May 2016

2016 FREIGHT PLAN

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Executive Summary

The Akron Metropolitan Area Transportation Study (AMATS) is the federally-designated Metropolitan Planning Organization (MPO) for the Greater Akron, Ohio area. AMATS is responsible for directing the continuing, cooperative, and comprehensive transportation planning process for the region in order to receive federal funds for transportation improvements. AMATS is committed to ensuring that transportation improvements meet the needs of the region and that federal transportation funds are used in an efficient, effective, and equitable manner.

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 industry, retail commerce, agriculture, international trade and terminal operators. Metropolitan areas with their air cargo airports, freight yards, trucking terminals, and shipping facilities, are especially affected by freight movement issues.

The purpose of this report is to identify the transportation systems that exist in the AMATS area used to move freight into, out of, and within the region. This report will also address the factors and trends that affect the multiple modes of traffic and the flow of freight, as well as the procedures used for planning and programming freight-related projects through the AMATS transportation planning process. The projects and strategies recommended in this report will be considered as part of the Regional Transportation Plan update process.

AMATS's freight-planning process includes three primary strategies:

- Develop and maintain databases and analysis tools for decision making
- Interact with freight stakeholders to better understand the freight system, identify common issues and build consensus
- Incorporate freight into the regional planning process

Examples of transportation projects that are freight-related or critical to goods movement include bridge replacements, road widening, port and rail access improvements, terminal facility enhancements, grade separations for highway and rail and providing connections to cargo terminals and new commercial infrastructure.

I - Purpose

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 industry, retail commerce, agriculture, international trade, and terminal operators. Metropolitan areas with their higher density of development served by air cargo airports, intermodal freight yards, large trucking terminals, and shipyards, are especially affected by freight movement issues.

Examples of transportation projects that are freight-related or critical to goods movement include bridge replacements, road widening, port and rail access improvements, terminal facility enhancements, grade separations for highway and rail and providing connections to air cargo and new commercial infrastructure.

The purpose of this report is to identify the transportation systems in the AMATS area that are used to move freight into, out of, and within the region. This report will also address the factors and trends that affect the multiple modes of traffic and the flow of freight, as well as the procedures used for planning and programming freight-related projects through the AMATS transportation planning process.

AMATS and the Ohio Department of Transportation (ODOT) are responsible for making sure that freight movement is considered in the transportation planning process. Federal legislation calls for the statewide and metropolitan planning processes to include reasonable opportunity for the public and interested parties, including freight shippers and providers of freight transportation services, to participate in the development of transportation plans and programs.

Many state DOTs and MPOs have systematically incorporated freight movement issues into their planning activities. This report attempts to:

- Define those elements of the area's transportation system that are critical for the efficient movement of freight,
- Identify ways to measure system performance in terms of freight movement,
- Develop freight-oriented data collection and modeling in order to identify problems and potential solutions, and
- Discuss critical issues and identify important bottlenecks in the freight network.

Importance of Freight Movement

Freight movement is an important component of the national, regional, and local economies. The term “freight” is used generically throughout this report to indicate the commercial transport of goods. Goods need to be shipped from their point of origin to their final destination. The term “goods” used in the plan refers to all items, except services, that can be moved commercially. Freight movement can be by truck, rail, air, water, or pipeline; but usually freight movement is accomplished by a combination of modes. Freight arriving from other countries in container ships at major US maritime ports, or goods manufactured in the US, are transferred to rail, trucks, or pipelines and shipped to other distribution centers for additional modal transfers. These goods eventually arrive at shopping malls, grocery stores, car dealers, department stores, other manufacturing centers, or directly to our homes.

Freight transportation has grown over time with the expansion or shifting of population and economic activity within the United States and with the increasing interdependence of economies across the globe.

Freight plays a significant role within the AMATS area. As consumer demands increase, the transportation system throughout the region and nation will experience an increase in freight movements (by truck, rail, air, and waterway). According to the Federal Highway Administration (FHWA), the total amount of freight tonnage that moves through the nation's transportation network is expected to double by 2040.

For the last 20 years, the US Congress and the US Department of Transportation (USDOT) have placed a greater emphasis on freight and the efficient movement of goods, incorporating the efficient movement of goods into the last three transportation laws. Consequently, Metropolitan Planning Organizations (MPOs) such as AMATS, and state departments of transportation such as ODOT, have been addressing the public's interest in freight issues as part of the planning process.

II - Freight Profile of the Area

Trucking

The economy of the AMATS area depends on its roadways. Business and industry depend on an effective freight transportation system to reach state, regional, national, and global markets. Trucks move most of Ohio's freight.

In 2015, 242,990 people in Ohio - or one out of every 15 workers - were employed in trucking-related occupations at private and for-hire motor carriers. The average annual wage paid to trucking industry workers was $42,760. The total annual payroll for the trucking industry in Ohio was $11.3 billion.

Truck traffic originates and terminates primarily in metropolitan areas. As a result, increases in freight-truck traffic have the greatest impact in the metropolitan areas in terms of greater roadway congestion, deteriorating pavement conditions, and increased emissions.

Trucks account for much of the wear and tear on roadways. A large, legally loaded truck weighing 80,000 pounds puts about the same wear and tear on a road as 9,000 to 10,000 cars. Furthermore, a large truck causes as much congestion as 2.5 to 3.5 cars on flat terrain and as much as 15 cars on uphill grades. Building and preserving roads and bridges is vital to the economy. As the economy changes, generating varying types of freight movement and new demands for reliable access to markets, policy-makers need to understand the nature of the freight system and how it affects trucking and the area's roadways.

Commercial transportation companies in Ohio are designated as public utilities under the jurisdiction of the Public Utilities Commission of Ohio (PUCO). These companies pay special fees and taxes in exchange for exemption from other taxes, such as sales tax on equipment. They are also exempt from many forms of local regulation.

In terms of trucking, one responsibility of the PUCO is to improve road safety and ensure quality, equitable service for commercial motor and hazardous materials carriers and their customers. The PUCO registers more than 58,000 general freight carriers; 2,500 hazardous materials transporters; 1,000 towing companies; and 300 household goods movers in the state of Ohio.

The Akron metropolitan area contains 4,775 miles of roadways of all types. Table 1 shows the length in miles and lane miles for each roadway classification.

Table 1 – Mileages by Roadway Classification

Federal Functional Classification	Length (in Miles)	Number of Lane Miles
Interstate	100	462
Ohio Turnpike (I-80)	34	192
Freeway	35	171
Principal Arterial	190	567
Minor Arterial	356	911
Major Collector	516	1,119
Minor Collector	64	127
Local	3,479	6,990
Total:	**4,775**	**10,538**

Please note that minor collectors and local roads are not considered part of the federal aid system; therefore, they are not eligible for federal funding. The local jurisdiction or the county in which they are located assumes responsibility for maintaining these roadways.

The Akron metropolitan area contains 1,251 bridges. Table 2 shows the number and deck area for each type of bridge based on information from the Ohio Department of Transportation (ODOT). The federal definition of a bridge is a self-supported structure equal to or greater than 20 feet in length. Bridges less than 20 feet are not eligible for federal funds. The railroad bridges listed in Table 2 are maintained by the privately-held railroad companies operating in the AMATS area.

Table 2 – Number and Deck Area of Bridges

Bridge Type	Number of Bridges	Deck Area (sq ft)
Bridges (20+ feet)*	870	7,222,248
Turnpike Bridges (20+ feet)	52	1,044,036
Railroad bridges (20+ feet)	*34*	*133,951*
Bridges (<20 feet)	*295*	*152,151*
Totals:	**1,251**	**8,552,386**

* Includes Pedestrian Bridges

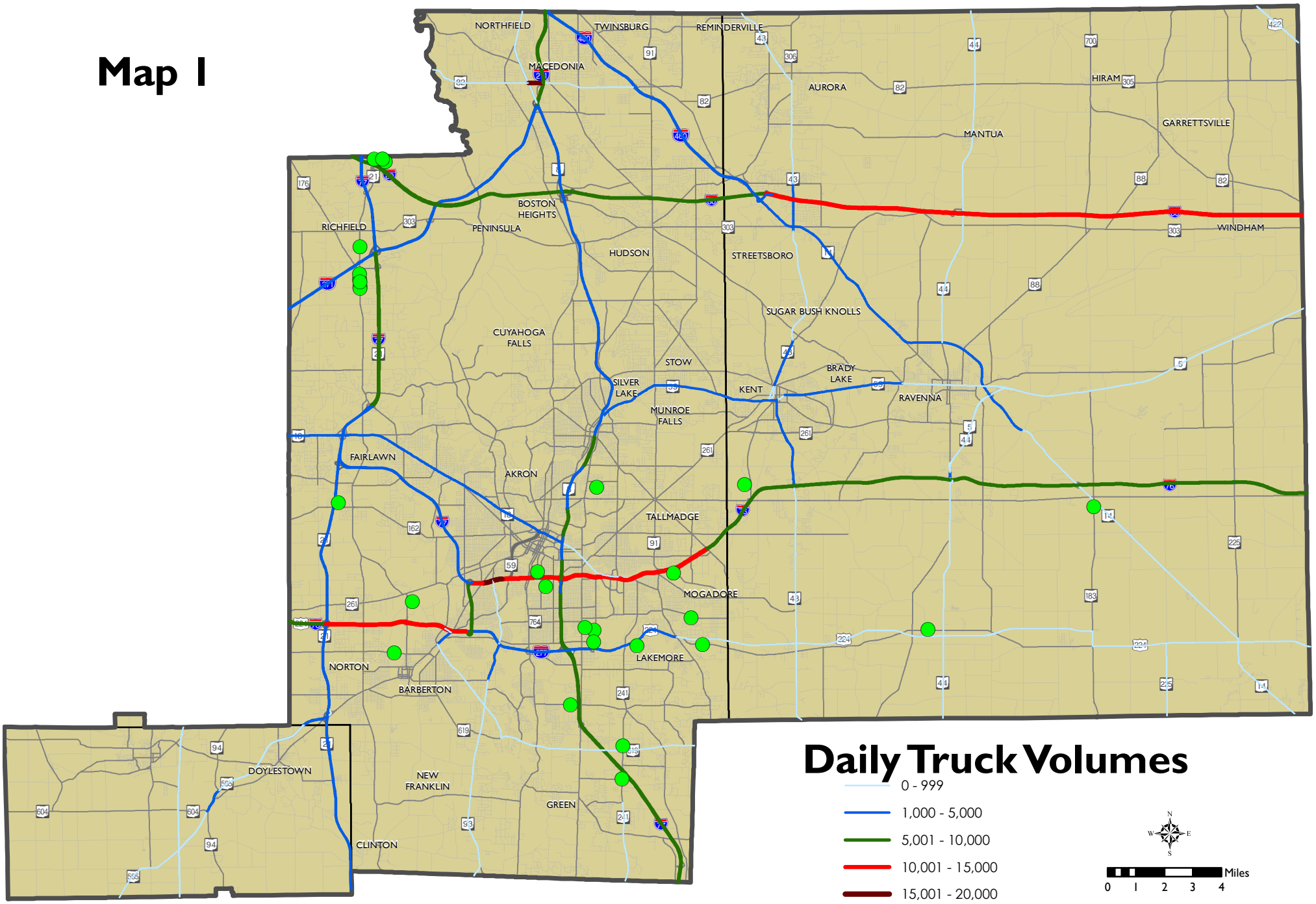
These roads and bridges support the largest portion of freight movement in the AMATS area. The current Highway Preservation Needs Report (2035) estimates that it will cost nearly $1.1 billion to maintain the area's roads over the next 19 years. Bridge preservation is estimated to cost $1.4 billion over the same period. In order for the area to maintain its transportation infrastructure and continue the status quo in terms of freight movement in the area, sufficient and regular funding will need to continue.

