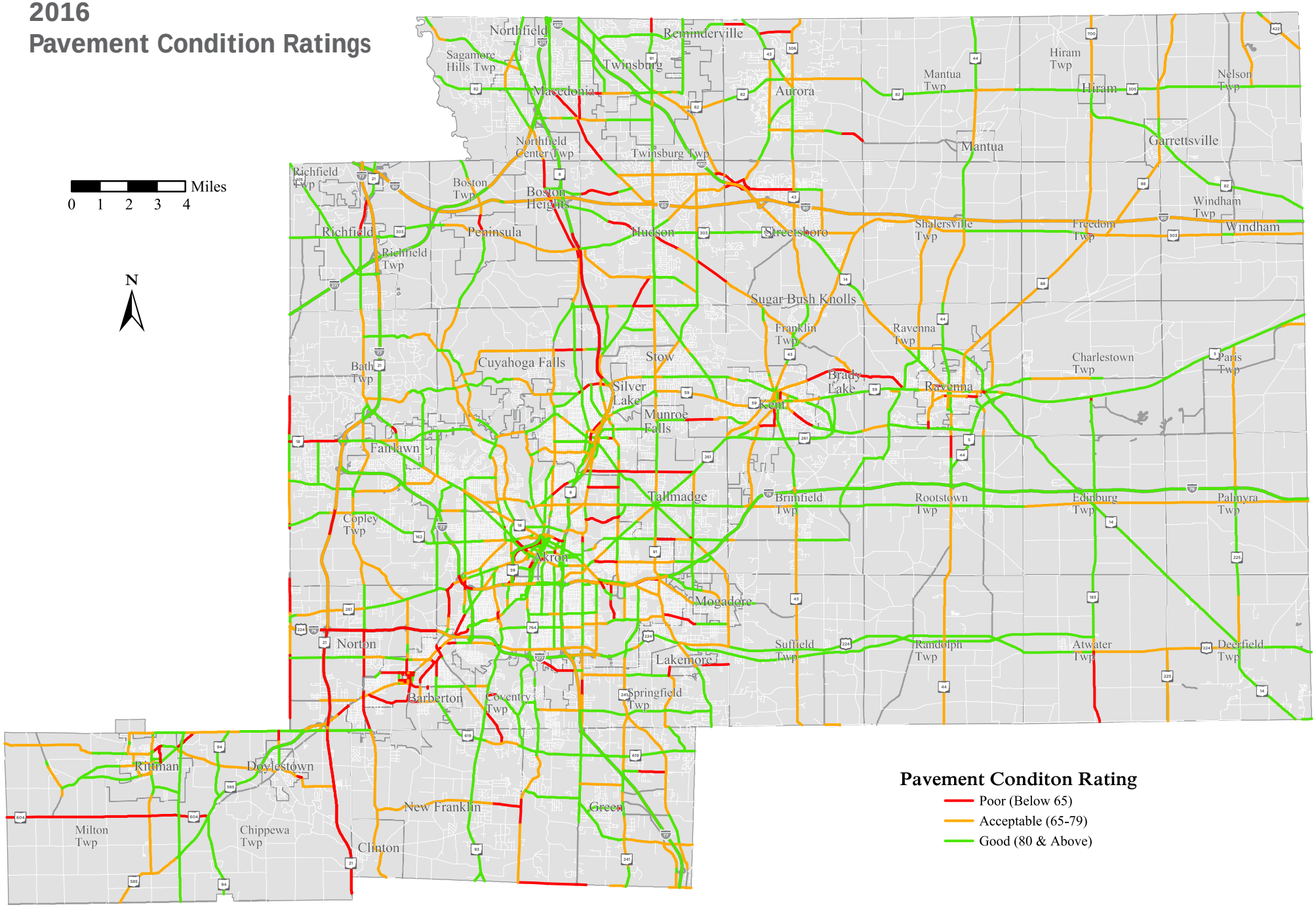
Over the past decade, AMATS has consistently stated that the region's top priority was to preserve the existing transportation system. AMATS has maintained this policy as the cost of system maintenance has continued to rise and the availability of funding for local communities has continued to fall. AMATS has adopted a "fix-it-first" policy in its allocation of resources, which prioritizes funding for projects that preserve the existing system.

In July 2016, AMATS completed the *Highway Preservation Needs* report. The purpose of the report was to identify the expected maintenance costs of the region's transportation network through 2040. The report estimated that the cost of preserving the existing system over the next 25 years would cost $3.22 billion in today's dollars. Of that $3.22 billion, resurfacing needs would cost $1.17 billion; pavement replacement would cost $.15 billion; and bridge preservation would cost $1.9 billion.

Each year, the purchasing power of transportation funding is eroded by the inflation of construction and material costs. Including inflation estimates out to 2040, the cost of system preservation is calculated to total almost $4.5 billion.

While the cost of preservation is staggering, AMATS analysis does not reflect the whole story. AMATS analysis only includes Federally Functionally Classified Roads which are eligible for federal funds. The federal network only accounts for 26 percent of the total mileage in the greater Akron region. It is necessary to point out that the burden of most roadway maintenance falls on the shoulders of local communities. With such great need throughout the region, *TO2040* emphasizes a fix-it-first approach to transportation funding.

2016
Pavement Condition Ratings



Pavement Conditon Rating

- Poor (Below 65)
- Acceptable (65-79)
- Good (80 & Above)

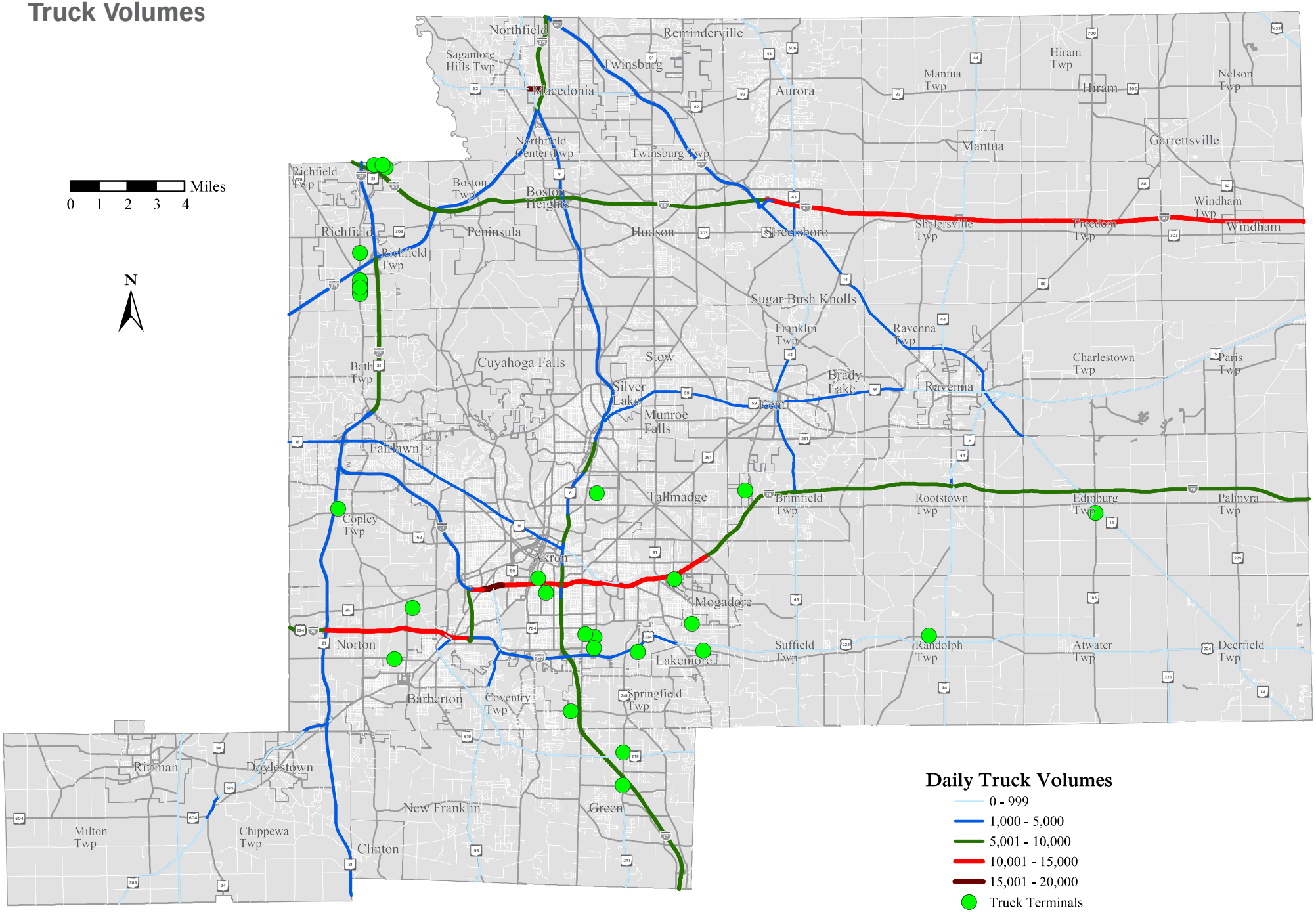
FREIGHT

The movement of freight is an important part of a fully functioning transportation system. The efficient movement of freight within and through a region is critically important to its economy. In May 2016, AMATS completed a *Freight Plan* that focused on the region's most pressing freight needs. AMATS analyzed transportation projects like bridge replacements, road widenings, port and rail access improvements, and grade separations to evaluate how to improve the freight transportation network.

Trucking

Truck traffic originates and terminates primarily in metropolitan areas. As a result, increases in freight-truck traffic have the greatest impact in metropolitan areas in terms of congestion, deteriorating pavement and emissions.
In the Greater Akron area, the highest truck volumes are on the interstates and State Route 8. I -76 in Summit County has the highest volume of truck traffic in the region. Some of the region's major arterials and collector roadways also have a high volume of truck traffic due to industry on or near those roadways.

Truck Volumes



Rail

The greater Akron area is strategically positioned along heavily utilized rail routes connecting Chicago, IL to U.S. East Coast ports. The Greater Akron area has both CSX and Norfolk Southern rail lines as well the regional Wheeling and Lake Erie Railway. METRO, the public transit agency in Summit County also owns three rail lines which were purchased to be preserved for future use. METRO is currently exploring reactivating these lines for local freight purposes.

Railroad-highway intersections are a source of both congestion and safety concerns. There are approximately 393 grade crossings in the greater Akron area. AMATS compiled a list of high volume at-grade crossings in the area. While grade separations are always desired, these projects can be expensive and difficult to construct.

High Volume At-Grade Crossings

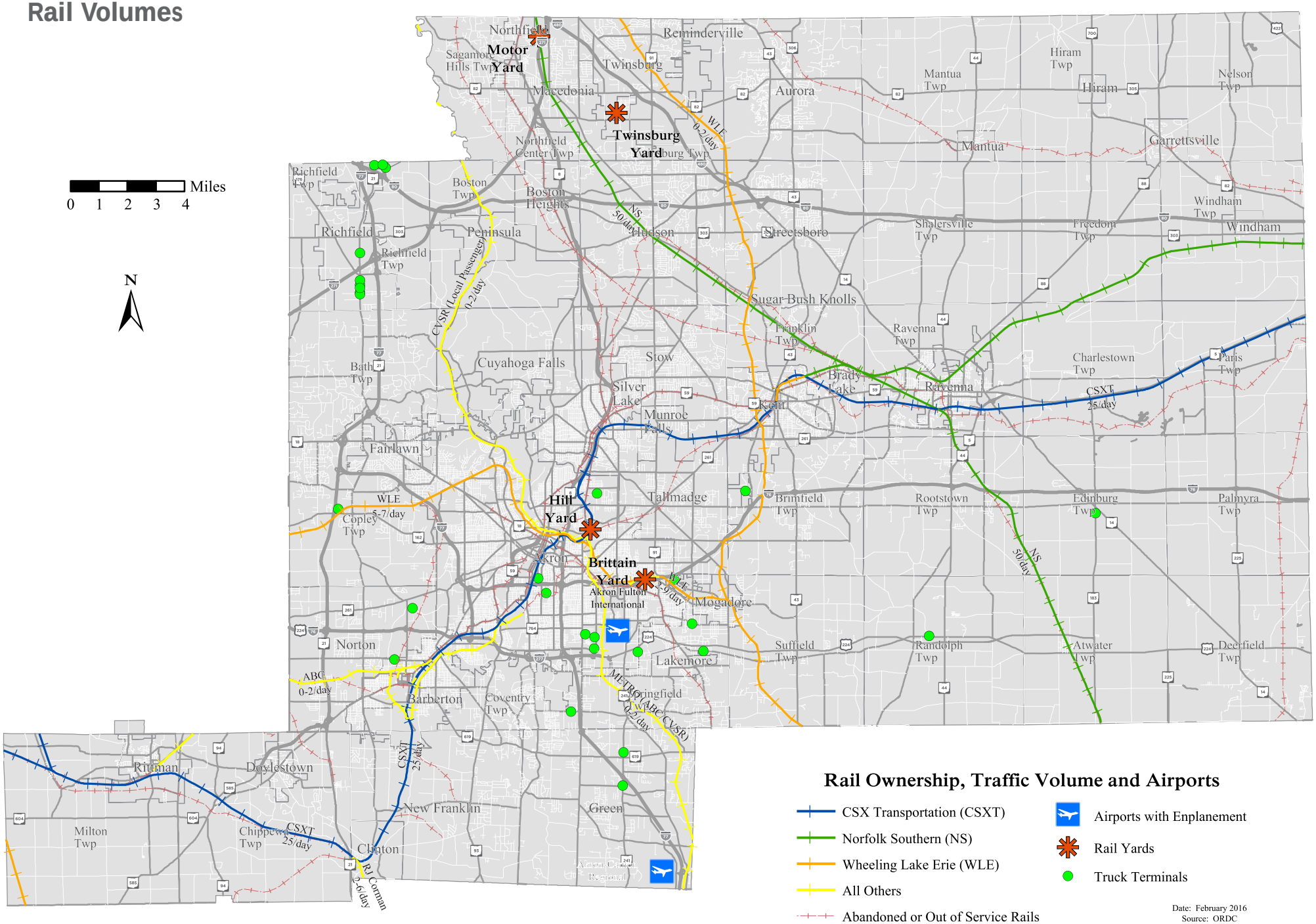
Rank	Street	Trains per Day	Vehicle ADT	Score
1	BROAD BLVD	32	14,940	478
2	STOW RD	45	9,720	437
3	N MAIN ST (SR 91) Munroe Falls	27	14,491	391
4	TWINSBURG RD	74	5,177	383
5	BAILEY RD	27	12,425	335
6	HINES HILL RD Hudson	62	3,760	233
7	FAIRVIEW AVE Barberton	28	7,900	221
8	SUMMIT ST Kent	27	8,100	219
9	WATERLOO RD Barberton	28	7,290	204
10	SNYDER AVE	28	5,745	161
11	S MAIN ST Rittman	27	5,847	158
12	LYNN RD Rootstown	62	2,540	157
13	SR 183 Atwater	45	3,468	156
14	ARLINGTON ST	27	5,163	139
15	SOUTH ST Akron	27	4,830	130
16	WATERLOO RD Atwater	45	2,420	109

Date: April 2016

Source: AMATS, ORDC & PUCO

**Score = (Total Trains x Vehicle ADT) / 1000*

Rail Volumes



Rail Ownership, Traffic Volume and Airports

- CSX Transportation (CSXT)
- Norfolk Southern (NS)
- Wheeling Lake Erie (WLE)
- All Others
- Abandoned or Out of Service Rails
- Airports with Enplanement
- Rail Yards
- Truck Terminals

Date: February 2016
Source: ORDC

TRANSIT

There are two primary providers of public transportation in the Greater Akron area: METRO, which serves Summit County, and the Portage Area Regional Transportation Authority (PARTA), which serves Portage County. Both agencies operate traditional fixed-route bus service, demand-response services for low-income, elderly and disabled passengers, and express bus service to key communities, such as Cleveland. AMATS assists these local transit agencies in providing the best possible public transportation service for the Greater Akron area.

In the Greater Akron area, the majority of public transit riders use fixed-route service. Fixed-route service consists of traditional numbered bus routes, traveling the same routes and adhering to roughly the same schedule on a daily basis. Effective fixed-route service should be reliable, predictable and frequent, so that those who depend on it for their daily needs are able to count on it being there when they need it. For the calendar year 2015, 1,535,210 passengers rode PARTA's fixed-route buses, whereas METRO transported 4,993,687 passengers. Similarly to the roadway system, preserving the existing transit system is crucial. Both METRO and PARTA manage large bus fleets, which must be maintained and continually upgraded.

METRO's overall revenue producing fleet totals 227 vehicles: 136 large buses and 91 smaller paratransit (demand-response) buses, all of which are wheelchair accessible. Some passenger vehicles are equipped with a hydraulic lift to accommodate scooters or wheelchairs; others kneel by lowering the front passenger corner of the vehicle to curb level so passengers can roll aboard on a slide-out ramp. METRO's fleet is 100 percent accessible for standard personal mobility equipment. The average age of the large buses is 4.3 years. The Federal Transit Administration (FTA) expects large heavy-duty buses (over 35 feet in length) to last for 12 years or 500,000 miles. For METRO's small buses and vans, the average age is 2 years for their current fleet. Minimum service life for small buses varies according to size and type of vehicle, which could be from four to 10 years. All METRO line service buses are equipped with bike racks.

PARTA's overall revenue producing fleet totals 75 vehicles: 32 large buses and 43 smaller paratransit buses, all of which are wheelchair accessible. The paratransit number also reflects the five CDL small buses that can be used in fixed-route service too. All revenue vehicles are equipped with a lift or ramp to accommodate scooters or wheelchairs and some will kneel to curb level making boarding easier for all. PARTA's fleet is 100 percent accessible for standard personal mobility equipment. The large buses also have bike racks to accommodate cyclists who are looking to bike to and from their points of origin and destination. The average age of PARTA's large buses is 8.1 years. For small buses, the average age is 4.4 years. All PARTA large buses are equipped with bike racks.

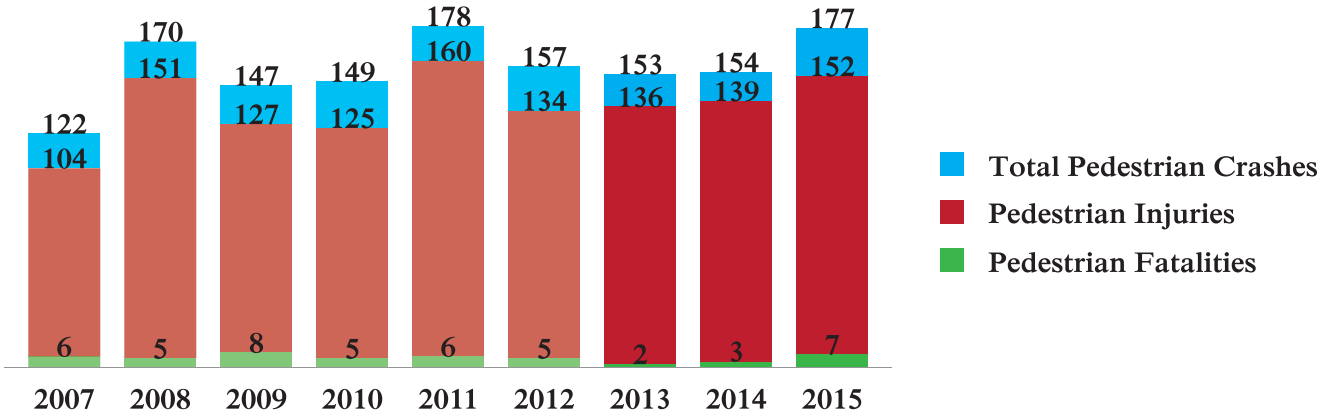
To have an efficient transportation network, it is necessary to have a strong transit system. *TO2040* prioritizes transit preservation through preventative maintenance and bus purchases. *TO2040* also recommends some route expansion and increased route headways where appropriate to encourage ridership.

WALKING

AMATS focuses its pedestrian planning efforts on strategies that meet the following principles of pedestrian planning:

- *Safety* – Does the strategy promote pedestrian safety throughout the greater Akron area?
- *Connectivity* – Will the strategy contribute to a connected regional transportation system?
- *Vibrancy* – Does the strategy advance the vibrancy of the region and promote higher quality of life?

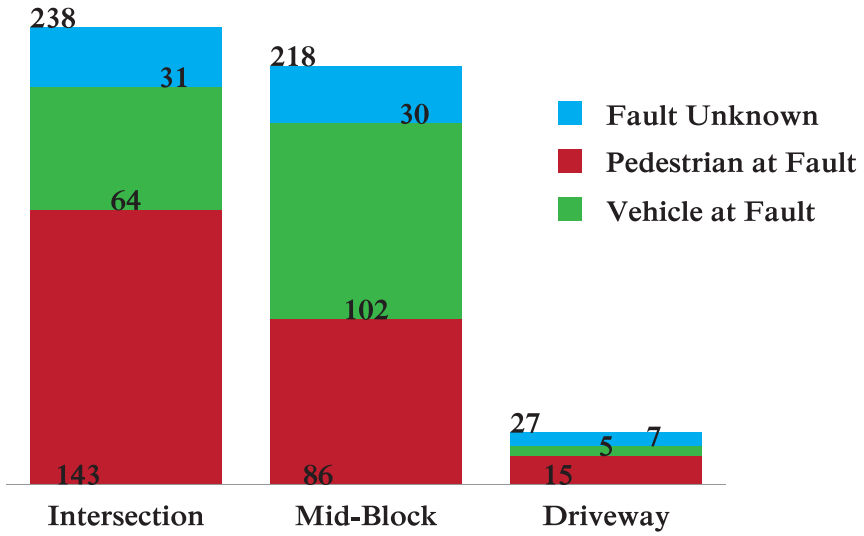
Pedestrian-Related Crashes in the AMATS Area 2007-2015



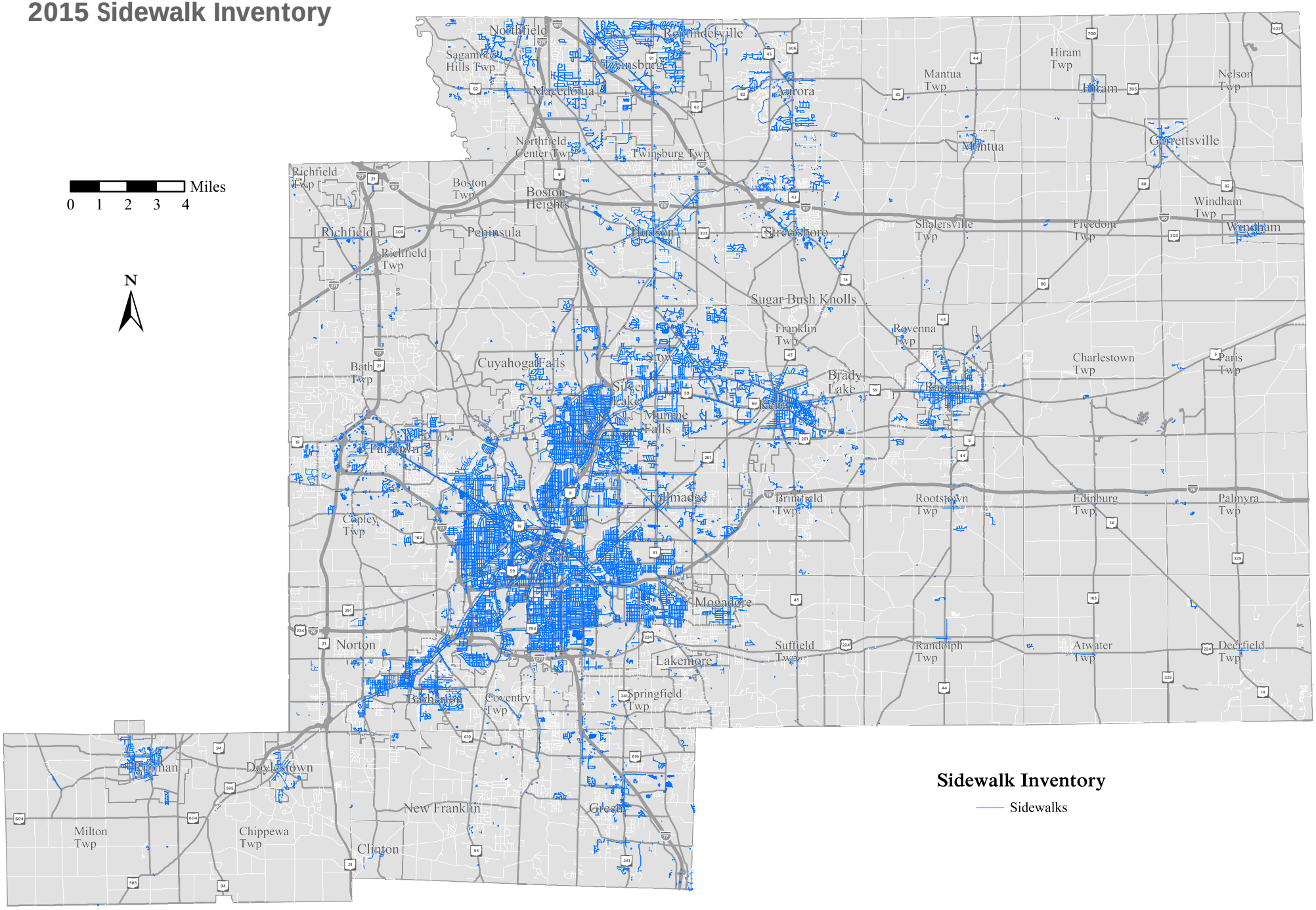
In 2015, AMATS completed its *Pedestrian Plan* to develop a strategic guide to support the development of pedestrian projects in the region. As of 2015, the Greater Akron area contained approximately 2,855 miles of sidewalks. Most sidewalks were concentrated in the more urbanized areas of the region. Some of the biggest challenges for sidewalk connectivity remain in the suburbs where sidewalks were not built with the housing and commercial development that took place.

AMATS also analyzed pedestrian safety in its *2013-2015 Traffic Crash Report*. According to the analysis, in 2015 there were 177 vehicle crashes involving a pedestrian, an increase of 13 percent from 2014. There were four fatalities in 2015. Of the 177 crashes, 88 percent included injuries.

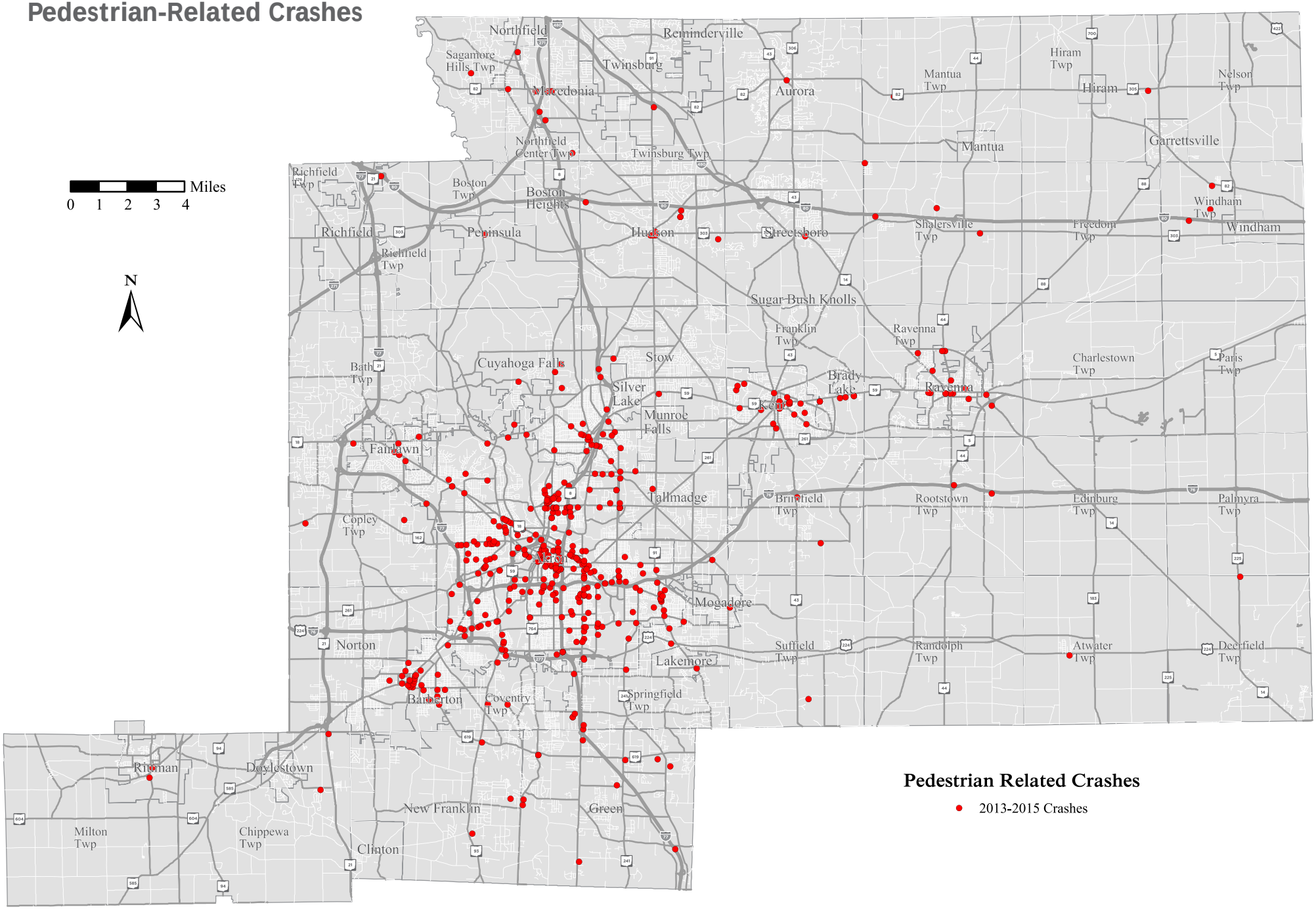
Location and Fault of 2013-2015 Pedestrian-Related Crashes



2015 Sidewalk Inventory



Pedestrian-Related Crashes



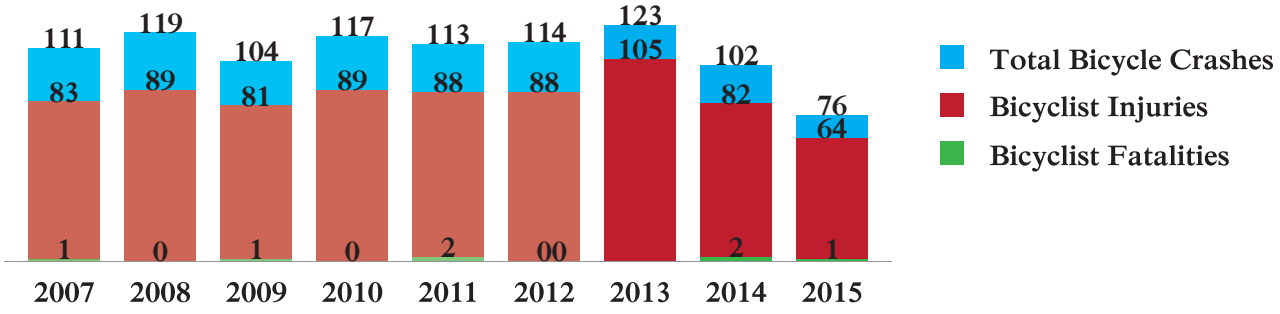
AMATS recommends communities consider a number of treatments to help improve the safety, connectivity and vibrancy for pedestrians on the roadway network. Pedestrian projects should focus on areas where multi-modal activities already exist like transit stops and trailheads. Pedestrian improvements should be completed in concert with high quality urban design that creates interesting and safe environments for pedestrians. Infrastructure projects in areas of high pedestrian movement should consider mid-block crossings, bump outs or other traffic calming devices.

Pedestrian planning is critical to developing a high quality multi-modal transportation network. Every vehicle trip turns into a pedestrian trip when the vehicle gets to its destination. It is important that the Greater Akron area is safe and inviting for pedestrians.

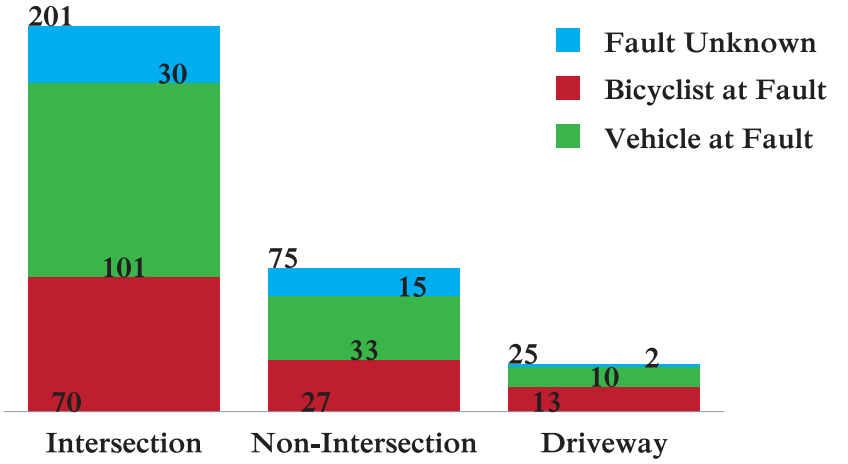
BICYCLING

Bicycling is an important component of the Greater Akron transportation system with the potential to have a significant impact on the future economic, health and sustainability of the region. Creating a safe and connected bicycle network encourages people to drive less, helping to reduce congestion, parking, air quality impacts and other costs associated with driving. Bicycling is a low-cost alternative to driving which can improve access and mobility, especially for low-income persons and students, support a healthy community and promote economic development.

Bicycle-Related Crashes in the AMATS Area 2007-2015



Location and Fault of 2013-2015 Bicycle-Related Crashes

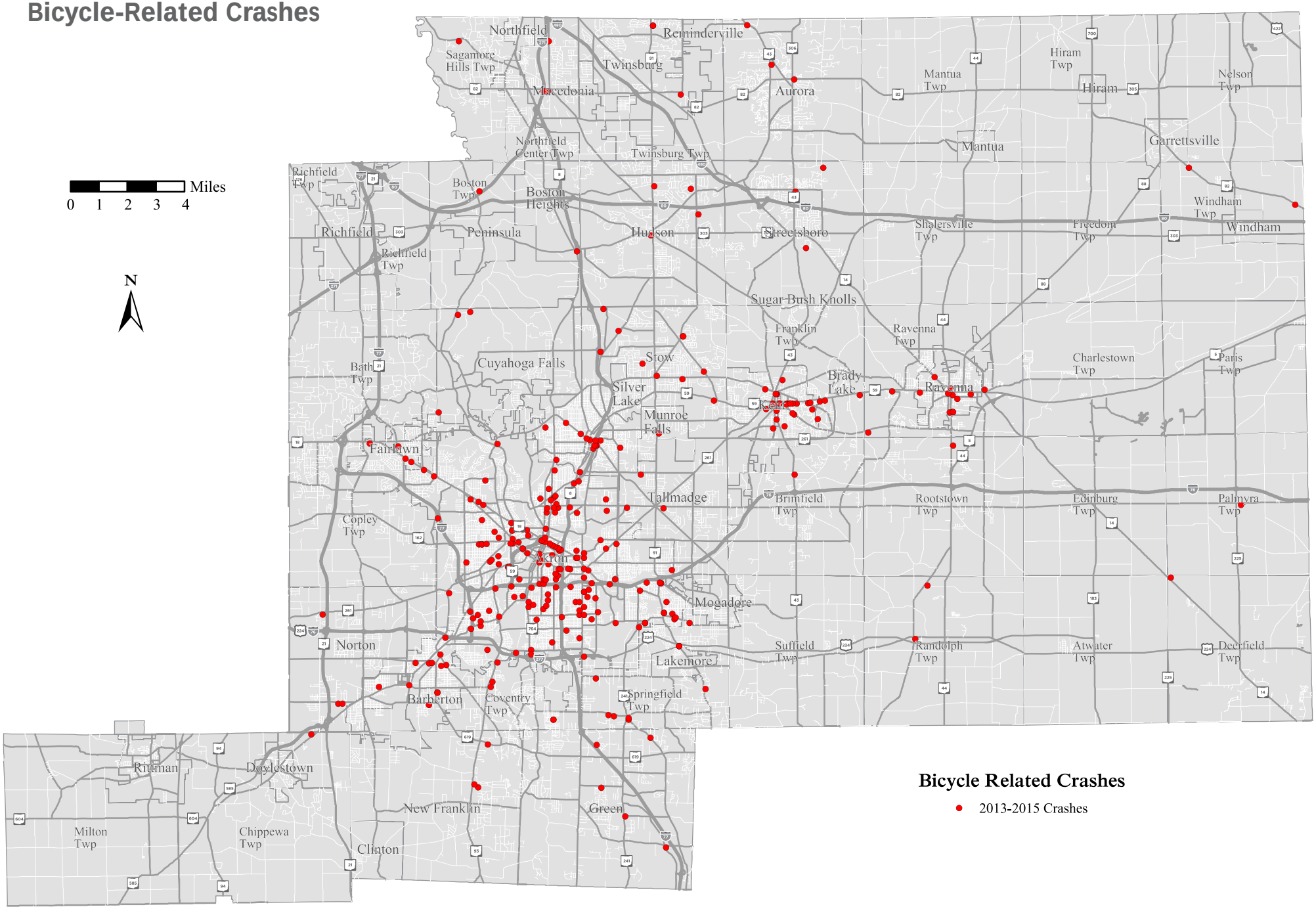


The regional bike network continues to grow at a slow, but steady pace. Over 108 miles of shared-use paths throughout greater Akron, including the Ohio and Erie Towpath Trail, provide a strong framework for the regional bicycle network. On-road facilities, such as bike lanes, are beginning to catch up helping to fill in the gaps and connect people to places. Since 2000, over 28 miles of shared-used paths have been developed. The Ohio and Erie Towpath Trail makes up 41 miles, extending north to south through Summit County. The Summit Metro Parks Bike and Hike Trail and Portage Hike and Bike are other regional shared-use paths. There are also 34.6 miles of bike lanes in Greater Akron; up from 24 miles in 2012.

As biking becomes a more popular and viable means of transportation, there is growing concern about the safety of bike riders. Determining how and where these incidents occur can help plan for future bike lanes, lighting and educational outreach. Bike-related crashes tend to happen more randomly and usually do not have the characteristic of being concentrated at specific locations like other vehicular crashes. Because of this it is sometimes more practical to make improvements systemwide or to a corridor rather than to a specific location.

AMATS recommends a number of treatments to increase bicycle safety and usage. These treatments include shared use paths, bicycle lanes, cycle tracks, bicycle boulevards and sharrows.

Bicycle-Related Crashes



AMATS recommends a number of treatments to increase bicycle safety and usage. These treatments include shared-use paths, bicycle lanes, cycle tracks, bicycle boulevards and sharrows.

Shared-Use Path

Bicycle Lane

Cycle Track

Bicycle Boulevard

Sharrow

SAFETY AND SECURITY

Safety

Every year, AMATS completes a *Traffic Crash Report* to analyze the high-crash locations in the greater Akron area. The purpose of this report is to identify location where investments can be made to improve safety. The *Traffic Crash Report* examines the last three years of available crash data for the region. This data is also used by AMATS to develop federal performance measure goals for safety.

In 2015, the number of crashes in the AMATS area increased by 780 or 4.3 percent. This increase is consistent with the previous year's increase of 623 or 3.6 percent. Injury crashes decreased slightly, but unfortunately fatal crashes increased by eight. This trend of increasing fatalities is mirrored statewide and nationwide. Safety experts are still not sure why it's happening. Some speculation is more driving in general, distracted driving, and impaired driving are the cause.

The following graphs show the number of crashes, injuries, and fatalities since 2002. The red line plotted on the graph below shows the trend for thousands of daily vehicle miles traveled (kDVMT) in the AMATS area. The number of daily vehicle miles traveled and the number of crashes has been increasing slowly and steadily since 2009.

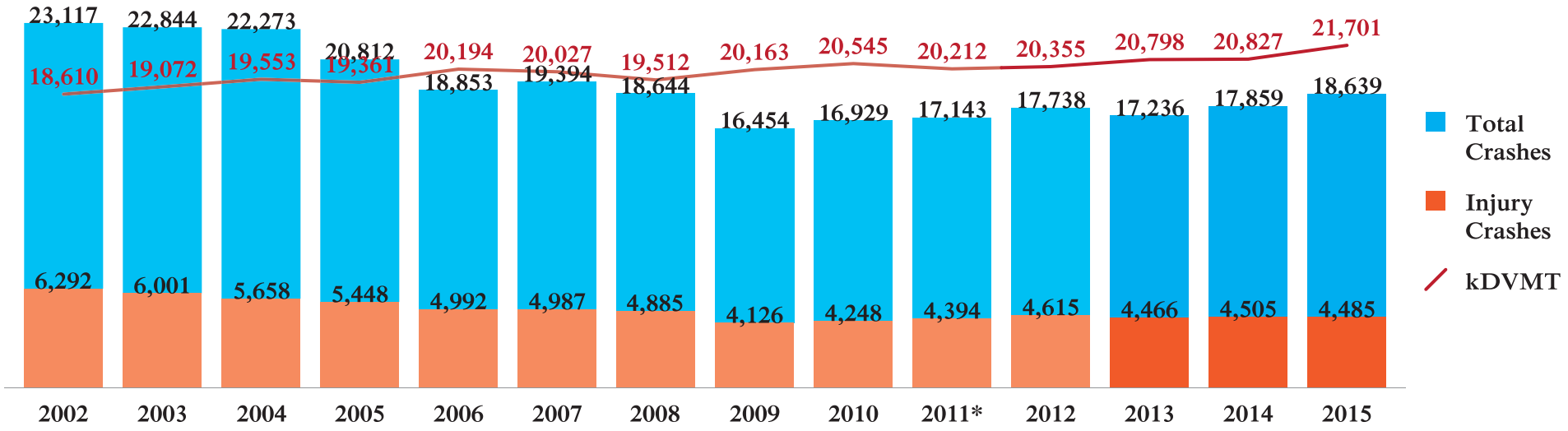
TO2040 considers improving safety one of the most important goals for the greater Akron Region. AMATS will continue to identify projects and funding that will improve roadway safety.

Security

Increasing the security of the transportation system for motorized and non-motorized users is a Federal Planning Factor, which AMATS must consider in its transportation planning process.

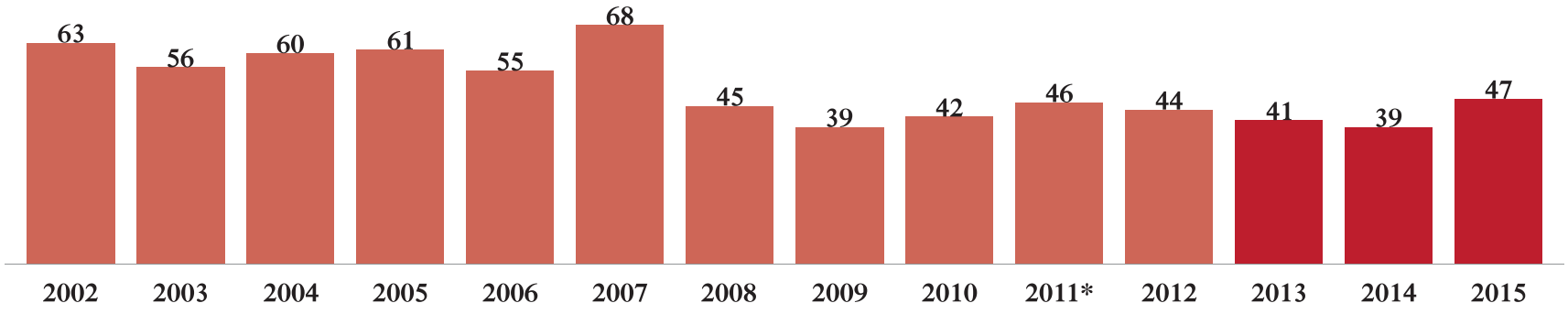
AMATS coordinates with the Summit County Emergency Management Agency (EMA) and the Portage County EMA which are the two agencies responsible for emergency management, disaster preparedness and homeland security in the Greater Akron area. AMATS and the EMAs share mailings, meeting notices and information regarding critical infrastructure. Both METRO and PARTA are also required to address security in their planning efforts.

Total Crashes in the AMATS Area



* In 2011, Milton Township and Rittman crash data was added

Fatality Crashes in the AMATS Area



* In 2011, Milton Township and Rittman crash data was added

CONGESTION

In January 2017, AMATS completed its *Congestion Management Process Report (CMP)* which analyzes existing and future congestion in the AMATS region. The purpose of the *CMP* is to identify roadways which may need improvements to alleviate congestion.

In the past 10 years, the region has seen traffic decline and then rebound. Because the population growth in the Greater Akron area has been relatively flat, traffic growth has also been tepid. One positive from this development is that there are fewer major congestion needs in the Greater Akron area. While *TO2040* prioritizes preservation as the number one priority, the area still has some congestion needs which need to be addressed.

While traffic growth has slowed, AMATS still projects vehicle miles travelled (VMT) to grow over the next twenty-plus years.

Year	VMT
2010	20,203,236
2015	21,024,142
2040	23,903,662

Due to this growth it is anticipated that the level of service (LOS) of roadways in the greater Akron region will decline over time. LOS is a method of quantifying system wide congestion within the AMATS region.

2010, 2015 and 2040 Level of Service Comparison

Arterial LOS	Percentage of Arterial Miles			Freeway LOS	Percentage of Freeway Miles		
	2010	2015	2040		2010	2015	2040
F	0%	0%	1%	F	3%	0%	2%
E	1%	0%	7%	E	4%	1%	8%
D	6%	7%	17%	D	33%	10%	13%
C or Better	93%	93%	75%	C or Better	60%	89%	77%

AMATS is committed to improving congested roadways where existing congestion demands it. AMATS prioritizes roadways which have an existing level of service of "E" or "F".

ENVIRONMENT

Transportation improvements can have potential adverse impacts on the natural environment since they generally stimulate new development. The region's long-term viability is tied to the quality of its environmental resources. The National Environmental Policy Act (NEPA) requires transportation planning agencies like AMATS to integrate environmental considerations into the transportation planning process. Environmental resources that should be reviewed to avoid adverse impacts include air quality, climate change, stormwater management, and social, economic and environmental concerns ranging from community cohesion to threatened and endangered species.

Air Quality

The effect of vehicle emissions on air quality is a major consideration in transportation planning for the region. Individual vehicle trips may seem insignificant, but their cumulative effect is a major determinant in the region's air quality.

Summit and Portage counties are part of the eight-county Cleveland-Akron-Elyria Combined Statistical Area (CSA). The AMATS region is required to participate in air quality conformity to attain the National Ambient Air Quality Standards (NAAQS) for various criteria pollutants. These include carbon monoxide, ozone, oxides of nitrogen, lead, sulfur dioxide and particulate matter. The conformity analysis demonstrates that the transportation programs in the region conform to applicable air quality standards. The complete conformity document and the associated results of the transportation conformity analyses for *TO2040* are discussed in detail in Appendix D.

Greenhouse Gases

Over the last several years, the federal government enacted several standards and regulations regarding carbon dioxide (CO_2). Transportation planning can address multiple pollutants simultaneously. While *TO2040* does not directly quantify greenhouse gas emissions, many recommendations included in *TO2040* do help reduce CO_2. Transit recommendations including better service, new, cleaner buses, and park and ride lots will aid in reducing CO_2 emissions.

AMATS also continues to operate the OhioRideshare program, which promotes carpooling to reduce the number of vehicles on the road. In addition, AMATS supports land use management principles that reduce sprawl and encourage infill development as an effective way of reducing carbon emissions. These principles can reduce vehicle miles traveled, conserve energy, and, in turn, reduce carbon emissions.

AMATS recognizes the growing public concern regarding the issues of CO_2 emissions and climate change. Climate change refers to the changes in temperatures and weather patterns resulting from systems such as the greenhouse effect. The transportation system's relation to climate change is two-fold; one, as a contributor of greenhouse gases (GHG), or CO_2 emissions and, two, the potential impact that severe flooding can have on transportation infrastructure such as increased stormwater runoff.

AMATS is working closely with the Ohio Department of Transportation (ODOT), the Akron Regional Air Quality Management District (ARAQMD), the Ohio Environmental Protection Agency (EPA) and the USEPA on greenhouse gas issues.

Environmental Mitigation

Environmental mitigation is a sequential process that is required for projects that use federal funds and have adverse impacts on certain natural resources or environmental functions. Impacts are to be avoided, minimized or, as a last resort, reduced, eliminated or compensated for by replacing or providing substitute resources.

AMATS is responsible for developing a discussion of environmental mitigation as part of its regional transportation planning process. The discussion is required based on the transportation planning regulations (23 CFR 450) to consider potential mitigation strategies to restore and maintain the environmental functions affected by the regional transportation plan.

Potential environmental impacts and mitigation activities are considered for projects recommended in *TO2040* through consultation with state agencies. The information resulting from these discussions is the basis for considering the cumulative impacts of the recommended projects during the planning process. This helps to identify activities that have the greatest potential to protect, restore and enhance the environmental factors affected by *TO2040*.

The complete Environmental Mitigation Analysis is included in Appendix D.

TECHNOLOGY

Transportation technology is an area of growing interest and investment. Fully integrated innovative technologies – self-driving cars, connected vehicles, and smart sensors – have captivated the imaginations of government, businesses and citizens. There is a growing sense of optimism that these technologies can improve the transportation network. Many believe that technology being developed today could reduce traffic fatalities, crashes and congestion. It also could help with issues like parking and transit last-mile connections.

The state of Ohio has been active in promoting transportation technology. In June 2016, Columbus received a $40 million Federal Smart Cities grant to become a test city for new transportation technologies. Since the award, ODOT, the Ohio Turnpike, and State Infrastructure Commission have set sights on testing autonomous vehicles in corridors throughout the state.

ODOT recently announced a $15 million investment in a Smart Mobility Corridor. The corridor is 35 miles of four-lane, limited access highway between Dublin and East Liberty, northwest of Columbus, and will be equipped with high-capacity fiber optic cable to instantaneously link researchers and traffic monitors with data from embedded and wireless sensors along the roadway. ODOT is also looking at other potential smart corridors throughout the state.

The Ohio Turnpike and Infrastructure Commission recently announced a partnership with the company OTTO to begin testing self-driving trucks on the Ohio Turnpike. The commission is also considering investing in connected vehicle technology.

Automatic or connected vehicles have the ability to drastically alter the future of transportation planning. According to the National Highway Traffic Safety Administration, 94 percent of all vehicle crashes are caused by human error. The approach to safety planning and analysis would be completely different if all vehicles were autonomous.

If vehicles were able to travel safely at close distances, it would increase the capacity of the roadways without needing to build additional infrastructure. Lane widths could be reduced from 12 feet to as narrow as 9 feet.
Transit operation could drastically change as buses could run without an operator 24 hours a day.

The Society of Automotive Engineering developed the matrix on the following page to identify the different levels of automation in vehicles.

It is difficult to determine how soon autonomous vehicles will become a significant part of the transportation network in the United States. However, most experts agree that they will have a substantial impact on the future of transportation in the United States. AMATS is committed to working with state and federal partners to ensure the region is ready for autonomous and connected vehicles as they are developed.

SAE level	Name	Narrative Definition	Execution of Steering and Acceleration/ Deceleration	*Monitoring* of Driving Environment	Fallback Performance of *Dynamic Driving Task*	System Capability *(Driving Modes)*
***Human driver* monitors the driving environment**						
0	**No Automation**	the full-time performance by the *human driver* of all aspects of the *dynamic driving task*, even when enhanced by warning or intervention systems	Human driver	Human driver	Human driver	n/a
1	**Driver Assistance**	the *driving mode*-specific execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment and with the expectation that the *human driver* perform all remaining aspects of the *dynamic driving task*	Human driver and system	Human driver	Human driver	Some driving modes
2	**Partial Automation**	the *driving mode*-specific execution by one or more driver assistance systems of both steering and acceleration/ deceleration using information about the driving environment and with the expectation that the *human driver* perform all remaining aspects of the *dynamic driving task*	**System**	Human driver	Human driver	Some driving modes
***Automated driving system* ("system") monitors the driving environment**						
3	**Conditional Automation**	the *driving mode*-specific performance by an *automated driving system* of all aspects of the dynamic driving task with the expectation that the *human driver* will respond appropriately to a request to intervene	System	**System**	Human driver	Some driving modes
4	**High Automation**	the *driving mode*-specific performance by an automated driving system of all aspects of the *dynamic driving task*, even if a *human driver* does not respond appropriately to a *request to intervene*	System	System	**System**	Some driving modes
5	**Full Automation**	the full-time performance by an *automated driving system* of all aspects of the *dynamic driving task* under all roadway and environmental conditions that can be managed by a *human driver*	System	System	System	**All driving modes**

INITIATIVES AND PUBLIC INPUT

As part of the plan development process, AMATS created and continued a number of initiatives over the past four years. These planning initiatives have been used to help educate the public and AMATS members about new transportation innovations and alternatives. AMATS has developed a number of different "active" public meetings like the Bike-N-Brainstorm concept, Jane's Walk and Better Block. The Connecting Communities Planning Grant program also contributed to a number of new projects in the region which promote smart growth and "livability" concepts, as well as multimodal alternatives to the automobile. AMATS supports the concept of livability through a number of planning efforts that can help local communities to identify and achieve broader goals and to implement an integrated, multimodal transportation network. According to the FHWA, "livability" is about tying the quality and location of transportation facilities to broader opportunities such as access to good jobs, affordable housing, quality schools, and safer streets and roads.

The following chapter highlights some of AMATS' initiatives and describes how they have helped support a broad range of livability-related projects in the AMATS area. The goals of those projects are to increase transportation alternatives and support land use patterns through targeted investments.

BIKE-N-BRAINSTORM

AMATS developed the Bike-N-Brainstorm concept in 2012 to serve as a tool for public outreach by engaging cyclists in a chosen bike route for the purpose of improving biking conditions in a local community. More than 450 cyclists have participated in 12 Bike-N-Brainstorm events from 2012-2015. AMATS continues to partner with other communities toward encouraging bicycle infrastructure in making it a viable and safe active transportation option. Below is a summary of Bike-N-Brainstorm events that have taken place in the AMATS area.

Date	Location / Event	# of Cyclists
	2012	
May 17	Market St	16
September 6	Downtown Akron	16
	2013	
April 20	Kent	58
June 22	Green	32
September 7	Barberton	60
	2014	
June 26	Downtown Akron - AMATS Switching Gears Conference	45
October 11	Ward 1 Community Bike Ride - Highland Square	55
	2015	
April 14	Kent at Green Town Conference	35
April 25	Highland Square Bike Earth Day	56
May 9	Hudson	30
July 11	Mantua	34
October 19	Springfield Township - Summit County Trails Forum	15

SWITCHING GEARS CONFERENCE

On June 26, 2014 over 135 attendees gathered for the Switching Gears Active Transportation Conference in downtown Akron. Hosted by AMATS with funding from the John S. and James L. Knight Foundation, the conference was part of AMATS efforts to promote alternative transportation in the region. The conference highlighted successful policy and implementation strategies, as well as grassroots efforts to create more bikeable and walkable communities to increase transportation options.

Jason Roberts of The Better Block project and Dave Cieslewicz, Executive Director of Wisconsin Bike Fed and former mayor of Madison, Wisconsin were the two keynote speakers. Roberts explained how Better Block, a DIY prototype street makeover, can influence city policies and lead to rapid change. Cieslewicz describes how Madison became a top bike-friendly community through changing the system from the inside. He discussed Madison's success with Open Streets, an initiative which temporarily closes streets to vehicle traffic, so that people can use them for biking, walking, socializing and playing.

The conference also included breakout sessions on bike sharing, active transportation and a Better Block workshop. Attendees were encouraged to ride their bike to the conference where a pop-up bike valet provided bike parking and a post conference Bike-N-Brainstorm showed people around downtown Akron.

BETTER BLOCK

Better Block is a demonstration tool that rebuilds an area using grassroots efforts to show the potential to create a great bikeable and vibrant neighborhood center. Better Block projects are collaborative sessions in which groups develop solutions to design problems. These events allow communities to engage in the "complete streets" buildout process and provide feedback to community stakeholders in real time. Better Block projects show how communities can come together to transform blighted blocks into vibrant neighborhood destinations.

During Better Block projects, event organizers use available community resources to convert downtrodden locales into pedestrian-friendly and bike-friendly destinations for people of all ages. These projects typically involve establishing temporary facilities such as makeshift bike lanes, cafe seating, trees, plants, lighting, and pop-up businesses to show the potential for revitalized economic activity in an area. In 2015, Akron helped plan a Better Block in the North Hill neighborhood highlighting the emerging immigrant population. The Better Block included pop-up store fronts with local vendors, community performances, spaces for people to play games and eat outside, a beer garden and a road diet with bike lanes in creating a place that encouraged people to visit and get to know one another.

Copley Township organized a Better Block around historic Copley Circle in 2016. The purpose of the Better Block was to highlight the potential of Copley Circle as a vibrant place where people would want to gather for community events, shop, or get a cup of coffee by safely walking or cycling in and around the Circle.

For more information, visit the Better Block web site at *betterblock.org* or contact the group via email at *info@teambetterblock.com*.

CONNECTING COMMUNITIES PLANNING GRANTS

AMATS developed *Connecting Communities - A Guide to Integrating Land Use and Transportation* as a way to better understand the relationship between land use and transportation. It aims to encourage transportation projects which support vibrant, healthy and inclusive places. The purpose of the Connecting Communities Planning Grant Program is to include the principles of Connecting Communities to develop transportation plans that will lead to projects eligible for AMATS funds.

The Connecting Communities Planning Grant focuses on integrating the following Connecting Communities principles:

- Increase alternative transportation options to connect people and places
- Promote Complete Street principles to create vibrant and safe places for all users
- Leverage transportation projects to develop places which support alternative transportation and complete streets through land use and design

Since its launch in 2010, the Connecting Communities Planning Grant Program initiative has completed studies in the communities of Akron, Barberton, Boston Heights, Copley and Bath Townships, Ravenna and Richfield. The 2016 Connecting Communities recipients were Kent and the Ohio Department of Transportation (ODOT), Green, Twinsburg and Hudson. Many of the recommendations in these studies are being pursued by AMATS and their respective community sponsors.

For example, the Montrose Multi-Modal Connectivity Plan recommends that Bath and Copley townships pursue pedestrian, bicycle and transit improvements throughout the plan's study area to promote alternative transportation and provide access to employment. The study recommends improving access and pedestrian safety along State Route 18 and internal roadway networks through streetscapes, pedestrian crossings, and roadway enhancements. AMATS recently funded a multi-purpose path along Market Street/SR 18 which will be a key recommendation in the plan.

The city of Barberton has been moving ahead to implement their Connecting Communities Planning Grant. One of the city's goals is to improve connectivity between downtown and the nearby Ohio and Erie Canal Towpath. The outcome of the plan is the Magic Mile, a one-mile loop from the Towpath through downtown that provides a safe way for the community and visitors to enjoy downtown Barberton. The city has already installed a mural, gateway arch, and wayfinding signs and has received AMATS funding for the first phase of the connection, including a contra-flow bike lane.

JANE'S WALK

Jane's Walk is a global walking initiative held annually on the first weekend in May. The initiative began in Toronto in 2007 to honor the legacy and ideas of urban planner and writer, Jane Jacobs, who lived from 1916-2006. Every year, cities around the world participate in the Jane's Walk festival of free walking tours that get people to explore their cities, tell stories about their neighborhood and connect with neighbors. In 2016, 226 cities across 6 continents participated.

Akron began participating in Jane's Walk in 2014. The festival in the Akron area has been very successful from the start with more than 500 participants in its three year history. Jane's Walk can bring out creative ideas, which can lead to positive change in the community by engaging people in discussion and collaboration. For example, one of the walks brought out some critical thinking and ideas which led to a project in Akron called *iTowpath*. This project spurred recommendations for the Towpath Trail through Akron to make it more accessible, useful and enticing to nearby residents and businesses. Amenities such as wayfinding, traffic calming, pedestrian enhancements, street lighting and cycle tracks are part of the planned amenities under *iTowpath*.

SAFE ROUTES TO SCHOOL

The Safe Routes to School (SRTS) Program, administered through ODOT, officially kicked off in Akron on November 8, 2013 to announce a new effort in creating a District-Wide School Travel Plan for the Akron Public Schools (APS). The *Akron Public School Travel Plan* was completed in 2014 and became one of the first district-wide School Travel Plans (STP) for a large school district in Ohio as well as one of the first nationwide. It sets precedence for other communities in the AMATS area to apply to the SRTS Program.

The STP is a written document that outlines ways to make travel to and from school safer and to encourage and enable students in grades K-8 to walk or ride their bicycle to school. Parent surveys, student travel tallies, principal surveys and walking audits are conducted to identify priorities for the Plan; and to pursue funding opportunities to create safer routes to school. Projects can be either engineering (i.e. improved crossings, sidewalks, etc.) or non-engineering (education and encouragement programs).

Safe Routes to School (*www.dot.state.oh.us/saferoutes*) works to raise awareness, promote pedestrian safety, create safer routes for walking and bicycling, and emphasize the importance of increasing physical activity among children to combat a growing obesity epidemic.

BICYCLE AND PEDESTRIAN COUNT PROGRAM

AMATS began a bicycle and pedestrian count program in 2012. Since lack of documentation on usage and demand is one of the challenges with bicycle and pedestrian investment, it is important to have accurate and consistent data to analyze the need, and potential benefits of such investments. AMATS utilizes the standard *National Bike and Pedestrian Documentation* project (NBPD) method for counting.

There has been a public response to back up the need for improved bicycle and pedestrian facilities with supportive data in a more efficient manner. AMATS will continue to engage more communities and organizations in bicycle and pedestrian counts. The agency will also strive to improve documentation by using new technologies to measure the use and demand of these facilities throughout the Greater Akron area.

BIKE RACKS IN DOWNTOWN AKRON

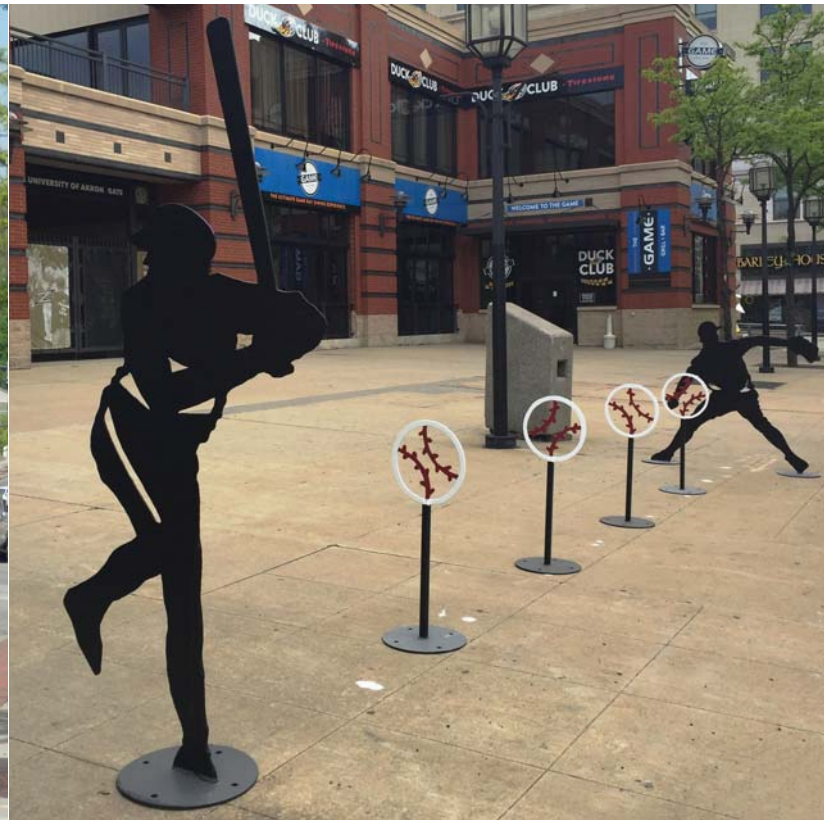
Bicycle parking is an important strategy for promoting bicycling as transportation as well as encouraging people to replace some of their car trips with bicycle trips. Recreational riders also need bike racks along trail destinations, such as restaurants and shops. Bike racks near public spaces such as the workplace, storefronts, bike shops and parks can promote more bicycle use by providing a secure location to store a bike.

Artistic bike racks are also becoming more popular as a way to encourage bicycling and highlight the unique nature of local businesses and the community. They also provide public art when not in use. The city of Akron and the city of Kent have installed artistic bike racks through downtown. Music notes, baseball players and black squirrels are just a few of the designed bike racks adding character and interest around the region.

BIKE SERVICE STATIONS AND BIKE SHARE

Bike service stations and bike share are other amenities that help encourage cycling. Knowing that you can fill a tire or have access to tools if needed along a ride helps provide peace of mind. Service stations are currently in Kent and Akron along shared-use paths and near the downtowns and the universities.

Bike share is another amenity that can encourage bicycling and increase ridership. Summit Bike Share began operation in July 2016 which features bikes available for short-term use for free or little cost. The Akron bike share program started with a small investment by placing bikes at already-staffed sites. Starting the program out in this way allows Summit Cycling Center to collect data on usage and interest in the bike share program before making a more substantial investment. Bike share stations are located at Cascade Plaza, Akron CitiCenter and the Richard Howe House, as well as at the Summit County Department of Job and Family Services on South Main Street in Akron. Free rental bikes are also available at the North Hill Branch Library and the Summit Lake Community Center. More information about Summit Bike Share is available at *www.summitshare.org*.



PUBLIC PARTICIPATION

AMATS strives to improve its public outreach strategies by trying new innovative approaches to reach audiences and encourage community participation. Changes to our Citizens Involvement Committee - which is AMATS' public forum - include a less formal, more inclusive meeting format with engaging topics and opportunities to see local planning efforts firsthand.

Our use the AMATS and Switching-Gears websites and social media is constantly evolving to provide the best information and to receive the best feedback from the public. AMATS updated its website with a re-launch in February 2015. Among the goals of the new site: make it easier to inform the public about events, and provide a way for the public to become more engaged in the planning process. The agency is working to show how your tax dollars are being spent in a clear, easy-to-understand format, including the ability to search through AMATS-funded projects in an interactive Transportation Improvement Program (TIP) so the public can research specific projects.

Social media has fast become one of AMATS' most utilized tools for public outreach. The agency can interact with the public regarding transportation-related topics instantaneously. Facebook and Twitter are two of the most used social media tools with the ability to reach out easily and keep the public up to date. Things like live tweeting the AMATS Policy Committee meetings are just one way that AMATS is providing more information than ever before.

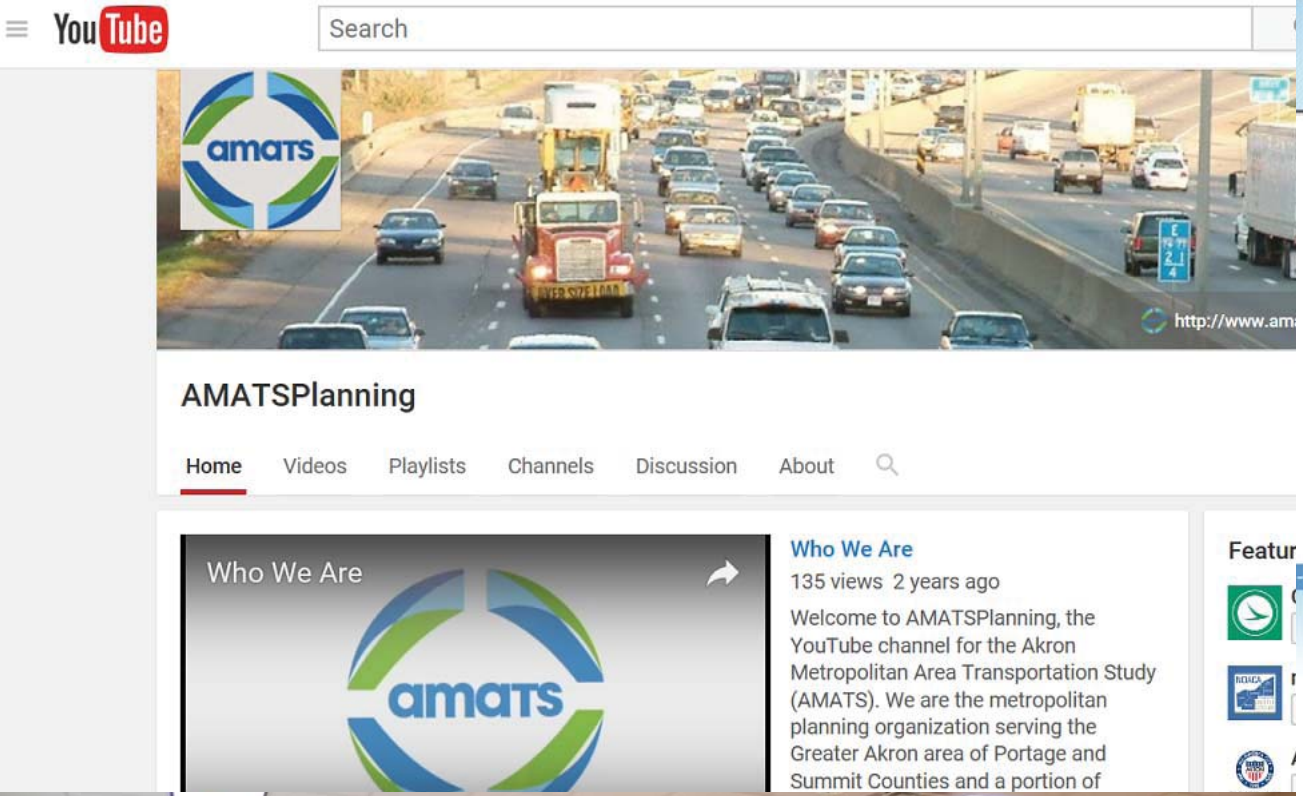
Bike-N-Brainstorm, Better Block and Jane's Walk are also innovative approaches to public involvement as discussed in detail earlier in this section. These strategies present opportunities to challenge the public beyond mere dialogue. They actively urge the public to tackle transportation issues directly through participation in unique events. Generally, these events entail a topic-specific activity geared to spur dialogue between participants and area policy makers. Following participation in a group endeavor, participants share their ideas and insights gained through firsthand experiences as to what can be done to improve accessibility and livability in a particular locale.

VISUALIZATION

New technologies involving visualization have changed the communication process and the tools that are available to transportation professionals. AMATS uses visual representations of its work to make it easier for the public to understand complex issues.

Visualization techniques include:

- Maps
- Charts and graphs
- Photos and renderings
- Website graphics
- GIS Story Maps
- YouTube videos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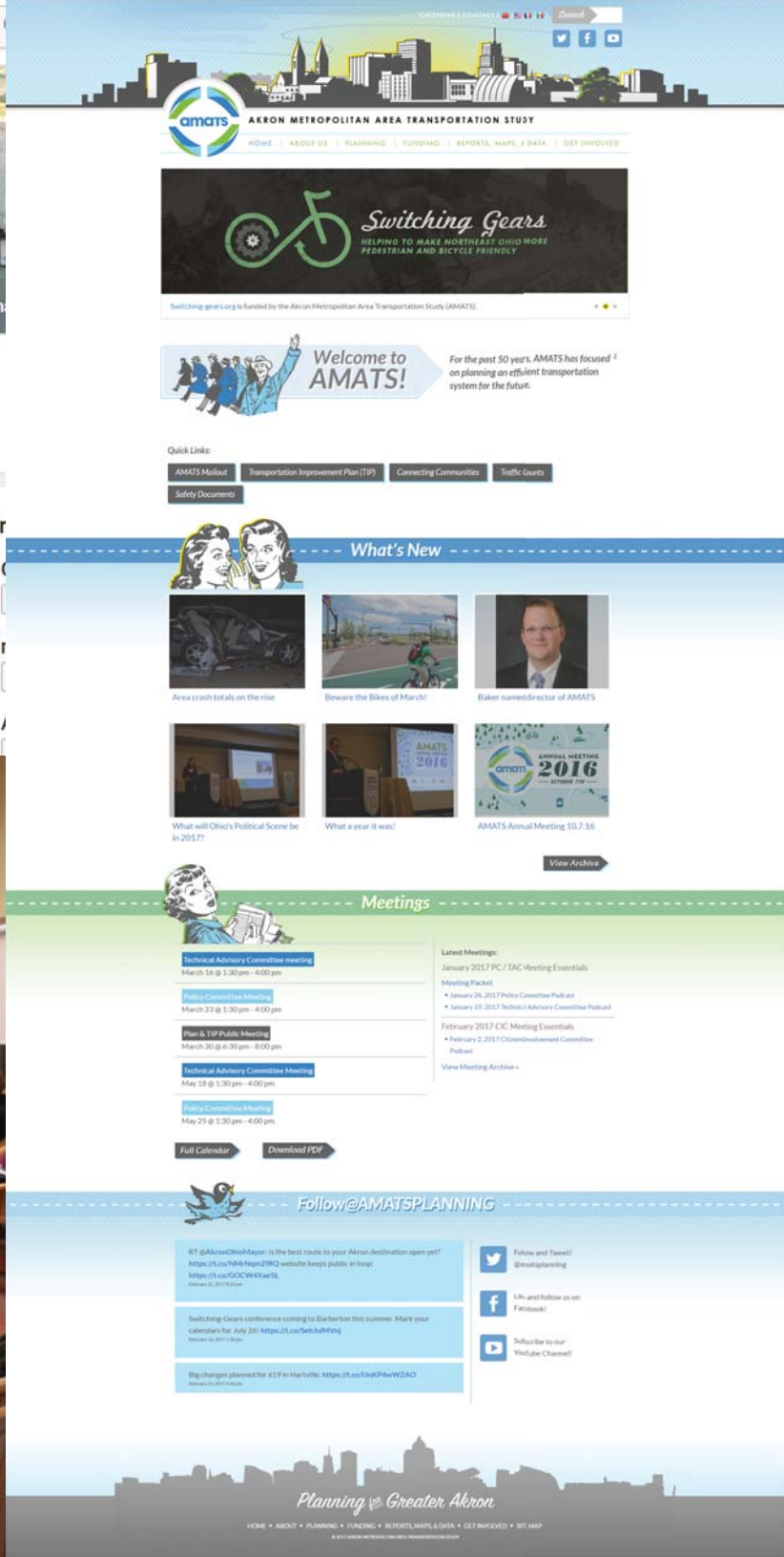
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PLANNING
FUNDING
REPORTS, MAPS, & DATA
GET INVOLVED
Switching Gears
HELPING TO MAKE NORTHEAST OHIO MORE PEDESTRIAN AND BICYCLE FRIENDLY
Welcome to AMATS!
For the past 50 years, AMATS has focused on planning an effsient transportation system for the future.
Quick Links:
AMATS Mailout
Transportation Improvement Plan (TIP)
Connecting Communities
Traffic Counts
Safety Documents
What's New
Area crash totals on the rise
Beware the Bikes of March!
Baker nameddirector of AMATS
What will Ohio's Political Scene be in 2017?
What a year it was!
AMATS Annual Meeting 10.7.16
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Meetings
Technical Advisory Committee meeting
March 16 @ 1:30 pm - 4:00 pm
Policy Committee Meeting
March 23 @ 1:30 pm - 4:00 pm
Plan & TIP Public Meeting
March 30 @ 6:30 pm - 8:00 pm
Technical Advisory Committee Meeting
May 18 @ 1:30 pm - 4:00 pm
Policy Committee Meeting
May 25 @ 1:30 pm - 4:00 pm
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PROTECTED POPULATIONS

AMATS strives to involve low-income and minority groups in the public participation process for the Greater Akron area. The agency recognizes where these groups are located within the region and seeks their involvement throughout the planning process using a mix of outreach strategies involving advertisements, community groups, press releases, social media and other available means. When possible, public meetings are held in locations that are along transit routes and convenient to low-income populations. All public meetings are held in locations accessible to people with disabilities. The aforementioned Public Empowerment strategies, such as Bike-N-Brainstorm, Better Block and Jane's Walk, present valuable opportunities for the agency and members of these populations to coordinate, network and organize activities with direct participation and firsthand experiences given the targeted neighborhood scale of many of these events.