Taking future growth and development into account, the AMATS Congestion Management Process (CMP) report identifies existing and projected future congestion on our region's freeways, arterial streets and key intersections, and provides recommendations to alleviate identified congestion. The report provides an extensive list of freeway, arterial street and intersection needs for our region.

The map below (Map 1) shows average daily truck volumes on the federal functional classified (FFC) roadways of the AMATS area, including the Ohio Turnpike. These routes carry the freight originating or terminating in the area, as well as goods passing through. With the area's extensive interstate network, much of the goods movement in the AMATS area may terminate beyond the borders of Ohio. Major corridors for truck-freight movement in the AMATS area include I-76, I-77, I-80, SR 8, I-271, and I-480.

As seen on the map, the largest volume of truck traffic takes place on I-76 in Summit County, with significant volumes on the other interstates, as well as the Ohio Turnpike and SR 8. A number of arterial and collector roadways also have significant truck volumes due to the concentration of industry and warehousing near these facilities. Map 1 also shows the location of major truck terminals in the AMATS area. As staging areas for goods movement, truck terminals can be expected to generate high volumes of traffic on the roadways leading to the interstates nearby.

Map 1


NORTHFIELD
TWINSBURG
REMINDERVILLE
MACEDONIA
AURORA
HIRAM
GARRETTSVILLE
MANTUA
BOSTON HEIGHTS
RICHFIELD
PENINSULA
HUDSON
STREETSBORO
WINDHAM
SUGAR BUSH KNOLLS
CUYAHOGA FALLS
STOW
BRADY LAKE
SILVER LAKE
KENT
RAVENNA
MUNROE FALLS
FAIRLAWN
AKRON
TALLMADGE
MOGADORE
LAKEMORE
NORTON
BARBERTON
DOYLESTOWN
NEW FRANKLIN
GREEN
CLINTON
Daily Truck Volumes
0 - 999
1,000 - 5,000
5,001 - 10,000
10,001 - 15,000
15,001 - 20,000
Truck Terminals
N
W
E
S
Miles
0 1 2 3 4
Date: February 2016
Source: ODOT

The Ohio Turnpike -

Constructed in 1955, the Ohio Turnpike is 241-mile toll road running east-west across Northern Ohio. The Turnpike traverses the AMATS area through Northern Portage and Summit Counties paralleling SR 303. The Turnpike can be accessed through interchanges with I-77 in Richfield, SR 8 in Boston Heights, I-480/SR 14 in Streetsboro, SR 44 north of Ravenna, and at SR 5 just outside of the AMATS area in Trumbull County. In the AMATS area, the Ohio Turnpike is designated as I-80.

The Turnpike has continued to be a safe and efficient means of transportation. More vehicles traveled on the Ohio Turnpike in 2015 than any other year in its 60-year history. The total of 53.4 million vehicles in 2015 surpassed the previous record total from 2006, which was 51.8 million vehicles.

The Turnpike also operates under capacity; meaning that the volume of traffic does not exceed the amount of roadway needed for the smooth flow of vehicles at optimal speed. The speed limit on the Turnpike is 70 miles per hour. In addition, the Turnpike allows the movement of freight through the use of Long Combination Vehicles (LCVs). LCVs are combinations of multiple trailers on one tractor truck as compared to a standard 5-axle semi trailer-truck with one trailer. The use of LCVs optimizes freight movement on the highway. And the Ohio Turnpike is the only facility in the state where this is permitted.

The Turnpike is administered by the Ohio Turnpike and Infrastructure Commission, independent of ODOT. Several years ago, the Governor and state legislators began discussing the options of privatizing the Turnpike, turning administration of the Turnpike over to ODOT, or maintaining the status quo. As the Turnpike was debt-free at one point and is one of a few public assets that operate within its budget, discussions were begun on how to extract value and transfer funds from the Turnpike to the state budget in order to address projected state deficits unrelated to the Turnpike.

The leasing of the Turnpike could have altered the local logistics industry, shifting it to central or southern portions of the state. Higher tolls could also alter the geographic preferences of transportation and logistics companies, causing them to favor I-70, a parallel toll-free highway in the center of the state. Increased tolls could encourage trucks and other forms of traffic to use parallel highways rather than the Turnpike, causing increased congestion and road deterioration on those roadways.

Long haul traffic could also divert to I-76/US 224, causing increased congestion on these already busy highways, particularly at the Central Interchange (I-76/I-77/SR 8) and the Kenmore Leg (I-76/I-277). The wear-and-tear on these alternate routes would not be the responsibility of the Turnpike's vendor; rather, they would be paid for by federal and state taxpayers. However, the threat of loss of customers may serve as a check-and-balance to limit any future toll increases. Ultimately, plans to privatize or lease the Ohio Turnpike were rejected.

In 2013 the Ohio assembly passed a $7.6 billion transportation and public safety bill. This bill allows the state, for the first time, to use toll revenue from the Ohio Turnpike for projects beyond the Turnpike's borders. The bill raises turnpike tolls for each of the next ten years, allowing Ohio to issue $1.5 billion in bonds and shift funding to road and bridge projects across the state. Prior to this action, the Turnpike was debt-free and self-sufficient.

Of the new funding available, ninety percent of the turnpike money is designated for projects within 75 miles of the Turnpike. That means projects from across northern Ohio will compete for funding. Some of this funding will be used for urban core projects in the city of Cleveland. However, since money is fungible, the statewide budget can be adjusted so that the additional funds could be spent for anything regardless of location or purpose.

The Turnpike Commission intends to raise tolls at no more than the rate of inflation. The state believes the bond money can leverage an equal amount of federal and local funding, yielding at least an additional $3 billion for roads and bridges in the coming years.