The region is also witnessing growth in its Asian and Hispanic populations. These populations have unique interests and needs which will contribute to and influence the area's transportation policies and systems. AMATS recognizes this and strives to foster a dialogue with these and other diverse communities within the area. Recently, the agency has increased its outreach efforts to these populations by initiating a dialogue with various organizations including:

- The Akron Urban League
- Asian Services in Action, Inc.
- The Bhutanese Community Association of Akron, Inc.
- The International Institute of Akron
- The Ohio Latino Affairs Commission
- Socially Good TV

The agency actively pursues opportunities to collaborate on the development of transportation-related programs and projects with representatives of these populations as well as other community and neighborhood groups.

AMATS strives to ensure access to our programs and activities by limited-English proficient persons. Our agency website (*www.amatsplanning.org*) includes a link to language interpretation software to assist those for whom English is not the primary language. AMATS and its transit providers also publish timetables and route maps in languages other than English.

Long an advocate to the spirit and wording of both Title VI of the landmark Civil Rights Act of 1964 and Executive Order 12898, the agency will broaden and continue its outreach to the region's many varied communities and populations.

Information on non-discrimination and related policies and procedures is available at *www.amatsplanning.org/document/title-vi-plan-may-2015/*, "AMATS Title VI Program Procedures and Documentation 2015." Information on how to file a complaint is available at *http://amatsplanning.org/get-involved/*, "Nondiscrimination Complaint Form."

SPECIAL NEEDS

The agency prides itself with its ongoing efforts to meet and exceed the standards outlined in the Americans with Disabilities Act of 1990. AMATS will make every effort to arrange for translation, sign language and other special assistance at meetings for individuals with special needs who request them at least three business days beforehand.

TO2040 PUBLIC INVOLVEMENT

AMATS conducted public involvement for *Transportation Outlook 2040* throughout the development of the document. The Public Involvement Appendix (Appendix E) summarizes AMATS' public involvement efforts for the plan and documents comments and actions taken based on comments received.

PERFORMANCE MEASURES

The recently passed federal legislation, Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation Act (FAST Act), places a new emphasis on performance measurement. This focus is consistent with AMATS' goals and objectives, which promote the transparency of public data and decision-making and seeks to improve the accountability of public spending by better linking investments to outcomes.

Performance measures are central to implementing a performance-based planning process that guides decision making. How performance is defined and measured can significantly affect the types of projects and strategies that are advanced by decision makers. Moreover, performance results inform agencies whether the types of projects and strategies they are implementing are in fact helping them achieve their goals. Performance measures aim to answer questions about whether the performance of the transportation system is getting better or worse over time. Performance measures also aim to demonstrate whether transportation investments are correlated or linked to stated goals and whether they produce desired outcomes.

Introducing a performance management approach to planning is intended to improve project and program delivery, inform investment decision making, focus staff efforts on priorities, and provide greater transparency and accountability to the public.

The new federal legislation only applies performance measurement at the programmatic, rather than project, level and does not generally link performance measures and targets to funding decisions by way of performance-based funding. But the general trend appears to be moving towards performance-based funding in the future.

Currently, the USDOT is in the process of establishing performance measures. The Ohio Department of Transportation (ODOT) will then develop performance targets in consultation with Metropolitan Planning Organizations (MPOs) like AMATS, and others. State investments must make progress toward these performance targets, and MPOs must incorporate these performance measures and targets into their Transportation Improvement Programs (TIPs) and long-range Regional Transportation Plans. Presently, federal guidance imposes no financial penalty for states and MPOs that fail to make progress toward these performance goals, and funding decisions for any given project are not explicitly tied to performance criteria.

There are seven areas for which the USDOT will determine performance measures. These areas are:

- Safety
- Infrastructure Condition
- Congestion Reduction
- System Reliability,
- Freight Movement and Economic Vitality,
- Environmental Sustainability, and
- Reduced Project Delivery Delays

To implement performance measure goals, USDOT is developing measures and minimum standards for states to follow for the various core programs established in MAP-21. USDOT is issuing performance measures for each of the above areas individually over the next year.

In the transportation planning process, the public and other stakeholders articulate a strategic direction that is based on a shared vision for the future.

- **Goals and Objectives** stem from the area's vision and goals, and they address key desired outcomes. Agencies like AMATS create objectives—which are specific, measurable statements—that shape planning priorities.
- **Performance Measures** support objectives and are the basis for comparing alternative improvement strategies, investment and policy strategies, and tracking results.

Driven by data on performance, along with public involvement and policy considerations, AMATS will conduct analyses that inform investment and policy priorities.

- **Identify Trends and Targets** – Trends and targets let agencies compare alternative strategies. This step relies on baseline data from past trends, tools to forecast future performance, and information on possible strategies, available funding, and other constraints.
- **Identify Strategies and Analyze Alternatives** – Scenario analysis may also be used to compare alternative strategies and funding levels or to explore funding levels required to achieve certain performance goals.
- **Develop Investment Priorities** – To reach investment targets, AMATS will create a TIP and a Regional Transportation Plan that consider priorities and tradeoffs.

Programming involves selecting specific projects to include in the TIP. In a performance-based planning approach, agencies make programming decisions based on whether those decisions support performance targets or contribute to desired trends.

- **Investment Plan** – In order to link *Transportation Outlook 2040 (TO2040)*, which has an horizon of at least 20 years, to projects in the TIP, AMATS may consider developing a mid-range investment plan that, for example, may cover 10 years.
- **Resource Allocation / Program of Projects** – Project prioritization or selection criteria are used to identify specific projects or strategies for a capital plan or TIP. Projects included in the TIP are selected based on performance, and whether they show a clear link to meeting performance objectives.

Performance-based planning is founded on evidence that the process leads agencies to their goals. The following evaluation activities happen throughout implementation and when needed throughout performance-based planning.

- **Monitoring** – Gathering information on actual conditions.
- **Evaluation** – Conducting analysis to understand whether implemented strategies have been effective.
- **Reporting** – Communicating information about system performance and whether policymakers, stakeholders, and the public think plans and programs are effective.

In a performance-based planning approach, each step in the process is clearly connected to the next so that goals translate into specific measures. Those measures then become the basis for selecting and analyzing strategies for the long-range plan. Ultimately, project selection decisions are influenced by expected performance returns. Keeping the next step in the process in mind is critical to each step along the way.

Public involvement and data are critical throughout the process. The public's vision for their transportation system plays a central role in determining goals, performance measures, and investment priorities. Agencies also decide on priorities using data and information on how potential strategies performed in the past, are performing now, and how they are projected to perform in the future.

Like all planning, the performance-based planning process is cyclical. As planning cycles evolve, goals and objectives may be adjusted and performance measures and targets may be refined. Making adjustments ensures that agencies focus on the most important priorities and that those priorities remain achievable.

Recent federal legislation has now placed a greater emphasis on the use of performance measures. ODOT will be developing statewide performance measures over the next year. And MPOs such as AMATS will coordinate with ODOT on this process.

Over the next year, AMATS will be coordinating with ODOT to assess and develop factors that influence the level of performance of various transportation modes. The agency will also refine the performance targets that will be necessary to maintain or improve operational efficiency.

SAFETY

Federal legislation requires MPOs like AMATS to establish performance measures and set targets that demonstrate fatal and serious injury reductions on all public roads. The required performance measures for safety are:

- Number of fatalities
- Fatality rate
- Number of serious injuries
- Serious injury rate
- Number of non-motorized fatalities and serious injuries

In accordance with federal legislation, AMATS used a five-year average to calculate baseline safety targets. These baseline targets re the benchmarks to which all future calculations will be compared. All future values will also be calculated using five years of data. This five-year rolling average is used to smooth out short-term year-to-year fluctuations. A full discussion of safety planning and the identification of safety needs for the AMATS area is found in the *2014-2016 Traffic Crash Report*, approved in March 2018. This technical memorandum also includes analyses of bicycle and pedestrian safety data.

After reviewing historical crash trends, external factors and through consultation with the state's MPOs, ODOT has recommended a 1 percent annual reduction target across all five safety categories statewide. ODOT developed a baseline using CY 2011-2015 for setting the CY 2018 safety targets. The FHWA will determine whether a state DOT has met or made significant progress toward meeting its CY 2018 targets in December 2019. A state is considered to have met or made significant progress if at least four of the five targets are better than the baseline.

AMATS is also required to establish safety performance measures. There are two options available for satisfying this requirement: commit to a quantifiable target for each measure within the metropolitan area, or approve of ODOT's statewide targets and agree to plan and program projects so that they contribute toward the accomplishment of these goals. AMATS supports the goals set forth by ODOT for the entire state, rather than develop separate targets and goals for our area (See AMATS Policy Resolution 2017-14, approved December 2017).

The current USDOT rules for safety performance measures were developed to support the Highway Safety Improvement Program (HSIP), as it establishes safety performance measure requirementsfor the purpose of carrying out the HSIP and to assess fatalities and serious injuries on all public roads. The use of performance measures for safety will impact AMATS member applications for funding at the local, state and federal level. The AMATS Funding Policy Guidelines will be amended in order to support safety goals as additional federal program rules become available.

The table below shows the calculation of the AMATS rolling averages for the five safety performance measures. The 2015 averages are the benchmark values that future values will be compared to. In each of the safety performance measures, AMATS has exceeded the ODOT goal of reducing each category by one percent.

The CY 2018 targets for Ohio are:

- 1,051 fatalities
- 9,033 serious injuries
- 0.91 fatality rate
- 8.01 serious injury rate
- 840 non-motorized fatalities and serious injuries

	2011	2012	2013	2014	2015	2016	2015 5-Yr Ave	2016 5-Yr Ave	Percent Change
Number of Fatalities	**54**	**47**	**42**	**40**	**49**	**49**	**46**	**45**	**-2%**
1000 Daily VMT (from ODOT)	*20,212.40*	*20,355.09*	*20,798.21*	*20,826.53*	*21,701.50*	*20,181.96*			
100 Million VMT	*73.78*	*74.3*	*75.91*	*76.02*	*79.21*	*73.66*			
Fatalities Per 100 Million VMT	**0.73**	**0.63**	**0.55**	**0.53**	**0.62**	**0.67**	**0.61**	**0.59**	**-2%**
Number of Serious Injuries	**573**	**669**	**622**	**557**	**514**	**480**	**579**	**562**	**-3%**
Serious Injuries Per 100 Million VMT	**7.77**	**9**	**8.19**	**7.33**	**6.49**	**6.52**	**7.65**	**7.42**	**-3%**
Number of Non-motorized Fatalities and Serious Injuries	**61**	**61**	**54**	**57**	**52**	**46**	**57.4**	**54.4**	**-5%**

INFRASTRUCTURE CONDITION

Among the aims of the Performance Based Planning and Programming rules, as they are written in the proposed federal rulemaking, is to examine Infrastructure Condition and monitor the condition of pavement based on the International Roughness Index (IRI) and bridges and culverts based on the National Bridge Index (NBI) scale. The main measure assessed in this rule for bridges is that of National Highway System (NHS) bridge conditions in percentages in each state.

Rated on the NBI Scale, bridges will rank on a range from 1-9 with 1 being "Poor Condition" and 9 being "Good." The bridges are rated using three different areas: Substructure, Superstructure, and Deck. If all metrics are rated "Good" (rating of 7-9), then the rating given is "Good." If the lowest rated metric is a 5 or 6 ("Fair"), then the entire structure gets a "Fair" rating. If any metric is rated at 4 or below, then the entire structure is rated as "Poor."

AMATS Bridges				
Metric	Number of Each Condition	Percentage of Total	Total Deck Area (sq ft)	Percent of Area
Good	116	44.11%	1,806,069	39.35%
Fair	143	54.37%	2,729,231	59.47%
Bad	4	1.52%	54,153	1.18%

A minimum threshold that must be met for the overall rating of the Infrastructure Condition rule is that no more than 10% of the entire NHS bridge deck area may be considered Structurally Deficient (SD). Structurally Deficient means any bridge that has an NBI rating of 4 or less in the categories of Deck, Superstructure, Substructure, Culvert, or the Waterway Adequacy Rating of 2 or less. Currently, the entire percentage of SD deck area for the NHS System in the state of Ohio and AMATS is well below this maximum.

Percentage Structurally Sound	
Ohio	97.31%
AMATS	97.76%

AMATS will continue to work with ODOT in developing goals for bridge condition to satisfy the performance measure requirements.

AMATS maintains a resurfacing funding program as a subset of its local attributable Surface Transportation Block Grant (STBG) Program. The project application and programming system are overseen by the AMATS Policy Committee. AMATS will be coordinating with ODOT on the development of pavement performance measures, projected future scenarios and systemwide goals.

Currently, the only ratings available are for IRI and PCR. Rutting, Faulting, and Cracking will come at a later date. The ratings are shown both separated by pavement type and combined and presented in lane miles and percent of lane miles.

AMATS IRI Pavement Condition Ratings		
Metric	Lane Miles	Percent Lane Miles
Good (Up and Down) Total	1030.05	68.07%
Fair (Up and Down) Total	409.58	27.07%
Poor (Up and Down) Total	73.57	4.86%
COMPOSITE		
Good (Up and Down) Total	720.08	71.36%
Fair (Up and Down) Total	254.84	25.25%
Poor (Up and Down) Total	34.15	3.38%
JOINTED CONCRETE		
Good (Up and Down) Total	74.46	42.68%
Fair (Up and Down) Total	86.12	49.36%
Poor (Up and Down) Total	13.90	7.97%
FLEXIBLE		
Good (Up and Down) Total	235.50	71.44%
Fair (Up and Down) Total	68.62	20.82%
Poor (Up and Down) Total	25.52	7.74%

AMATS PCR Pavement Condition Ratings		
Metric	**Lane Miles**	**Percent Lane Miles**
Good (Up and Down) Total	1172.52	76.82%
Fair (Up and Down) Total	233.39	15.29%
Poor (Up and Down) Total	120.50	7.89%
COMPOSITE		
Good (Up and Down) Total	751.30	73.49%
Fair (Up and Down) Total	225.13	22.02%
Poor (Up and Down) Total	45.86	4.49%
JOINTED CONCRETE		
Good (Up and Down) Total	101.60	58.23%
Fair (Up and Down) Total	0.00	0.00%
Poor (Up and Down) Total	72.88	41.77%
FLEXIBLE		
Good (Up and Down) Total	319.62	96.96%
Fair (Up and Down) Total	8.26	2.51%
Poor (Up and Down) Total	1.76	0.53%

USDOT is encouraging agencies to adopt travel time reliability measures to better manage and operate their transportation system. Traffic professionals have come to recognize the importance of travel time reliability because it better quantifies the benefits of traffic management and operational activities than simple averages over a 24-hour period.

In order to assess systemwide and specific location congestion it is necessary to outline the performance measures used for evaluation. The AMATS Congestion Management Process considers the following performance measures:

- Volume-to-Capacity (V/C) ratio – based on the volume of traffic versus the capacity of the roadway used to determine the level of service of arterials and intersections
- Density – based on the inverse of vehicle spacing – used to determine freeway level of service (LOS)
- Transit LOS (headways) – both peak time and standard time (headways) between buses, as well as availability
- Vehicle Hours Traveled (VHT) – total hours traveled in a 24-hour period
- Vehicle Miles Traveled (VMT) – total miles traveled in a 24-hour period

These performance measures are used to determine existing and future transportation system congestion. In the future, AMATS will be coordinating with ODOT on the development of congestion-related performance measures, projected future scenarios and systemwide goals. A full discussion of the AMATS Congestion Management Process can be found in the *CMP Report* (approved January 2017).

PUBLIC TRANSIT

In terms of public transit, USDOT is developing both performance measures and a formal definition for "state of good repair" with regards to asset measures. Within three months of the USDOT's rulemaking, transit agencies are required to develop performance targets for state of good repair. Transit agencies are also required to develop transit asset management (TAM) plans, which in turn must include capital asset inventories, condition assessments, decision support tools, and investment prioritization. Transit agencies must also report annually on the progress made toward performance targets and define new performance targets for the coming fiscal year. Ultimately, funding will be linked to meeting these goals.

Performance and asset measures are widely used in the transit industry today, with most transit agencies reporting basic information about their service to the National Transit Database (NTD). Reporting data to the NTD is required for most transit agencies to receive federal transit funding.

ODOT is considering the following performance measures to be used for transit development:

- Service Effectiveness – passengers per hour
- Cost Efficiency – cost per hour
- Cost Effectiveness – cost per passenger
- Customer Satisfaction – portion of riders with high levels of satisfaction
- Transit Asset Management – fleet and infrastructure capital maintenance

Once ODOT has developed performance measures for the state's transit agencies, AMATS will work with our transit agencies, METRO RTA and PARTA, to review targets and sets goals consistent with ODOT.

FREIGHT MOVEMENT AND ECONOMIC VITALITY

Ultimately, the assessment of freight performance will be measured in terms of mobility and efficiency (travel time, delay and safety) and accessibility and connectivity. Bottlenecks and roadways (or corridors) with particularly high levels of freight movement may be singled out for more detailed analysis once performance measures and goals are adopted. The end result is to use performance measures to reach goals that are part of the Regional Transportation Plan.

Projects that are essential to the movement of goods would then be programmed into the TIP as a part of an integral process. A full discussion of freight in the AMATS area can be found in the *Freight Plan* approved in May 2016.

ENVIRONMENTAL SUSTAINABILITY

AMATS is committed to enhancing the performance of the transportation system while protecting and enhancing the natural environment. Both the AMATS *TIP* and *TO2040* meet USDOT requirements for air quality conformity. In the future, AMATS will further the goal of improved air quality by developing a transportation system that meets the intent of federal requirements.

REDUCED PROJECT DELIVERY DELAYS

It is a priority of AMATS to ensure that projects are completed on schedule. AMATS continues to dedicate efforts to reduce project costs, promote economic growth, and expedite the movement of people and goods. The agency strives to do so by accelerating project completion through the elimination of delays in the project development and delivery process, including reducing regulatory burdens and improving work practices.

The project scoring and evaluation criteria in the *AMATS Funding Policy Guidelines* is intended to allocate the region's resources effectively. In addition, AMATS coordinates its efforts with other MPOs, along with ODOT, to ensure that projects are fully funded and completed on time.

RECOMMENDATIONS

Over the past four years, AMATS has completed a number of reports and studies analyzing the Greater Akron area's transportation system. This analysis has led to a number of recommendations to improve and strengthen the area's transportation network. Recommendations included in *Transportation Outlook 2040 (TO2040)* include infrastructure improvements and policies intended to ensure that our system remains an asset to the region from now until 2040.

TO2040 includes highway, transit, bicycle and pedestrian infrastructure and policy recommendations. The recommendations included in *TO2040* are financially constrained and conform to federal air quality requirements.

HIGHWAY RECOMMENDATIONS

Highways are the most critical element of the region's transportation system. The recommendations contained in *TO2040* aim to preserve the existing system and improve system safety and efficiency. The following section contains policy and highway infrastructure recommendations to improve and maintain the region's highway network.

Funding

AMATS receives federal transportation dollars to fund highway improvements. These funds can be used for many types of projects including: resurfacing, turn lanes and traffic signals, and major widening projects.

The agency's funding comes from two major sources, the Surface Transportation Block Grant (STBG) and the Congestion Mitigation/Air Quality Program (CMAQ). The STBG Program is the most versatile type of funding and can be used on any type of project. CMAQ funding can only be used on projects which improve air quality and relieve congestion.

Federal funds may only be invested on roadways that are contained in the Federal Functional Classification of Highways. Local roadways - such as streets in a residential subdivision - are not eligible for funding.

AMATS receives around $15 million annually for highway improvements. While this funding is a substantial source of revenue for highway projects, it is not the only funding available. The Ohio Department of Transportation (ODOT) receives funds from federal and state gasoline taxes. Counties and municipalities also receive federal and state funding. Discretionary funding, also known as earmarks, can be made available for highway projects when written into federal legislation.

Any highway project using federal funding must be consistent with *TO2040*, regardless of whether AMATS provided the funding. *TO2040* is important because it gives the authority to local officials to determine how federal funds are spent collectively.

RECOMMENDATIONS

Preservation

The importance of maintaining and preserving the existing highway system cannot be understated. Over the past 60 years, the United States has developed an incredible roadway network that has allowed the efficient movement of people and goods. In the last few years, it has become apparent that this network is beginning to deteriorate.

In 2015, AMATS estimated that to maintain the existing system through 2040 would cost $4 billion in year of expenditure costs. These cost estimates have increased by over $720 million since 2012. Most of the cost increase is due to the continued increase of construction costs. The longer that large preservation projects are postponed, the more expensive they become.

TO2040 recommends a regional preservation policy. Since 2008, AMATS has devoted a minimum of 20 percent of its funds for a local resurfacing program. This program has been incredibly successful and popular throughout the region. AMATS will continue this program and recommends providing additional AMATS Surface Transportation Funds for the program.

Operational and Safety Projects are consistent with *Transportation Outlook 2040*

While it is important to develop a plan for the next 20 plus years, it is also necessary to provide flexibility to the planning process to allow for unseen developments. To that end, AMATS maintains its policy that projects that improve safety conditions or contain operational improvements are consistent with *TO2040*. This includes railroad grade separation projects. AMATS has set aside $75 million over the next 23 years for unspecified safety and operation improvements.

Asset Management Planning

According to AASHTO, Transportation Asset Management is a strategic and systematic process of operating, maintaining, upgrading, and expanding physical assets effectively throughout their lifecycle. As AMATS has continually recognized preservation as its most important priority, *TO2040* recommends that AMATS pursue developing a regional asset management plan focused on preserving and maintaining pavement. Asset Management planning can help communities extend the life of roadways and ensure that federal funding is used strategically for roadways most in need of major resurfacing or reconstruction.

Reduce Congestion by Promoting Carpooling and other Alternative Modes of Transportation

While congestion is not the main focus of *TO2040*, it is still an important issue that can negatively impact the transportation system. In order to help reduce congestion, AMATS will continue to promote OhioRideshare.com and Switching-gears.org. *OhioRideshare.com* is a website that allows users to find carpool partners to share rides to and from work. *Switching-Gears.org* is a bicycle advocacy website that promotes bicycle commuting in the region.

Complete Streets

TO2040 recommends that communities and project sponsors continue to consider complete streets principles as they develop transportation projects. AMATS supports alternative modes of transportation and complete streets promote making roadways more accessible for automobiles, buses, bicycles and pedestrians.

Embrace Technology

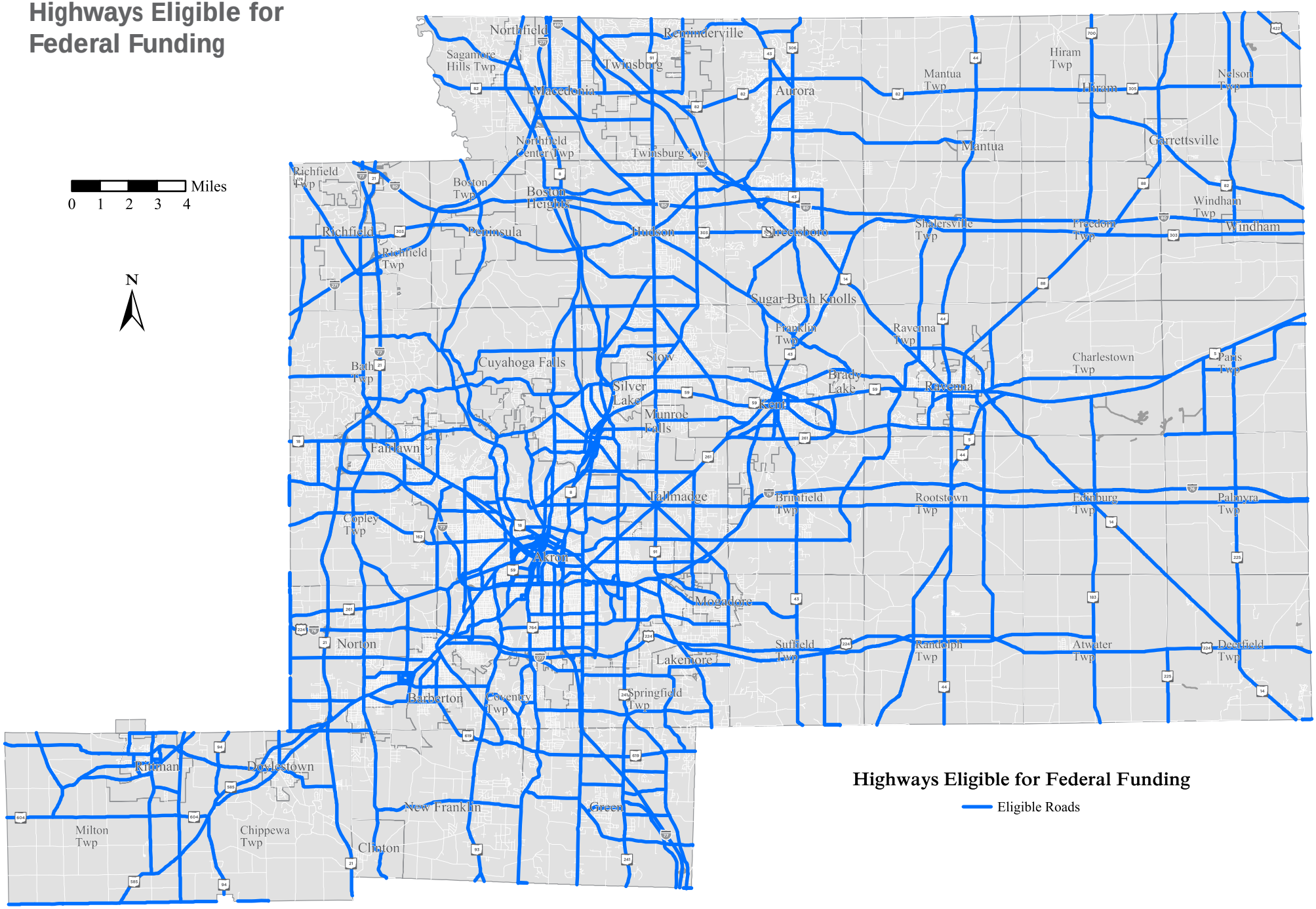
TO2040 is a document charged to look toward the future. It is critical that the Greater Akron area embrace technology that is developing quickly in the transportation field. Phone applications like Uber, Lyft, and Waze have already changed the way people find rides and get their traffic information. AMATS anticipates that as technology continues to become more responsive it will provide additional benefits and services for transportation. New technology could include autonomous passenger vehicles, autonomous freight vehicles, technology to connect people to transportation and even more accurate transportation data. *TO2040* recommends that the region embrace new technologies and applications to better serve communities.

$5 Billion of Highway Transportation Infrastructure Investments

TO2040 recommends over $5 billion of highway infrastructure investments through 2040 in year of expenditure dollars. This funding includes over $4.4 billion for preservation of the existing system, $505 million specifically for freeway recommendations, $150 million for specific roadway projects, and approximately $128 million in bike/pedestrian, safety and other operational improvements in the AMATS area.

The following Long-Term Highway Recommendations table shows projects recommended in *TO2040*. Project costs are shown in current dollars, Appendix B shows costs inflated to year of expenditure. All projects are financially constrained and conform to air quality requirements.

Highways Eligible for Federal Funding



LONG-TERM HIGHWAY RECOMMENDATIONS

Freeway Recommendations

ID	Freeway	Location	Recommendation	Current Cost
1	I-77	Arlington to I-277	Add Capacity	$64,000,000
2	I-77/76/277/SR 8	Akron Beltway Project	Reconfigure Interchanges	$50,000,000
3	I-77	Ghent to Cuyahoga County Line	Add Capacity	$150,000,000
4	SR 8	Perkins to Glenwood	Replace Bridge	$150,000,000
5	I-77/76/SR 8	Central Interchange Bridges	Reconfigure Interchanges	$65,000,000
6	I-76/US 224	State Rd/Wooster Rd	Reconfigure Interchanges	$26,000,000
			Freeway Total Cost	$505,000,000

Arterial and Intersection Recommendations

ID	Community	Location	Recommendation	Current Cost
7	Akron	Brittain Rd at Eastland Ave/Eastwood Ave	Operational Improvements	$4,000,000
8	Akron	Evans Ave	Railroad grade separation	$8,200,000
9	Akron	N Portage Path at Merriman Rd	Operational Improvements, Enhance Transit, Improve Safety	$2,000,000
10	Akron	W Market St (SR 18) at Hawkins Ave/W Exchange St	Operational Improvements, Enhance Transit	$2,000,000
11	Akron	Brittain Rd from E Tallmadge Ave (SR 261) to Independence Ave	Improve Safety	$1,500,000
12	Akron	E Market St (SR 18) & Mogadore Rd/I-76 Ramps	Improve Safety	$3,000,000
13	Akron	Waterloo Rd (US 224) & George Washington Blvd (SR 241)	Improve Safety	$2,000,000
14	Akron/Cuyahoga Falls	SR 8 at Howe Ave	Interchange Reconfiguration/Improvements	$33,000,000
15	Akron/Cuyahoga Falls/Tallmadge	Howe Ave at Brittain Rd/Northwest Ave	Intersection Reconfiguration, Improve Safety	$10,000,000
16	Akron/Fairlawn	Miller Rd from Ridgewood Rd to SR 18 (W Market St)	Operational Improvements (Add left turn lanes)	$1,000,000
17	Barberton	Wooster Rd N (SR 619) from Waterloo Rd to I-76	Operational Improvements (Potential Road Diet)	$800,000
18	Bath Twp/Copley Twp/Fairlawn	Medina Rd (SR 18) from Heritage Woods Dr to Cleveland-Massillon Rd	Operational Improvements, Enhance Transit, Improve Safety	$1,500,000
19	Cuyahoga Falls	Portage Trail from Valley Rd to State Rd	Operational Improvements	$800,000
20	Cuyahoga Falls	State Rd at Portage Trail	Operational Improvements, Enhance Transit, Improve Safety	$500,000
21	Fairlawn	W Market St (SR 18) from Ghent Rd to Miller Av	Improve Safety	$1,000,000
22	Green	Arlington Rd from Boettler Rd to September Dr	Widen to 4 lanes and intersection improvements	$12,000,000
23	Green	Town Park Blvd from Greensburg Rd to Wise Rd	New Roadway	$3,700,000
24	Green	Town Park Blvd from Wise Rd to Massillon Rd	New Roadway	$5,700,000
25	Hudson	Darrow Rd (SR 91) from Ravenna Rd to SR 303	Add a Bypass	$8,600,000
26	Hudson	Hines Hill Rd and Norfolk Southern Rail Line	Railroad grade separation	$11,000,000
27	Hudson/Twinsburg Twp	Darrow Rd (SR 91) from Middleton Rd to Twinsburg Rd	Operational Improvements (Add left turn lanes)	$1,000,000
28	Kent	E Main St (SR 59) from Willow St to Luther Av	Improve Safety	$1,000,000
29	Macedonia	Aurora Rd (SR 82) from Olde Eight Rd to SR 8	Improve Safety	$1,000,000
30	Northfield Center Twp	SR 82 at Olde Eight Rd/Brandywine Rd	Operational Improvements	$1,500,000
31	Richfield	Wheatley Rd (SR 176) at Brecksville Rd	Operational Improvements	$1,100,000
32	Rootstown Twp	SR 44 from Tallmadge Rd (CR 18) to I-76	Safety Study/Improvements	$250,000
33	Stow	Darrow Rd (SR 91) & Graham Rd	Improve Safety	$500,000

LONG TERM-HIGHWAY RECOMMENDATIONS (Continued)

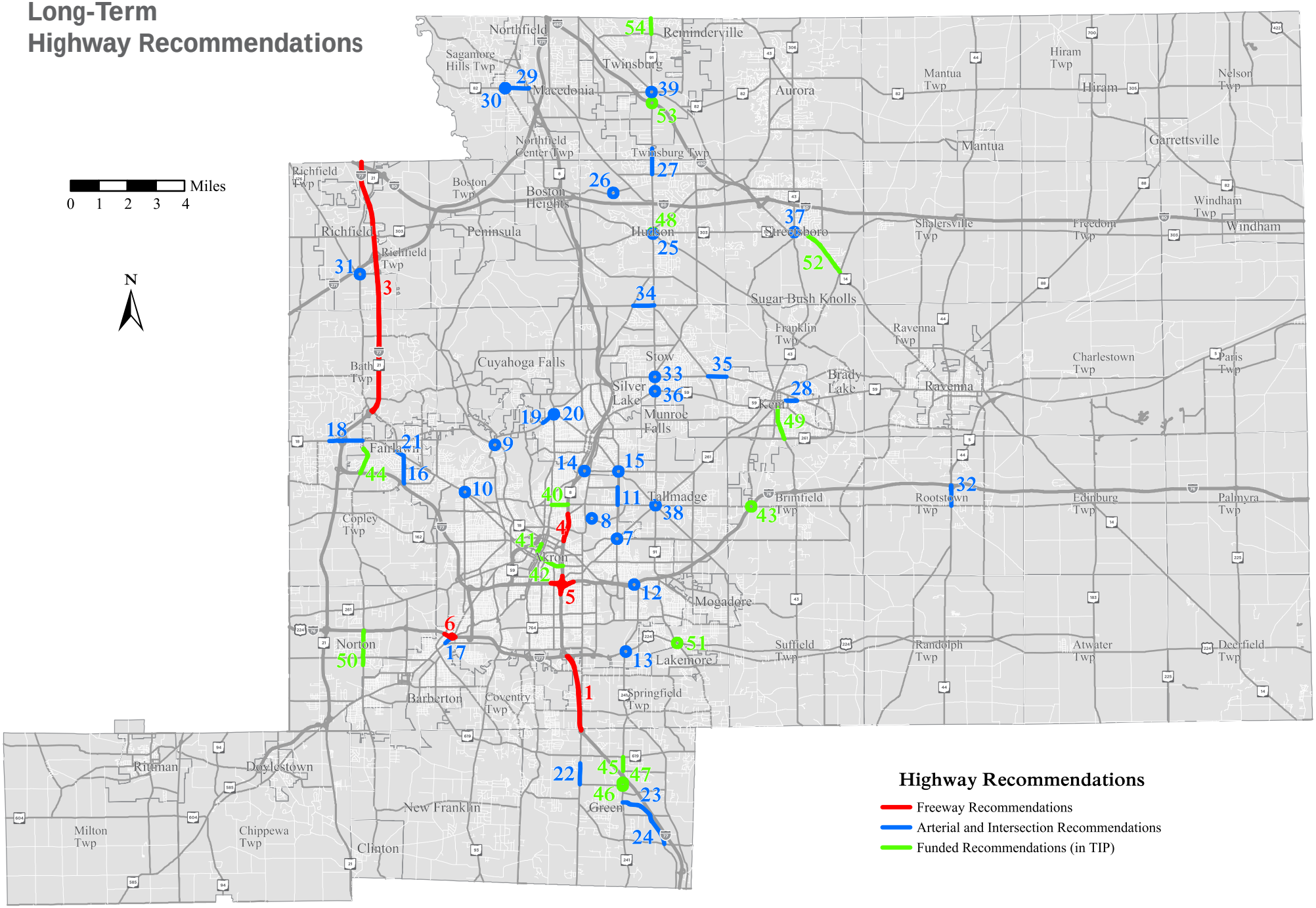
Arterial and Intersection Recommendations (Continued)

ID	*Community*	*Location*	*Recommendation*	*Current Cost*
34	Stow	Norton Rd from Hudson Drive to SR 91	Widen to standard lane width	$4,000,000
35	Stow	Graham Rd from Fishcreek Rd to Newcomer Rd	Improve Safety	$2,000,000
36	Stow	Kent Rd (SR 59) at Darrow Rd (SR 91)	Additional Capacity, Operational Improvements, Traffic Study, Enhance Transit	$1,500,000
37	Streetsboro	Streetsboro Town Center: SR 14/SR 43/SR 303 & SR 43 from SR 303 to Frost Rd	Detailed Traffic Study, Improve Safety	$350,000
38	Tallmadge	Tallmadge Circle	Operational Improvements, Improve Safety	$8,000,000
39	Twinsburg	Darrow Rd (SR 91) at Aurora Rd (SR 82)	Operational Improvements	$1,000,000
	Various	Miscellaneous	Additional safety and operational projects	$75,000,000
			Freeway and Arterial Total Cost	$210,500,000
			Highway Recommendations Total Cost	$715,500,000

FUNDED HIGHWAY RECOMMENDATIONS (IN TIP)

ID	*Community*	*Location*	*Recommendation*	*Current Cost*
40	Akron	Tallmadge Ave (SR 261) from N. Main St to SR 8	Road Diet, Operational Improvements, realignment at Dayton	$3,842,400
41	Akron	S. Main St from State St to Mill St	Complete Street, Street replacement, Roundabout	$12,720,000
42	Akron	E. Exchange St from Broadway St to Fountain St	Operational Improvements, complete streets	$5,043,000
43	Brimfield Twp	Tallmadge Rd (CR 18) at I-76	Operational Improvements, Improve Safety	$9,921,900
44	Copley Twp/ Fairlawn	Cleveland-Massillon Rd from I-77 to Bywood Ave	Widen to 4 lanes and roundabout at rothrock	$7,564,200
45	Green	Massillon Rd (SR 241) from Raber Rd to SR 619 (Turkeyfoot Lake Rd)	Widen to 5 lanes, Improve Safety	$14,467,800
46	Green	Massillon Rd (SR 241) & Boettler Rd	Operational Improvements, roundabout	$5,566,000
47	Green	Massillon Rd (SR 241) & Corporate Woods Circle	Operational Improvements, roundabout	$1,747,900
48	Hudson	Darrow Rd (SR 91) at Steetsboro Rd (SR 303)	Operational Improvements, Improve Safety	$2,400,500
49	Kent	S. Water St (SR 43) from SR 261 to Summit St	Operational Improvements	$3,072,100
50	Norton	Cleveland-Massillon Rd from Weber Dr to I-76	Existing Project (Add Median Turn Lane, Intersection Improvements), Enhance Transit	$6,086,500
51	Springfield Twp	Waterloo Rd (US 224) at Canton Rd (SR 91/CR 66)	Project: Standard Lanes, Turn Lanes, Concrete Median, Improve Safety	$10,490,000
52	Streetsboro	SR 14 from Portage Pointe Dr to Diagonal Rd	Two way left turn lane, Improve Safety	$7,772,400
53	Twinsburg	SR 91 & I-480	Interchange Reconfiguration/Improvements	$3,521,300
54	Twinsburg	Darrow Rd (SR 91) from Glenwood Blvd to the north corp line	Widen to four lanes	$4,969,600
			Funded Total	$99,185,600

Long-Term Highway Recommendations



Highway Recommendations

- Freeway Recommendations
- Arterial and Intersection Recommendations
- Funded Recommendations (in TIP)

BICYCLE & PEDESTRIAN RECOMMENDATIONS

OVERVIEW

Importance of Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities are an important part of an active transportation system throughout the Greater Akron area in providing a low-cost means of transportation and serving as a recreational amenity. Bicycling and walking are efficient transportation modes for most short trips and, where convenient intermodal systems exist, these non-motorized trips can easily be linked with transit to significantly increase trip distance. Because of the benefits they provide, bicycle and pedestrian facilities should be given the same priority as is given to other transportation modes. Cycling and walking should not be an afterthought in roadway design.

Acceptance of cycling and walking as alternatives to driving has increased throughout the region. AMATS has a long history of planning for active and multi-modal transportation systems. *TO2040* will build on recent and past efforts including the *2016 Bike Plan* and *2015 Pedestrian Plan*. The goals for the region's bicycle and pedestrian network are to improve safety, increase connectivity, create a friendly bicycle network and promote quality of life throughout the region. A variety of bicycle and pedestrian facilities exist throughout the Greater Akron area with the Ohio and Erie Towpath Trail serving as the spine for the regional bicycle network. There are more than 108 miles of shared-use paths in the region with over 28 miles that have been developed since 2000. On-road facilities, such as bike lanes, are being added at a steady pace to help fill in the gaps and connect people to places. There are approximately 35 miles of bike lanes in the Greater Akron area.

The recommendations contained in *TO2040* will expand the off-road bicycle system of trails and the pedestrian system through additional facilities as well as make safety improvements to the region's bicycle and pedestrian network.

Local Bike Plans

AMATS' *2016 Bike Plan* includes recommendations for the region that encourage cycling as an alternative mode of transportation while also continuing to promote cycling as recreation. On the local level, communities can have a greater impact by creating their own bike plan. The bike plan should assess existing conditions, identify gaps and recommend practical solutions that fit the community's needs. A local bike plan can assist the community in prioritizing improvements that provide better connections to regional bike facilities already in place.

Create a Minimum Grid

According to Gil Penalosa of 8-80 Cities, a minimum grid of fully connected bikeways throughout a city is essential to creating safe biking for all users, from ages 8 to 80 years old. With a minimum grid in place, communities across North America have seen a marked increase in cycling. Creating a local bike plan using a minimum grid design can help make cycling a viable transportation option, especially if this grid can connect from one community to another. A minimum grid can transform transportation in our region.

FUNDING

AMATS receives federal funding for bicycle and pedestrian improvements through the Transportation Alternatives Set-Aside Program (TA), formerly known as the Transportation Alternatives Program (TAP). This funding provides approximately $1 million each year that can be used for bicycle and pedestrian improvements. All TA projects must relate to surface transportation and address a transportation need, use or benefit. Preliminary engineering, right-of-way and construction are eligible project costs. Planning is an eligible project phase only for Safe Routes to School (SRTS) District Travel Plans provided that the sponsor has first pursued and secured funding from the Ohio Department of Transportation SRTS Program.

Many bicycle and pedestrian improvements are most effectively implemented at the outset of roadway or transit project funding and construction. While all projects represent important steps for improving AMATS bicycle and pedestrian environment, limited financial resources require that most regional bicycle and pedestrian projects use a variety of federal, state and local sources. It is therefore suggested that many regional off road trails rely on local initiative and commitment where member communities seek additional funding.

Any bicycle or pedestrian project using federal funds must be consistent with *TO2040*, regardless of whether AMATS provides the funding. *TO2040* gives local officials the authority to collectively determine how federal funds are allocated.

BICYCLE AND PEDESTRIAN PROJECTS ARE CONSISTENT WITH *Transportation Outlook 2040*

The bicycle and pedestrian recommendations focus implementation efforts where they will provide the greatest community benefit. While it is important to develop a long-range plan, it is also necessary to provide flexibility in the planning process to allow for unseen developments. *TO2040* ensures that transportation improvements are planned and coordinated on a regional basis. It is AMATS policy that projects coupled with safety improvements, such as bicycle and pedestrian amenities, must be consistent with *TO2040*, in order to be eligible for federal funding.

ENCOURAGE BICYCLE AND PEDESTRIAN DESIGN STANDARDS THAT ENSURE THE SAFE AND ACCESSIBLE ACCOMMODATION FOR ALL USERS

The creation of well-connected walking and cycling networks is an important component for livable communities and their design should be a part of federally funded project developments. Accordingly, transportation agencies and local communities are encouraged to go beyond minimum standards for these modes to provide safe, convenient, and context-sensitive facilities, and to utilize universal design characteristics when appropriate. For example, shared-use paths that have been designed to minimum width requirements will need retrofits as more people use them. It is more effective to plan for increased usage than to retrofit an older facility. Planning projects for the long-term should anticipate likely future demand for cycling and walking facilities and not preclude the provision of future improvements. Below are various programs and design techniques that can be used for bicycle and pedestrian facilities to improve the safety and accessibility for all users.

Road Diets

A road diet is a technique that can be used to achieve traffic calming and improve safety. Road diets occur when numbers of lanes or lane widths are reduced to promote a slower vehicle speed and accommodate other uses such as bike lanes, bus lanes, parking, pedestrian refuge islands, or more sidewalk space. AMATS compiled the *2015 Road Diet Analysis*, which identifies 60 candidates for road diets across the Greater Akron area. The analysis is a useful planning resource that defines the road diet concept, identifies potential road diet locations, and serves as a guide to member communities to consider the design and application of road diets in certain locations.

Complete Streets

When planning a street or neighborhood, it is important to consider all users of the roadway. People like to have options for getting around town. According to Smart Growth America, a complete street is one that is designed with safety in mind for all users - pedestrians, cyclists, transit riders, and vehicles. No two complete streets look alike as each neighborhood or district will have different needs. Bike lanes, bus lanes, bus shelters, sidewalks, crosswalks, refuge islands, curb bump-outs, and roundabouts are all components of a complete street that can improve safety for everyone. Making a street welcome to everyone can improve the vitality of an area and make it a place where people want to be. Communities throughout the Greater Akron area should consider complete streets when planning their transportation projects.

Connecting Communities Program

In 2010, AMATS Policy Committee approved *Connecting Communities - A Guide to Integrating Land Use and Transportation*. This guide has shaped AMATS planning since its adoption, encouraging incremental, small-scale, and practical modifications to the way that our transportation system and our built environment interact with one another. The first two recommendations of the Connecting Communities plan are:

1. Improve pedestrian planning and facilities through targeted investments.
2. Improve bicycle planning and facilities through targeted investments.

The AMATS Connecting Communities Planning Grant Program developed from the Connecting Communities guide as it was also one of its recommendations. Since the program's inception in 2010, AMATS has funded over $400,000 and leveraged an additional $75,000 in planning studies in the AMATS region. Because of the program, multiple bike lanes, sidewalks, trails, signage and bus routes have been implemented and constructed, as well as plans that will shape communities for years to come.

Prioritize Pedestrian Safety and Improvements Near Schools

Communities should place a special emphasis on providing high-quality, safe bicycle and pedestrian infrastructure near schools. The Ohio Safe Routes to School (SRTS) Program supports projects and programs that improve the health and well-being of children by enabling and encouraging them to walk and bicycle to school. SRTS programs examine conditions around schools and conduct projects and activities that work to improve safety and accessibility in

the vicinity of schools. The most successful SRTS programs incorporate the Five E's: **Engineering**, **Education**, **Enforcement**, **Encouragement**, and **Evaluation**.

The development of a School Travel Plan (STP) is a requirement of the SRTS Program in order to be eligible for infrastructure improvements. The STP outlines a community's plans for engaging students in active transportation. The STP involves key community stakeholders to identify barriers to active transportation and develop a set of solutions to address them.

In 2014, the Akron Public Schools completed its first *District-Wide Travel Plan.* Akron's plan became one of the first districtwide STPs for a large school district in Ohio and one of the first nationwide. It was created through a team-based approach in cooperation with ODOT, Akron Public Schools, City of Akron, AMATS and The University of Akron.

Prioritizing pedestrian safety and improvements near schools provides an opportunity to work closely with schools, communities, and local government to create a healthy lifestyle for children—and a safer and cleaner environment for everyone.

Incorporate High-Quality Bicycle and Pedestrian Design Standards

There are various types of bicycle and pedestrian facilities that are context-sensitive to density, vehicle traffic and congestion, and improve safety for people of all ages and abilities. The following resources provide information to planners and agencies by referencing a recommended range of design values and describing alternative design approaches. The Federal Highway Administration (FHWA) supports the use of these resources to further develop non-motorized transportation networks, particularly in urban areas.

Mid-Block Crossings

In 2014, AMATS completed a Mid-Block Crossing Analysis that studied the frequency of pedestrians crossing outside of crosswalks. Crosswalks are safest as they direct pedestrians where and when it's safe to cross the street, while also improving visibility of pedestrians to drivers. There are many reasons that a pedestrian might not cross in a crosswalk, be it bad weather, hurrying, or simply finding the shortest distance to a destination. AMATS identified locations where mid-block crossings are already taking place. Next, potential locations for safe mid-block crossing solutions were recommended. Some of the solutions include bump-outs, raised crosswalks, pedestrian islands, and signage, as well as fully-signalized crossings and High Intensity Activated Crosswalk (HAWK) signals. Through careful analysis and the effective implementation of mid-block crossings, increase the safety and usefulness of the regional pedestrian network can be greatly increased.

Traffic Calming / Sidewalk Widening in High Pedestrian Areas

Traffic calming measures should be considered in areas that experience high volumes of pedestrian traffic. Traffic calming is a concept that reduces the speed and volume of vehicular traffic through an area to make neighborhoods safer, more pleasant, and more livable. This can be achieved either by physical means such as reducing the number of lanes; textured pavements and bump-outs, also known as "curb extensions" that extend an intersection corner; or psychological means such as adding street trees, on-street parking and the narrowing of lanes to slow drivers down. Over decades of use, these measures have been proven to reduce accidents, collisions, noise, vibration, pollution, and crime. Traffic calming is most often found in downtowns or urban centers due to their high levels of pedestrian activity. They may also be implemented in less dense planning areas.

Sidewalks in residential areas should meet or exceed the federal minimum width guideline of 60 inches. In a downtown, a town center, an urban core or other dense planning areas, widths may vary depending on the community or block context. Wide sidewalks should be constructed in areas experiencing heavy foot traffic or for such uses as sidewalk cafes or extensive street furniture.

Bicycle and Pedestrian Count Program

The purpose of conducting bicycle and pedestrian counts is to understand peak activity for these modes on a typical day. Lack of documentation on usage and demand is one of the challenges facing bicycle and pedestrian investments. It is important to have accurate and consistent data to analyze the need, enable detailed safety analyses, target locations for future facilities and measure the benefits of investments. In 2012, AMATS commenced its first year of bicycle and pedestrian counts throughout the region utilizing the standard National Bike and Pedestrian Documentation project (NBPD) method. The NBPD is an annual bicycle and pedestrian count and survey effort sponsored by the Institute of Transportation Engineers Pedestrian and Bicycle Council.

There has been a public response to back up the need for improved bicycle and pedestrian facilities with supportive data in a more efficient manner. One of the goals of AMATS count program is to engage more communities and organizations and to utilize electronic counters to improve documentation on the use and demand of bicycle and pedestrian facilities in the region.

RECOMMENDATIONS

$33 Million of Bicycle and Pedestrian Improvements

TO2040 recommends $33 million of bicycle and pedestrian improvements through 2040. This funding includes bicycle trails and pedestrian improvements such as sidewalks.

The Long-Term Bicycle Recommendations table and the Long-Term Pedestrian Recommendations table on the following pages contains many recommendations for promoting bicycle and pedestrian transportation in the region. Project costs are shown in current dollars for the entire project. Appendix B shows costs inflated to year of expenditure and federal share, totaling $33 million in federal investment. All projects are financially constrained and conform to air quality requirements.

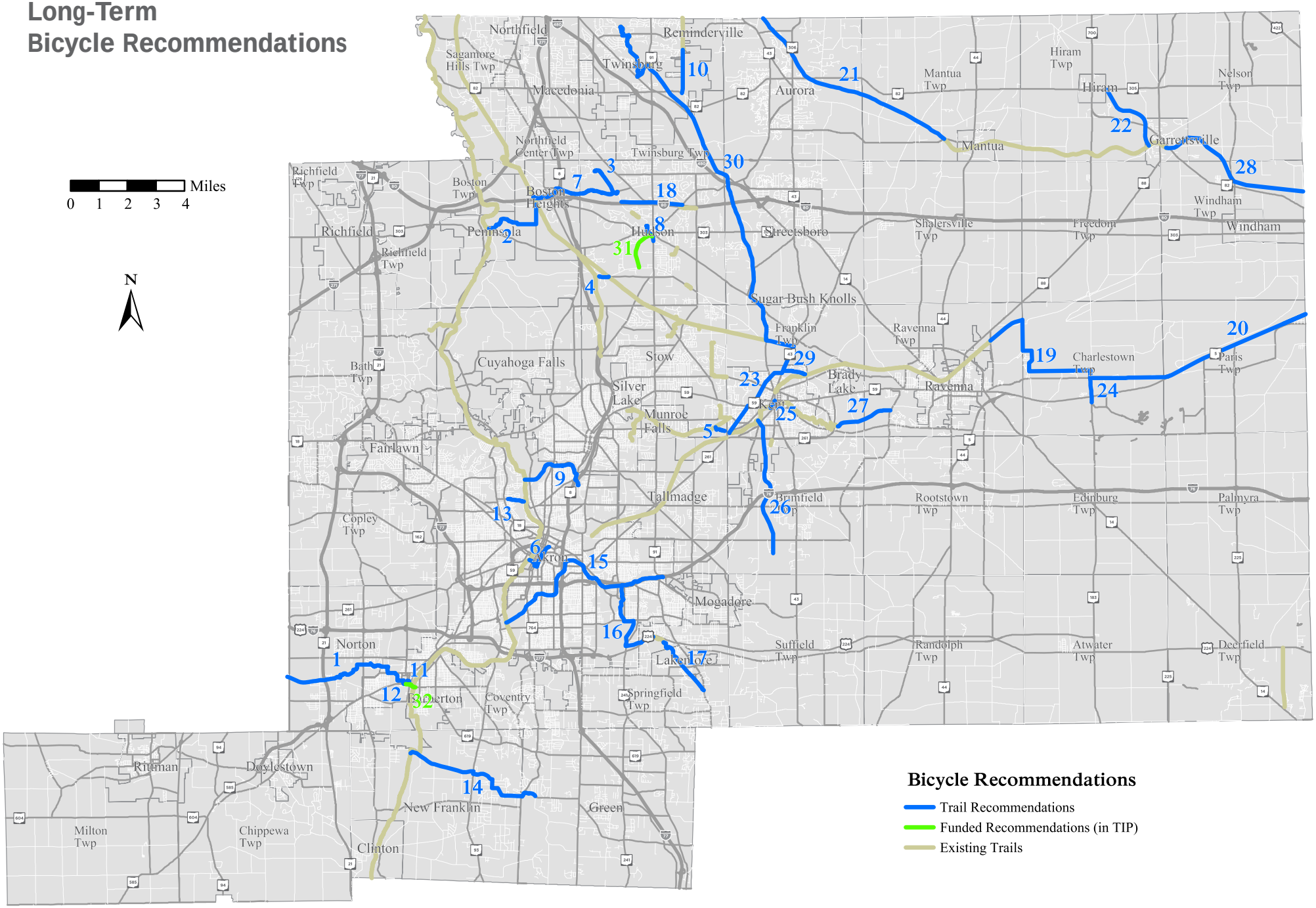
LONG-TERM BICYCLE RECOMMENDATIONS

ID	County	Name	From	To	Current Cost
1	Summit	3 Creeks - Silver Creek Trail	Medina Line Rd	Robinson Ave (Towpath Trail)	$5,035,018
2	Summit	Akron-Peninsula Trail	SR 303	Boston Mills Rd	$2,605,923
3	Summit	Ashbrooke Connector	Farnham Way	Hines Hill Rd	$1,129,194
4	Summit	Barlow Rd	Wilshire Park Dr	Bike & Hike Trail	$333,776
5	Summit	Bike & Hike-Portage Connector	Bike & Hike Trail	Freedom Trail Connector	$400,689
6	Summit	Freedom Trail Phase 4	Towpath Trail	Freedom Trail Phase 3 (Mill Street)	$1,323,928
7	Summit	Heights to Hudson	Bike & Hike Trail	Prospect at Hines Hill	$3,430,240
8	Summit	Heights to Hudson (Central Hudson Portion)	Morse / Owen Brown	Veterans Way	$709,017
9	Summit	Highbridge Connector Trail	Towpath Trail	Front Street Connector Trail	$2,803,056
10	Summit	Liberty Trail	Post Rd	Cannon Rd	$1,517,327
11	Summit	Magic Mile (North)	Third St SW & Park	W Wooster Rd & Robinson Ave	$193,785
12	Summit	Magic Mile (West)	5th St & Park Ave	4th St & W Wooster Rd	$200,354
13	Summit	Memorial Parkway Trail	Aqueduct St	Towpath Trail	$700,000
14	Summit	Portage Lakes Trail	Towpath Trail	Metro - Sandyville Local	$5,313,249
15	Summit	Rubber City Heritage Trail	Towpath Trail	Englewood Ave	$5,750,000
16	Summit	Spartan Trail (West)	Rubber City Heritage Trail	Springfield Lake	$2,381,724
17	Summit	Spartan Trail (East)	Springfield Lake	Summit/Portage County Line	$3,707,724
18	Summit	Turnpike	Prospect Rd	Hudson Aurora Rd	$2,138,164
19	Portage	Arsenal S	Conrail Freedom Secondary	Rock Spring Rd	$5,940,000
20	Portage	Arsenal S	Rockspring Rd	Portage County Line	$8,880,000
21	Portage	Headwaters Bikeway	Aurora NCL	Mennonite Rd	$7,925,434
22	Portage	Hiram	SR 305	Headwaters Trail	$2,761,242
23	Portage	Lake Rockwell Trail	Middlebury Rd /Portage Hike & Bike	Mantua St / River Bend Blvd	$2,728,767
24	Portage	Rock Spring Rd	Cable Line Rd	Newton Falls Rd	$851,225
25	Portage	The Portage	Stow St	W Main St	$310,386
26	Portage	Mogadore Lake	The Portage	Mogadore Lake	$4,932,888
27	Portage	Esplanade Extension	Esplanade / Dix Stadium	Lakewood Rd	$2,000,174
28	Portage	Headwaters Trail Extension	SR 82	Portage County Line	$5,700,000
29	Portage	Franklin Connector Extension	Hudson Rd extension	Riverbend	$2,200,000
30	Portage	Railroad Trail Connection	Hudson Rd	Tinker's Creek, Portage County Line	$7,300,000
				Bicycle Recommendations Total	$91,202,286

FUNDED BICYCLE RECOMMENDATIONS (IN TIP)

ID	County	Name	From	To	Current Cost
31	Summit	Veterans Trail	Barlow Rd	Veterans Trail	$1,387,000
32	Summit	Magic Mile Towpath Connector	Towpath	4th St	$500,000
				Funded Total	$1,887,000

Long-Term Bicycle Recommendations



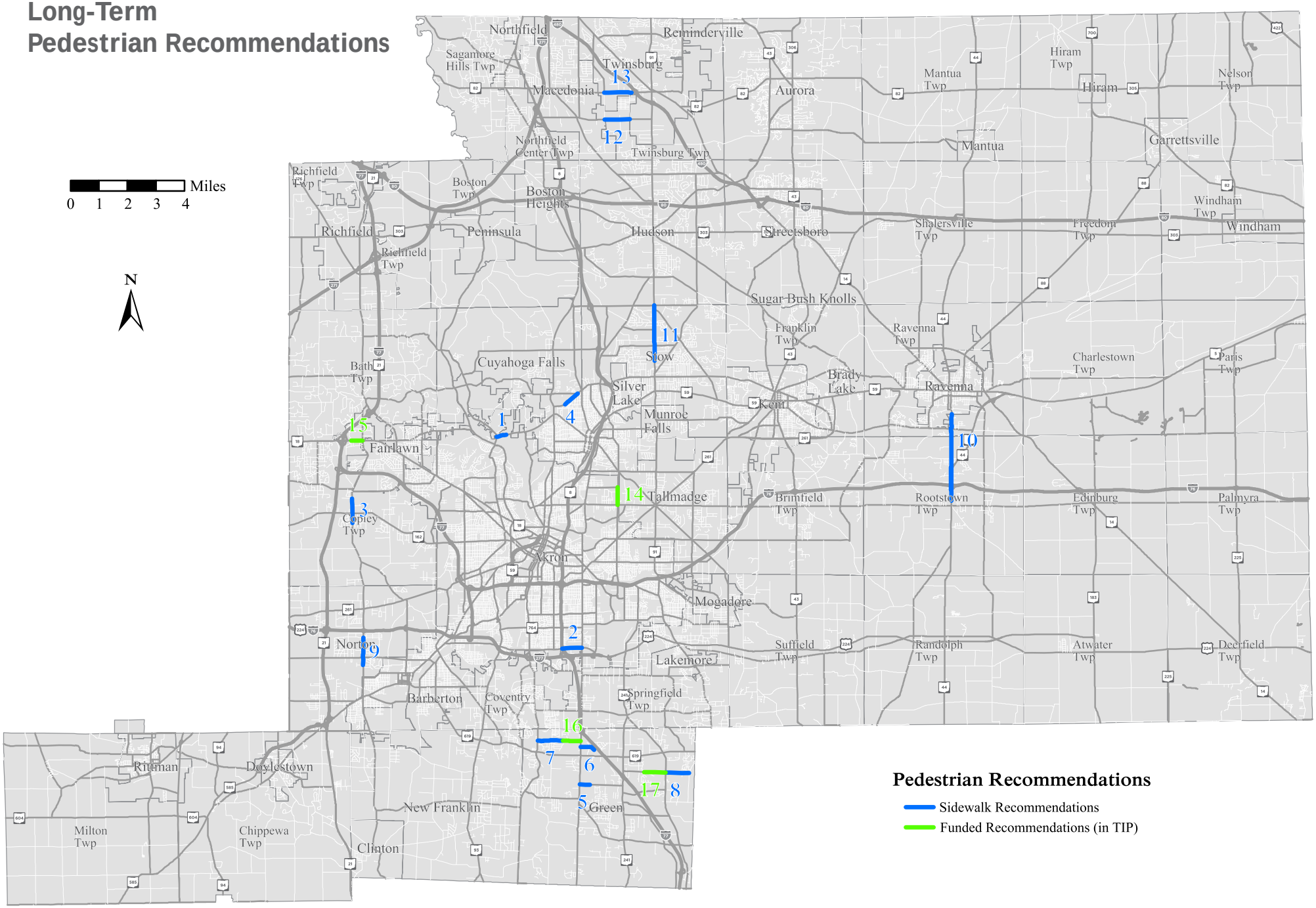
LONG TERM PEDESTRIAN RECOMMENDATIONS

ID	County	Location	Facility	Street	From	To	Current Cost
1	Summit	Akron	Sidewalks	Portage Trail	N. Portage Path	Treetop Trail	$169,750
2	Summit	Akron	Sidewalks	Waterloo Rd.	I-77	Arlington	$334,650
3	Summit	Copley	Sidewalks	Cleveland-Massillon Rd	Hammond Blvd	Commerce Dr	$417,100
4	Summit	Cuyahoga Falls	Sidewalks	Graham Rd	Prange Dr	Bath Rd	$281,300
5	Summit	Green	Sidewalks	Boettler Rd	Arlington	Kenway Blvd	$169,750
6	Summit	Green	Sidewalks	Interstate Parkway	Arlington	end	$247,350
7	Summit	Green	Sidewalks	Moore Rd	S. Main	Charleston	$446,200
8	Summit	Green	Sidewalks	Raber Rd	Mayfair	Kreighbaum	$392,850
9	Summit	Norton	Sidewalks	Cleveland-Massillon Rd	Weber Rd	Shellhart Rd	$460,750
10	Portage	Ravenna Twp/Rootstown Twp	Sidewalks	SR 44/Prospect St.	Rootstown Elementary	Ravenna South Corp. Line	$1,644,150
11	Summit	Stow	Sidewalks	SR 91	Lillian Rd	Norton Rd	$936,050
12	Summit	Twinsburg	Sidewalks	Highland Rd	Chamberlin Rd	Hadden Rd	$421,950
13	Summit	Twinsburg	Sidewalks	SR 82	Chamberlin Rd	Wilcox Rd	$465,600
						Pedestrian Recommendations Total	$6,387,450

FUNDED PEDESTRIAN RECOMMENDATIONS (IN TIP)

ID	County	Location	Facility	Street	From	To	Current Cost
14	Summit	Akron	Sidewalks	Brittain Rd	Tallmadge	Independence	$195,000
15	Summit	Bath/Copley	Sidewalks	SR 18	Springside Dr	Cleveland-Massillon Rd	$534,450
16	Summit	Green	Sidewalks	Moore Rd	Charleston Dr	Arlington	$1,512,000
17	Summit	Green	Sidewalks	Raber Rd	Troon	Mayfair	$1,334,000
						Funded Total	$3,575,450

Long-Term Pedestrian Recommendations



Pedestrian Recommendations

- Sidewalk Recommendations
- Funded Recommendations (in TIP)

TRANSIT RECOMMENDATIONS

OVERVIEW

The availability of a comprehensive, reliable transit network is key to helping those who lack or are unable to use reliable transportation to get to work, have access to shopping and services, and complete other important daily tasks. A convenient transit network can also draw choice-riders: those who have access to automobiles, but choose to use transit for reasons of ease, affordability and convenience. The recommendations contained in *TO2040* will work to preserve the existing transit system, provide enhanced service in key high-volume corridors and allow for strategic expansion into new communities that contain high densities of jobs, retail and other attractions.

FUNDING

AMATS receives federal transportation dollars to fund transit projects and improvements. Most of this federal transit funding comes from programs specifically dedicated to transit, although transit may also receive a portion of the funds from certain programs designed for highway and transit funding.

Federal transit funds are typically used only for capital expenses, such as for the purchase of new buses, bus shelters and maintenance, garage or office facilities. Operating expenses, such as bus operator salaries and a portion of preventive maintenance, are typically paid for through local sources (fare box revenues, transit-dedicated sales tax, etc.). However, certain funding programs may be used to supplement operating expenses, on a limited basis.

The Federal Transit Administration's (FTA) Urbanized Area Formula Program (Section 5307), along with the Bus and Bus Facilities Program (Section 5339), are the largest sources of federal transit funding. The 5307 and 5339 programs use a formula to allocate funding to urbanized areas. AMATS receives nearly $8 million annually for the Akron Urbanized Area, and an additional $800,000 portion for areas lying within the Cleveland Urbanized Area. These funds are split between METRO and PARTA, generally in proportion to their respective county's share of the total regional population.

The Federal Highway Administration's (FHWA) Congestion Mitigation/ Air Quality Program (CMAQ) provides funds that may be used on projects demonstrating an improvement in air quality and congestion reduction. Although the majority of this funding is typically allocated towards regional highway projects, AMATS traditionally obtains a portion for local transit projects.

Other federal transit funding programs include the Specialized Transportation Program (Section 5310), which allocates funding to public transit agencies and non-profit providers of transportation to aid in the transportation of older or disabled individuals, and the Transportation Alternatives Program (TAP), which may be used by transit agencies to improve non-driver access to public transportation.

Other sources of transit funding are periodically made available from the federal government or the Ohio Department of Transportation, often in the form of competitive grant programs. The FTA's State of Good Repair Program is one such example, and has been used by METRO and PARTA to purchase new replacement buses in recent years.

Any transit project using federal funding must be consistent with *TO2040*, regardless of whether AMATS provided the funding.

RECOMMENDATIONS

Fix-It-First

The majority of federal transit funding will be used to preserve the existing transit network, assets and supporting facilities in the AMATS region. Transit service is not useful unless it is predictable and dependable. *TO2040* continues AMATS' longstanding policy of working with METRO and PARTA to ensure that they have the resources necessary to maintain their existing levels of service and to serve their existing customer base efficiently. AMATS will continue to support the preservation and maintenance of METRO and PARTA's bus fleets and other capital assets and facilities.

Service Enhancement

To achieve the most efficient use of the existing public transportation system, additional ridership must be developed. Enhancing the existing service, particularly in corridors containing dense employment, attractions and residential areas, is one way of attracting new ridership. Decreasing the waiting time between buses, expanding the hours and days of service, and providing

safe, attractive and comfortable waiting environments are all potential strategies to attract additional transit users. *TO2040* recommends that AMATS work with METRO and PARTA to explore and implement these and other strategies whenever practical.

Cross County Service

At the local level, most transit agencies are funded primarily through transit-dedicated sales taxes. Consequently, they face significant political pressure to confine service within their county borders. Philosophically, the primary role of a transit agency should be to transport their ridership to whatever destination is necessary. Northeast Ohio is a region of many counties and overlapping urban areas and the demand to travel between them is significant. METRO, PARTA and SARTA (the Stark County/Canton public transit agency) currently provide service to limited cross-county destinations. *TO2040* recommends a more integrated, regional transit network – between Summit and Portage counties and beyond. The ongoing NEORide initiative furthers this objective.

Coordination

AMATS is dedicated to ensuring that all of the region's transportation assets are working together, achieving maximum operational and financial efficiency. Coordination between multiple transit agencies, social service agencies and other non-profit providers of transportation is the key to realizing this goal. AMATS has helped to fund NEORide – an effort (initiated by PARTA) to build a software platform in which all participating agencies may coordinate the use of their individual assets to move passengers wherever they need to go and in the most efficient, cost-effective way possible. *TO2040* recommends that AMATS continue to support this important endeavor.

Rail Portfolio Preservation

METRO currently holds a portfolio of rail corridors which connect Akron to other key cities, both within the AMATS region and beyond. Although passenger rail does not seem feasible in the foreseeable future, there has been documented interest in the implementation of freight operations within METRO's right-of-way. Whatever the end result may be – freight rail, passenger rail or as multi-use pedestrian and bicycle trails – AMATS feels that it is important to maintain a public right-of-way in these key regional corridors. *TO2040* recommends nearly $3 million in rail improvements to preserve these vital regional assets.

$2.2 Billion of Public Transit Investment

TO2040 recommends just under $2.2 billion of investment in the region's public transportation system through 2040. Of that investment, $1.8 billion will be dedicated to general operating expenses of the existing system, $330 million will be reinvested to preserve the existing system, and approximately $50 million will be allocated toward expansion of the regional public transportation system.

The following Long-Term Transit Recommendations table shows the projects recommended in *TO2040*. Recommendations are shown in year of expenditure dollars. All projects are financially constrained and conform to air quality requirements.

LONG-TERM TRANSIT RECOMMENDATIONS

METRO RTA		
Operating Expenses - Base Service	$	(1,555,033,761)
Capital Costs - Base Service	**$**	**(311,303,755)**
Chapel Hill Turnaround		
Maintenance Facility Rehab		
Downtown Transit Facility Rehab		
Ghent Park and Ride Lot Rehab		
Fuel Facility Rehab		
Annual Bus Fleet Expenditures - Preservation		
Preventive Maintenance		
Bus Shelter and Stop Enhancements		
Annual Operating Expenses - Additional Service	**$**	**(84,978,292)**
West Market Street - Arlington		
Copley Rd		
Kenmore		
Twinsburg - Macedonia		
Northern Summit		
Southern Summit		
Capital Expenses - Additional Service	**$**	**(24,484,967)**
West Market Street - Arlington		
Copley Rd		
Kenmore		
Twinsburg - Macedonia		
Northern Summit		
Southern Summit		
Park and Ride Facilities		
Sandyville Rail Line Rehab		
Akron Secondary Rail Line Barlow and Seasons Road Upgrade		
Total Current Cost	**$**	**(1,975,800,775)**

PARTA		
Operating Expenses - Base Service	**$**	**(143,192,125)**
Capital Expenditures - Base Service	**$**	**(56,586,465)**
Maintenance Facility Rehab		
Annual Bus Fleet Expenditures - Preservation		
Preventive Maintenance		
Bus Shelter and Stop Enhancements		
Kent Central Gateway Rehab		
CNG Fueling Facility Rehab		
Annual Operating Expenses - Additional Service	**$**	**(10,860,669)**
Additional Saturday and Sunday Service on existing routes		
Ravenna to Streetsboro Service		
Capital Expenses - Additional Service	**$**	**(3,473,736)**
Ravenna to Streetsboro Service		
Streetsboro Park and Ride Lot		
Total Current Cost	**$**	**(214,112,996)**

Coordinated Public Transportation Programs		
Cross County Coordination and Service	$	(13,457,739)
Stow-Kent Transfer Facility	$	(1,473,009)
Coordinated Public Transportation Human Services Programs		
Elderly & Disabled Program/Mobility Management Program	$	(13,508,385)
Total Current Cost	**$**	**(28,439,133)**

Transit Recommendations		
Total Current Cost	**$**	**(2,218,352,904)**

APPENDICES

APPENDIX A AIR QUALITY ANALYSIS

INTRODUCTION

The purpose of this appendix is to document the manner in which mobile emissions have been forecasted for *Transportation Outlook 2040 (TO2040).*

Summit County and Portage County are part of the U.S. Census-designated eight-county Cleveland-Akron-Lorain Combined Statistical Area (CSA). This area includes: Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, and Summit counties. Based on air quality readings, the United States Environmental Protection Agency (USEPA) designated this area as non-attainment for the 2008 8-hour ozone standard.

USEPA also designated several of the counties in this area (including Summit and Portage) as non-attainment for $PM_{2.5}$ (particulate matter) under the 2006 standard. This area includes Cuyahoga, Lake, Lorain, Medina, Portage, and Summit counties, and a portion of Ashtabula County.

Two Metropolitan Planning Organizations (MPOs) serve seven of these counties. The Northeast Ohio Areawide Coordinating Agency (NOACA) serves Cuyahoga, Geauga, Lake, Lorain, and Medina counties. The Akron Metropolitan Area Transportation Study (AMATS) serves Summit and Portage counties. The Erie Regional Planning Commission serves the city of Vermilion in Lorain County. Ashtabula County is not part of a metropolitan planning organization.

New United States Department of Transportation (USDOT) conformity determinations are required every time a new Transportation Improvement Program (TIP) or Regional Transportation Plan is completed. New emissions analyses are required to meet the conformity rule requirement of using the latest planning assumptions. AMATS has updated its travel demand model to conduct this analysis taking into account the latest planning assumptions.

This conformity analysis reflects the aggregate regional mobile emissions generated by vehicles using the transportation system recommended in the Regional Transportation Plan and TIP. Conformity is demonstrated when the forecasted regional emissions are below the applicable State Implementation Plan (SIP) budgets that have been established by Ohio EPA (OEPA).