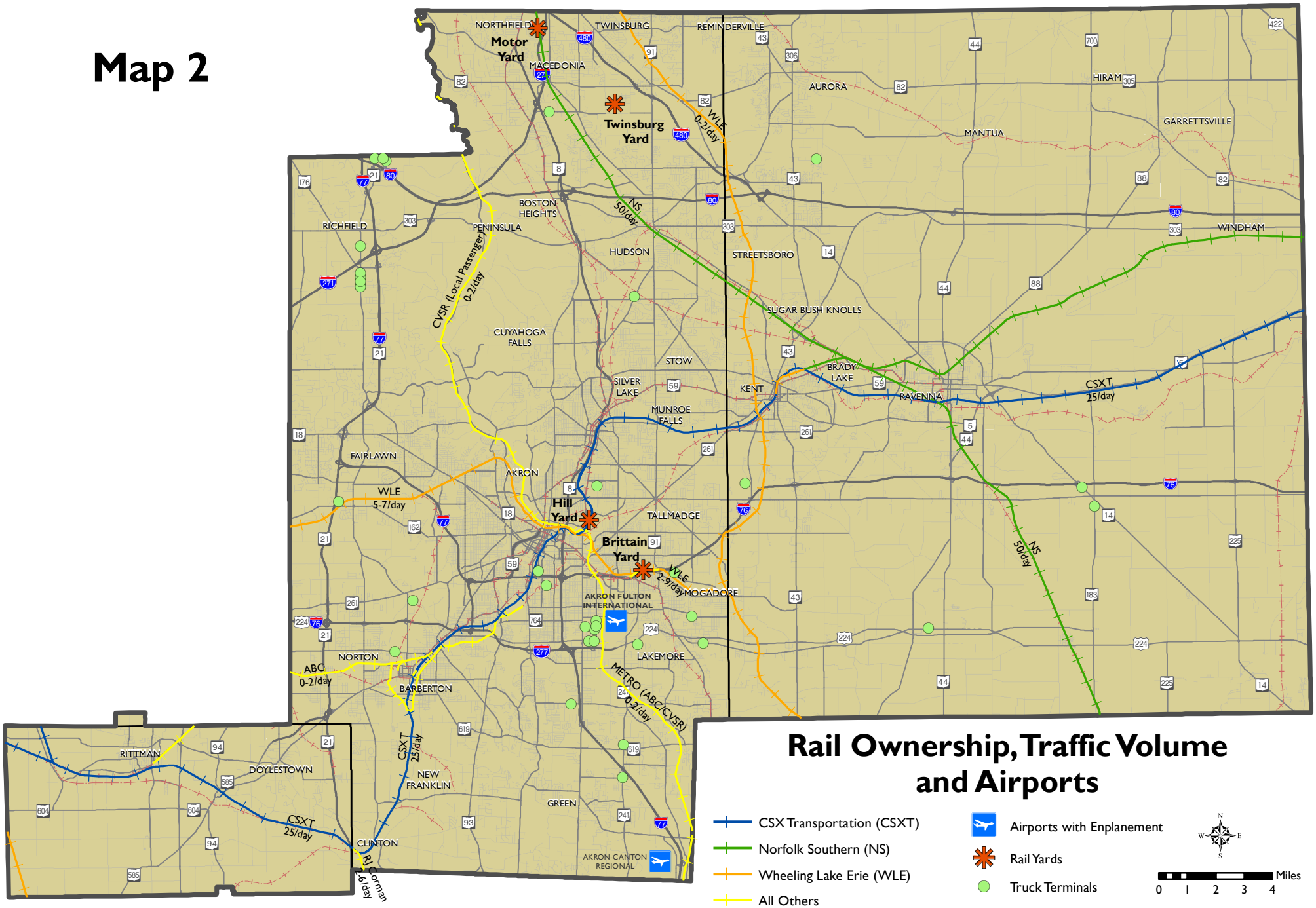
Rail

Northeast Ohio lies along the heavily utilized rail route between Chicago and the US East Coast ports. Northeast Ohio serves as a hub where a large block of rail cars moving east from Chicago can be redirected toward New York, Philadelphia, Baltimore, and Virginia. The CSX route between Cleveland and New York City is particularly important. This route is known as the Waterlevel Route. This is because from Cleveland, this route follows the coast of Lake Erie to Buffalo, and then turns east along the Erie Canal to Albany, following the Hudson River to New York. This route, following water, has no bridges and the track is in excellent condition, allowing double stack trains and train speeds of 60 mph.

To serve its local and Ohio markets, Northeast Ohio has three intermodal terminals: Norfolk Southern (NS) has one located in Maple Heights, CSX has one located in Collinwood (on the east side of Cleveland), and the Wheeling and Lake Erie Railway has one located in Navarre (near Massillon). These terminals transfer domestic and international containers between rail and truck. Containers arrive at these terminals from coastal ports for local and Ohio delivery, and also are shipped out to these ports for export. There are no intermodal terminals in the AMATS area.

Northeast Ohio is fortunate to have connections with both NS and CSX, as well as a regional railroad of its own, the Wheeling and Lake Erie Railway (WLE). A map of the railroad lines and rail yards in the AMATS area follows on Map 2. The WLE connects the Cleveland/Akron/ Canton area with Pittsburgh, Toledo, and Lima Ohio. As such, the WLE removes a significant number of trucks from Northeast Ohio highways, allowing for less congested highways and less demand for expensive highway maintenance. In addition to easing the burden on our highways, the WLE provides rate competition for the two major railroads, and allows the Canadian National Railway (CN) access to Northeast Ohio (which it would not otherwise have). WLE provides this

Map 2



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

N W E S

0 1 2 3 4 Miles

Date: February 2016
Source: ORDC

access through CN's Lang yard in Toledo. Consequently, the WLE provides Northeast Ohio with access for three of the seven Class I railroads. In addition, WLE conveys most of the rail freight with origins or destinations in the Akron area.

As a side note, the CN Railroad has a direct connection in Ohio, separate from its WLE connections. CN owns the dock at Conneaut (in Ashtabula County) and track that runs from Conneaut to Pittsburgh. This route is used by the steel mills of Pittsburgh, but currently is not integrated into the primary CN Railroad system.

The Akron Barberton Cluster Railway (ABC) is a Class III railroad that operates on 73 miles of track in and around the AMATS area. It serves as a switching service for important industries in the area. Its parent company is the Wheeling & Lake Erie Railway.

METRO RTA -

METRO RTA is the public transit agency for Summit County, providing both fixed-route and demand response bus services.

METRO RTA also owns three rail lines, totaling 51 miles in length. These rail lines were purchased in order to preserve them for future use. Possible uses include passenger service, freight service, or recreational trail usage. The following three rail lines are owned by METRO:

- The former Conrail Akron Secondary between Hudson and Akron (terminus near Eastwood Avenue)
- The former Conrail Freedom Secondary between Akron (near Mill Street) and Kent (near Mogadore Road)
- The former CSX Sandyville Line between Akron (at Howard Street) and Canton (near Marion Avenue SW, outside of Summit County).

The Akron Secondary Line between Hudson and Akron is non-operational. This line has not had service for over twenty years. It begins as a one-track line in the City of Hudson with an at-grade crossing at Barlow Road, passing 1.5 miles south through Hudson into the City of Stow. The Akron Secondary Line then proceeds 2.75 miles through the City of Stow, entering the Village of Silver Lake at an at-grade crossing at Graham Road. The line then runs adjacent to SR 8 for one-half mile, entering the City of Cuyahoga Falls just west of Ivanhoe Road. The tracked portion of the line runs for 2.25 miles through Cuyahoga Falls before pairing with the CSX line, just north of Broad Boulevard. The final 0.6 miles of the Akron Secondary, between the Cuyahoga Falls Electric Services property and Broad Boulevard, then runs west of, and adjacent to, the main east-west CSX two-track rail line arriving from the east. The Akron Secondary right-of-way then continues south, untracked, for 3.5 miles, running from near Broad Boulevard in Cuyahoga Falls to its connection with the Sandyville Line in the City of Akron, just north of the Hill Rail Yard.

The Akron Secondary Line could be reactivated to provide a connection between the CSX Line in Cuyahoga Falls and NS in Hudson. The line could also provide service to potential clients adjacent to the right-of-way. The right-of-way would need to be restored and upgraded to Class I in order to meet these needs. Costs to restore this service would run into the millions of dollars.

Most of the Freedom Secondary Line is non-operational. Portions of the track have been removed. The right-of-way extends from a site near Mill Street in Akron to Mogadore Road in Kent. The north end of the Freedom Secondary right-of-way ties into the WLE and NS Lines. The south end of the right-of-way does not have any existing track connecting with existing freight carriers. Portage County owns seven miles of the Freedom Secondary operating between Kent and Ravenna.

The Freedom Secondary could be reactivated to provide a connection between the WLE and NS lines at the north end of the line in Kent with the WLE and CSX lines at the south end in Akron. The line could also provide service to existing or potential clients adjacent to the right-of-way. The right-of-way would need to be reconstructed in order to be put back into service.

Currently, the Freedom Secondary trail is an 8.5 mile long bike and hike trail connecting the Cuyahoga Scenic Railroad at the Northside Station, in Akron, to Middlebury Road in Kent. It is operated by the Summit Metro Parks. In Kent, the Freedom Secondary trail connects to the Portage Bike Trail, and extends from Middlebury Road to Ravenna. The unused railroad corridor is owned by Metro Regional Transit Authority and leased to the Metro Parks.

The Sandyville Line begins in the City of Akron at Howard Street, at the eastern terminus of the Cuyahoga Valley Scenic Railroad (CVSR). The Sandyville line continues approximately 1.6 miles east, where the Akron Secondary right-of-way joins just south of Eastwood Avenue. From this junction, the Sandyville Line continues approximately 4.75 miles south through the City of Akron into Springfield Township. The line then runs for approximately 3.1 miles southeast through Springfield, where it enters the City of Green at an at-grade crossing at SR 619. From this crossing, the line then continues for approximately 6 miles before exiting Summit County just west of the Akron-Canton Airport. The Sandyville Line enters Stark County in Jackson Township at an at-grade crossing at Mount Pleasant Road, continuing southeast approximately 2.85 miles into Plain Township at an at-grade crossing at Whipple Avenue. The Sandyville Line then proceeds 1.85 miles southeast through Plain Township, entering the City of Canton approximately 300 feet north of the I-77 overpass of 38th Street. The Sandyville Line travels south through the City of Canton for 3.9 miles just east of I-77, ultimately terminating at the Canton Crossing Diamond where it connects to the former Conrail line operated by WLE and NS.

The Sandyville Line and a short section of the Freedom Secondary near Kent are in active use for local freight service. In addition, the Sandyville Line is also used by the CVSR for excursion service to Canton. Despite the costs and liability, METRO continues to invest in the maintenance of this rail line, serving an important role in economic development.

Changes to the rail system

To accommodate projected increases in rail traffic, CSX has embarked on an ambitious National Gateway project which involves the development of a significant block-switch yard near Toledo Ohio, and a new intermodal terminal in Pittsburgh. Phase One of the $850 million project, between CSX's existing terminal in Chambersburg, Pennsylvania, and its hub facility in Northwest Ohio was completed in September 2013. The Toledo Yard project is a public-private partnership with ODOT and the federal government.

The National Gateway expands and improves freight rail service by alleviating freight bottlenecks in the Midwest that cause delays for companies and consumers shipping or receiving freight from West Coast ports. This project will reduce freight transit times by 24 to 48 hours between ports on the West Coast and major consumption centers in the East by enabling freight to move more efficiently through the AMATS area. A double stack rail route between mid-Atlantic ports and the Midwest markets will also free up highway capacity by creating an additional option for transporting freight. Moving freight by rail reduces congestion and deterioration on our nation's highways by reducing truck miles traveled.

The Norfolk Southern (NS) Railway has already successfully implemented the ambitious Heartland Corridor Project. This project enlarged tunnels to create a double stack rail route between the Port of Norfolk, Virginia and Columbus. The project also involved the construction of a major intermodal terminal in Columbus (near the Rickenbacker Airport) in another public-private partnership that cost hundreds of millions of dollars. The Heartland Corridor was designated as a Project of National and Regional Significance under SAFETEA-LU, and received an initial $90 million earmark. These funds, combined with funding from Norfolk Southern and from the states concerned, have been used to develop the corridor north from Columbus to Bellevue, Ohio, and then on to Fort Wayne, Indiana and Chicago.

Concerns

Summarizing the trends above, it appears that both major Class I railroads are operating new intermodal terminals in Pittsburgh, Columbus, and Toledo. Their investments do not include direct investments in Northeast Ohio, despite the fact that Northeast Ohio is the historical manufacturing center of the state. Thus, the railroads appear to foresee the continued decline in traditional manufacturing in the area. In addition, there is the concern that the new intermodal terminals will compete for business with the existing and older Northeast Ohio intermodal terminals.

Airports

The Akron-Canton Regional Airport (CAK) is a commercial Class C airport located in the city of Green, in southern Summit County, occupying approximately 2,700 acres. The airport is jointly operated by Summit County and Stark County. Class C airspace is used around airports with a

moderate traffic level (greater than 75,000 annual instrument operations, or greater than 250,000 enplanements annually). Akron Canton Airport is the main public passenger airport for the Greater Akron area. Allegiant, American, Delta, Southwest and United Airlines offer service.

In 2006, the airport completed a major expansion and renovation of the terminal, including the addition of a new terminal wing off the main concourse. This expansion brings the number of gates to eleven (from nine), and provides new baggage areas, a food court and improved aesthetics. The new wing of the terminal opened to passengers in May 2006, and is home to Southwest Airlines.

The airport initiated CAK 2018, its 10-year, $150-million Capital Improvement Plan in March 2008. One of the projects in the plan, a runway expansion, has already been completed. In addition, the airport is preparing to construct a new customs and border patrol facility. This facility will act as its own terminal for international arriving flights. It will house a customs check point and baggage claim area.

Akron-Canton Airport is served by a several taxicab and shuttle services, and is within ¼ mile of I-77. It is also served regularly by one route from Akron Metro RTA (Route 110), as well as Canton-based Stark Area Regional Transit Authority (SARTA), Route 81. SARTA Route 81 is a special connection between SARTA's and METRO's main transit centers; as such, it can move passengers from both Stark and Summit County.)

The SARTA route provides service every hour for most of the day Monday through Friday, and serves both Canton and Akron via I-77, including transit centers in both downtown Canton and downtown Akron. The Akron Metro Route 110 is a 5 times-per-day local route through southern Summit County, and also serves the downtown Akron Transit Center.

The Akron-Canton Regional Airport is primarily a passenger airport. It had over 774,000 enplanements in 2015. It does not have a significant role in the movement of freight. The airport's Master Plan does not anticipate substantial changes to cargo shipping in the near future. In February 2016, the airport approved its twenty-year master plan with a schedule of $240 million in capital improvements.

Akron Fulton International Airport (AKC) is a general aviation airport located on the east side of Akron. It is owned by the City of Akron. It does not provide regular passenger service to the public. General aviation covers a large range of activities, both commercial and non-commercial, including private flying, flight training and business charters. It has no significant freight-moving capacity.

III - Identifying Freight (Goods Movement) Issues in the AMATS Area

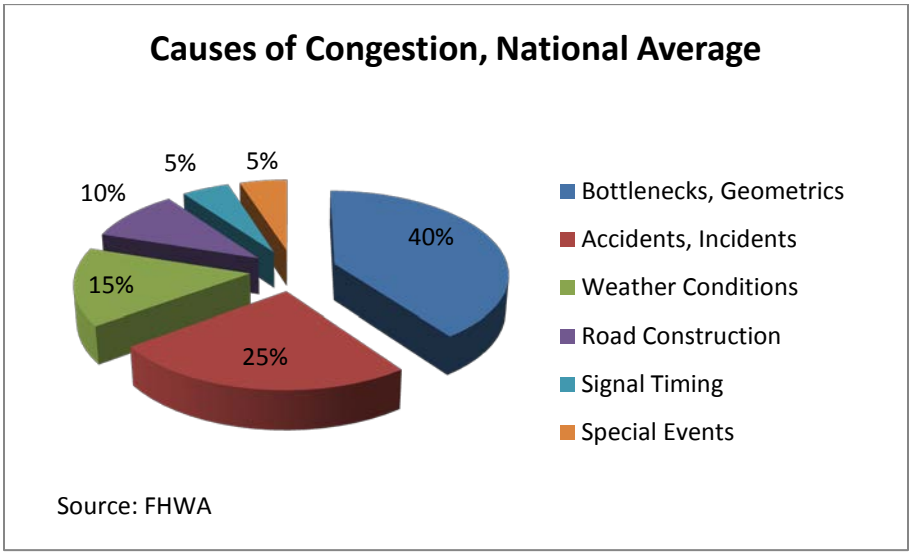
Highway Congestion

AMATS maintains a Congestion Management Roadway Network to monitor the performance of the transportation system in Summit and Portage Counties and Chippewa Township in Wayne County on a continuing basis. This network was developed to include: all freeways and principal arterials; higher volume minor arterials and collectors; major intersections; and other roadways identified as potential congestion problems by the AMATS Policy Committee. The network contains approximately 540 miles of roadways and 35 intersections.

Congestion may be defined as any instance or issue that causes a system, or a portion of that system, to approach or exceed its available capacity. Congestion may vary significantly from day to day because of traffic demands. Available capacity also varies and is constantly changing. It is a goal of AMATS to reduce congestion and delays on its transportation system.

In its 2011 Urban Mobility Report (mobility.tamu.edu), the Texas Transportation Institute (TTI) ranks the Akron area near the bottom in lost time and fuel attributed to congestion. Unfortunately, annual congestion in our metropolitan area does result in approximately 1.04 million gallons of wasted fuel, 6.2 million hours of personal time delay, and an overall economic loss of $120 million. Despite acceptable system-wide congestion conditions, the AMATS region continues to have key areas where congestion is a persistent problem.

Congestion can be attributed to a variety of factors.



The *2015 Existing Highway Congestion Study* was approved by the Policy Committee in December 2015. The purpose of this study is to quantify the level of existing traffic congestion on the roadways and intersections in the area.

The study contains three analysis chapters: freeway level of service analysis; arterial level of service analysis; and an intersection capacity analysis.

The freeway analysis evaluates the level of service (LOS) on the freeways that are included in the AMATS network. Of the 206 freeway segments studied by direction of travel: no segments operate at LOS F; four operate at LOS E; and 38 operate at LOS D. LOS F is the worst. LOS A is the best. Twenty additional segments were also studied based on the close proximity of exit and entrance ramps, known as weaving segments. Ten of these weaving segments operate at LOS F, one operates at LOS E, and three operate at LOS D. LOS F weaving segments can be found on SR 8, I-76 and I-76/77 in Akron, as well as on I-77 in Montrose. See the *2015 Existing Highway Congestion Study* for additional information and maps.

The arterial analysis evaluates the LOS on the arterial roadways that are included in the network, using a methodology that compares the peak hour traffic counts to planning-level peak hour capacities developed by the AMATS staff. Of the 597 arterial segments studied: no segments operate at LOS F; five operate at LOS E; and thirty operate at LOS D.

The intersection analysis evaluates the capacity of the intersections that are included in the network. Of the 34 intersections studied: five operate "over capacity"; four operate "at capacity"; and thirteen operate "near capacity". The AMATS Congestion Management Report will contain specific recommendations for reducing traffic congestion in the AMATS area between now and 2040, as part of the Regional Transportation Plan update process.

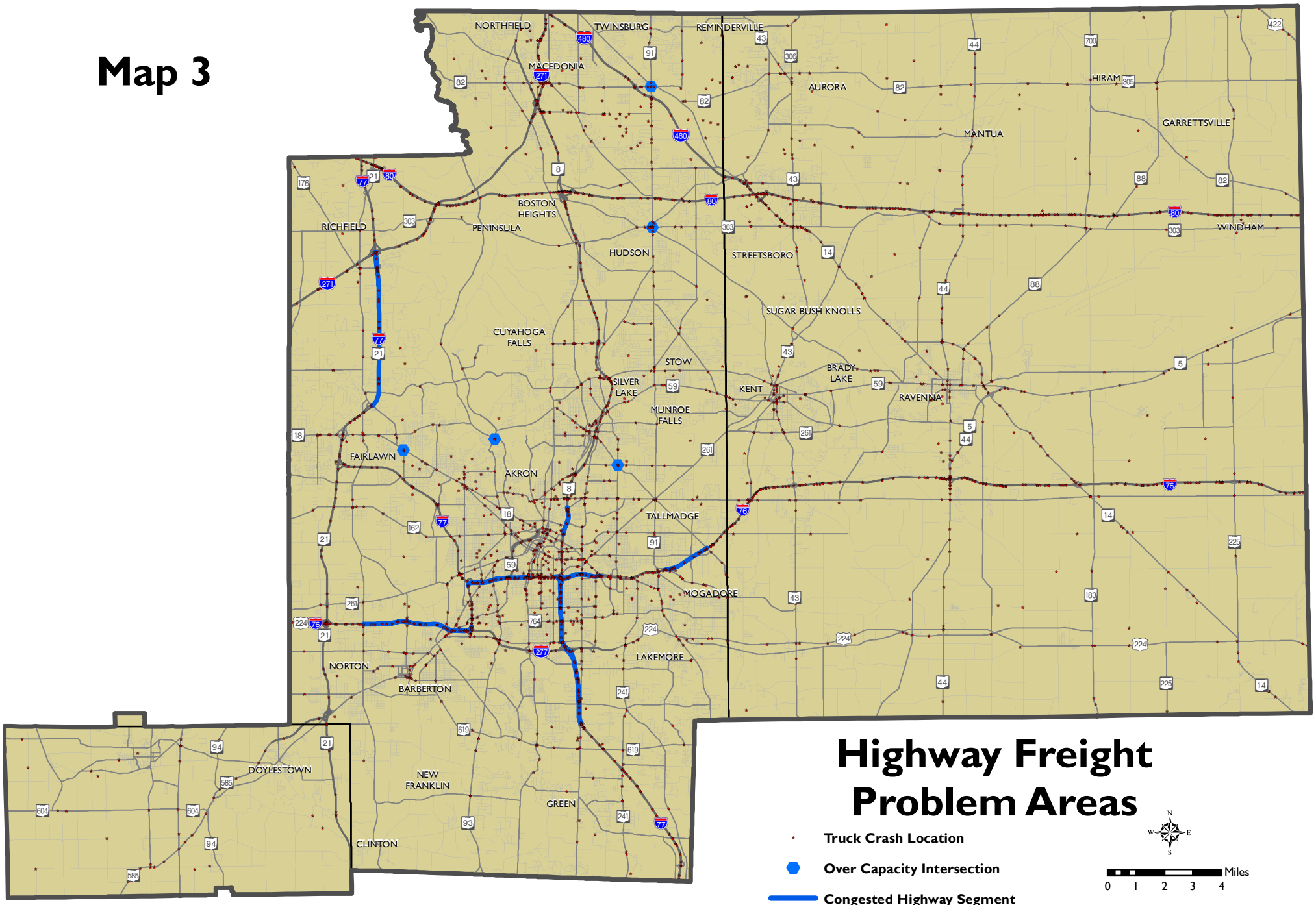
Map 3 below shows the highway freight problem locations in the area. The most congested locations in the area which also contain high volumes of truck traffic can be found on portions of I-76 and I-76/77 in Summit County; I-77 south of, and including the Central Interchange; I-77 in Bath/Richfield; and SR 8 north of the Central Interchange.