Before analysis began, an interagency consultation call took place on January 24, 2017. The notes from this call are listed at the end of this appendix.

METHODOLOGY

In order for the Cleveland-Akron-Lorain area to complete the regional emissions analysis, the overall level of pollution (both ozone and $PM_{2.5}$) resulting from mobile sources must be forecasted.

The ozone-related portion of this air quality analysis has to demonstrate that daily Volatile Organic Compounds (VOC) and nitrogen oxides (NOx) emissions from mobile sources will not exceed those established in the budget contained in the SIP for ozone, which sets the allowable limits for each pollutant in the Cleveland-Akron-Lorain area. Those budgets were set in March 2013 and are listed in Table 1.

Similarly, the $PM_{2.5}$-related portion of this air quality analysis has to demonstrate that annual direct $PM_{2.5}$ and nitrogen oxides (NOx) emissions from mobile sources will not exceed those found in the budget established by the OEPA. Those budgets were set in September 2013 and are listed in Table 2.

NOACA and ODOT are jointly responsible for travel demand modeling and air quality analysis for its area. Emissions for Ashtabula County are generated using current ODOT traffic volume data and growth rates.

AMATS and ODOT are jointly responsible for travel demand modeling and air quality analysis for the Akron area. In May 2015, forecasted variables were approved as inputs to the model. In February 2017, AMATS updated its travel demand model. The air quality analyses documented in this appendix involve the use of the travel demand and emissions models to analyze future

regional mobile source emissions. Trip tables have been created using the latest planning assumptions and are based on the most recent forecasts of land use and socioeconomic data produced by AMATS.

In order to determine mobile source impacts on regional ozone and $PM_{2.5}$ levels, all non-exempt (in keeping with 40 CFR 93) TIP projects have been coded into the regional transportation plan travel demand model networks for the analysis years of 2020, 2030, and 2040 for ozone and 2022, 2030, and 2040 for $PM_{2.5}$. The projects coded in each network are listed in Exhibit A-1 through A-4. Once the AMATS travel demand model was run for each of the analysis years described above, the traffic assignment results were post-processed and input into MOVES2014.

The AMATS area results have been combined with the NOACA and Ashtabula County results to complete the conformity analysis for the entire Cleveland-Akron-Lorain ozone and $PM_{2.5}$ non-attainment area. The conformity analysis results for the entire region are available for public comment at the March 30, 2017 *TO2040* public meeting.

RESULTS

Table 1 shows the results of the MOVES2014 analysis for the entire Cleveland-Akron-Lorain ozone non-attainment area. This analysis must show that VOC and NOx emissions from mobile sources will not exceed those established in the budget contained in the SIP, which sets the allowable limits for each pollutant. Table A-1 confirms ozone precursor emissions do not exceed the budgets for either VOC or NOx.

Table A-2 shows the results of the MOVES2014 analysis for the Cleveland-Akron-Lorain $PM_{2.5}$ non-attainment area. This analysis must show that direct $PM_{2.5}$ and NOX emissions from mobile sources will not exceed those found in the 2015 budget. Table 2 confirms emissions do not exceed the budgets for both direct $PM_{2.5}$ and NOx.

TABLE A-1

Cleveland-Akron-Lorain Mobile Source Ozone Precursor Emissions Forecasts

Volatile Organic Compounds (VOC) (tons/day)					
	2020 Budget	2020 Emissions	2030 Budget	2030 Emissions	2040 Emissions
NOACA		21.13		13.57	7.57
AMATS		6.22		4.20	3.74
Ashtabula County		0.93		0.58	0.54
TOTAL	**38.85**	**28.28**	**30.80**	**18.35**	**11.86**
Nitrogen oxides (NOx) (tons/day)					
	2020 Budget	2020 Emissions	2030 Budget	2030 Emissions	2040 Emissions
NOACA		26.10		11.71	7.88
AMATS		9.37		5.24	4.17
Ashtabula County		1.56		0.84	0.72
TOTAL	**61.56**	**37.03**	**43.82**	**17.80**	**12.77**

TABLE A-2

Direct Ohio Mobile Source $PM_{2.5}$ and Precursor Emissions Forecasts

Direct $PM_{2.5}$ Emissions (Annual Tons)					
	2015 Budget	2022 Budget	2022 Emissions	2030 Emissions	2040 Emissions
NOACA			505.99	367.7	321.5
AMATS			133.4	106.36	107.2
Ashtabula County			2.19	1.68	1.68
TOTAL	**1,371.35**	**880.89**	**641.58**	**475.74**	**430.38**
Nitrogen oxides (NOx) Precursor (Annual Tons)					
	2015 Budget	2022 Budget	2022 Emissions	2030 Emissions	2040 Emissions
NOACA			11,532.80	6,329.25	4,107.97
AMATS			2,730.51	1,864.42	1,657.69
Ashtabula County			50.33	65.26	32.81
TOTAL	**35,094.70**	**17,263.65**	**14,313.64**	**8,228.93**	**5,798.47**

EXHIBIT A-1

2020 NETWORK

The 2020 Network includes all exisitng facilities plus the following projects:

PROJECT	LOCATION & TERMINI	TYPE OF WORK
Cleveland-Massillon Rd	NORTON - Weber Dr to I-76	Median turn lane
Cleveland-Massillon Rd	COPLEY TWP/FAIRLAWN - I-77 to Bywood Ave	Widen to 4 lanes and roundabout
I-76/US224	BARBERTON - State Rd/Wooster Rd Interchanges	Reconfigure Interchanges
Massillon Rd (SR 241)	GREEN - Raber Rd to SR 619	Widen to 5 lanes, Improve Safety
Massillon Rd (SR 241)	GREEN - At Corporate Woods Circle	Roundabout
SR 91	TWINSBURG - North of Glenwood Blvd to Cuyahoga County Line	Widen to 4 lanes
Tallmadge Ave (SR 261)	AKRON - N. Main St to SR 8	Road diet and realign Dayton

Note: All of these projects are assumed 2020 for ozone; however for $PM_{2.5}$ they would move to 2022.

Please note the following locations were added to all networks due to maintenance of traffic striping:

I-76	AKRON - US 224 to I-77 (Kenmore Leg)	6 lanes w/ interchange modifications from MOT
I-77	SPRINGFIELD TWP/AKRON - Arlington Rd to I-277	8 lanes w/ interchange modifications from MOT

EXHIBIT A-2

2022 NETWORK

The 2022 Network includes those projects in the 2020 Network plus the following projects:

PROJECT	LOCATION & TERMINI	TYPE OF WORK
I-76/I-77	AKRON - Central Interchange	Reconfigure Interchange
SR 8	AKRON - Perkins St to Glenwood Ave	Reconstruct bridge, Improve Perkins St ramp operation
SR 14	STREETSBORO - Portage Pointe to Diagonal Rd	Median turn lane
Tallmadge Rd	BRIMFIELD TWP - At I-76 Interchange	Reconfigure Interchange

Note: All of these projects are assumed 2022 for $PM_{2.5}$; however they would move to 2030 for ozone.

EXHIBIT A-3

2030 NETWORK

The 2030 Network includes those projects in the 2022 Network plus the following projects:

PROJECT	LOCATION & TERMINI	TYPE OF WORK
Darrow Rd (SR 91)	HUDSON - Ravenna Rd to SR 303	Add a Bypass
Darrow Rd (SR 91)	TWINSBURG - At I-480 Interchange	Reconfigure Interchange
Evans Ave	AKRON - CSX Rail Line	RR Grade Separation
Howe Rd	CUYAHOGA FALLS - At SR 8 Interchange	Reconfigure Interchange
Arlington Rd	GREEN - Boettler Rd to September Dr	Widen to 4 lanes with intersection improvements
I-77	SPRINGFIELD TWP/AKRON - Arlington Rd to I-277	Widen to 8 lanes
I-77	BATH TWP/RICHFIELD/RICHFIELD TWP - Ghent Rd to Cuyahoga County Line	Widen to 6 lanes

EXHIBIT A-4

2040 NETWORK

The 2040 Network includes those projects in the 2030 Network plus the following projects:

PROJECT	LOCATION & TERMINI	TYPE OF WORK
Kent Rd (SR 59)	STOW - At Darrow Rd (SR 91)	Additional Capacity, operational improvements, traffic study, enhance transit
Town Park Blvd	GREEN - Massillon Rd to Wise Rd	New Roadway
Town Park Blvd	GREEN - Lauby Rd to Wise Rd	New Roadway

CLEVELAND & AKRON MPOs TRANSPORTATION PLAN AND TIP INTERAGENCY CONSULTATION MINUTES

PRESENT:

Akron Metropolitan Area Transportation Study (AMATS)
Erie County Regional Planning Commission (ERPC)
Northeast Ohio Areawide Coordinating Agency (NOACA)
Federal Highway Administration, Ohio Division (FHWA)
Ohio Department of Transportation, Statewide Planning (ODOT)
Ohio Environmental Protection Agency (Ohio EPA)
United States Environmental Protection Agency (U.S. EPA)

LOGISTICS:

January 24, 2017, 3:00 p.m., Conference Call

PURPOSE:

A formal interagency consultation process is required in each nonattainment area to address technical and procedural issues related to air quality planning. The Cleveland, Akron, and Erie County Ohio MPOs (NOACA, AMATS and ERPC) are updating their Transportation Plans and 2018-2021 TIPs to accommodate reflect ODOT TRAC major new projects and new construction schedules for existing Plan projects. Plans' horizon year is 2040.

CONFORMITY ANALYSIS SUMMARY

8-Hour Ozone

Attainment Status: 2008 8-Hour Ozone standard – nonattainment area (Federal Register / Vol. 77, No. 98 / Monday, May 21, 2012)
1997 8-Hour Ozone Standard - maintenance area (Federal Register Notice Final Rule 9/15/09)

SIP Status: **Federal Register** /Vol. 78, No. 53 /Tuesday, March 19, 2013 – direct final rule adequacy finding for MOVES based 1997 Ozone standard MVEBs
No submittals required under 2008 8-Hour Ozone standard until approved budgets are received. The budgets found adequate for the 1997 standard will satisfy both 1997 and 2008 tests for the time being per USEPA.

8-Hour Geography: Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, & Summit Counties, OH

Conformity Tests: 1997 Standard 8-Hour budget tests

Analysis Years: 2015 1st Analysis year (a year in the current TIP)
2020 Interim year
2030 Interim year
2040 Plan(s) horizon year

8-Hour Ozone Test	2020 8-Hour Budget	2020 Emissions	2030 8-Hour Budget	2030 Emissions	2040 Emissions
AMATS					
VOC					
NOx					
NOACA					
VOC					
NOx					
Ashtabula Co.					
VOC					
NOx					
Totals					
VOC	38.85		60.80		
NOx	61.56		43.82		

$PM_{2.5}$

Attainment Status: **Federal Register** / Vol. 78, No. 144 / Friday, July 26, 2013 – Proposal to redesignate

SIP Status: Cleveland Area to attainment for 1997 and 2006 PM2.5 Standards – FR notice included an adequacy

finding for the MOVES based MVEBs

Geography: Cuyahoga, Lake, Lorain, Medina, Portage, & Summit Counties, & Ashtabula Twp., Ashtabula County, OH

Conformity Tests: Budget tests

Analysis Years: 2015 $PM_{2.5}$ Budget Year and year in the current TIP)
2022 $PM_{2.5}$ Budget Year
2030 Interim year
2040 Plan(s) horizon year

$PM_{2.5}$ Test	2015 Budget	2020 Emissions	2022 Budget	2022 Emissions	2030 Emissions	2040 Emissions
AMATS	tons / year					
VOC						
NOx						
NOACA						
VOC						
NOx						
Ashtabula Twp.						
VOC						
NOx						
Totals						
VOC	1,371.35		880.89			
NOx	35,094.70		17,263.65			

$PM_{2.5}$ 2012 Standard

Attainment Status: $PM_{2.5}$ Moderate Nonattainment Area (80 FR 2205 / January 14, 2015 – Cuyahoga and Lorain Counties designated moderate nonattainment area for 2012 Standards)

SIP Status: Attainment demonstration not due at this time

Geography: Cuyahoga & Lorain Counties, OH

Conformity Tests: 1997/2006 SIP Maintenance Plan Budget - Cuyahoga & Lorain subset - tests

Analysis Years: 2021 Attainment year - 1st Analysis year
2022 Budget Year
2030 Interim year
2040 Plan(s) horizon year

$PM_{2.5}$ Test	2015* Budget	2020 Emissions	2022* Budget	2022 Emissions	2030 Emissions	2040 Emissions
NOACA	tons / year					
VOC	659.35		463.02			
NOx	18,202.07		8,957.18			
*Cuyahoga and Lorain County budget totalks from the 1997/2006 $PM_{2.5}$ SIP Maintenance Plan						

For additional detail on these topics, visit the USEPA Web site at:
http://www.epa.gov/air/ozonepollution/
(general ozone information)
http://www.epa.gov/ttn/naaqs/ozone/ozonetech/
(technical ozone information)
http://www.epa.gov/air/particlepollution/fastfacts.html
(fast facts on particulate matter)
http://www.epa.gov/air/particlepollution/basic.html
(general particulate matter information)
http://www.epa.gov/ttn/naaqs/standards/pm/s_pm_index.html
(technical particulate matter information)

DISCUSSION:

- All parties agreed that MOVES2014 model will be used for the analysis
- The horizon year for the plan is 2040.
- NOACA is amending its Transportation Plan and 2016-2019 TIP to accommodate CUY IR 480-18.42 (L&R) Deck: PID 90591 and performed the required conformity analysis. The proposed amendment of NOACA's long-range transportation plan (Plan) and the Transportation Improvement Program (TIP) will be presented to the Board of Directors at its meeting on March 10, 2017.
- NOACA has reviewed old and new project lists and the TRAC major new projects and construction schedules for existing Plan projects. NOACA received confirmation from ODOT District 3and 12 that their priorities are represented.
- CUY IR 480-18.42 (L&R) Deck: PID 90591 will be reflected in the 2022 network. There have been no other changes from the 2035 Plan.

- Analyses for ozone – current SIP budgets (d 2020) for analysis year networks 2020, 2022, 2035 and 2040
  - Consistent with the regulations, have existing networks for 2030 and plan horizon year of 2040
  - All agreed that analysis for 2035 is not needed.
- Tables for 2006 PM2.5¬ NAAQS – current SIP budgets for (1997, 2006), for analysis year networks 2020, 2022, 2030, and 2040
- Need to run analysis for 2012 PM¬2.5¬ NAAQS in Cuyahoga and Lorain Counties – using analysis years 2020, 2021, 2022, 2030 and 2040
- Send interagency consultation minutes to OEPA and US EPA for concurrence
- PM requires 2022 but not 2020
- Need to confirm with Tony Maietta at EPA that budgets are correct
- NOACA inquired if the current changes can be considered to be consistent with the LRTPs current fiscal constraint analysis. FHWA/ODOT responded that fiscal constraint can be handled that way for NOACA, but that it may not be possible to do the same for AMATS
- Ozone analysis for Ashtabula County and PM Ashtabula Township will be performed by ODOT
- There will also need to be concurring legislation passed by the Erie Regional Planning Commission (ERPC)
- Public involvement processes for each agency shall be followed. Public involvement of the TIP will be concurrent with the STIP public involvement. Public involvement will include the plan and TIP project documentation, interagency consultation minutes, and conformity analysis results
- Comments received as a result of public involvement will be addressed and added to the documentation
- NOACA and AMATS Boards will pass resolutions to adopt the plan and TIP amendments. Tentative dates for Board resolution are AMATS – May 18th (TAC) and 25th (Policy) and NOACA- June 9th. NOACA will coordinate with ERPC to secure its resolution.

APPENDIX B FINANCIAL PLAN

It is critical that *Transportation Outlook 2040 (TO2040)* provide a vision for the future while also maintaining a realistic perspective on the costs of transportation projects and anticipated revenues. The purpose of the Financial Plan is to ensure that *TO2040* is in fiscal constraint. Fiscal constraint means that future projects in the plan do not exceed expected revenues.

The AMATS Policy Committee approved the Financial Resources Forecast in September 2016. The document estimated future transportation revenues through 2040. The Financial Plan uses the Financial Resources Forecast as a guide for the funds available for *TO2040*. Both costs and revenues must be projected in year of expenditure dollars. This means that both costs and revenues needed to be assigned inflation rates.

Overall, AMATS projects $7,292,649,810 of funds to be available. This analysis ensures *TO2040* is in fiscal constraint.

HIGHWAY RECOMMENDATION METHODOLOGY

In order to maintain fiscal constraint for future highway projects, AMATS first developed an estimate of highway revenues. The revenues are shown below:

HIGHWAY REVENUES THROUGH 2040

Federal	$2,027,363,417
State	$1,429,161,134
Local	$1,295,475,584
Ohio Turnpike	$353,835,617
Total Revenue	**$5,105,835,752**

The growth rates used to project federal and state funding were based on estimates provided by ODOT. These growth rates were applied to the historical average and compounded to determine the financial forecast projections for short, medium, and long term years of the Plan.

For local funds historical data from the BMV for license plate registration fees and permissive taxes was obtained for 2013 to 2015 for Summit, Portage, and Wayne counties. Historic fuel tax data distributed to the counties, municipalities, and townships was obtained for 2010 to 2015 from the Ohio Department of Taxation. A 0 percent growth rate was applied to that historical average and all years were totaled to determine the 2040 financial forecast.

The Ohio Turnpike portion of forecasted funding was determined from the Ohio Turnpike and Infrastructure Commission's Annual Reports. The expenses for "maintenance of roadway and structures" and "traffic control, safety, patrol and communications" were added together to estimate the cost of maintaining the turnpike. The statewide total was multiplied by 34/241 since 34 miles of the total 241 miles are within the AMATS area. This adjusted total for each year from 2005 to 2015 is listed in Table 1 along with the resulting historical average.

Given that the Ohio Turnpike is a self-sustained entity, AMATS assumes a growth rate of 5.47 percent that generates at least the amount needed to maintain the Ohio Turnpike as shown in the Highway Preservation Needs report (July 2016). The Ohio Turnpike forecast is projected to be approximately $353 million between now and 2040. Any money not used for turnpike maintenance could be used on other state projects in the future.

With revenues established, it was necessary to assign inflation costs to each project recommendation. The table below shows the rates of inflation used to forecast project costs. Highway projects were assigned inflation rates based on the Ohio Department of Transportation's (ODOT) July 2016 Construction Cost Outlook and Forecast through 2017. AMATS assumed a flat 2.5 percent per year for the out years. All projects are shown in 2017 costs so the inflation rate is 0 percent.

INFLATION RATE PER YEAR

2017	0.0%
2018	3.7%
2019	3.8%
2020	3.7%
2021	3.5%
2022-2040	2.5% per year

With inflation rates established, the next step was to estimate what year projects would take place to get an accurate inflated cost. The table on the following page shows project cost in year of expenditure dollar and the time band for which the project is expected to occur.

Preservation funds were estimated over the life of the plan and were assumed to be distributed equally over the life of the plan. The AMATS Program is included in total and considered to be in year of expenditure dollars. Because the SR 8 bridge project is a preservation project, its costs were assumed to be part of the overall preservation funds. The plan also shows funds reserved for unspecified safety and operation projects, as well as $33 million reserved for bicycle and pedestrian enhancements. The table above demonstrates fiscal constraint for highway recommendations in *TO2040*.

HIGHWAY FINANCIAL CONSTRAINT ANALYSIS

2017-2040

Total Revenue				**$**	**5,105,835,752.00**	**$** **5,105,835,752.00**
Maintenance Recommmendations		**Year of Expediture**		**Current Cost**		**Year of Expenditure Cost**
Pavement Resurfacing		Ongoing	Ongoing	$	(1,172,518,000.00)	$ (1,599,578,957.08)
Pavement Replacement		Ongoing	Ongoing	$	(148,758,250.00)	$ (202,939,798.27)
Bridge Preservation		Ongoing	Ongoing	$	(1,899,537,976.00)	$ (2,591,398,148.75)
AMATS Program 2017-2022						
AMATS Program (Included in TIP)		2017-2021	2017-2021	$	(94,520,000.00)	$ (94,520,000.00)
AMATS Ongoing Regionwide Improvements						
Bike and Pedestrian		Ongoing	Ongoing	$	(33,000,000)	$ (33,000,000)
Safety and Operational		Ongoing	Ongoing	$	(75,000,000)	$ (75,000,000)
Transit		Ongoing	Ongoing	$	(20,000,000)	$ (20,000,000)
Freeway Recommendations						
Recommendation	*Limits*			*Current Cost*		*Yr of Expenditure Cost*
I-77	Arlington to I-277	2022-2028	2024	$	(64,000,000)	$ (64,000,000)
I-77/76/277/SR 8	Akron Beltway Project	2022-2029	2024	$	(50,000,000)	$ (50,000,000)
I-77	Ghent to Cuyahoga County Line	2022-2030	2022	$	(150,000,000)	$ (150,000,000)
SR 8	Perkins to Glenwood	2021	2021	$	(150,000,000)	included in preservation
I-77/76/SR 8	Central Interchange Bridges	2021	2021	$	(65,000,000)	included in preservation
I-76/US 224	State Rd/Wooster Rd	2019	2019	$	(26,000,000)	$ (26,000,000)
Roadway Recommendations						
Community	*Limits*			*Current Cost*		*Yr of Expenditure Cost*
Akron	E. Exchange St from Broadway St to Fountain St	2022-2028	2022	$	(5,043,000)	$ (5,971,838.44)
Akron	Brittain Rd at Eastland Ave/Eastwood Ave	2022-2028	2025	$	(4,000,000)	$ (5,100,945.33)
Akron	Evans Ave	2022-2028	2022	$	(8,200,000)	$ (9,710,306.40)
Akron	N Portage Path at Merriman Rd	2029-2035	2030	$	(2,000,000)	$ (2,885,625.72)
Akron	W Market St (SR 18) at Hawkins Ave/W Exchange St	2036-2040	2037	$	(2,000,000)	$ (3,430,102.18)
Akron	Brittain Rd from E Tallmadge Ave (SR 261) to Independence Ave	2036-2040	2040	$	(1,500,000)	$ (2,770,383.66)
Akron	E Market St (SR 18) & Mogadore Rd/I-76 Ramps	2022-2028	2028	$	(3,000,000)	$ (4,119,870.15)
Akron	Waterloo Rd (US 224) & George Washington Blvd (SR 241)	2022-2028	2026	$	(2,000,000)	$ (2,614,234.48)
Akron/Cuyahoga Falls	SR 8 at Howe Ave	2022-2028	2025	$	(33,000,000)	$ (42,082,798.98)
Akron/Cuyahoga Falls/Tallmadge	Howe Ave at Brittain Rd/Northwest Ave	2022-2028	2028	$	(10,000,000)	$ (13,732,900.51)
Akron/Fairlawn	Miller Rd from Ridgewood Rd to SR 18 (W Market St)	2036-2040	2038	$	(1,000,000)	$ (1,757,927.37)
Barberton	Wooster Rd N (SR 619) from Waterloo Rd to I-76	2036-2040	2040	$	(800,000)	$ (1,477,537.95)
Bath Twp/Copley Twp/Fairlawn	Medina Rd (SR 18) from Heritage Woods Dr to Cleveland-Massillon Rd	2029-2035	2033	$	(1,500,000)	$ (2,330,627.46)
Cuyahoga Falls	Portage Trail from Valley Rd to State Rd	2036-2040	2039	$	(800,000)	$ (1,441,500.44)
Cuyahoga Falls	State Rd at Portage Trail	2036-2040	2040	$	(500,000)	$ (923,461.22)
Fairlawn	W Market St (SR 18) from Ghent Rd to Miller Av	2029-2035	2029	$	(1,000,000)	$ (1,407,622.30)

HIGHWAY FINANCIAL CONSTRAINT ANALYSIS

2017-2040

Total Revenue				**$**	**5,105,835,752.00**	**$**	**5,105,835,752.00**
Roadway Recommendations (continued)							
Community	*Limits*			*Current Cost*		*Yr of Expenditure Cost*	
Green	Massillon Rd (SR 241) & Corporate Woods Circle	2022-2028	2023	$	(1,747,900)	$	(2,121,580.57)
Green	Arlington Rd from Boettler Rd to September Dr	2022-2028	2025	$	(12,000,000)	$	(15,302,835.99)
Green	Town Park Blvd from Greensburg Rd to Wise Rd	2036-2040	2038	$	(3,700,000)	$	(6,504,331.27)
Green	Town Park Blvd from Wise Rd to Massillon Rd	2029-2035	2032	$	(5,700,000)	$	(8,640,374.99)
Hudson	Darrow Rd (SR 91) at Steetsboro Rd (SR 303)	2022-2028	2022	$	(2,400,500)	$	(2,842,632.99)
Hudson	Darrow Rd (SR 91) from Ravenna Rd to SR 303	2022-2028	2024	$	(8,600,000)	$	(10,699,543.86)
Hudson	Hines Hill Rail Grade Seperation	2029-2035	2030	$	(11,000,000)	$	(15,870,941.46)
Hudson/ Twinsburg Twp	Darrow Rd (SR 91) from Middleton Rd to Twinsburg Rd	2029-2035	2030	$	(1,000,000)	$	(1,442,812.86)
Kent	E Main St (SR 59) from Willow St to Luther Av	2029-2035	2033	$	(1,000,000)	$	(1,592,595.43)
Macedonia	Aurora Rd (SR 82) from Olde Eight Rd to SR 8	2029-2035	2031	$	(1,000,000)	$	(1,478,883.18)
Northfield Center Twp	SR 82 at Olde Eight Rd/Brandywine Rd	2029-2035	2032	$	(1,500,000)	$	(2,273,782.89)
Richfield	Wheatley Rd (SR 176) at Brecksville Rd	2022-2028	2025	$	(1,100,000)	$	(1,402,759.97)
Rootstown Twp	SR 44 from Tallmadge Rd (CR 18) to I-76	2022-2028	2024	$	(250,000)	$	(311,033.25)
Stow	Darrow Rd (SR 91)& Graham Rd	2022-2028	2022	$	(500,000)	$	(592,091.85)
Stow	Norton Rd from Hudson Drive to Darrow Rd (SR 91)	2022-2028	2022	$	(4,000,000)	$	(4,736,734.83)
Stow	Kent Rd (SR 59) at Darrow Rd (SR 91)	2036-2040	2037	$	(1,500,000)	$	(2,572,576.64)
Stow	Graham Rd from Fishcreek Rd to Newcomer Rd	2022-2028	2023	$	(2,000,000)	$	(2,427,576.60)
Streetsboro	Streetsboro Town Center: SR 14/SR 43/SR 303	2029-2035	2030	$	(350,000)	$	(504,984.50)
Tallmadge	Tallmadge Circle	2022-2028	2025	$	(8,000,000)	$	(10,201,890.66)
Twinsburg	I-480 & SR 91	2022-2028	2023	$	(3,521,300)	$	(4,274,112.74)
Twinsburg	Darrow Rd (SR 91) at Aurora Rd (SR 82)	2036-2040	2040	$	(1,000,000)	$	(1,846,922.44)
			Total Expenses	$	(4,096,546,926)	$	(5,105,835,586)
			Balance	$	1,009,288,826	$	166.31

TRANSIT RECOMMENDATION METHODOLOGY

Transit revenues were projected in the *Financial Resources Forecast.* Transit funding data for both METRO and PARTA was collected over the last 10 years to estimate the amount of federal funding expected to be available. The growth rates used to forecast transit funding were assumed to be the same as highway federal assumptions, which were just over 2 percent until 2020 and then 0 percent through 2040.

Local funds were projected based on past transit budgets in the *Financial Resources Forecast.* The 2016 estimated totals for METRO and PARTA were added together and were used as the baseline for future projections. The growth rates used to forecast local transit funding were assumed to be 5 percent annually through 2020 and then 0 percent through 2040.

REVENUE

Federal Funds	$380,001,132
Local and State Revenue	$1,806,812,926
AMATS Revenue	$20,000,000

AMATS used ODOT's short-term inflation rate for transit projects through 2020. A 2 percent inflation rate was estimated for years 2022-2040. AMATS reviewed the consumer price index performance over the last 10 years from 2006-2016 to determine out-year inflation. The inflation rate applied to projects is as follows:

INFLATION RATE PER YEAR

2017	0.0%
2018	3.7%
2019	3.8%
2020	3.7%
2021	3.5%
2022-2040	2.0% per year

With inflation rates established, the next step was to estimate what year projects would take place to obtain an accurate inflated cost. The following table shows project cost in year of expenditure dollar and the time band for which the project is expected to occur. Operating expenses to maintain the system were projected annually and operation expenses for additional new service were added when service is projected to start. With all the recommendations included and placed in the year of expenditure, the following Transit Financial Constraint Analysis table demonstrates fiscal constraint.

TRANSIT FINANCIAL CONSTRAINT ANALYSIS

Revenue			**$ 2,218,364,058**
Federal Funds	$	380,001,132	
New 5310 Funds	$	11,550,000	
Local and State Revenue	$	1,806,812,926	
AMATS Revenue	$	20,000,000	CMAQ
METRO			
Operating Expenses - Base Service	$	(1,555,033,761)	Annual
Capital Costs - Base Service			
Chapel Hill Turnaround	$	(441,717)	2026-2030, 2035-2040
Maintenance Facility Rehab	$	(2,176,119)	2025-2040
Downtown Transit Facility Rehab	$	(3,063,748)	2030-2040
Ghent Park and Ride Lot Rehab	$	(750,919)	2024-2029, 2035-2040
Fuel Facility Rehab	$	(1,524,395)	2030-2035
Annual Bus Fleet Expenditures - Preservation	$	(143,685,639)	Annual
Preventive Maintenance	$	(157,362,057)	Annual
Bus Shelter and Stop Enhancements	$	(2,299,161)	Annual
Operating Expenses - Additional Service			
West Market Street - Arlington	$	(18,840,835)	2022-2040
Copley Rd	$	(18,840,835)	2022-2040
Kenmore	$	(18,840,835)	2022-2040
Twinsburg - Macedonia	$	(11,654,541)	2025-2040
Northern Summit	$	(8,400,623)	2030-2040
Southern Summit	$	(8,400,623)	2030-2040
Capital Expenses - Additional Service			
West Market Street - Arlington	$	(5,511,269)	2021-2040
Copley Rd	$	(3,985,730)	2021-2040
Kenmore	$	(2,913,059)	2022-2040
Twinsburg - Macedonia	$	(2,687,007)	2025-2040
Northern Summit	$	(2,201,192)	2030-2040
Southern Summit	$	(2,201,192)	2030-2040
Park and Ride Facilities	$	(2,532,027)	2022-2040
Sandyville Rail Line Rehab	$	(650,528)	2025-2030
Akron Secondary Rail Line Barlow and Seasons Road Upgrade	$	(1,802,963)	2022-2026

PARTA			
Operating Expenses - Base Service	$	(143,192,125)	Annual
Capital Expenditures - Base Service			
Maintenance Facility Rehab	$	(2,301,050)	2018, 2025-2040
Annual Bus Fleet Expenditures - Preservation	$	(19,116,723)	Annual
Preventive Maintenance	$	(33,002,735)	Annual
Bus Shelter and Stop Enhancements	$	(204,487)	Annual
Kent Central Gateway Rehab	$	(1,327,078)	2025-2030
CNG Fueling Facility Rehab	$	(634,392)	2035-2040
Operating Expenses - Additional Service			
Additional Saturday and Sunday Service on Existing Routes	$	(5,477,573)	2018-2040
Ravenna to Streetsboro Service	$	(5,383,096)	2022-2040
Capital Expenses - Additional Service			
Ravenna to Streetsboro Service	$	(2,559,099)	2022-2040
Streetsboro Park and Ride Lot	$	(914,637)	2030-2040
METRO AND PARTA			
Cross County Coordination and Service	$	(13,457,739)	2022-2040
Stow-Kent Transfer Facility	$	(1,473,009)	2018-2023
Coordinated Public Transportation Human Services Programs			
5310 Program/Mobility Management Program	$	(13,508,385)	Annual
BALANCE	**$**	**11,154**	

BICYCLE AND PEDESTRIAN RECOMMENDATION METHODOLOGY

Bicycle and pedestrian improvements are funded through the estimated highway revenues. AMATS reserved over $33 million for potential bicycle and pedestrian improvements in the greater Akron area. Bicycle and pedestrian project costs are inflated based on the highway methodology. The table below demonstrates how funds reserved for bicycle and pedestrian projects will be spent and are inflated to year of expenditure. Bicycle and Pedestrian improvements are assumed to be covered mostly through additional local or state funds. According to the *AMATS Funding Policy Guidelines*, only $700,000 may be used on each bicycle or pedestrian project per round of funding. AMATS assumes that bicycle and pedestrian projects will either receive funds in multiple rounds or local or state funds will cover the remaining construction cost.

BICYCLE AND PEDESTRIAN RECOMMENDATIONS

AMATS Revenue	$	33,000,000.00
Pedestrian Facilities	$	(6,837,540.72)
Bicycle Facilities	$	(25,892,889,16)
Balance	$	269,570.12

BICYCLE RECOMMENDATIONS FINANCIAL CONSTRAINT ANALYSIS

2017-2040

Bicycle Recommendations (Price Per Mile $1,000,000)						
County	*Recommendation*	*Distance*	*Cost (Current)*	*Time Band*	*Cost (Yr of Expenditure)*	*AMATS Funding*
Summit	3 Creeks - Silver Creek Trail from Medina Line Rd to Robinson Ave	5.04	$5,035,018.38	2029-2035	$5,135,724.87	$1,400,000.00
Summit	Akron-Peninsula Trail from SR 303 to Boston Mills Rd	2.61	$2,605,922.74	2022-2028	$3,454,762.13	$700,000.00
Summit	Ashbrooke Connector from Farnham Way to Hines Hill Rd	1.13	$1,129,193.64	2029-2035	$1,851,684.26	$700,000.00
Summit	Barlow Rd from Wilshire Park Dr to the Bike and Hike Trail	0.33	$333,775.85	2036-2040	$580,836.54	$580,836.54
Summit	Bike & Hike-Portage Connector from the Bike and Hike Trail to the Freedom Trail Connector	0.40	$400,689.01	2029-2035	$595,120.74	$595,120.74
Summit	Freedom Trail from the Towpath Trail to the Akron Secondary/CVS RR Junction	1.32	$1,323,928.49	2022-2028	$1,583,069.91	$700,000.00
Summit	Heights to Hudson from the Bike and Hike Trail to Prospect St/Hines Hill Intersection	3.43	$3,430,240.20	2022-2028	$4,393,805.19	$1,400,000.00
Summit	Heights to Hudson (Central Hudson Portion) from Morse Rd to Veterans Way	0.71	$709,017.37	2022-2028	$847,798.10	$700,000.00
Summit	Highbridge Connector Trail from Valley View Bikeway to the Front Street Connector Trail	2.80	$2,803,056.13	2036-2040	$5,074,942.94	$1,400,000.00
Summit	Liberty Trail from Post Rd to Cannon Rd	1.52	$1,517,327.23	2029-2035	$2,253,600.36	$700,000.00
Summit	Magic Mile (North) from Third St SW and Park to W Wooster Rd and Robinson Ave	0.19	$193,785.03	2022-2028	$239,825.93	$239,825.93
Summit	Magic Mile (West) from 5th St and Park Ave to 4th St and W Wooster Rd	0.20	$200,354.41	2022-2028	$265,616.79	$265,616.79
Summit	Memorial Parkway Trail from Aqueduct St to the Towpath Trail	0.70	$700,000.00	2029-2035	$1,081,673.12	$700,000.00
Summit	Portage Lakes Trail from the Towpath Trail to the Metro Sandyville Local	5.31	$5,313,249.15	2029-2035	$8,210,283.94	$700,000.00
Summit	Rubber City Heritage Trail from the Towpath Trail to Englewood Ave	5.75	$5,750,000.00	2029-2035	$9,429,015.63	$1,400,000.00
Summit	Spartan Trail (West) from the Rubber City Heritage Trail to Springfield Lake	2.38	$2,381,723.60	2022-2028	$3,157,533.55	$700,000.00
Summit	Spartan Trail (East) from Springfield Lake to the Summit/Portage County Line	3.71	$3,707,724.41	2022-2028	$5,293,034.87	$700,000.00
Summit	Turnpike Trail from Prospect Rd to Hudson Aurora Rd	2.14	$2,138,163.67	2029-2035	$3,506,222.37	$700,000.00
Portage	Arsenal S Trail from Conrail Freedom Secondary to Rock Spring Rd	5.94	$5,940,000.00	2036-2040	$10,543,520.41	$1,400,000.00
Portage	Arsenal S Trail from Rock Spring Rd to Portage County Line	8.88	$8,880,000.00	2036-2040	$12,676,818.56	$700,000.00
Portage	Headwaters Bikeway from Aurora North Corp Limit to Mennonite Rd	7.93	$7,925,433.94	2029-2035	$11,771,199.01	$2,100,000.00
Portage	Hiram Trail from SR 305 to Headwaters Trail	2.76	$2,761,242.18	2029-2035	$4,439,180.85	$700,000.00
Portage	Lake Rockwell Trail from Middlebury Rd to Mantua St/River Bend Blvd	2.73	$2,728,766.89	2022-2028	$3,819,122.36	$700,000.00
Portage	Rock Spring Rd from Cable Line Rd to Newton Falls Rd	0.85	$851,225.38	2029-2035	$1,289,562.48	$700,000.00
Portage	The Portage from Stow St to W Main St	0.31	$310,385.76	2022-2028	$411,489.16	$411,489.16
Portage	Mogadore Lake from The Portage to Mogador Lake	4.93	$4,932,888.29	2029-2035	$7,473,070.94	$1,400,000.00
Portage	Esplanade Extension from Dix Stadium to Lakewood Rd	2.00	$2,000,174.46	2022-2028	$2,651,700.64	$700,000.00
Portage	Headwaters Trail Extension from SR 82 to Portage County Line	5.70	$5,700,000.00	2022-2028	$7,821,171.71	$700,000.00
Portage	Franklin Connector Extension from Hudson Rd ext to Riverbend	2.20	$2,200,000.00	2029-2035	$3,267,535.637	$700,000.00
Portage	Railroad Trail Connection from Hudson Rd to Tinkers Creek, Portage County Line	7.30	$7,300,000.00	2036-2040	$12,957,525.079	$1,400,000.00
		82.32	**$82,321,411.25**		**$122,927,649.90**	**$25,892,889.16**

PEDESTRIAN RECOMMENDATIONS FINANCIAL CONSTRAINT ANALYIS

2017-2040

Pedestrian Recommendations (Price Per Mile $485,000)						
Community	*Recommendation*	*Distance*	*Cost (Current)*	*Year*	*Cost (Yr of Expenditure)*	*AMATS Funding*
Akron	Portage Trail Sidewalk from N. Portage Path to Treetop Trail Dr	0.35	$169,750.00	2025	$225,043.46	$225,043.46
Akron	Waterloo Rd Sidewalk from I-77 to Arlington Rd	0.69	$334,650.00	2022	$400,153.29	$400,153.29
Copley	Cleveland Massillon Rd Sidewalk from Hammond Blvd to Commerce Drive	0.86	$417,100.00	2030	$619,495.05	$619,495.05
Cuyahoga Falls	Graham Rd Sidewalk from Prange Dr to Bath Rd	0.58	$281,300.00	2035	$461,283.84	$461,283.84
Green	Boettler Rd Sidewalk from Arlington to Kenway Blvd	0.35	$169,750.00	2027	$237,578.38	$237,578.38
Green	Interstate Parkway Sidewalk from Arlington to terminus	0.51	$247,350.00	2030	$367,374.97	$367,374.97
Green	Moore Rd Sidewalk from S. Main St to Charleston	0.92	$446,200.00	2023	$552,211.54	$552,211.54
Green	Raber Rd Sidewalk from Mayfair Rd to Kreighbaum	0.81	$392,850.00	2029	$572,037.15	$572,037.15
Norton	Cleveland Massillon Rd Sidewalk from Weber Rd to Shellhart Rd	0.95	$460,750.00	2038	$801,796.89	$700,000.00
Ravenna Twp/Rootstown Twp	SR 44 Sidewalk from Rootstown Elementary to Ravenna South Corp. Line	3.39	$1,644,150.00	2031	$2,490,802.31	$700,000.00
Stow	SR 91 Sidewalk Lillian Rd to Norton Rd	1.93	$936,050.00	2024	$1,198,989.32	$700,000.00
Twinsburg	Highland Rd Sidewalk from Chamberlin Rd to Hadden Rd	0.87	$421,950.00	2028	$602,363.02	$602,363.02
Twinsburg	SR 82 Sidewalk from Chamberlin Rd to Wilcox Rd	0.96	$465,600.00	2035	$763,504.29	$700,000.00
		13.17	**$6,387,450.00**		**$9,292,633.54**	**$6,837,540.72**

APPENDIX C ENVIRONMENTAL JUSTICE ANALYSIS

INTRODUCTION

In accord with the Goals and Objectives of the AMATS Regional Transportation Plan, *Transportation Outlook 2040 (TO2040)*, the transportation system should reflect and support the values and planning objectives of area communities and neighborhoods by ensuring that the planning process is conducted in conformance with Title VI of the Civil Rights Act of 1964 and the environmental justice requirements of Presidential Executive Order #12898 of 1994.