Congested intersections with significant volumes of trucks can be found at SR 82 and SR 91 in Twinsburg, SR 18 and Miller Road in Fairlawn, and also at SR 91 and SR 303 in Hudson.

In 2002 ODOT began a comprehensive study of the I-76 / I-80 corridor in Northeast Ohio. This study identified needed improvements to the Central Interchange and adjacent freeways in Akron. In 2003 ODOT began the detailed planning, environmental and engineering studies needed to proceed with improvements to the Central Interchange. ODOT would like to widen I-76 to three lanes in each direction throughout its length if feasible.

After the lengthy process of obtaining funding, holding public meetings and acquiring the necessary right-of-way, ODOT is now engaged in the construction phase of many of the

Map 3



Highway Freight Problem Areas

- Truck Crash Location
- Over Capacity Intersection
- Congested Highway Segment

N W E S

Miles
0 1 2 3 4

Date: February 2016
Source: AMATS

improvements to I-76 in the AMATS area. The most expensive project in the Akron area this year is the reconstruction of the interchange at I-76/77 and South Main Street/South Broadway in Akron. Total work has been estimated at $113 million, with a completion time of two to three years. The Akron Central Interchange is also undergoing a multi-year construction program to reconstruct a number of ramps and bridges in order to improve congestion and safety.

In 2017, ODOT will begin a $98 million project to widen I-76 to three lanes in each direction between SR 21 and Central Avenue in Barberton. This project will be done in conjunction with reconstruction of the I-76 interchange with State Street and SR 619 beginning in 2019.

In addition, works continues on I-271 in northern Summit County to widen the freeway to three lanes and rebuild and improve aging bridges.

Rail Congestion

In 2007, the most recent *Ohio Freight Rail Choke Point Study* identified the 30 most severe choke points in the Ohio freight rail network by considering:

- Severity of the existing choke point;
- Potential for Ohio truck-to-rail diversions;
- Potential for Ohio job creation or retention;
- Impact of the choke point on railroad operating efficiency;
- Project readiness; and
- Safety, security, and environmental issues

Of the 30 choke point locations, one location is found in the AMATS area: the CSX Lambert to Warwick section near Clinton. It is the only remaining single-track segment on the CSX main line between Baltimore/Washington and Chicago. A mixture of merchandise and intermodal traffic moves between the West Coast and Midwest to and from Mid-Atlantic markets.

Congestion at this location not only inhibits the movement of freight; it also poses a safety and traffic congestion problem as stalled trains block several at-grade crossings in the area. Safety vehicles (police, fire, ambulance) are required to drive around the blocked at-grade crossings in order to reach their destination. The proposed solution is to construct a second main line on 9.25 miles of abandoned, parallel, ex-Conrail right-of-way at an estimated cost of $10.9 million.

This project would increase capacity and improve rail service, helping to divert long-haul trucks from the highway network. This project would free highway capacity, lower maintenance costs, improve safety, and mitigate mobile air pollutants, and reduce delays on this section of track, thereby increasing the overall average train speed. As CSX is a private company and the owner of this private right-of-way, improvements can only be made in cooperation with CSX.

The number of trains per day on each of the area's rail lines can be seen on Map 2 above. This report does not analyze level of service (LOS) on rail lines.

Safety

While the amount of freight transportation activity has increased in recent decades, the number of fatalities has declined or remained stable in each mode. Trucks account for approximately 10 percent of all highway fatalities. The vast majority of fatalities involve passenger travel on highways. The highway and railroad modes account for almost all of the injuries in freight transportation, but the number of injuries has dropped substantially since 2000.

AMATS Crash Report -

Between 2012 and 2014, there were 19,945 roadway section crashes, 23,768 intersection crashes, and 9,120 freeway related crashes in the AMATS area. These crashes represent a loss of life and property, as well as lost time.

AMATS is committed to following a planning process that recognizes the importance of traffic safety. This is accomplished by incorporating the results of safety studies into the development of transportation recommendations for the Regional Transportation Plan and used as evaluation criteria for selecting projects for funding. Problem areas such as I-76 and I-76/77 in Akron are currently being addressed through ODOT's improvements at the Central Interchange and the reconstruction of the Main Street/Broadway interchange.

Factors affecting the number of truck crashes may be high traffic volumes, roadway geometrics and high concentrations of exit and entrance ramps on freeways (presenting weaving issues). AMATS will continue to work with ODOT on their Highway Safety Program.

Highway-Rail Grade Crossings -

A highway-rail grade crossing is where a railway and roadway intersect. There are approximately 393 grade crossings in the AMATS area (many are on abandoned or out of service rail lines). At-grade crossings are protected either by train-activated, active warning devices (such as gates and flashing lights) or by passive warning devices (such as crossbucks, stop signs, and yield signs). Trains often require a mile or more to stop and are unable to deviate from their path. Consequently, safety at grade crossings is primarily a motorist's responsibility. The warning devices are there to protect motorists, not trains.

As a result, states, not railroads, are responsible for evaluating grade crossing risks and prioritizing grade crossings for improvement. The decision to install a specific type of warning

device at a particular public grade crossing is made by ODOT, not by the railroad, with final approval by the Federal Highway Administration.

Ideally, highway-rail grade crossings would be separated if feasible. Grade separation projects eliminate safety and delay concerns by redirecting the vehicle, pedestrian and bicycle traffic above or below the railroad tracks. Construction of overpasses and underpasses are costly, and this is not always feasible due to cost or geographic configuration.

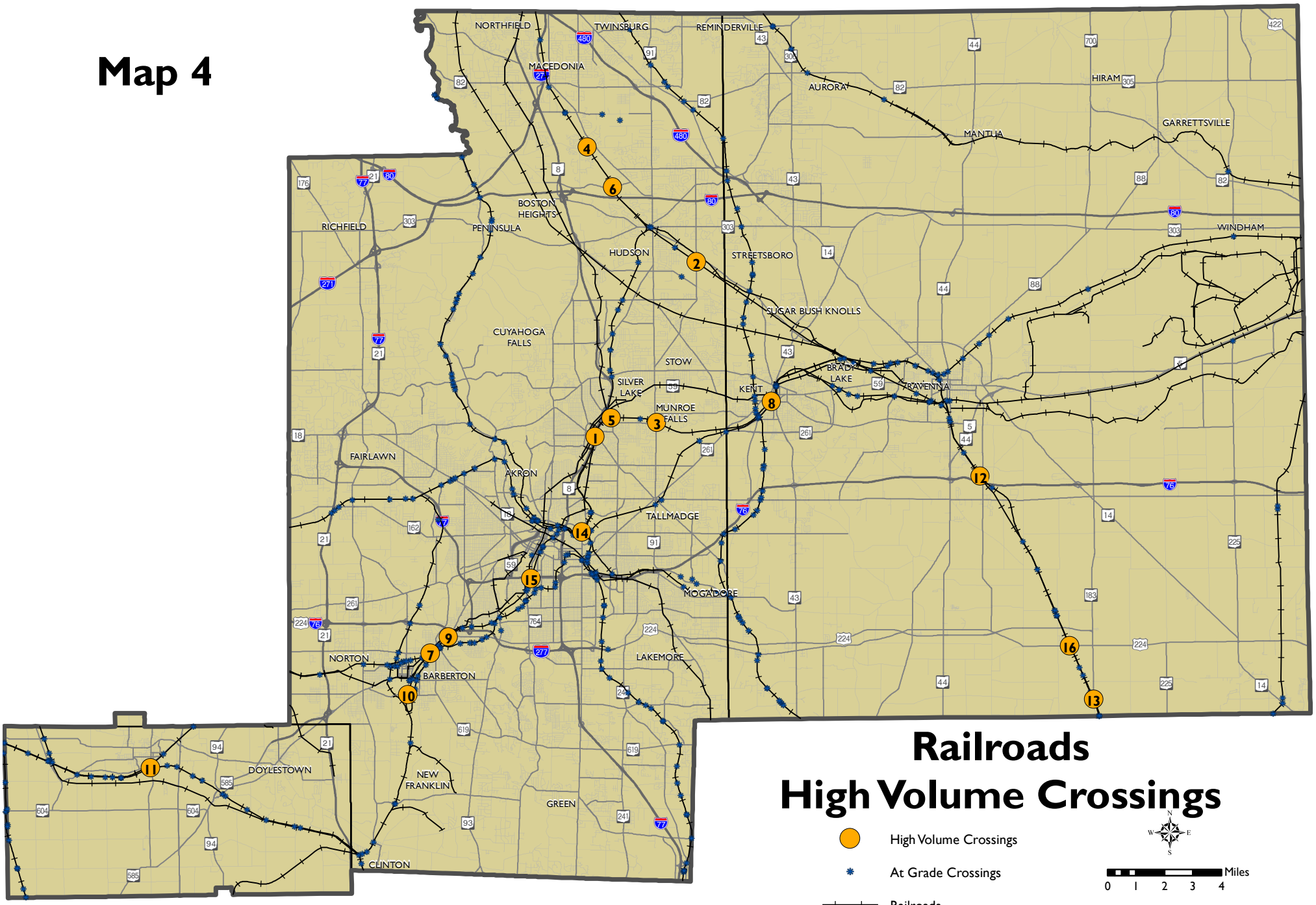
The Association of American Railroads recommends that at-grade crossing accidents can best be reduced through a mix of engineering, education and enforcement, including:

- Closing unnecessary crossings, and adopting a uniform national at-grade crossing closure process, combined with a freeze on the overall number of grade crossings within each state. Ultimately, eliminating all at-grade crossings on the National Highway System.
- Generously funding Operation Lifesaver, a nationwide non-profit organization that educates the public about the need for proper behavior at grade crossings and on railroad property; as well as a research and development program to design effective low-cost active warning systems for at-grade crossings.
- Examining the effectiveness of other types of warning devices such as four quadrant gates.
- Requiring that grade crossing safety be part of commercial driver's license educational curricula and administer tough penalties for grade crossing traffic violations.
- Requiring a minimum set-back or a physical safety barrier between active railroad tracks and adjacent parallel trails and paths.

In 2000, ODOT instituted the Railroad Grade Separation Program. This program provides funding to mitigate the impacts of increased rail traffic in Ohio. It is governed by a subcommittee of the Transportation Review Advisory Council (TRAC). The subcommittee appointed a technical advisory group (TAG) comprising representatives from ODOT, ORDC, PUCO, the Ohio Emergency Management Agency (OEMA), FHWA, and the CSX and Norfolk Southern Railroads. Details of the funding process are found in the Railroad Grade Separation Program Policies and Procedures Manual (Section 895-3).

The AMATS area has a number of at-grade crossings with significant train and vehicle volumes. The AMATS Crash Report (2012-2014) shows four train-motor vehicle crashes for the period of the study. Map 4 shows the at-grade crossings in the AMATS area. High volume crossings are highlighted. High volume crossings are prioritized by scoring the number of trains per day and the daily traffic volume (ADT). Scores greater than 100 are shown on Table 3 below.

Map 4



Railroads
High Volume Crossings

High Volume Crossings

At Grade Crossings

Railroads

N W E S

Miles
0 1 2 3 4

Date: February 2016
Source: ORDC, PUCO, AMATS

Table 3 – Grade Separation Needs

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

The highest priority grade crossing at the time of the previous Freight Plan (December 2012) was the Highland Road crossing with Norfolk Southern in Macedonia between South Bedford Road and Shepard Road. This project was completed on schedule at a cost of $10.5 million. Stow Road in Hudson, also crossing the same Norfolk-Southern rail line, possesses a slightly lower score than Highland Road had. However, no project is scheduled at this time. Stow Road provides a good alternative to bypass the busy intersection of SR 91 and SR 303 in the center of Hudson.

Broad Boulevard in Cuyahoga Falls has the highest priority on the AMATS at-grade crossing table. However, the geometrics of the area prohibit an easy grade separation at this location due to the close proximity of SR 8. North Main Street (SR 91) in Munroe Falls places third in priority, and has a comparable ADT to Broad Boulevard. But the CSX rail line at this location does not have the same level of frequency as the Norfolk-Southern line discussed above.

Hazardous Materials Movement -

According to the FHWA, trucks move more than half of all hazardous materials shipped from within the United States. However, truck ton miles of hazardous shipments account for a much smaller share, about one-third of all ton miles, because such shipments travel relatively short distances. By contrast, rail accounts for only 5 percent of hazardous shipments by weight but nearly 29 percent of ton miles.

Flammable liquids, particularly gasoline, are the predominant hazardous material transported in the United States. In terms of ton miles, flammable liquids account for about 56 percent of total ton miles of hazardous materials shipments. The next largest class of hazardous materials, in terms of ton miles, is gases at about 17 percent.

Because most hazardous materials are transported by truck, most incidents related to the movement of hazardous materials occur on highways or in truck terminals. A very small share of hazardous materials transportation incidents are the result of a vehicular crash or derailment. Less than 2 percent of incidents were crash-related in 2009, but they accounted for 83 percent of all property damage. Most incidents occur because of human error or package failure, notably during loading and unloading.

Strategies to address hazardous material incidents -

While most discussions with freight stakeholders start in the planning phase, freight movement issues can be addressed throughout the transportation planning process: during initial planning, design and construction, operation and maintenance, or in oversight and revenue collection.

Transportation planners can obtain freight stakeholder input throughout the planning process. Potential project design and construction issues include:

- Turning radii at intersections and freeway ramp geometry
- Presence and length of acceleration lanes
- Pavement materials and deterioration
- Bridge height and condition
- Forecasts of future truck traffic
- Impacts of construction work zones on through-traffic and access to businesses
- Capacity of turning lanes
- Ordinances affecting the ability of freight vehicles to maneuver
- At-grade rail crossing issues
- Distance of rail infrastructure from parallel roadways
- Traffic signal timing
- Access restrictions, particularly in residential areas

Operations and maintenance considerations include the impacts of routine maintenance and weather-related conditions on freight movements and the implementation and operation of Intelligent Transportation System technologies to improve the efficiency of freight mobility. Private sector input also supports the development of informed policy and strategy related to cost allocation studies, enforcement of vehicle size and weight restrictions, evaluation of fees and procedures for obtaining permits, routing of over-dimensional vehicles, and safety.

In May 2012, the US Department of Transportation's National Highway Traffic Safety Administration (NHTSA) proposed a new safety standard that requires electronic stability control (ESC) systems on large commercial trucks and buses for the first time. ESC systems are held to be the most effective tool for reducing the propensity for heavy vehicles to rollover or lose control. With sensors that monitor vehicle movement and steering, ESC can help mitigate rollover incidents by using automatic computer-controlled braking, and also aid the driver in addressing severe understeer or oversteer conditions that can lead to loss of control. This new rule was finalized in June 2015 for all heavy trucks and buses, and will be implemented over the next several years.

IV - Performance Measures

Recent federal legislation (MAP-21 and the FAST Act) amended federal regulations by establishing new performance management requirements to ensure that state DOTs and MPOs such as AMATS choose the most efficient investments for federal transportation funds.

Performance management focuses attention on national transportation goals, increases the accountability of federal fund programming, and improves project decision-making through performance-based planning. State DOTs and MPOs will now be required to establish performance goals and assess this performance over time. The USDOT is requiring that states and MPOs develop and assess performance measures for areas such as safety, infrastructure condition, traffic congestion, system reliability, vehicle emissions and freight movement.

Specifically, the USDOT will be assessing performance and pavement conditions on the National Highway System (NHS); bridge conditions on the NHS; fatalities and serious injuries (both the number and the rate per vehicle mile traveled) on all public roads; traffic congestion; mobile source emissions; and freight movement on the interstate system.

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, and refine the performance targets that will be necessary to maintain or improve operational efficiency.

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.

V - Economic Development

Our economy is dependent on an efficient and reliable freight transportation system. Our highways, ports, waterways, railways, airports, and intermodal facilities make up a complex system that shippers rely on to move products to markets. The performance of that system has direct implications for the productivity of the US and regional economies, the costs of goods and services, and the global competitiveness of our industries. Demand for freight transportation has been rising steadily and planners anticipate continued growth over at least the next several decades, while the expansion of freight system capacity has been relatively limited.

Prompted by these trends, federal, state, and local agencies are undertaking a variety of initiatives to ensure that the performance of the nation's freight system does not significantly deteriorate. These initiatives include new efforts to fund freight system improvements and efforts to mainstream freight into the transportation planning and programming process.

Employment in many transportation industries has remained steady or has grown over the past two decades with the notable exception of railroads and pipelines, which have declined by 58 percent and 30 percent, respectively, between 1980 and 2009. Consequently, in 2008 rail transportation employed only 5 percent of those working in the transportation and warehousing industry compared with about 18 percent in 1980. By comparison, employment in trucking in 2009 accounted for 30 percent of total transportation and warehousing sector employment.

Truck driving is by far the largest freight transportation occupation in the United States, and many drivers work for retailers and other establishments with shipper-owned trucks. There were nearly 2.75 million truck drivers in 2009; about 57 percent of these professionals drive heavy/tractor trailer trucks, 30 percent drive light/delivery service trucks, and about 13 percent are driver/sales workers. Industry analysts believe the number of truck drivers is below demand and that driver shortages may worsen in the future.

Truck traffic in Ohio originates and terminates primarily in its major metropolitan areas. As such, increases in freight movement will have a significant impact on the area’s economic development beyond the horizon of the Regional Transportation Plan (2035).

METRO RTA

As one result of an efficient transportation network is to promote economic development, AMATS will continue to consider the possible uses of METRO's rail lines in future planning efforts.

For over twenty years, AMATS has supported the preservation of unused rail lines in its Regional Transportation Plan.

Rail lines can be preserved for a number of reasons, notably to be reopened to freight traffic if local industry requires service. Also, preserved rail lines can be used for bike or pedestrian trails. In the unlikely possibility that the area experiences economic and population growth as seen at the beginning of the 20th Century, preserved rail lines could also be used for passenger rail service.