The United States Environmental Protection Agency (USEPA) Office of Environmental Justice defines environmental justice as:

> *The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies.*

Consequently, programs or activities that use federal funds must make a meaningful effort to involve low-income and minority groups in the process to make decisions regarding the use of federal funds. It also means that agencies using federal funds must attempt to identify and address any disproportionately high and adverse human health and environmental effects on minority and low-income groups, which may result from the implementation of their plans and programs.

Meaningful public involvement means that people have an opportunity to participate in decisions about activities that may affect their environment or health. The public's contribution should influence the decision-making process and their concerns considered in the decision-making process. Accordingly, the decision-makers should seek out and facilitate the involvement of those persons potentially affected.

According to Presidential Executive Order #12898, disproportionately high and adverse effects are those that will be predominately borne by minority or low-income groups; or those which will be suffered by minority and low-income groups in a manner that is appreciably more severe or greater in magnitude than those which will be suffered by non-minority and non-low-income groups.

Developing, improving and maintaining the regional transportation system is not only about moving the most vehicles as efficiently as possible. Transportation planning must also consider issues such as poverty, equal opportunity and equal access to ensure that the costs and benefits of transportation infrastructure and services are fairly distributed.

Historically, this has not always been the case. During the development of the nation's interstate highway system in the 1950s and 1960s, low-income and minority neighborhoods sometimes carried a greater social burden of these massive redevelopment projects. The physical placement of these projects cut through established, older neighborhoods, creating physical barriers and isolating them from employment, shopping and recreational opportunities. Often, these neighborhoods suffered not only from the physical placement of projects, but from the negative externalities that they produced, such as noise pollution, harmful fumes, air pollution, accidents and spills. In some cases, these consequences were unintentional. However, these areas were sometimes specifically targeted for transportation development, due to their sometimes high crime and blighted development. Eventually, neighborhood and environmental activists demanded equal access to the decision-making process and the equitable distribution of positive and negative effects of transportation projects, and thus, the concept of environmental justice emerged.

In keeping with the environmental justice requirements that the recipients of federal funds make greater efforts to involve low-income and minority populations in the decision-making process, the public involvement activities

conducted by AMATS ensure that low-income, minority individuals, and community groups have the opportunity to participate in the transportation planning process.

Community groups and social service agencies representing minority and low-income populations are included on the AMATS public notifications list. These groups are made aware of opportunities to participate in the planning process by advertising public meetings in three newspapers: 1) The *Akron Beacon Journal*; 2) The Kent-Ravenna *Record Courier*; and 3) *The Reporter* (a publication that serves the African-American community). Draft planning documents and meeting notices are provided directly to AMATS members and social service agencies, and are made available on the AMATS website, amatsplanning.org. In addition, the AMATS website can be viewed in a number of different languages. AMATS has enhanced its presence on several social media platforms such as Facebook and Twitter, where public meetings are advertised and comments may be submitted.

The purpose of environmental justice principles and procedures is to improve all levels of transportation decision making. This approach hopes to:

- make better transportation decisions that meet the needs of all people;
- design transportation facilities that fit more harmoniously into communities;
- enhance the public-involvement process; and provide minority and low-income populations with opportunities to learn about and improve transportation
- improve data collection, monitoring, and analysis tools that assess the needs of, and analyze the potential impacts on minority and low-income populations;
- cooperate with other public and private programs on a continuous basis in order to achieve a comprehensive vision for communities;
- avoid disproportionately high and adverse impacts on minority and low-income populations; and
- minimize or mitigate unavoidable impacts by identifying concerns early in the planning phase and providing offsetting initiatives and enhancement measures to benefit affected communities and neighborhoods.

Current efforts to support environmental justice are a consequence of Title VI of the Civil Rights Act, as amended, and subsequent statutes, executive orders and federal and state guidance to promote and enforce non-discrimination and the fair distribution of benefits and burdens associated with federal programs, policies and activities. Both Title VI and environmental justice aim to ensure full and fair participation and integration of the public into the planning process. The Federal Transit Administration's (FTA) most recent release of guidance found in Circular 4703.1 (August 2012) reiterates the federal government's long-standing principles of environmental justice:

- To avoid, minimize, and mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations;
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

METHODOLOGY

In addition to involving low-income and minority populations in the planning process, environmental justice also means assessing the impact of transportation plans, programs, and policies on low-income and minority populations. In order to accomplish this, the following questions must be considered:

- What are low-income and minority populations?
- How should these populations be identified?
- Which environmental impacts should be considered?
- What are the potential impacts of recommended projects on low-income and minority populations?
- What is the overall level of accessibility in low-income and minority neighborhoods?
- What is the overall level of investment in transportation infrastructure in areas with above average concentrations of minority and low-income populations?

Definitions

According to the latest United States Department of Transportation (USDOT) *Order 5610.2(a) on Environmental Justice*, contained in the *Federal Register* (May 2, 2012):

> **Low Income** is defined as a person whose median household income is at or below the United States Department of Health and Human Services poverty guidelines. For purposes of this analysis, the AMATS staff has expanded the definition of low-income population to include all individuals at 150 percent of the poverty level or below.
>
> **Minority** is defined as a person who is: 1) Black (a person having origins in any of the black racial groups of Africa); 2) Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race); 3) Asian (a person having origins in any of the original peoples of the Far East, Southeast Asia or the Indian subcontinent); 4) Native Hawaiian or other Pacific Islander (a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands; or 5) American Indian and Alaskan Native (a person having origins in any of the prehistoric people of North America and who maintain cultural identification through tribal affiliation or community recognition).

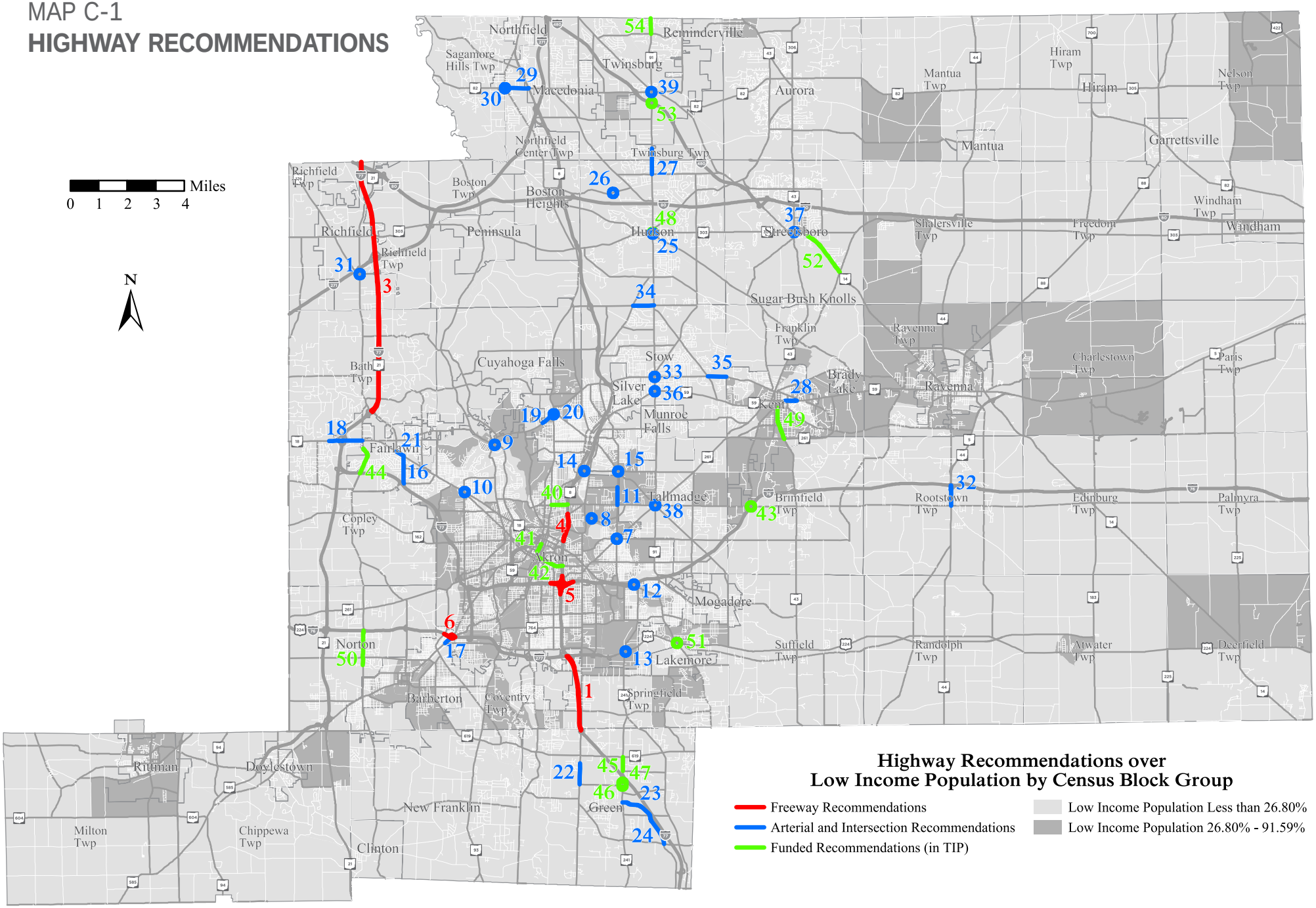
Identifying Concentrations of Low-Income and Minority Population

Although low-income and minority persons live throughout the AMATS area, many are concentrated in specific locations and neighborhoods. The following methodology was used to identify above average concentrations of low-income and minority groups:

- Concentrations of low-income population were identified by comparing the percentage of the population at or below 150 percent of the poverty level in each Census block group to the percentage of the population in the entire AMATS area. The data used in this analysis were obtained from the 2010 Census. Census block groups with a percentage of population considered low-income that were at or above the regional rate of 26.8 percent were considered to be above average concentrations of low-income populations. These Census block groups are shown on Map C-1.
- Concentrations of minority population were identified by comparing the percentage of minorities living in each Census block group to the percentage of such persons living in the entire AMATS area. The data used in this analysis were obtained from the 2010 Census. Block groups with a percentage of minorities that were at or above the regional rate of 19.35 percent were considered to be above average concentrations of minority population. These census block groups are shown on Map C-2.

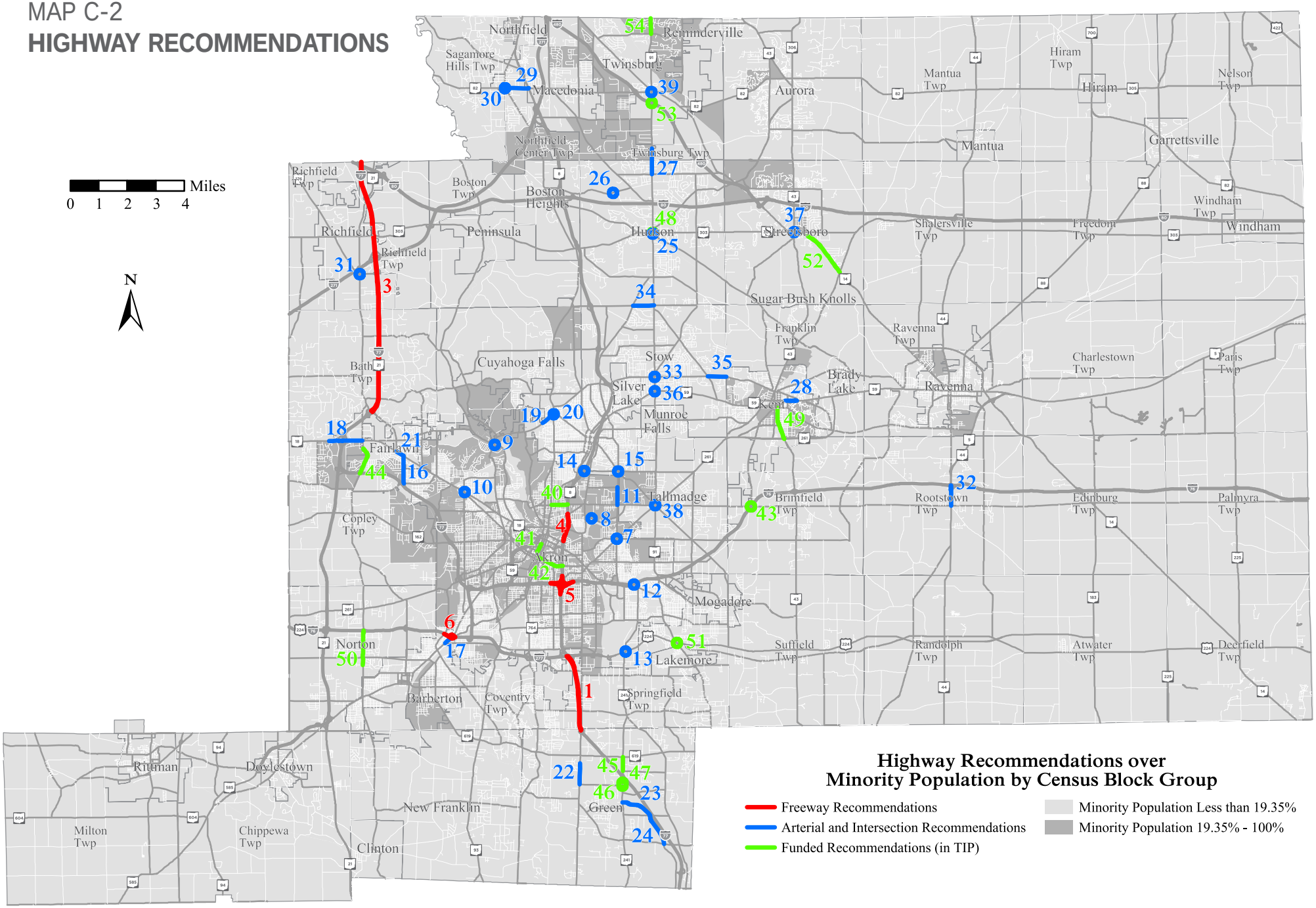
MAP C-1

HIGHWAY RECOMMENDATIONS



MAP C-2

HIGHWAY RECOMMENDATIONS



Highway Recommendations over Minority Population by Census Block Group

- Freeway Recommendations
- Arterial and Intersection Recommendations
- Funded Recommendations (in TIP)
- Minority Population Less than 19.35%
- Minority Population 19.35% - 100%

Environmental Impacts

According to the U.S. Department of Transportation, adverse impacts are defined as significant individual or cumulative negative human health or environmental effects, resulting from the implementation of federal, state, or local transportation policies, plans, or projects.

By reviewing environmental justice guidance developed by ODOT, the following 10 variables have been identified as a means of qualitatively evaluating the environmental impacts of projects in *TO2040* that are located in low-income or minority areas:

1. *Safety* - How will the project affect the relative safety of those using the facility and living in the target area?
2. *Pollution* - How will the project affect the overall air quality, water quality, noise level or soil quality of the target area?
3. *Natural Resources* - How will the project affect vegetation, streams, parks or other aspects of the natural environment in the target area?
4. *Aesthetics* - How will the project affect the appearance and physical attractiveness of the target area?
5. *Community Cohesion* - How will the project affect the identity and cohesiveness of the target area?
6. *Economic Vitality* - How will the project affect the economic health of the target area?
7. *Accessibility* - How will the project affect the level of access to, or from, the target area?
8. *Displacement of Businesses or Residents* - How will the project affect businesses, residents and institutions in the target area? Will it displace any of them?
9. *Traffic Congestion* - How will the project affect existing levels of traffic congestion?
10. *Equal Access to Improvement* - Will the overall benefits of the project be as available to residents of the target area as they will be to the region as a whole?

ANALYSES

Two analyses were developed to evaluate the potential adverse human health or environmental impacts of projects in the *TO2040* upon minority population and low-income populations. These analyses examine: 1) the potential environmental impacts of projects; and 2) transportation accessibility in low-income and minority neighborhoods.

Potential Environmental Impacts of Projects

Highway, public transportation, and transportation enhancement projects in *TO2040* were analyzed in order to determine potential impacts on low-income populations and minority populations.

AMATS has a "fix-it-first" preservation policy, focusing on preserving the existing transportation infrastructure rather than building new roads. The policy of prioritizing the preservation of the existing system is a result of deteriorating, aging infrastructure and rapidly increasing construction costs. The decrease in capacity expansion projects, such as new roads and road widenings, reduces the potential for negative adverse impacts.

The analysis of potential impacts was completed according to the following procedures:

Step 1 - Projects were divided into two categories: 1) capacity projects; and 2) non-capacity projects. Non-capacity projects were exempted from further analysis because they are not expected to have any disproportionately high adverse human health and environmental effects on minority and low-income groups.

Step 2 - Projects were then examined to determine whether they were located in or bordering on a census block group containing a regionally significant concentration of low-income or minority populations. Projects that were not located in or bordering on these areas were exempted from further environmental justice analysis. These block groups are shown on Maps C-1 and C-2.

The following project categories were exempted from further analysis because they are not expected to have any disproportionately high and adverse human

health and environmental effects on minority and low-income groups:

- Highway operational improvements
- Public transportation system preservation
- Pedestrian facilities / bicycle lanes
- Scenic/environmental enhancements

Step 3 - The remaining categories were qualitatively evaluated as to their environmental impacts because they have the potential of disproportionately high and adverse human health and environmental effects on minority and low-income groups:

- Major capacity improvements
- Realignment or reconfiguration
- Public transportation system expansion
- Bikeway/Multi-purpose facilities

The potential environmental impacts of highway, public transportation and transportation enhancement projects are displayed in Table C-1. Projects that are expected to impact a variable in a positive manner are indicated by a "+." Projects that are expected to impact a variable in a neutral manner are indicated by an "n." Projects that could impact a variable in a negative manner are indicated by a "-."

All of the projects shown in Table C-1 should be analyzed more closely as they move into the stages of development. Projects with potential negative impacts should be closely scrutinized as more detailed environmental analyses are completed. A determination can then be made as to whether negative impacts will be disproportionately borne by low-income or minority individuals or communities. Of the 54 highway projects recommended in *TO2040*, 29 are located in EJ areas. Seven of these highway projects must be analyzed. Of the 32 bike trail projects recommended in *TO2040*, 21 are located in EJ areas and must be analyzed.

Two analyses have been completed in order to determine the overall level of accessibility in low-income and minority neighborhoods. The first analysis focuses on the area's highway projects. The second analysis focuses on the existing public transportation system. Transportation enhancement projects were exempted from the transportation accessibility analysis because these projects are used mostly for recreational purposes and are difficult to analyze quantitatively.

Highway Accessibility Analysis

The first step in the highway accessibility analysis was to identify a sample of six traffic analysis zones that represent low-income and minority neighborhoods: 1) East Akron; 2) West Akron; 3) North Akron; 4) Barberton; 5) Kent; and 6) Twinsburg.

The second step in the analysis was to identify traffic analysis zones that contain major activity centers. Altogether, 13 traffic analysis zones containing major commercial, industrial, medical, educational, transportation and recreational facilities were identified:

1. Akron-Canton Airport
2. Downtown Akron Transit Center
3. Akron Central Business District
4. Akron City Hospital
5. Akron General Hospital
6. Goodyear
7. Northeast Ohio Medical University
8. Chapel Hill Mall
9. Summit Mall
10. Montrose
11. Macedonia Commons
12. University of Akron
13. Kent State University

In the third step, the AMATS travel-demand model network, representing the highway system as it is planned to operate in 2022, was used to estimate the average travel time from each low-income and minority neighborhood to each of the 13 major activity centers. In order to provide a valid comparison, a similar analysis was conducted to estimate the average travel time to each major activity center from a sample of six traffic analysis zones, representing neighborhoods with below average concentrations of low-income and minority population: 1) Cuyahoga Falls; 2) Hudson; 3) Stow; 4) Green; 5) Macedonia; and 6) Aurora.

The results of the highway accessibility analysis are shown in Table C-2. According to this analysis, the highway projects in *TO2040* provide low-income and minority neighborhoods with slightly better accessibility to major activity centers located throughout the AMATS area, than non-low-income and non-minority neighborhoods. The average travel time to major activity centers is 16 minutes for low-income and minority neighborhoods, versus 20 minutes for non-low-income and non-minority neighborhoods.

Table C - 1

POTENTIAL ENVIRONMENTAL IMPACTS OF PROJECTS

					POTENTIAL IMPACTS*									
Project	*From*	*To*	*Category*	*Location*	*Safety*	*Pollution*	*Natural Resources*	*Aesthetics*	*Community Cohesion*	*Economic Vitality*	*Accessibility*	*Displacement of Residents / Businesses*	*Traffic Congestion*	*Equal Access to Improvement*
I-77 / 76 / 277 / SR 8	Akron Beltway Project		Reconfiguration	Low Income / Minority	+	n	n	+	n	+	+	-	+	n
I-76 / I-77	SR 8 (Central Interchange)		Reconfiguration	Low Income / Minority	+	n	n	+	n	+	+	-	+	n
I-76 / US 224	State Rd / Wooster Rd		Reconfiguration	Low Income	+	n	n	+	-	n	+	-	+	n
SR 8	Howe Ave Interchange		Reconfiguration	Low Income / Minority	+	n	n	+	n	+	+	-	+	n
Cleveland-Massillon Rd	I-77	Bywood Ave	Capacity	Minority	+	-	-	n	n	+	+	n	+	n
Darrow Rd (SR 91)	Glenwood Blvd	North Corp Limit	Capacity	Minority	+	-	-	n	n	+	+	n	+	n
Howe Ave	Brittain Rd/ Northwest Ave		Reconfiguration	Minority	+	n	n	+	n	+	+	-	+	n
3 Creeks - Silver Creek Trail	Medina Line Rd	Robinson Ave (Towpath Trail)	Bike Trail	Low Income	+	+	n	+	+	n	+	n	+	n
Freedom Trail Phase 4	Towpath Trail	Freedom Trail Phase 3	Bike Trail	Low Income / Minority	+	+	n	+	+	+	+	n	+	n
Highbridge Connector Trail	Towpath Trail	Front Street Connector Trail	Bike Trail	Low Income / Minority	+	+	n	+	+	n	+	n	+	n
Liberty Trail	Post Rd	Cannon Rd	Bike Trail	Minority	+	+	n	+	+	n	+	n	+	n
Magic Mile (North)	Third St SW & Park Ave	Wooster Rd W & Robinson Ave	Bike Trail	Low Income	+	+	n	+	+	+	+	n	+	n
Magic Mile (West)	5th St & Park Ave	4th St & Wooster Rd W	Bike Trail	Low Income	+	+	n	+	+	+	+	n	+	n
Memorial Parkway Trail	Aquaduct St	Towpath Trail	Bike Trail	Low Income / Minority	+	+	n	+	+	n	+	n	+	n
Rubber City Heritage Trail	Towpath Trail	Englewood Ave	Bike Trail	Low Income / Minority	+	+	n	+	+	+	+	n	+	n
Spartan Trail (West)	Rubber City Heritage Trail	Springfield Lake	Bike Trail	Low Income	+	+	n	+	+	+	+	n	+	n
Spartan Trail (East)	Springfield Lake	Summit/Portage County Line	Bike Trail	Low Income	+	+	n	+	+	+	+	n	+	n
Arsenal S	Conrail Freedom Secondary	Rock Spring Rd	Bike Trail	Low Income	+	+	n	+	+	n	+	n	+	n
Conrail Freedom Secondary	Peck Rd	S Main St	Bike Trail	Low Income	+	+	n	+	+	n	+	n	+	n
Headwaters Bikeway	Aurora NCL	Mennonite Rd	Bike Trail	Low Income	+	+	n	+	+	+	+	n	+	n
Lake Rockwell Trail	Middlebury Rd / Portage Hike & Bike	Mantua St / River Bend Blvd	Bike Trail	Low Income/ Minority	+	+	n	+	+	+	+	n	+	n
Rock Spring Rd	Cable Line Rd	Newton Falls Rd	Bike Trail	Low Income	+	+	n	+	+	n	+	n	+	n
The Portage	Stow St	W Main St	Bike Trail	Low Income / Minority	+	+	n	+	+	+	+	n	+	n
Mogadore Lake	The Portage	Mogadore Lake	Bike Trail	Low Income / Minority	+	+	n	+	+	+	+	n	+	n
Esplanade Extension	Esplanade / Dix Stadium	Lakewood Rd	Bike Trail	Low Income	+	+	n	+	+	n	+	n	+	n
Franklin Connector Extension	Hudson Rd extension	Riverbend	Bike Trail	Low Income/ Minority	+	+	n	+	+	+	+	n	+	n
Railroad Trail Connection	Hudson Rd	Tinker's Creek, Portage Co. Line	Bike Trail	Minority	+	+	n	+	+	n	+	n	+	n
Magic Mile Towpath Connector	Towpath Trail	4th St	Bike Trail	Low Income / Minority	+	+	n	+	+	+	+	n	+	n

* KEY: + denotes positive Impact, n denotes neutral impact and - denotes negative impact

Table C - 2

AVERAGE HIGHWAY TRAVEL TIME TO MAJOR ACTIVITY CENTERS

(in minutes)

Traffic Zone Number	Akron-Canton Airport 452	Downtown Akron Transit Center 46	Akron CBD 21	Akron City Summa Hospital 8	Akron General Hospital 43	Goodyear 96	Northeast Ohio Medical University 749	Chapel Hill Mall 55	Summit Mall 522	Montrose 39	Macedonia Commons 566	University of Akron 32	Kent State 720	OVERALL AVERAGE (minutes)
Low Income or Minority Zones	**22**	**13**	**13**	**13**	**13**	**14**	**22**	**14**	**17**	**18**	**23**	**13**	**19**	**16**
East Akron (zone 93)	14	7	7	5	8	3	17	9	15	16	24	6	17	12
West Akron (zone 181)	20	7	6	8	4	10	23	13	9	10	25	6	23	13
North Akron (zone 222)	18	6	4	5	5	9	21	6	12	14	20	5	18	11
Barberton (zone 259)	17	14	14	16	14	16	29	20	17	18	33	15	29	19
Kent (zone 718)	27	19	19	18	20	15	12	13	27	28	26	19	1	19
Twinsburg Twp (343)	38	28	26	25	28	29	27	23	23	22	7	27	23	25
Non-Low Income and Non-Minority Zones	**27**	**20**	**19**	**17**	**20**	**20**	**25**	**15**	**22**	**23**	**16**	**19**	**20**	**20**
Cuyahoga Falls (zone 302)	21	11	9	8	11	12	22	6	14	16	18	10	17	13
Hudson (zone 368)	32	22	20	19	22	22	25	17	25	24	11	20	17	21
Stow (zone 375)	25	15	13	12	15	16	21	10	20	22	17	14	10	16
Green (zone 447)	7	15	15	14	17	14	27	19	23	24	32	15	27	19
Macedonia (zone 568)	35	25	24	22	25	26	31	10	20	19	3	24	27	22
Aurora (zone 612)	42	32	30	29	32	33	27	27	33	32	15	31	23	30

Public Transportation Accessibility Analysis

It is AMATS' goal that the regional transportation system provides adequate mobility for all persons. Public transportation is especially important in low-income and minority communities, which often lack adequate access to employment opportunities, retail, recreational and social/cultural activities. In 2016, the *AMATS Regional Public Transit Plan* analyzed the overall level of accessibility that the existing public transit network offered to the Greater Akron area and specifically to low-income, minority, elderly and disabled persons in the region. Those results were used to analyze public transportation accessibility in *TO2040*.

The first step in the public transportation accessibility analysis determined the percentage of the total population in Summit and Portage counties living within a 0.25 mile walking distance of existing fixed route transit service. The second step of the analysis determined the percentage of minority population and low-income population living within a 0.25 mile walking distance of existing fixed-route transit service. The third step compared the percentage of minority population and low-income population to the percentage of the total population having access to fixed-route transit service.

The definition of low-income used for the *AMATS Regional Public Transit Plan* is a household income at or below 150 percent of the poverty level. Based on 2010 Census data, this threshold would be set at $34,999 or below. Data were collected at the block group level for low-income and minority populations. Data illustrating the distribution of those with disabilities was only available at the county level at the time of the analysis.

The results of the transit accessibility analysis are shown in Table C-3. According to this analysis, a greater percentage of minority and low-income groups in both Summit County and Portage County have access to fixed-route transit service than the general population.

In Summit County, 78.9 percent of the minority population lives within walking distance to fixed-route transit service, as compared to 52.6 percent of the total population. The total number of low-income population in Summit County within walking distance of fixed-route transit service is 72.4 percent.

In Portage County, 55.8 percent of the minority population lives within walking distance of fixed-route transit service, as compared to 21.4 percent of the total population. The total number of low-income population in Portage County that lives within walking distance of fixed-route transit service is 47 percent.

Many low-income and minority individuals rely on public transportation to access employment opportunities. Both METRO and PARTA work diligently to provide transit service to key employment zones throughout the AMATS region. Both agencies speak regularly with local employers and attempt to not only serve businesses with transit service, but to coordinate bus runs with shift start or ending times. AMATS encourages coordination between employers and local transit providers to increase the access of low-income and minority individuals to concentrated employment destinations.

Most of the areas with the greatest concentrations of employment are accessible through fixed-route transit. In Akron, the Downtown, Montrose, Market Street and South Arlington Street corridors have among the highest concentrations of employment in the AMATS region, and also enjoy the most frequent transit service available. Other cities with major employment centers, such as Barberton, Cuyahoga Falls, Hudson, Kent and Ravenna have varying degrees of fixed-route transit service.

Notable gaps in transit service to key employment areas are found in Aurora, portions of Green and Streetsboro, the Village of Mantua and Copley Township. The Village of Richfield and the cities of Streetsboro, Twinsburg and Macedonia have very large employment concentrations, but are only served by infrequent express or commuter bus routes. Each of these communities could benefit from more regular transit or new transit service to connect the region's employment base to these key employment zones. The *AMATS Regional Public Transit Plan* analyzes and discusses these issues more fully.

Table C - 3

TRANSIT ACCESSIBILITY ANALYSIS

FIXED ROUTE TRANSIT COVERAGE IN THE AMATS AREA

	Summit County			Portage County		
Population Group	*Total*	*Total Covered by Transit*	*% Covered by Transit*	*Total*	*Total Covered by Transit*	*% Covered by Transit*
Total Population	542,600	285,373	52.6%	162,235	34,735	21.4%
Minority Population	**107,179**	**84,592**	**78.9%**	**10,082**	**5,624**	**55.8%**
Low Income Population	**125,606**	**90,908**	**72.4%**	**25,943**	**12,204**	**47.0%**

Source: 2014 American Community Survey (ACS)

Notes:

A full discussion of transit coverage and performance can be found in the AMATS Regional Public Transit Plan - November 2016

Fixed route transit service in Summit County is provided by METRO RTA. PARTA provides transit service in Portage County.

Non-Motorized Transportation Accessibility Analysis

Low-income and minority neighborhoods benefit greatly from non-vehicular modes of transportation. Walking and bicycling are free or low cost, have few negative externalities (noise, air and other pollution, congestion, etc.) and produce positive health benefits. For short-distance trips in compact neighborhoods, these modes may actually prove the most efficient. These transportation modes are available on-demand. Rather than being constrained by a bus schedule or waiting for a ride in an automobile, a person can bicycle or walk at will.

In recent years, AMATS has focused on non-motorized transportation modes and is committed to building a network that allows all residents to travel safely between key regional communities and destinations. Further discussion and analysis of non-motorized transportation can be found in the AMATS *Pedestrian Plan* (December 2015), *Bike Plan* (July 2016), *Mid-Block Crossing Analysis* (December 2014) and *Road Diet Analysis* (May 2015). It remains AMATS' policy to integrate multiple modes of travel and to develop complete streets through its Connecting Communities Initiative and funding policies.

Bicycle

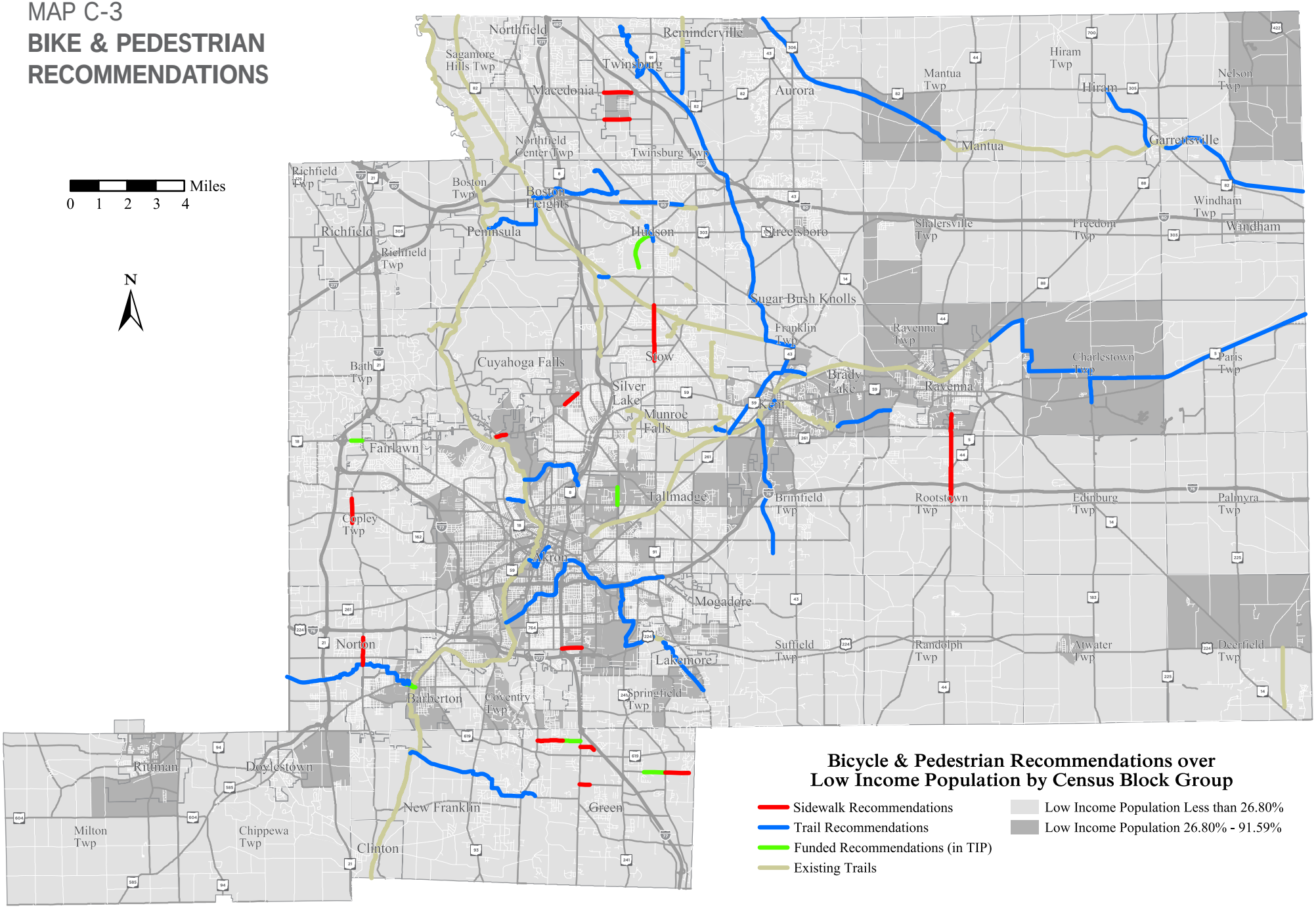
Thirty percent (10 of the 33) of the bicycle recommendations listed in *TO2040* are located in, or next to, above average low-income or minority census block groups. Multi-purpose trails are included in the recommendations, and have the additional benefit of serving pedestrians as well as bicyclists. Maps C-3 (for low-income) and C-4 (for minority) show the bicycle recommendations in relation to these block groups.

Pedestrian

Of the 17 total pedestrian recommendations in *TO2040*, five (29 percent) are located in, or next to, above average low-income or minority census block groups. In addition to these pedestrian recommendations and the multi-purpose trail recommendations, it should be noted that most of the above average low-income and minority block groups are located in the highest density communities within the AMATS area. These areas are currently served well by existing sidewalks, crosswalks and other pedestrian infrastructure. Maps C-3 (for low-income) and C-4 (for minority) show the pedestrian recommendations in relation to these block groups.

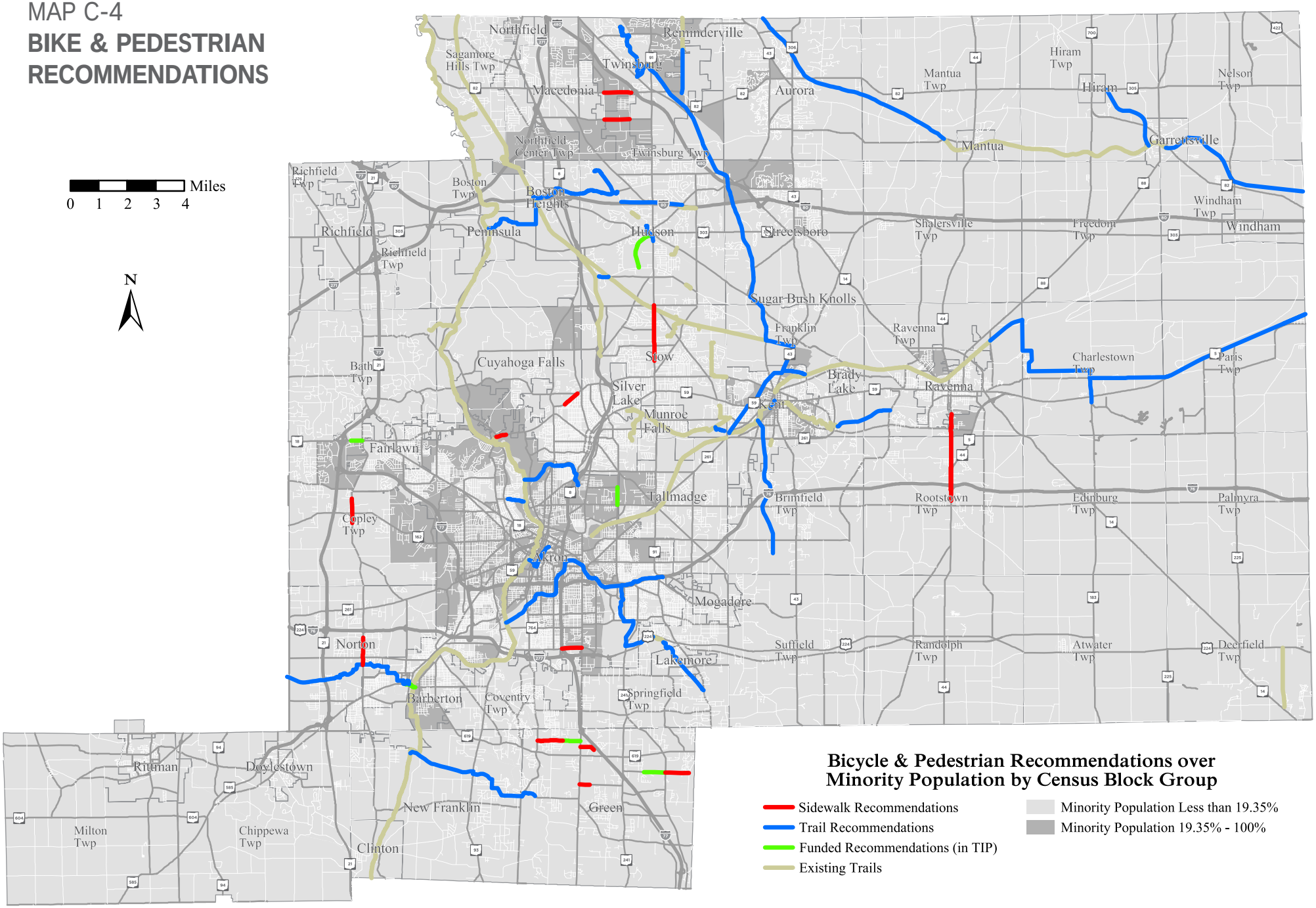
MAP C-3

BIKE & PEDESTRIAN RECOMMENDATIONS



MAP C-4

BIKE & PEDESTRIAN RECOMMENDATIONS



CONCLUSION

In keeping with the environmental justice requirements of Presidential Executive Order #12898, *TO2040* has been analyzed to ensure that the projects will not have disproportionately high and adverse effects on low-income and minority groups.

The two analyses completed for this Environmental Justice Analysis are summarized below:

Potential Environmental Impacts of Projects

- None of the projects in *TO2040* appear to have any fatal flaws from an environmental justice standpoint.
- It is recommended that all of the projects shown in Table C-1 be analyzed more closely as they move into future stages of development.
- Projects which were shown to have potential negative impacts should be closely scrutinized as more detailed environmental analyses are completed, in order to determine whether these negative impacts will be disproportionately borne by low-income or minority individuals or communities.

Transportation Accessibility in Low-Income and Minority Neighborhoods

- Highway projects in *TO2040* provide low-income and minority neighborhoods with adequate and equitable accessibility to major activity centers located throughout the AMATS area.
- Low-income and minority groups in both Summit and Portage counties are well served by public transportation, having greater access to fixed-route transit service than the general population.
- Low-income and minority groups in both Summit and Portage counties currently have good access to existing bicycle and pedestrian facilities, including sidewalks and crosswalks. Furthermore, *TO2040* recommends additional improvements.

REFERENCES:

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations; Federal Register, vol. 59 no. 32, February 16, 1994.

DOT Order on Environmental Justice to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order 5610.2(a)); May 2, 2012.

FHWA, Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, (Order 6640.23A); June 14, 2012

FTA Circular 4703.1, Environmental Justice Policy Guidance for Federal Transit Administration Recipients, August 15, 2012

ODOT Guidance and Best Practices for Incorporating Environmental Justice into Ohio Transportation Planning and Environmental Processes, June 2016

Title VI Requirements in Metropolitan and Statewide Planning

Title VI of the 1964 Civil Rights Act

Title 23 of the U.S. Code (U.S.C.), Section 109(h)

Title 49 of the U.S. Code of Federal Regulations, part 21 (Department of Transportation Regulations for the implementation of Title VI of the Civil Rights Act of 1964

The Americans with Disabilities Act (ADA) of 1990, as amended

Title 29 of the U.S. Code of Federal Regulations, part 1605.1

Ohio Administrative Code § 123:1-49-02

Ohio Revised Code § 4112.02

APPENDIX D ENVIRONMENTAL MITIGATION

ENVIRONMENTAL MITIGATION IN FAST ACT

The Fixing America's Surface Transportation Act (FAST Act) requires the U.S. Department of Transportation (USDOT) and other Federal agencies of jurisdiction likely to have substantive review or approval responsibilities on transportation projects to develop a checklist to help project sponsors identify potential natural, cultural, and historic resources in the area of a proposed project. The checklist is intended to generally help project sponsors with the following: (1) identify agencies of jurisdiction and cooperating agencies; (2) develop the information needed for the purpose and need and alternatives for analysis; and (3) improve interagency collaboration to help expedite the permitting process for the lead agency and agencies of jurisdiction.

The final metropolitan transportation planning rule was issued on May 27, 2016 by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) in order to update the regulations governing the development of metropolitan transportation plans and programs for urbanized areas, long-range statewide transportation plans and programs, and the congestion management process. The rule states "metropolitan transportation plans shall include a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the metropolitan Transportation Plan. The discussion shall be developed in consultation with Federal, State, and Tribal land management, wildlife, and regulatory agencies."

Categories of resources that a proposed project may impact include: (1) water resources and wetlands; (2) wildlife and plant communities; (3) historic and cultural resources; (4) social and economic impacts; (5) hazardous and other contaminated materials; (6) greenhouse gas emissions and climate change; (7) noise and vibration; (8) storm water; and (9) parkland.

PROCESS OVERVIEW

Transportation projects can have potential impacts on environmental resources near a project area. The recommendations in *Transportation Outlook 2040 (TO2040)* are eligible for federal transportation funds. All proposed federally funded projects are subject to federal environmental laws and rules including the National Environmental Policy Act (NEPA), Endangered Species Act, Fish and Wildlife Coordination Act, and the Clean Water Act. These projects must undergo studies to determine the degree and impact they may have on the natural environment, whether it is new construction projects or maintenance activities. When improving and expanding transportation infrastructure in the AMATS area, the goal is to protect and sustain manmade and natural environments in communities and take into account the impacts on the surrounding environment.

Environmental mitigation involves activities that, over time, will serve to avoid, minimize, or compensate for by replacing or providing substitute resources. To "mitigate" means to make less harsh or hostile. The environmental mitigation includes an overview of potential environmental impacts about the types of actions that may be needed to guard against or reduce those impacts.

The discussion of potential mitigation activities is the basis for considering the cumulative impacts of the recommended projects during the planning process. These projects will be managed by or completed by a local jurisdiction under the supervision of the Ohio Department of Transportation (ODOT). Using guidance and databases from ODOT's Office of Environmental Services (OES) as a starting point, the recommendations in *TO2040* were analyzed for potential environmental impacts using GIS overlay maps.

Mitigation techniques for various types of environmental effects are also discussed along with any applicable local mitigation resources. Many of the recommendations in this plan adjoin sensitive environmental resources. Precise assessments of potential environmental impacts cannot be made until project details are further refined. Agencies seeking to sponsor projects in this plan

should analyze the potential environmental implications as early as possible prior to moving into future stages of project development.

Use of best management practices, environmentally sensitive project design, adequate notice to environmental agencies, and adherence to applicable regulations should address most of these potential impacts through avoidance and mitigation strategies that allow beneficial infrastructure improvements while protecting valuable natural resources.

ENVIRONMENTAL RESOURCES FOR MITIGATION

Water Resources and Wetlands

The region includes numerous streams and rivers, lakes, reservoirs, and wetlands. The Upper Cuyahoga River is a designated State Scenic River that runs through the AMATS area and extends from State Route 14 in Portage County to the north end at the Troy-Burton Township line in Geauga County. The two major rivers in the region are the Cuyahoga and the Tuscarawas. The region's water resources are shown on Map D-1.

Wildlife and Plant Communities

Many endangered species that receive federal or state protection are tied closely to their habitats. Land use changes have been the most common cause for decline in species range and diversity. Contamination and degradation of natural waters has also contributed to loss of habitat. Ohio law allows the Ohio Department of Natural Resources (ODNR) Division of Wildlife, to adopt rules restricting the taking or possessing of native wildlife threatened with statewide extirpation and to develop and periodically update a list of endangered species as required by Ohio Revised Code 1531.25. The ODNR uses six categories: endangered, threatened, species of concern, special interest, extirpated, and extinct, to further define the status of selected wildlife. The plan addresses the first two categories of which a specific survey is often undertaken if a threatened or endangered species is suspected of existing within the project area.

Endangered – A native species or subspecies threatened with extirpation from the state. The danger may result from one or more causes, such as habitat loss, pollution, predation, interspecific competition, or disease.

Threatened – A species of subspecies whose survival in Ohio is not in immediate jeopardy, but to which a threat exists. Continued or increased stress will result in its becoming endangered.

Species of Concern – A species or subspecies which might become threatened in Ohio under continued or increased stress. Also, a species or subspecies for which there is some concern, but for which information is insufficient to permit an adequate status evaluation. This category may contain species designated as a furbearer or game species, but whose statewide population is dependent on the quality and/or quantity of habitat and is not adversely impacted by regulated harvest.

The region's ecosystem supports endangered and threatened plant and wildlife species such as the Northern Monkshood, Prairie Fringed Orchid, American Bittern, Indiana Bat, Sandhill Crane, Spotted Turtle and eight other federal and state species. These species are identified in the table below and shown in photos on the following pages.

MAP D-1

WATER RESOURCES AND WETLANDS

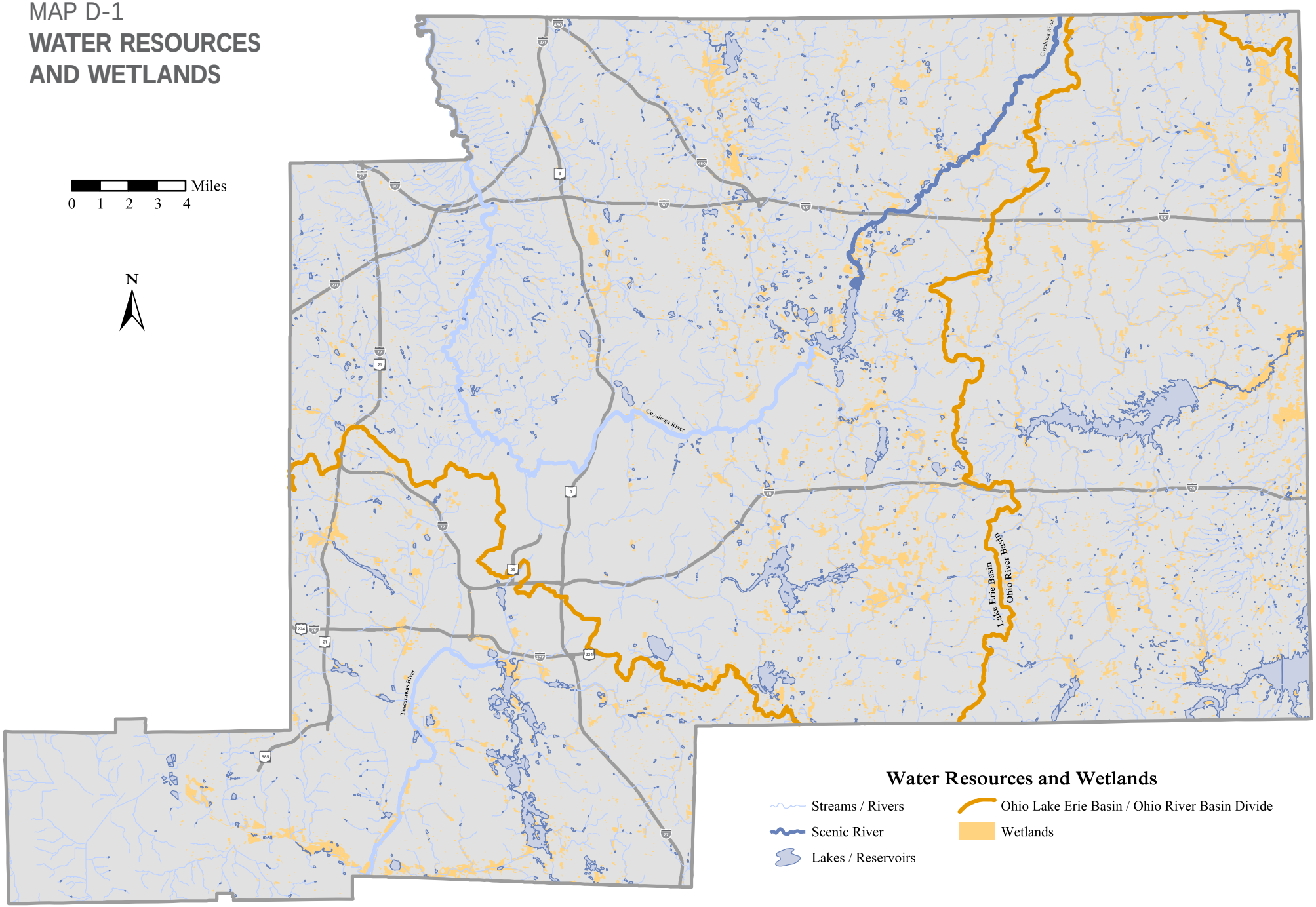


TABLE 1

THREATENED AND ENDANGERED SPECIES

Listed Species	Scientific Name	Status	Summit	Portage	Wayne
Plants					
Northern Monkshood	*Aconitum noveboracense*	Threatened	x	x	
Prairie Fringed Orchid	*Plantanthera leucophaea*	Threatened			x
Wildlife					
American Bittern	*Botaurus lentiginosus*	Endangered	x	x	x
Bald Eagle	*Haliaeetus leucocephalus*	Concern	x	x	x
Eastern Massasauga Rattlesnake	*Sistrurus catenatus*	Threatened		x	x
Indiana Bat	*Myotis sodalis*	Endangered	x	x	x
Mitchell's Satyr Butterfly	*Neonympha mitchellii mitchellii*	Endangered		x	
Northern Harrier	*Circus cyaneus*	Endangered		x	
Northern Long-Eared Bat	*Myotis septentrionalis*	Threatened	x	x	x
Sandhill Crane	*Grus canadensis*	Endangered			x
Smooth Green Snake	*Opheodrys vernalis*	Endangered		x	x
Spotted Turtle	*Clemmys guttata*	Threatened	x	x	
Trumpeter Swan	*Cygnus buccinator*	Threatened			x
Upland Sandpiper	*Bartramia longicauda*	Endangered		x	

Source: US Fish and Wildlife Service, April 2016 *www.fws.gov/midwest/Endangered/lists/ohio*

ODNR, January 2016 *ODOT's Technical Guidance: Guidelines for Identifying and Documenting Potentially Suitable Habitat and Impacts to State Listed Species within Ohio Department of Transportation (ODOT) Project Areas*

Plants

Northern Monkshood

Prairie Fringed Orchid

Wildlife

American Bittern

Bald Eagle

Eastern Massauga Rattlesnake

Indiana Bat

Mitchell's Satyr Butterfly

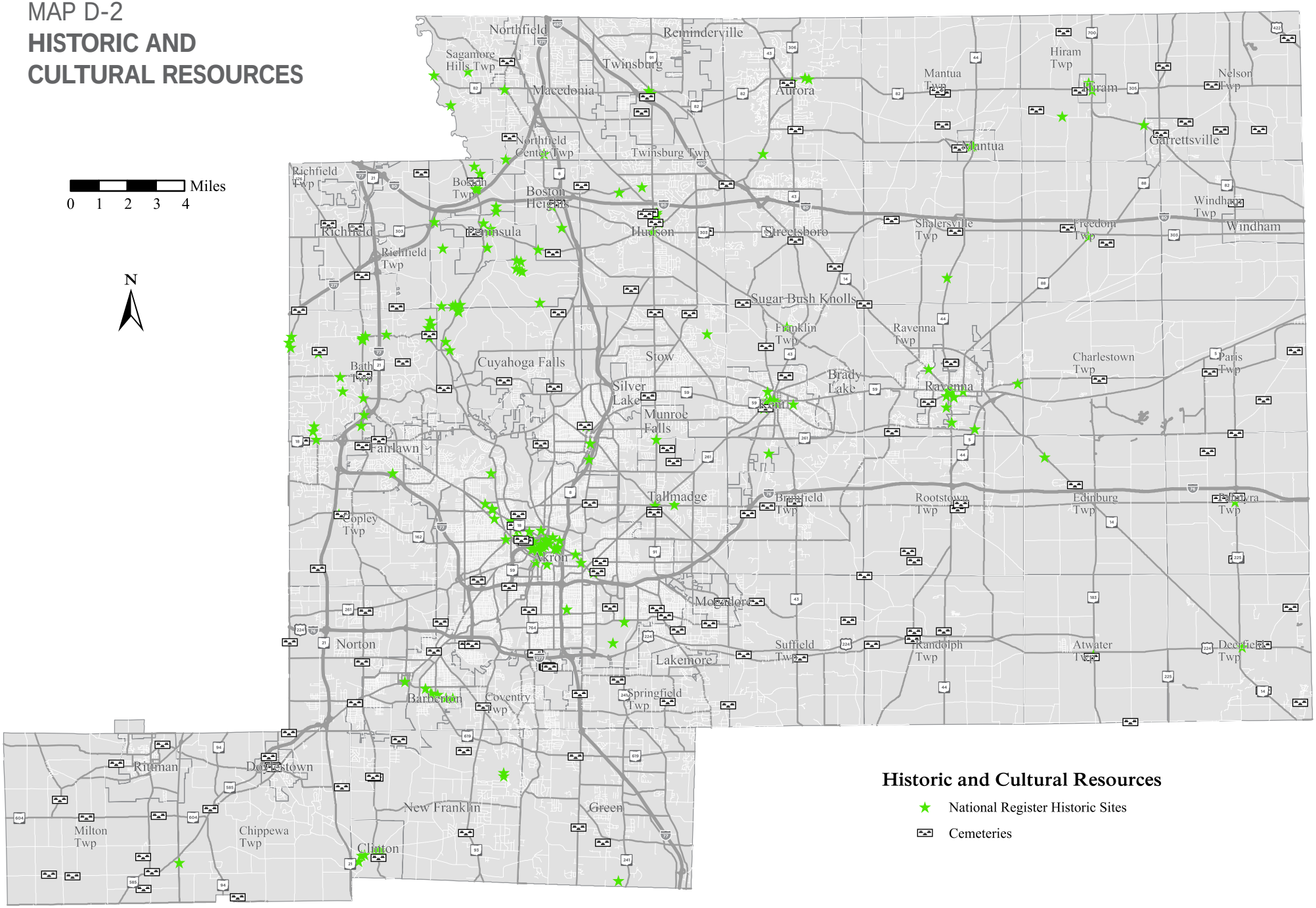
Northern Harrier

Historic and Cultural Resources

Historic and cultural resource reviews for all federal and state funded projects in the AMATS area are planned and designed to comply with National Environmental Policy Act (NEPA), the National Historic Preservation Act, Section 4(f) of the Department of Transportation Act, the Ohio Revised Code, and 36 CFR Part 800 (the implementing regulations for Section 106 of the National Historic Preservation Act). These resources include National Register historic sites, cultural and archaeological sites, or cemeteries. Historic sites are spread throughout the region with the greatest concentration in the urban areas of Akron, Hudson, Kent, and Ravenna. These sites are important to our communities and heritage. The region's National Register Historic sites and cemeteries are shown on Map D-2.

MAP D-2

HISTORIC AND CULTURAL RESOURCES



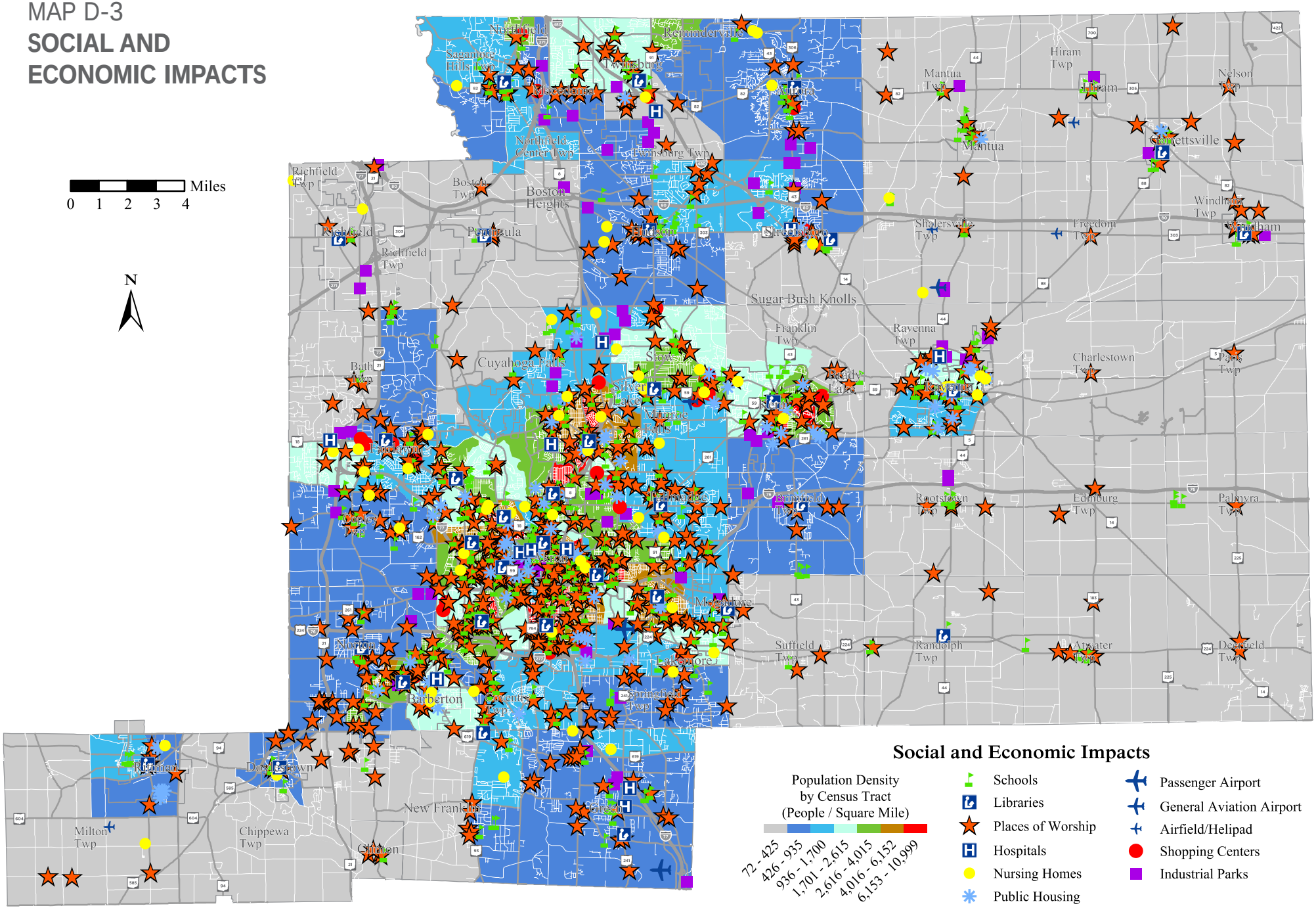
Social and Economic Impacts

Transportation projects frequently affect the social and economic environment and may change the physical layout, demographics, and sense of place in local communities. These impacts should be addressed in an economic impact analysis included in environmental documentation for transportation projects. Community impacts to consider include hospitals, places of worship, nursing homes, public housing, schools, libraries, industrial areas and shopping centers.

Project sponsors should work with local planning agencies and conduct public outreach to determine the impacts a proposed project may have on communities and identify methods to avoid, minimize, and mitigate impacts. Specific impacts may include: physical and psychological barriers, changes in land use patterns, substantial displacement of businesses and individuals, disruption of business activities, circulation patterns and access to services, changes in population densities, effects on neighborhood cohesiveness, and influence on regional construction costs. Map D-3 identifies the region's community facilities.

MAP D-3

SOCIAL AND ECONOMIC IMPACTS



Hazardous and other Contaminated Material

Hazardous waste sites which may affect transportation projects primarily in the acquisition of right-of-way should be identified early during the project development process. Financial liability for contaminated property as well as significant need for cleanup may adversely affect the financial feasibility of a project. General construction delays and increased costs often result from unexpected encounters of contamination. Delays are typically caused by segregating and containing contaminants, coordinating sample collection, waiting for laboratory results and coordinating haul and disposal. Increased costs result from payments to the contractor during delay, laboratory charges, and expensive disposal fees.

Environmental site assessment (ESA) investigations are generally conducted to identify known or potential hazardous waste sources in order to explore alternatives in avoiding the site. If the site cannot be avoided, an assessment including sampling should be conducted.

Before regulations were enacted, hazardous wastes were often left in the open, where they seeped into the ground, flowed into rivers and lakes, and contaminated soil and groundwater. Where these practices were intensive or continuous, there were uncontrolled or abandoned hazardous waste sites.

Superfund is a program administered by the United States Environmental Protection Agency (USEPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. Superfund is also known as the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) that was passed in 1980. The purpose of CERCLA is to identify sites where hazardous materials threaten the environment and or public health as a result of leakage, spillage, or general mismanagement, and then to identify the responsible party. The next job-at-hand is cleanup. These sites are referred to as Superfund sites. CERCLA authorizes Superfund cleanup responses in two ways: short-term removal and long-term remedial action. The responsibilities and powers of CERCLA overlap with the Resource Conservation and Recovery Act (RCRA), the Clean Water Act, and the Safe Drinking Water Act. CERCLA and RCRA share jurisdiction with respect to hazardous materials and underground storage tanks containing petroleum products.

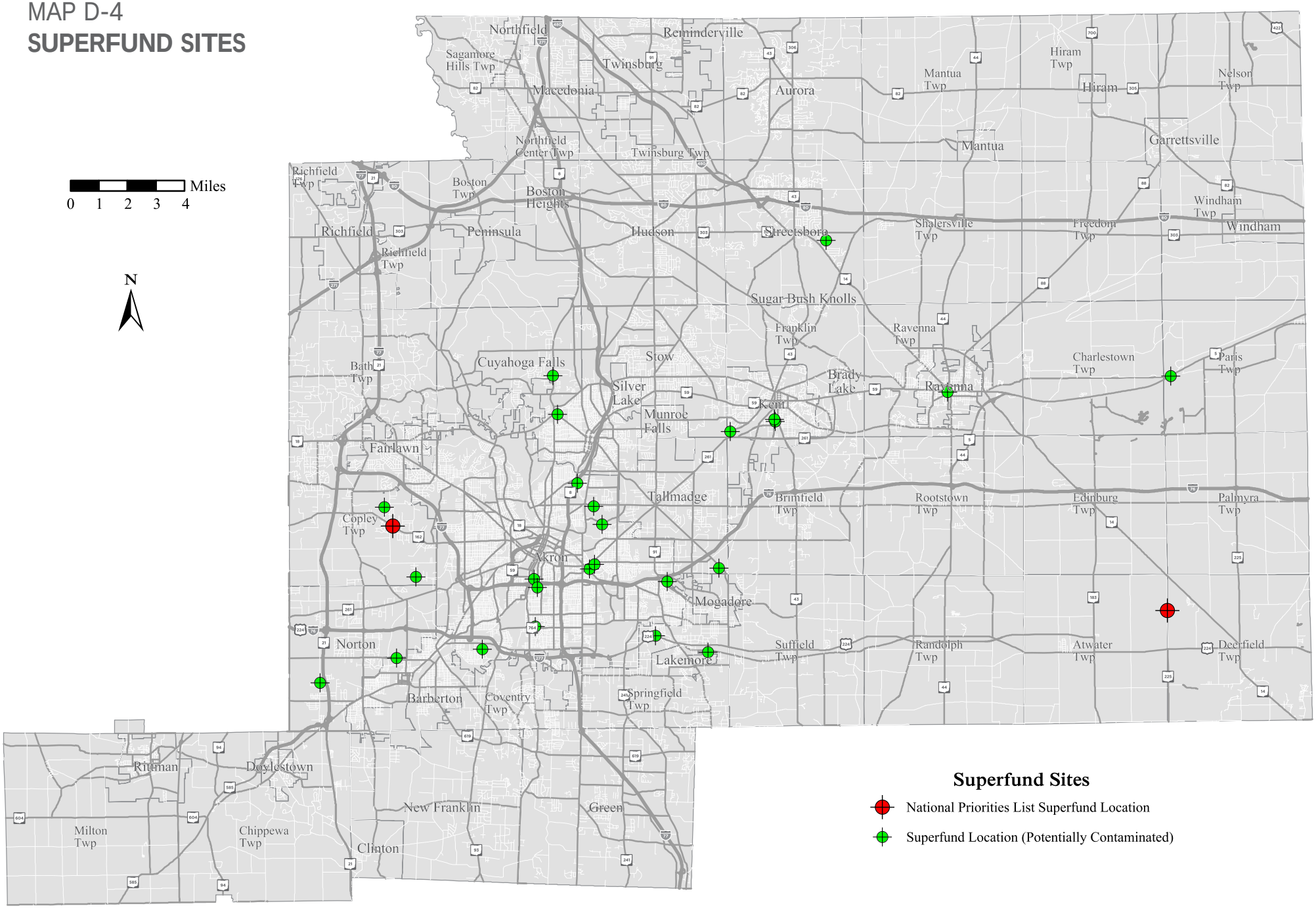
Superfund cleanup is a complex process that involves taking steps to assess sites using the Hazard Ranking System (HRS), which determines the likely level of threat to human health and the environment upon initial investigation. High-ranking projects for cleanup can be conducted only at sites listed on EPA's National Priorities List (NPL), which allows application for environmental cleanup funds. Superfund also identifies non-NPL sites that are potentially contaminated with known or suspected releases of hazardous substances. At non-NPL sites, USEPA can also take shorter-term cleanup actions under the emergency removal program.

Superfund data can be retrieved from the Superfund Enterprise Management System (SEMS) database, formerly the CERCLIS public access database that was retired in 2014. SEMS includes the same data fields and content as CERCLIS. Additional information on SEMS is available at USEPA Envirofacts: *www.epa.gov/enviro/*.

The AMATS area identifies two NPL Superfund sites and 25 non-NPL sites. Table 2 provides a summary of the NPL locations and non-NPL sites that are potentially contaminated with hazardous waste. The Superfund sites are also shown on Map D-4.

MAP D-4

SUPERFUND SITES



NPL Sites Profile

Summit National – This 15-acre site in Deerfield Township, Portage County, is located on a former coal strip mine containing a coal wash pond and stockpile. From 1974 to 1978, the site was used as a waste disposal facility and received waste including oil, resin, paint and metal plating sludge, and flammable and chlorinated solvents. Two surface water ponds and an incinerator were also located on-site. The ground water, soil and surface water were contaminated with PCBs, volatile organic compounds, phenols, phthalates, and heavy metals.

About 4,500 people live within three miles of Summit National. Surface water flows from the site to the Berlin Lake Reservoir which is a standby water supply for the city of Youngstown. Referred to as the Summit National Trust, about 75 companies have paid for and completed various cleanup actions since 1994.

Copley Square Plaza – This Superfund site is located in Copley Township, Summit County. Investigations found volatile organic compounds were contaminating groundwater, with a former dry cleaning business as the likely source of groundwater contamination. EPA tested nearby homes, installed water treatment systems in seven homes with contaminated wells, closed eight wastewater tanks at the dry cleaners, and installed a system to treat the groundwater. Ohio EPA maintained the water treatment systems until the fall of 2012, when 23 homes were connected to the public water supply.

TABLE 2

SUPERFUND SITES

Site Name	*Address*	*Location*	*Non-NPL*	*NPL*
PORTAGE CO.				
Holden School Vapor Intrusion	132 West School St	Kent	x	
Jerry's Professional Quality Cleaners	1002 Franklin Ave	Kent	x	
Ravenna Army Ammunition Plant	8451 State Rt 5	Ravenna	x	
Ravenna Fire Department Mercury Spill	220 Park Way	Ravenna	x	
Streetsboro High School	1900 Annalane Dr	Streetsboro	x	
Summit National	1240 Alliance Rd	Deerfield Twp		x
Tompkin's Corp	1313 Middlebury Rd	Kent	x	
SUMMIT CO.				
American Freight Systems Inc.	2640 Gilchrist Rd	Akron	x	
Anaconda Avenue Georgeoff Site	18 Anaconda	Akron	x	
Bessie Williams Landfill	2020 Knox Blvd	Copley	x	
Copley Square Plaza - Danton Cleaners	2777 and 2799 Copley Rd	Copley		x
Corwin Road Mercury Spill	975 Corwin Ave	Akron	x	
Hanna Chemical	680 Miami St	Akron	x	
Laird Avenue Mercury Spill	1146 Laird Ave	Akron	x	
Lillis Drive Plume	Lillis Dr and Portage Trail	Cuyahoga Falls	x	
Midwest Rubber Custom Mixing Corp	745 Norton	Barberton	x	
Novacor Chemical Inc aka Polysar Plastic	1122 Jacoby Rd	Copley	x	
Ohio Tank Pro	4475 South Hametown Rd	Norton	x	
Sage Avenue Mercury Spill	112 Sage Ave	Akron	x	
Sam Winer Motors	3417 East Waterloo Rd	Akron	x	
Sav Mor Supply Co	346 Morgan Ave	Akron	x	
Southeast Ave Mercury Spill	1596 Southeast Ave	Tallmadge	x	
State Road Mercury Spill	3566 State Rd	Cuyahoga Falls	x	
Summit Co Jail Mercury Spill	205 E Crosier St	Akron	x	
Summit Equipment & Supplies	875 Ivor Ave	Akron	x	
T P Long Chem Inc	1092 Evans Ave	Akron	x	
Tri-State Plating	183 North Case Ave	Akron	x	

Source: *www.epa.gov/enviro/*

Non-NPL - Sites potentially contaminated under National Priorities List

NPL - Sites on National Priorities List

Greenhouse Gas Emissions and Climate Change

The effect of greenhouse gas emissions (GHG) and climate change on the environment is a major consideration in transportation planning for the AMATS area. Issues such as weather extremes and increasing temperatures in various regions may change the road network that could eventually require strategic adaptation planning to respond to the impacts.