Public-Private Partnerships

Public-Private Partnership (PPP) involves a contract between a public sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risk in the project. In some types of PPP, the cost of using the service is borne exclusively by the users of the service and not by the taxpayer. In other types, a capital investment is made by the private sector on the strength of a contract with the government to provide agreed upon services. The cost of providing the service may be covered partially or in full by the government. Government contributions to a PPP may also be in-kind (notably the transfer of existing assets, such as property). In projects that are aimed at creating public goods, such as infrastructure, the government may provide a capital subsidy in the form of a one-time grant, otherwise private investors may be unwilling to invest. In some cases, the government may support the project by providing revenue subsidies, including tax breaks, or by providing guaranteed annual revenues for a fixed period of time.

The Heartland Corridor is a public-private partnership between the Norfolk Southern Railway (NS) and the Federal Highway Administration and three US states to improve railroad freight operations.

The $150 million plan was developed to facilitate more efficient travel on NS rail lines between the Norfolk, Virginia port region and two Midwest destinations—Chicago, Illinois and Columbus, Ohio. One of the project goals was to increase clearances in tunnels to permit the operation of double-stack intermodal trains, increasing the capacity of rail lines, shortening rail journeys and reducing truck traffic on parallel roadways. New shipping terminals for intermodal connections were also constructed at key locations.

Construction of the Heartland Corridor began in 2007, with the route opening for double stack service in September 2010.

The Heartland Corridor is pertinent to the AMATS area because its use may reduce freight movements through the Akron Metropolitan area as result of the new corridor's efficiency. In addition, the example of this type of public-private partnership could be realized in the AMATS area if a need was identified.

VI - Intermodal Connections and Infrastructure

Intermodal freight transport involves the transportation of freight in an intermodal container or vehicle, using multiple modes of transportation (rail, ship, and truck), without any handling of the freight itself when changing modes. The method reduces cargo handling, and so improves security, reduces damages and losses, and allows freight to be shipped faster. The reduced cost of intermodal shipping over standard trucking is the key benefit for intra-continental use.

An intermodal container is a standardized reusable steel box used for the safe, efficient and secure storage and movement of materials and products within a global containerized intermodal freight transport system. The term intermodal indicates that the container can be moved from one mode of transport to another (from ship, to rail, to truck) without unloading and reloading the contents of the container. There are approximately seventeen million intermodal containers in the world of varying types to suit different cargoes. Aggregate container capacity may be expressed as twenty-foot equivalent units.

The Twenty-foot Equivalent Unit (TEU) is an inexact unit of cargo capacity often used to describe the capacity of container ships and container terminals. It is based on the volume of a 20 foot-long intermodal container, a standard-sized metal box which can be easily transferred between different modes of transportation, such as ships, trains and trucks.

One TEU represents the cargo capacity of a standard intermodal container, 20 feet long and 8 feet wide. There is a lack of standardization in regards to height, ranging between 4 feet 3 inches and 9 feet 6 inches, with the most common height being 8 feet 6 inches. Also, it is common to designate a 45 foot container as 2 TEU, rather than 2.25 TEU.

In the US, starting in the 1960s the use of containers increased steadily. Rail intermodal traffic tripled between 1980 and 2002, according to the Association of American Railroads (AAR), from 3.1 million trailers and containers to 9.3 million. Large investments were made in intermodal freight projects. Intermodal facilities were built at the Port of Los Angeles/Port of Long Beach, and the Port of New York/New Jersey.

Since 1984, a mechanism for intermodal shipping known as double-stack rail transport has become increasingly common. Rising to the rate of 70% of United States intermodal shipments, it transports more than one million containers per year. A succession of large, new domestic container sizes was introduced to increase shipping productivity.

Using double stack technology, a freight train of a given length can carry roughly twice as many containers, sharply reducing costs per container. On most railroads, special well cars are used for double-stack to reduce the needed vertical clearance and to lower the center of gravity of a loaded car. In addition, the well car design significantly reduces damage in transit and provides greater cargo security by cradling the lower containers so their doors cannot be opened. A succession of larger container sizes has been introduced to further increase shipping productivity on domestic routes.

The top five US containerized cargo trading partners in 2014 were all in Asia: China, Japan, South Korea, Taiwan and Hong Kong (China). China was the leading containerized merchandise trading partner, accounting for over one-third (34 percent) of US maritime imported TEUs.

In addition to affecting the movement of freight throughout the United States, container volume also affects warehousing and distribution. Logistics providers have developed massive integrated freight logistic distribution centers at inland locations such as Kansas City, Memphis, Columbus and Chicago. Each day, thousands of imported containers are transported as far as 2,000 miles to these hubs—mostly by rail—on behalf of large-scale retailers and third-party logistics providers. These freight hubs serve both East Coast and West Coast container ports.

To long-haul the steady stream of imported containers that arrive at the seaports into the interior of the country, the nation's Class I railroads have developed mega-hubs and renovated much of their rail tracks and tunnels for double-stack trains. For example, in August 2010, Norfolk Southern opened its Heartland Corridor route to facilitate the movement of double-stack trains from the port of Norfolk, Virginia, to several hubs in the Midwest, including Columbus, Cincinnati and Chicago. This newly expanded corridor and those developed by other railroads, including CSX, Union Pacific and Burlington Northern Santa Fe are altering the domestic movement of international freight.

The NEOMODAL facility, located in Navarre (Stark County), is a modern intermodal transfer facility built as part of a public-private partnership and operated by the Wheeling and Lake Erie Railway. Completed in 1995, the NEOMODAL facility has never lived up to estimated demand, and functions beneath its capacity.

VII - Survey of Freight Stakeholders

Freight transportation concerns and issues have received increased attention since the 1990s. USDOT has requested that agencies like AMATS monitor and consider freight needs in the transportation planning process. Public sector agencies use various methods to identify locations where improvements are needed to facilitate freight movements. Concerns and needs regarding improvements have been based on a blend of modeling, technical data and estimates, reviews of plans and other documents, personal observations and public input. Various observers believe information from these sources should be combined with more specific information from shippers and motor carriers moving freight. There has been little definitive research done, however, on how best to survey the freight community.

Freight movement is an increasingly significant activity in Ohio. The movement of goods by truck along our interstates and principal arterials serves local, state, regional, national, and international markets. Goods moving between and within cities in Ohio serve local firms, as well as the needs of consumers. Various estimates indicate that freight transportation accounts

for between 5 and 15 percent of the national and state's economy, depending on the type of data used.

Two critical elements in a successful freight system are accessibility (ability of freight haulers to serve a location) and mobility (ease of freight movements from one location to another). Congestion and poor physical condition of the road network are frequently cited as impediments to freight movement. Continued population growth and economic development contribute to increased traffic volumes on the existing road network, leading to congestion in urban areas throughout the state. Deteriorating pavements, bridges, and poor roadway geometry have also been cited as factors that reduce freight mobility.

The impact of such problems on "day-to-day" freight operations is best understood by members of the freight community coping with these problems. As one of the next steps in a more comprehensive approach to freight planning, AMATS may wish to consider a user survey to gauge customer satisfaction with the region's freight transportation system. Indeed, TEA-21 and SAFETEA-LU called for more involvement by the freight industry in transportation planning. Although ODOT has conducted surveys for freight planning, the data have not been specific to the AMATS area.

Transportation researchers have conducted surveys to learn about travel patterns, especially for passenger travel. The Federal-Aid Highway Act of 1962, the key early legislation for promoting transportation planning, required urban area planners to use the "3 C's" – a comprehensive, continuing, and cooperative style of transportation planning. The scope of the legislation covered the movement of both persons and goods, but little progress was made in the past regarding goods movement.

For purposes of this report, AMATS has reviewed industry literature addressing the needs and concerns of the freight community. In addition, ODOT has initiated several recent studies in conjunction with ORDC. See sources in the Appendix.

Freight Committee

The AMATS Policy Committee may wish to assemble a Freight Advisory Committee similar to its Citizens Involvement Committee (CIC) in order to address transportation issues specific to the freight community. This committee would provide a direct opportunity for the private sector to review the transportation planning process.

Purpose: The Freight Committee's goal would be to improve freight transportation efficiency and support efforts to increase freight volume moving within and passing through the region. The committee would work to strengthen the region's position as a multimodal freight hub and provide a means of coordination among regional stakeholders in all modes of freight transportation.

Activities: The Freight Committee would meet bi-monthly for informative presentations, news on current freight issues, guest speakers, and discussion on topics that affect freight movement in the region. The committee would also provide valuable input into our region's long range transportation plan.

Proposed AMATS Freight Advisory Committee
Objectives

- Provide a voice for the freight community in regional transportation planning
- Provide input on policies and improvements for freight mobility
- Identify freight mobility characteristics and needs
- Highlight the significance of freight to the region
- Improve safety of the transportation system
- Prioritize freight transportation needs and investments
- Share information, discuss concerns, and serve as an advocate for local freight operations and improvements for freight and goods movement
- Identify and prioritize needs and investments to promote the safe, efficient, cost-effective, and environmentally responsible movement of freight
- Educate policy makers on interdependence of freight and passenger systems
- Implement regional congestion and intermodal management programs
- Promote economic development
- Improve data/technology sharing for freight analyses and planning

At the metropolitan level, the percentage of MPOs with freight stakeholder groups appears to be similar to the percentage of states with stakeholder groups such as a Freight Advisory Committee (FAC). About one-quarter of MPOs such as AMATS have standing committees or freight advisory committees for obtaining input from the private sector.

Mission, Purpose, Objectives, and Other Guidance for Freight Stakeholder Groups

State and regional freight stakeholder groups provide input to transportation agencies, transportation commissions, and other groups about concerns, needs, priorities, and other issues affecting freight mobility. The issues often include capacity, congestion, cost, environmental concerns, financing, infrastructure needs, land use, mobility, rates, regulations, reliability, safety and security.