While transportation is a significant contributor of GHGs, there are opportunities for the sector to deliver greenhouse gas reductions. Low carbon fuels, new and improved vehicle technologies, strategies to reduce the number of vehicle miles traveled, and operating vehicles more efficiently are all approaches to reducing GHGs from transportation. In combination, these strategies can reduce transportation-related emissions significantly.

Climate Change

AMATS is working closely with officials throughout the state and at the federal level in order to prepare for climate change impacts on the regional transportation system. The AMATS area is making an effort by considering bicycle, pedestrian and transit recommendations. Park and ride lots and the Ohio Rideshare Program will also aid in reducing GHGs through carpooling. Ohio Rideshare is a cooperative service offered by AMATS, the Eastgate Regional Council of Governments (EASTGATE), and the Northeast Ohio Areawide Coordinating Agency (NOACA). Ohio Rideshare gives residents from 13 counties in Northeast Ohio the ability to identify potential carpool partners quickly and securely. Best management practices designed to infiltrate storm water such as bioswales, permeable pavement, and reducing curb-and-gutter, are additional techniques that can help protect the environment and transportation infrastructure from disaster.

Air Quality

Individual vehicle trips may seem insignificant, but their cumulative effect is a major determinant in the region's air quality. Air quality conformity demonstrates that the transportation programs in the region conform to applicable air quality standards. As the USEPA continues to tighten the current ozone and fine particulate matter ($PM_{2.5}$) standards, the region may be required to implement more control measures on ozone and $PM_{2.5}$. While more controls may be necessary, much of the area's pollution originates outside the area and is carried by wind patterns into the region. AMATS will continue to monitor air quality issues and push for more statewide controls, as opposed to attainment area controls.

AMATS participates in the region's Ozone Action Day Program in partnership with NOACA, the Akron Regional Air Quality Management District, the Cleveland Division of Environment, Lake County General Health District, USEPA, and Ohio EPA to inform the public about the problem of ground-level ozone pollution. The Ozone Action Day Program informs Northeast Ohio residents when ozone pollution reaches unhealthy levels.

Green Infrastructure

Green infrastructure is an approach to water management that protects, restores, or mimics the natural water cycle by reducing peak flows to streets and storm sewers. AMATS encourages the use of green infrastructure to reduce potential negative impacts of storm water runoff such as rain gardens, permeable pavements, green roofs, infiltration planters, trees, and rainwater harvesting systems.

Noise and Vibration

Studies have shown that some of the most pervasive sources of noise in our environment are those associated with transportation. Residences and businesses often are faced with increased highway traffic noise, both from newly constructed highways and from highways that are already in place.

Transportation projects that could result in substantially increased noise levels nearby are required by federal and state regulations to consider attenuating the increased noise. Environmental studies during project development may need to consider noise abatement to protect specific properties known as "sensitive receptors." These include residences, schools, hospitals, libraries, etc. within screening distance of a project area.

There are several methods to reduce highway noise. These include vehicle noise control, noise compatible planning, traffic management techniques, alteration of a roadway's horizontal or vertical alignment, and acquisition of property or property rights to create buffer zones, vegetation planting, installing noise insulation in public or nonprofit institutional buildings, or the construction of noise barriers. Noise abatement measures are discussed further in the next section.

Storm Water

The impacts of storm water upon transportation projects may need to be assessed in further stages of project development. Storm water runoff occurs when precipitation from rain or snowmelt flows over the ground that can pick up debris, chemicals, dirt, and other pollutants. This material flows into a storm sewer system or directly to a lake, stream, river, or wetland. Impervious surfaces like driveways, sidewalks, and streets prevent storm water runoff from naturally soaking into the ground. Anything that enters a storm sewer system is discharged untreated into waterbodies used for swimming, fishing, and providing drinking water.

The city of Akron has developed an initiative to address combined sewer overflows (CSOs), named Akron Waterways Renewed! This project broke ground in late 2014 for the first in a series of sewer projects that will become the largest single investment in city infrastructure in Akron's 190 year history. The Cascade Village Storage Basin is the first project in the new construction initiative that will address the City's Combined Sewer Overflows (CSOs), with the potential to restore Akron waterways and the health of its environment and the protection of its water to a level not seen in six generations.
In December 2013, the city of Akron began taking advantage of new USEPA policies that allow cities to develop an "Integrated Plan." The Integrated Plan is intended to help prioritize and re-evaluate the extensive capital investments that the city needs to make to its wastewater and stormwater systems over the next several years. The largest costs are associated with a federal Consent Decree and the city's CSO Long-Term Control Plan (LTCP) that requires the city to implement substantial upgrades to the city's combined sewer system and Water Pollution Control Station (WPCS). In order to help offset the cost of implementing the LTCP Projects and the additional costs associated with the city's wastewater and storm water systems, the City must integrate and prioritize all of the wastewater and storm costs, and simultaneously develop and implement sustainable and cost-saving solutions, such as green infrastructure elements, in-line storage and increased conveyance.

As the conditions of Akron's waterways continue to improve, the return of wildlife has been evident as not seen in the area for some time. The most noticeable example of this is the resurgence of the Great Blue Heron along the Cuyahoga River. These magnificent four-foot-tall wading birds nest in the Cuyahoga Valley National Park. The Great Blue Heron Viewing Area, located on West Bath Road in the Merriman Valley, gives the public an opportunity to view the heron, which nests from February through May.

Storm water management should be incorporated into the construction phase of a project to prevent the direct runoff of water containing sediment into waterways and reduce sediment entering the storm drainage system.

Parkland

The AMATS area is home to the Cuyahoga Valley National Park in Summit County, several state and local parks, and wildlife and waterfowl preserves. The state parks in Portage County include Nelson Ledges, Tinkers Creek, and West Branch. Summit County contains the Portage Lakes State Park as well as several nature preserves. These resources are referred to as Section 4(f) properties of the USDOT and apply to transportation projects that receive federal funding.

Section 4(f) protects publicly owned parks, recreational lands, wildlife and waterfowl refuges, and public or privately owned historic sites listed or eligible for listing on the National Register of Historic Places from adverse impacts

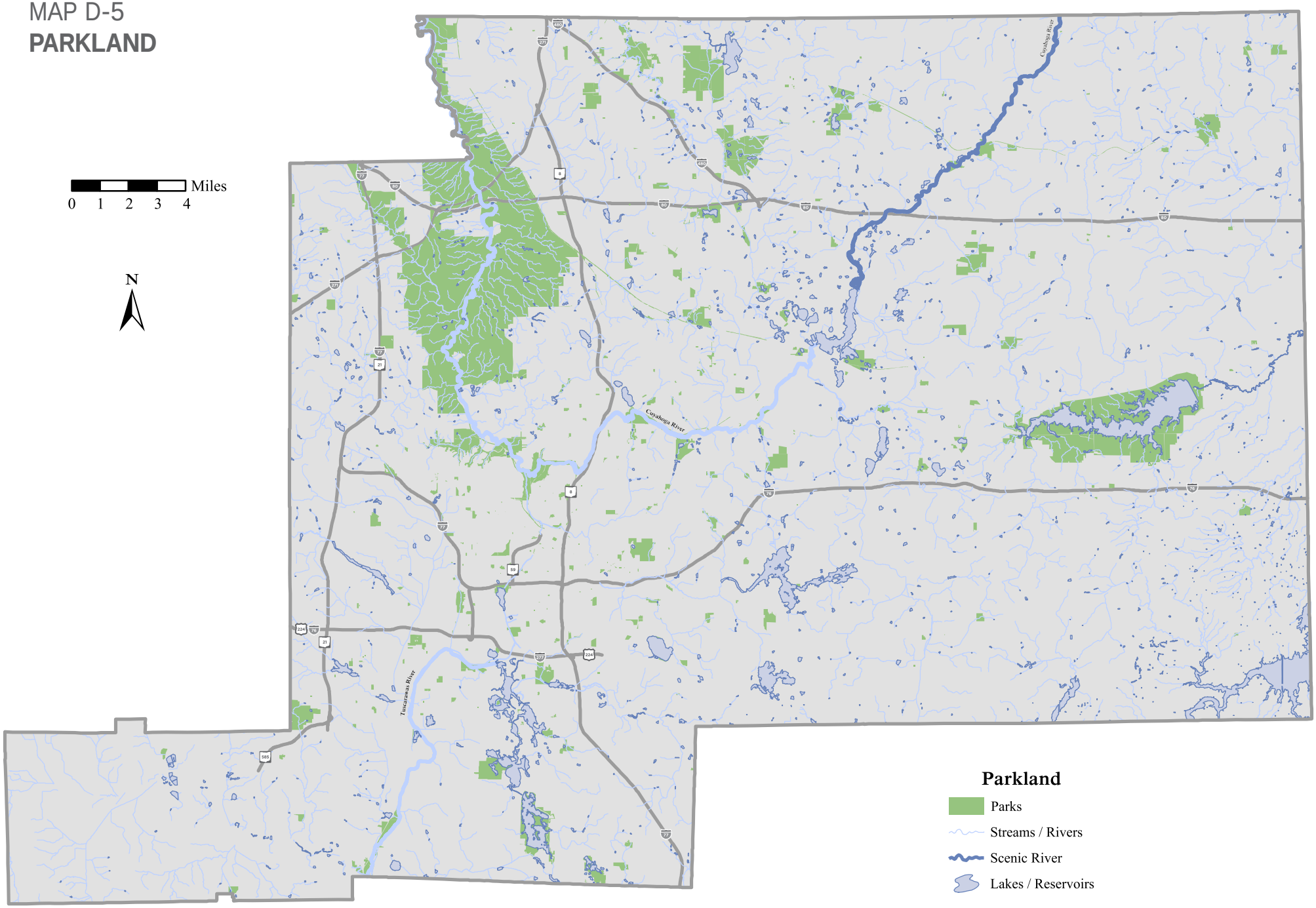
resulting from the construction of federally funded transportation facilities. The law is implemented by the FHWA through the regulation 23 CFR 774.

Use of a Section 4(f) property occurs: (1) when land is permanently incorporated into a transportation facility; or (2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose; or (3) when there is a constructive use (a project's proximity impacts are so severe that the protected activities, features, or attributes of a property are substantially impaired). The regulation lists various exceptions and limitations applicable to this general definition.

It is important to identify Section 4(f) properties as early as practicable in the planning and project development process in order that complete avoidance of the protected resources is given full and fair consideration. Map D-5 identifies the region's parkland.

MAP D-5

PARKLAND



ENVIRONMENTAL MITIGATION ACTIVITIES

The section below discusses general mitigation strategies for transportation plans that are not project specific. FAST Act requires that the Regional Transportation Plan contain a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities. Mitigation measures are intended to help public officials make decisions about the environmental consequences with its transportation projects and related planning and to take actions that protect, restore and enhance the environment.

Environmental mitigation guidelines provide a framework to address environmental impacts of the recommendations in *TO2040*, while implementing the goals and policies of the plan. A detailed assessment of individual projects in future stages of development may emphasize the importance of certain mitigation efforts where needed. It is the policy of AMATS to require that all federally funded projects comply with applicable environmental rules as a condition to receiving funding.

Mitigation activities should involve the following measures:

- **Avoid** the impact altogether by not taking a certain action or parts of an action
- **Minimize** impacts by limiting the degree or magnitude of the action and its implementation
- **Rectify** the impact by repairing, rehabilitating, or restoring the affected environment
- **Reduce or eliminate** the impact over time by preservation and maintenance operations during the life of the action
- **Compensate** for the impact by replacing or providing substitute resources or environments

Additional information about strategies to reduce impacts where transportation and sensitive lands intersect and also encourages smart land use strategies that maximize the existing system is available on the websites below. Both provide examples of context-sensitive solutions (CSS) as a way to develop transportation facilities that fit their physical setting and preserve scenic, historic, and environmental resources, while maintaining safety and mobility.

ODOT's *Guidance on Indirect Effects and Cumulative Impacts Analyses (August 2014):*
www.dot.state.oh.us/Divisions/Planning/Environment/NEPA_policy_issues/Pages/ICE.aspx

FHWA's *Context Sensitive Solutions strategic planning process:*
www.contextsensitivesolutions.org/

Water Resources and Wetlands Mitigation

Lakes, rivers and streams are an integral part of the ecosystem and regional watersheds. They provide a link between land and water resources, curb flooding by slowing down and absorbing excess rainwater, and provide a habitat for numerous plants and animals.
Wetlands are low-lying areas where the water table stands near, at, or above the land surface for at least part of the year. This results in specialized wet soil types and water dependent plants. Wetlands also provide important habitat for many plants and animals.

The ODOT-Office of Environmental Services (OES) in cooperation with ODOT districts and project consultants coordinate to develop all stream and wetland mitigation projects. The general procedures for establishing required mitigation for water resources and wetlands begins with a determination of mitigation needs. The Ecological Survey Report (ESR) documents these potential project impacts. An analysis of potential mitigation opportunities would be performed within one mile of the project area. A preferred plan of action for mitigation is next developed where conservation easements are procured.

Once construction of the mitigation project begins, monitoring and post-construction monitoring is performed by ODOT to assure successful development and to meet waterway permit conditions.

Wetland mitigation measures may include mitigation banking, stream and wetland creation, restoration, or preservation, and possibly even preservation of upland buffer adjacent to stream and wetland resources. Wetland mitigation banking is a process that helps limit negative impacts to wetland resources. Banking can be used when affected wetlands cannot be preserved, allowing for the restoration, creation, or enhancement of wetlands or other aquatic resources at a different location as compensation.

Wildlife and Plant Communities Mitigation

Many species of animal and plant life that receive federal or state protection are tied closely to their habitats. Land use change has been the most common cause for decline in species range and diversity. Contamination and degradation of natural waters has also contributed to loss of habitat.

The Endangered Species Act and Ohio Revised Code are the specific federal and state legislation that provide for the protection and conservation of plants and animals within Ohio. The laws dictate that ODOT will build and operate their roadway projects with no, or minimal impacts to protected species and their habitats.

There are a variety of mitigation techniques that can be used to protect listed species. Common mitigation options available for projects include:

- Restrict the clearing of trees to the period between September 15 and April 15 to avoid potential impacts to roosting Indiana bats
- Prevent the disturbance of Indiana bats from blasting activities near sensitive areas
- Survey to identify the presence or absence of endangered animal and plant species near construction areas
- Preserve habitat through an acquisition or a conservation easement
- Enhance or restore degraded or former habitat
- Establishing buffer areas around existing habitat
- Restrict access to habitat
- Create new habitat
- Modify land use practices
- Include construction and post construction plan notes requiring adherence to ODOT's Construction and Material Specifications for Sedimentation and Erosion Control

Historic and Cultural Resources Mitigation

Cultural resources in the AMATS area are primarily concentrated in Akron, Hudson, Kent and Ravenna. There are a number of individual historic buildings in the region with noticeable clusters centered in the older downtowns. Older transportation structures, such as canals and railroad and highway bridges, are also part of the history of the region. Consultation with various entities including the FHWA, the State Historic Preservation Office (SHPO), the Advisory Council on Historic Preservation (ACHP), city historic preservation offices, local public officials, local organizations, and the public is required during the project development process.

A mitigation plan is developed with stakeholders through the Section 106 Memorandum of Agreement (MOA) consultation process in order to mitigate adverse effects to historic properties impacted by projects. Measures vary depending on the projected impact and may include aesthetic treatments, avoidance, archaeological data recovery, salvage/re-use of historic materials and other methods. Measures must be completed and accounted for with SHPO and FHWA.

Hazardous and other Contaminated Material Mitigation

Transportation projects typically have a positive impact on the environment where hazardous waste sites are identified because the project work typically removes and properly disposes of USTs, contaminated soil, and contaminated groundwater. This removes contamination that might otherwise have remained in the environment and continued to migrate, which leads to an improvement in environmental quality and an increase in economic development.

Hazardous materials investigations should be conducted early in the project development phase to identify known or suspected contaminated sites within a project corridor. The ODOT Environmental Site Assessment (ESA) unit provides guidance and technical assistance to environmental consultants for transportation projects impacted by environmental concerns that enable efficient work with the least amount of impact to construction schedule and budget as possible. Services include site investigations, negotiating and interacting with USEPA and Ohio EPA, providing technical assistance in selecting remedial alternatives and providing guidance during their implementation.

Site investigations allow ODOT staff to determine how to avoid, minimize or rectify potential construction impacts and to make informed decisions regarding planning, acquisition, design, and/or construction options. The environmental reports often indicate the type and severity of contaminants in the area. Hazardous materials investigations and environmental reports

include, but are not limited to:

- Hazardous Material Discipline Reports (historical and record investigation)
- Site Reconnaissance/Windshield Surveys
- Phase I Environmental Site Assessment (ESA) – historical and record investigation
- Phase II ESA (sampling)
- Phase III ESA (remedial investigation/feasibility study) – evaluates cleanup options and costs
- UST and/or aboveground storage tank (AST) Closure Reports

Mitigation measures are actions taken prior to and during construction to avoid or reduce the hazardous material impact. Mitigation measures prevent or reduce environmental impacts, minimize construction costs, and avoid or reduce ODOT's future long-term cleanup costs associated with managing, remediation, and monitoring work. Mitigation for general hazardous materials impacts may include:

- Proper pre-construction planning to define the areas, as well as training should be conducted for projects likely to encounter contamination
- Environmental site assessment screenings and other required assessments will be conducted on a project-by-project basis
- Alternative construction design should be used to minimize or avoid contaminated areas such as different footing designs that can lessen the area and depth of excavation to minimize the quantity of wasted soil generated
- Unavoidable encroachment on an identified hazardous site will be mitigated according to all applicable federal, state, and local requirements

Noise and Vibration Mitigation

Mitigating transportation noise in the environment is important for the health and welfare of the surrounding community. Increased traffic volumes result in higher levels of traffic noise for residents of adjacent neighborhoods and numerous studies have demonstrated the effect of noise on the health of people under its impact. Prolonged exposure to noise in excess of 75 dBA (deciBels Adjusted) may initiate hearing loss. Levels of highway traffic noise typically range from 70 to 80 dBA at a distance of 50 feet from the highway.

Noise from transportation sources in the surrounding community depends on a number of factors. Among these factors are the number of heavy trucks in the mix, the proximity of the receiver to the traffic, the speed of the traffic and the nature of the intervening terrain.

Noise analysis and abatement that apply to highway construction projects are required and conducted in compliance with 23 CFR 772 Procedures for Abatement of Highway Traffic Noise and Construction Noise. Regulations set forth by ODOT and the FHWA require a noise analysis review for Type I and Type II projects. A Type I project refers to projects that include Federal funding for construction of highways on a new location or the alteration of an existing highway resulting in substantial change in either alignment or the number of through-traffic lanes. A Type II project refers to voluntary projects where noise abatement is investigated due to high average noise levels at a given location, for residential units that were in existence prior to the construction of the highway. Type II projects are currently funded by ODOT from regular project funds without federal assistance.

Several methods for reducing highway noise include:

Vehicle Noise Control - This involves restrictions on the speed and type of vehicles permitted to use a particular roadway. Prohibiting heavy trucks from using a road or providing strict limits on speed can greatly reduce noise from a road. This measure is not feasible for use in many projects as the purpose of an interstate highway is to move large volumes of traffic at high speeds. Restricting the type and speed of vehicles using the highway is counter to the purpose of the highway.

Alteration of horizontal and vertical alignments - Alignment of the road refers to the physical layout of the roadway. Placing the road at an elevated grade will typically result in greater noise than a road at grade or below grade.

Noise Compatible Land Use Planning - State and local governments are encouraged by the FHWA and other federal agencies to practice noise compatible land use planning near highways. Local governments should use their authority to

encourage development near highways in such a way that noise sensitive land uses are developed in areas away from the highway potentially eliminating the need for such abatement measures as noise barriers. This is a highly complex issue due to the numerous agencies involved and the various layers of legislative authority with control over land use issues.

Noise Barrier Construction – Noise barriers are solid obstructions built between the highway and adjacent land uses that block the path of sound between the source of the noise and the receiver and include noise walls, earthen berms, or vegetation. While earthen berms and vegetation have a natural appearance, they can require large amounts of land. Vegetation should be at least 100 feet dense and 30 feet tall to be effective in reducing traffic noise. Noise walls take less space, but are expensive, require maintenance, and can be visually displeasing. Noise barrier construction is considered reasonable if the construction cost is less than $35,000 per receiver.

Additional approaches for reducing noise from highway traffic include traffic management techniques such as restricting truck access and adjusting the timing of traffic signals, creating buffer zones and installing noise insulation in public or nonprofit institutional buildings.

Noise analysis and mitigation include a number of objectives that should be considered during the planning and design of a highway project:

1. Identify existing and potential noise sensitive areas within the project area
2. Demonstrate existing noise conditions through the use of computer modeling
3. Determine future noise levels and the impact of future noise levels on sensitive land use activities for the given design year
4. Incorporate reasonable and feasible noise mitigation measures into the highway project
5. Coordinate with local officials to provide helpful information on compatible land use planning and control
6. Address potential concerns for noise occurring during construction and mitigate when possible

Additional information about noise analysis requirements in transportation projects can be found at:
http://www.dot.state.oh.us/Divisions/Planning/Environment/NEPA_policy_issues/NOISE/Pages/default.aspx

Storm Water Mitigation

Transportation projects can often have impacts to storm water and may require mitigation measures is taken prior to construction and implementation of post-construction storm water practices. It is advised to involve Ohio EPA in the early planning of projects that have involvement related to storm water, wetlands, and stream corridors. The Ohio EPA assures that schedules can be maintained and that the permitting process starts early enough to align with construction schedules.

Various sources contribute pollutants to storm water runoff, including vehicle wear and tear, littering, construction and maintenance activities and atmospheric deposition. Storm water discharges are regulated by federal and state requirements, especially the Clean Water Act.

Highway storm water management systems include providing runoff treatment to meet water quality standards, recharging groundwater, preventing instream erosion and controlling the rate and duration of storm flows from the highway right-of-way. Planning of transportation projects involves avoiding and minimizing storm water and water quality impacts. Storm water runoff is usually addressed on a project-by-project basis, which may be nearly impossible at times. A watershed approach is another strategy that could be used to target specific storm water issues in a watershed and provide solutions. This strategy would include partnering with other agencies to achieve a broader water quality concern and to examine retrofit opportunities.

Best management practices that can be implemented during project design and construction include:

- Add temporary sediment and erosion controls during construction to limit the amount of sediment-laden runoff from construction sites. Examples include silt fence and sediment settling ponds.
- Minimize the extent and duration of exposed bare ground to prevent erosion.

- Establish permanent vegetative cover immediately after grading is complete.
- Avoid stockpiling materials within sensitive areas.
- Install permanent sedimentation control devices for storm water management after construction is complete. These controls are aimed at treating water quality by removing pollutants and treating water quantity by slowing down the path of storm water to a stream. Examples include specially designed ditches and structural treatment devices.

A few examples of ***mitigation activities*** that can be used to reduce environmental impacts from storm water runoff of roadways and facilities include:

Grass swales and filter strips – These are grasses and other vegetation that line a ditch or channel near impervious surfaces to capture storm water runoff and filter it into the ground. They are low cost storm water management activities that should be used where possible.

Detention basins and retention ponds – These are generally used in large residential or commercial development to capture large amounts of water temporarily and slowly filter it back into the ground.

Road sweepings – During and after construction activities, road sweeping can help clear debris, prevent tracking of sediment onto paved surfaces and reduce sediment entering the storm drainage system.

The city of Akron's sewer project is an example of a storm water mitigation measure in the region to eliminate much of the combined sewer overflows that empty into the Cuyahoga and Little Cuyahoga rivers and the Ohio & Erie Canal. Most of Akron's sewers were designed to carry both storm water and sanitary wastes in one pipe. During dry weather, all the sanitary sewage is transported to Akron's Water Reclamation Facility in Cuyahoga Valley off Akron-Peninsula Road. During a rain event, the storm water contribution exceeds the capacity of the combined sewer and the storm water, along with a small contribution of sanitary sewage overflows to the stream or river. These are called "Combined Sewer Overflows (CSOs)."

The city's CSO "Long Term Control Plan" will improve the sewer system by attempting to achieve zero untreated overflows in a typical year, thereby improving water quality in our streams and rivers. The largest single project that broke ground in November, 2015 is the construction of the 6,000 foot long Ohio Canal Interceptor Tunnel (OCIT). The OCIT will have a 27 foot finished inside diameter and will be 6,240 feet long. It begins at the Little Cuyahoga River north of the Mustill Store on the Ohio & Erie Canal Towpath and will extend to Lock 1 of the canal at West Exchange Street in Downtown Akron. The tunnel will store more than 25 million gallons of CSO. In all, the project includes the construction of seven sewer separation projects, two large tunnels, 10 storage basins, and improvements and expansion to the Water Reclamation Facility.

Noise and Vibration Mitigation

Section 4(f) of the Department of Transportation Act requires that special effort be made to preserve public park and recreation lands, wildlife and waterfowl refuges, and historic sites where federal funds for transportation projects are involved. Project sponsors, ODOT-OES, FHWA, and officials with jurisdiction over Section 4(f) resources closely coordinate throughout the project development process to minimize harm or mitigate impacts on protected resources. Long-range planning should account for well-known Section 4(f) resources throughout the region that would pose a significant loss if affected. It should be noted that it is premature to analyze Section 4(f) impacts on individual projects early in the planning process.

The FHWA is responsible for making all decisions related to Section 4(f) compliance. These include whether Section 4(f) applies to a property; whether a use will occur; whether a *de minimis impact** determination may be made; assessment of each alternative's impacts to Section 4(f) properties; and determining whether the law allows the selection of an alternative.

* *De minimis impact* – an impact that will not adversely affect the activities, features, or attributes of the property. A de minimis impact does not require analysis to determine if avoidance

alternatives are feasible, however certain minimum coordination steps are necessary.

Mitigation measures may involve a replacement of land and/or facilities of comparable value and function, or monetary compensation that could be used to enhance the remaining land. Mitigation of historic sites usually consists of measures to preserve the historic integrity of the site and is agreed to with FHWA. Mitigation measures for common Section 4(f) resource impacts may include:

- Improve access or expansion of parking areas
- Landscape or screening of resource
- Installation of beautification enhancements such as park benches, trash receptacles, signage, etc.
- Maintenance of traffic accommodation or rerouting of traffic
- Direct compensation for improvements to on-site resources
- Design refinements

Regional Mitigation and Consultation Resources

Various mitigation resources and local environmental conservation organizations are provided in the following section. These agencies were notified of the availability of the draft *TO2040* and are encouraged to review the plan recommendations.

Environmental Resource Agencies Contact List

Akron Combined Sewer Overflow (CSO) Program
(330) 375-2949
www.akronwaterwaysrenewed.com

Akron Engineering Bureau
166 S. High St.
Akron, OH 44308
www.akronengineering@akronohio.gov

Akron Environmental Division
166 S. High St., Rm. 701
Akron, OH 44308
www.akronohio.gov/cms/engineering/environmental

Akron Regional Air Quality Management District
1867 W Market St
Akron, OH 44313
www.araqmd.org
ARAQMD@schd.org

Cuyahoga Valley National Park
15610 Vaughn Rd.
Brecksville, OH 44141
www.nps.gov/cuva

Federal Highway Administration
200 N. High St., Rm. 328
Columbus, OH 43215-2408
www.fhwa.dot.gov/ohdiv

Ohio Department of Natural Resources (ODNR)
2045 Morse Rd.
Columbus, OH 43229
www.ohiodnr.com/home
Divisions: Wildlife, Ohio State Parks, Natural Areas and Preserves, Water Resources, Oil and Gas Resources, and Geological Survey

Ohio Department of Transportation (ODOT)
Office of Environmental Services
1980 W. Broad St.
Columbus, OH 43223
www.dot.state.oh.us/Divisions/Planning/Envi onment
Larry.Hoffman@dot.ohio.gov

Ohio Environmental Protection Agency (OEPA)
Central District Office
Lazarus Government Center
50 W. Town St., Suite 700
Columbus, OH 43215
www.epa.state.oh.us
Divisions: Drinking and Ground Waters, Environmental Response and Revitalization

Ohio EPA
Northeast District Office
2110 E. Aurora Rd.
Twinsburg, OH 44087
www.epa.state.oh.us/districts

Ohio & Erie Canalway Coalition
47 W. Exchange St.
Akron, OH 44308
(330) 374-5657
www.ohioeriecanal.org
info@ohioeriecanal.org

Ohio Historic Preservation Office
Ohio History Center
800 E. 17th Ave.
Columbus, OH 43211
www.ohiohistory.org/preserve/state-historic-preservation-office

Portage County Health Department
Environmental Services
705 Oakwood St., 2nd Floor
Ravenna, OH 44266
www.portageco.com/healthdept_pages/environmentaldiv

Portage County Soil & Water Conservation District
6970 SR 88
Ravenna, OH 44266
www.portageswcd.org
jbierlair@portageswcd.org

Portage County Water Resources
8116 Infirmary Rd.
Ravenna, OH 44266
www.co.portage.oh.us/waterresources

Portage Park District
705 Oakwood St., Suite 4
Ravenna, OH 44266
www.portageparkdistrict.org

Summit County Department of Sanitary Sewer Services
1180 S. Main St., Suite 201
Akron, OH 44301
www.co.summitoh.net/environmental-services

Summit County Engineer
Storm Water Management
538 E. South St.
Akron, OH 44311
www.summitengineer.net

Summit County Public Health
Division of Environmental Health
1867 W. Market St.
Akron, OH 44313
www.scphoh.org/environmental/division-ENV

Summit Metro Parks
975 Treaty Line Rd.
Akron, OH 44313
www.summitmetroparks.org

Summit Soil & Water Conservation District
1180 S. Main St., Suite 241
Akron, OH 44301
www.summitswcd.org

U.S. Army Corps of Engineers
Great Lakes & Ohio River Division
550 Main St., Room 10524
Cincinnati, OH 45202
www.lrd.usace.army.mil
publicaffairs@lrdor.usace.army.mil

U.S. Department of Agriculture
Natural Resources Conservation Service
Local Service Center:
6970 SR 88
Ravenna, OH 44266
www.oh.nrcs.usda.gov

U.S. Environmental Protection Agency
Region 5 – Cleveland Office
25063 Center Ridge Rd.
Westlake, OH 44145
www.epa.gov/aboutepa/epa-region-5

U.S. Fish & Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Rd., Suite 104
Columbus, OH 43230
www.fws.gov/midwest/ohio
ohio@fws.gov

U.S. Geological Survey
Ohio District
6480 Doubletree Ave.
Columbus, OH 43229
www.usgs.gov/science/regions/midwest/ohio

U.S. National Park Service
Midwest Regional Office
601 Riverfront Dr.
Omaha, NE 68102
www.nps.gov

Wayne County Soil & Water Conservation District
County Administration Bldg.
428 W. Liberty St.
Wooster, OH 44691
www.wayneswcd.org
www.wayneohio.org/agencies-departments

APPENDIX E PUBLIC INVOLVEMENT

Public involvement is a vital component in transportation planning. Public participation provides citizens a way to voice ideas and needs, access to the decision making process, and information on the transportation planning process. It also gives the opportunity to those who are traditionally unheard, such as minority and low-income populations, a voice in the planning process.

AMATS maintains a *Public Participation Plan* to guide public involvement. The purpose of the *Public Participation Plan* is to engage the public in developing and updating the Regional Transportation Plan through a variety of means to provide early and continuing involvement.

The public participation process to update *Transportation Outlook 2040 (TO2040)* is consistent with the AMATS *Public Participation Plan.* AMATS scheduled two public meetings to discuss *TO2040.* The dates of the public meetings were as follows:

- February 2, 2017 at the Downtown Akron Public Library @6:30pm
- March 30, 2017 at the Downtown Akron Public Library @6:30 pm

A press release, written notices and newspaper advertisements were submitted to notify the public of the public involvement period and meetings. AMATS advertised the meeting through social media. The draft *TO2040* document was available on the AMATS website beginning on March 3, 2017.

The meetings were scheduled at locations that would be accessible to the entire region, including low-income and minority groups.

February 2, 2017 Meeting Summary

AMATS staff discussed *TO2040* at its Citizen's Involvement Committee meeting on February 2. The AMATS staff included a draft list of recommended projects and presented on major transportation issues outlined in the plan. Three members of the public attended. Members of the public discussed how technology would change the future of transportation in the coming years. AMATS Staff committed to including a section in *TO2040* on technology. The section was added in the first draft of *TO2040* posted on the website on March 3, 2017.

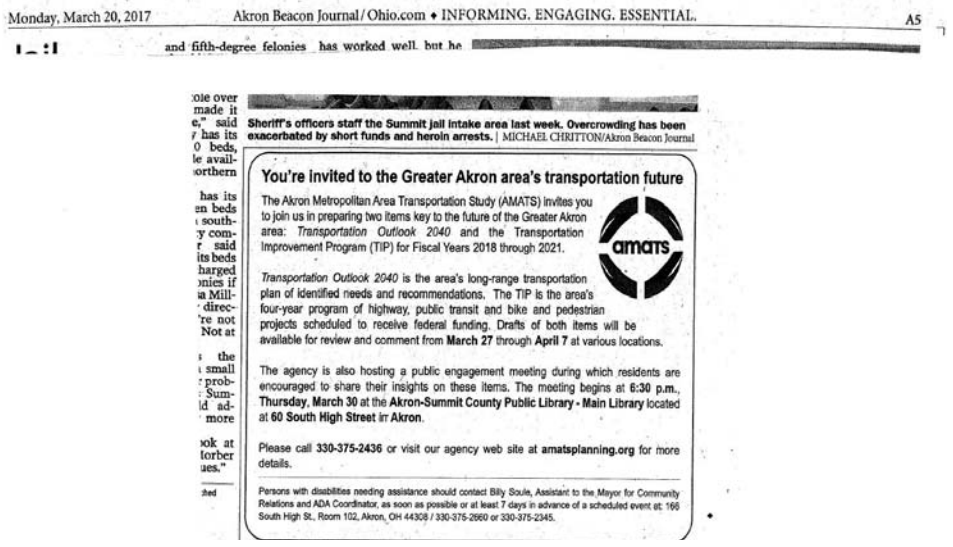
March 30, 2017 Meeting Summary

AMATS presented to a group of five concerned citizens on *TO2040* and the *Transportation Improvement Program.* Public comments included support for more protected bike lanes in the region, especially in Akron as well as a discussion of funding concerns at the State and Federal level.

AMATS Public Commment Period

AMATS received no additional comments during the public comment period from March 27 to May 3, 2017.

March 20, 2017 Akron Beacon Journal Ad



Monday, March 20, 2017 Akron Beacon Journal / Ohio.com ♦ INFORMING. ENGAGING. ESSENTIAL. A5

and fifth-degree felonies has worked well, but he

Sheriff's officers staff the Summit jail intake area last week. Overcrowding has been exacerbated by short funds and heroin arrests. | MICHAEL CHRITTON/Akron Beacon Journal

You're invited to the Greater Akron area's transportation future

The Akron Metropolitan Area Transportation Study (AMATS) invites you to join us in preparing two items key to the future of the Greater Akron area: *Transportation Outlook 2040* and the Transportation Improvement Program (TIP) for Fiscal Years 2018 through 2021.

amats

Transportation Outlook 2040 is the area's long-range transportation plan of identified needs and recommendations. The TIP is the area's four-year program of highway, public transit and bike and pedestrian projects scheduled to receive federal funding. Drafts of both items will be available for review and comment from **March 27** through **April 7** at various locations.

The agency is also hosting a public engagement meeting during which residents are encouraged to share their insights on these items. The meeting begins at **6:30 p.m., Thursday, March 30** at the **Akron-Summit County Public Library - Main Library** located at **60 South High Street** in **Akron**.

Please call **330-375-2436** or visit our agency web site at **amatsplanning.org** for more details.

Persons with disabilities needing assistance should contact Billy Soule, Assistant to the Mayor for Community Relations and ADA Coordinator, as soon as possible or at least 7 days in advance of a scheduled event at 166 South High St., Room 102, Akron, OH 44308 / 330-375-2660 or 330-375-2345.

This report was prepared by the Akron Metropolitan Area Transportation Study (AMATS) in cooperation with the U.S. Department of Transportation, the Ohio Department of Transportation, and the Village, City and County governments of Portage and Summit Counties and a portion of Wayne County. The contents of this report reflect the views of AMATS, which is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official view and policies of the Ohio and/or U.S. Department of Transportation. This report does not constitute a standard, specification or regulation.

TRANSPORTATION | 20 OUTLOOK | 40

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