At a minimum, freight shippers and carriers or transportation providers would be represented.

Freight stakeholder groups often adopt formal language to guide their activities. Guidance language can take several forms such as mission statements, purposes, goals, objectives, and key roles.

Freight stakeholder groups serve as a forum for improving the public's understanding of freight's economic importance and needs

Freight Advisory Committee

AMATS could establish an advisory committee to guide its freight planning efforts. The primary responsibility of the committee would be to help public-sector policy-makers, planners, and engineers better understand the complexities associated with freight movement to more effectively guide public investment in the transportation infrastructure. AMATS would assemble a team of experts from the following sectors and industries:

- Trucking companies
- Rail transport companies
- Airports and aviation businesses
- Municipal and county planning and engineering departments
- Academia
- Large manufacturers and warehouses
- Federal and state planning and environmental agencies
- Law enforcement agencies

In working with these groups, AMATS hopes to gain an increased knowledge of the freight industry. The committee's experts would advise AMATS in developing planning assumptions, particularly related to the following types of questions:

- What are the factors that determine how, when, and where goods are shipped?
- What are the factors that influence the location of warehousing and distribution centers?
- What flexibility does the industry have in changing shipment routes, modes, or times?
- What are possible opportunities for the public and private sectors to work together to improve the transportation network to benefit the freight industry and the personal travel of the general public?

In December 2012, AMATS members (TAC, Policy and CIC) recommended against the formation of a stand-alone freight committee. The consensus was that the TAC or TAC TIP Subcommittee could review freight-related policies and issues and then make any appropriate recommendations. The staff did not receive any subsequent feedback from the private sector at that time.

VIII - Summary

Strengths and Weaknesses to the Movement of Goods - By Mode

Highway / Trucking Network

Strengths

- Direct Delivery of Goods to Stores and Consumers
- Accessibility to Other Modes of Transportation
- Dense Network of Roads
- Publicly Owned and Managed
- Dedicated Funds for Maintenance
- Ohio is Strategically-Located for Goods Movement (60% percent of the US/Canada Population is within a one day drive - 600 miles)

Weaknesses

- Congestion at Strategic Locations, Bottlenecks
- Limited Ability to Increase Capacity
- Rising Fuel Costs
- Environmental Regulations
- Shortage of Trained Drivers
- Limited Funding for Maintenance and Improvements
- Limitations on Truck Size and Weights
- Speeds Limits, Varying by Location

Rail Network

Strengths

- Most Fuel-Efficient Land Mode
- Developed to Transport Heavy and Repetitive Loads
- Efficiently Moves Bulk Commodities and Large Volumes over Long Distances
- Intercontinental System with Connections to Multiple Shippers
- Intermodal Connectivity
- Most of the Rail System is Privately-Funded, on Private Right-of-Way
- The AMATS area has Multiple Rail Providers
- Reduces Highway Congestion by Providing an Alternative to Trucking

Weaknesses

- Rail is Less Flexible in Delivering Goods to Final Destination
- One-Third of Industry does not have Access to Rail
- Limited Funds to Fix Existing Choke Points
- Limited Funds for Capital Improvements Necessary for Forecasted Increases in Freight
- Private Infrastructure may not be Eligible for Public Funds

- Passenger Rail Impedes Freight Capacity
- Cooperation is Problematic between Competing Rail Companies
- Rising Fuel Costs
- Environmental Regulations

Aviation

Strengths

- Fastest Mode for Moving Freight
- Available Capacity
- Good Accessibility to the Highway Network
- Connectivity
- Access to Global Markets

Weaknesses

- Higher Costs - High Value Freight Only
- Environmental Considerations
- Rising Fuel Costs

IX - 2040 Regional Transportation Plan – Development of Needs

The highest priority needs in the AMATS area regarding freight movement involve improvements to the highway system. The AMATS Highway Preservation Needs Report and the Congestion Management Process (CMP) Report address the needs of the AMATS area in terms of highway improvements that streamline the flow of freight in the region. After studying existing and future levels of congestion, the CMP Report makes recommendations which are then considered for inclusion in the financially-constrained Regional Transportation Plan.

Freight movement, by way of trucks, is heavily concentrated on freeways and major state routes. The number of trucks on these roads range from 50 to 15,000 trucks per day, with I-76 through Summit and Portage counties being the busiest freeway for trucks. Highway improvements such as the Central Interchange project will help improve the efficiency of freight movement on the area's roadways. Recommended grade separations will reduce delays and eliminate conflicts between trains and automobiles.

Since the approval of the current AMATS Freight Plan in December 2012, ODOT has completed Improvements to the ramp from I-76 EB to I-277 NB at the south end of the Kenmore Leg (safety issue related to crashes) to meet modern standards and geometrics. But the largest current project presently under construction is the new South Main/Broadway interchange with I-76/77 near downtown Akron. This $113 million project includes removing interchanges

at Wolf Ledges Parkway and Grant Street, and reconstructing access points and re-aligning Main Street and Broadway.

In addition, work is now beginning on several more improvements to I-76 in the AMATS area, including the Central Interchange (I-76/I-77/SR 8) Project. A new project to reconstruct and realign three of the ramps at the Central Interchange is scheduled in FY 2017 and 2018 of the TIP using $2.7 million in Highway Safety Improvement Program (HSIP) funds and $3.6 million in funds approved by the Transportation Review Advisory Council (TRAC), along with other funding sources. Right-of-way is scheduled in FY 2019 using $900,000 in HSIP funds.

AMATS's freight planning process includes three primary strategies:

- Developing and maintaining databases and analysis tools for decision-making
- Interacting with AMATS members and freight stakeholders to better understand the freight system, identify common issues, and build consensus
- Incorporating freight into the regional transportation planning process

Highway Needs

- Address congestion at the highest rated locations in the AMATS area as discussed in the upcoming CMP Report, emphasizing the areas with high truck traffic.
- Add a truck lane to I-77 NB in the Bath Township/Richfield area due to a steep grade slowing down trucks (congestion issue)
- Improve the I-77/SR 21/SR 18 Interchange (a $7.7 million project sponsored by ODOT is on-going)
- Continue to work with ODOT to address areas with safety concerns
- Improve intersection geometrics near trucking terminals and high truck traffic areas

Rail Needs

- Provide support or engage in public-private partnerships to alleviate congestion on rail lines identified in the Ohio Statewide Rail Plan and the Ohio Freight Rail Choke Point Study
    - Improve the CSX Lambert to Warwick section near Clinton. This section of single track handles large amounts of two-way traffic. When trains are backed up, at-grade crossings are blocked to vehicular traffic. This situation also poses a danger to public safety in the area, as emergency vehicles cannot pass. Estimated cost: $10.9 million
    - Improve the NS Cleveland to Pennsylvania Line that passes through Macedonia, Hudson and Ravenna on its way to Alliance. The segment in Macedonia remains congested along a length of the rail line. A number of solutions have been proposed at this point.
- Improve rail lines owned by METRO RTA and make them available to local industry.
- Preserve out of service rail lines for future rail use or conversion to bike and pedestrian trails

- Consider public/private partnerships with the rail companies in order to improve freight service in the area

Railroad-Highway Grade Separation Needs

Railroad-highway intersections are a source of congestion and safety concerns. The strategies for alleviating congestion and improving safety were discussed earlier in the report. When feasible, separating the railroad and highway provides the greatest benefit. Without regard to cost or geography, the highest priority grade separation locations in the AMATS area are:

- The Stow Road crossing of the Norfolk-Southern Line in Hudson
- The North Main Street (SR91) crossing of the CSX Line in Munroe Falls
- Although listed as a lower priority in Table 3 (p.22), the Hines Hill Road crossing of the Norfolk-Southern line in Hudson poses a safety hazard due to prolonged train stoppages. Preliminary plans have been completed for a new road and bridge south of the existing crossing at an estimated cost of $6 million.

Environmental Justice and Air Quality Considerations

The strategies and projects ultimately recommended as part of the regional transportation plan update process must be considered in terms of environmental justice equity and conformity to air quality standards.

Environmental Justice is 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.

This means that federally funded programs must attempt to identify and address any disproportionately high and adverse human health and environmental effects on minority and low income groups, resulting from the implementation of their plans and projects. A meaningful effort to involve low-income and minority groups in the decision making process must also be made.

Air quality is affected by freight vehicle emissions. Compared with gasoline fueled cars and trucks, diesel-fueled heavy trucks emit small amounts of carbon monoxide (CO2) but large amounts of nitrogen oxides (NOx). However, since 1990 heavy-duty truck emissions of NOx have declined by 67 percent. Freight transportation also accounts for about one-third of emissions of particulate matter (PM) from mobile sources. Most PM, however, comes from agricultural fields, wildfires and fugitive dust. Consequently, freight transportation is a minor factor when considering total PM emissions.

Trucks are by far the largest contributor to freight emissions nationally, producing two-thirds of NOx from the freight sector. However, freight emissions of NOx have declined significantly

since the US Environmental Protection Agency required the use of ultra low sulfur diesel (ULSD) fuel in heavy-duty trucks and other diesel-powered highway vehicles beginning in 2006.

Trucks produce two-thirds of the PM emissions in the freight sector. Freight emissions of PM are forecast to decline by one-quarter over the next decade, primarily from a reduction in heavy-duty truck emissions. The required use of ULSD fuel in heavy-duty trucks and other diesel-powered highway vehicles will reduce PM emissions and enable the use of advanced pollution control technologies to meet emissions standards.

At the same time that freight transportation is growing in its contribution to air pollution, there is a heightened concern about the health and environmental effects of diesel engine emissions. Most freight trucks, locomotives, and ships are powered by diesel engines, which are a major source of emissions of nitrogen oxides (NOx) and particulate matter (PM). The implementation of the 8-hour ozone and fine particulate (PM-2.5) standards, require Metropolitan Planning Organizations across the country, such as AMATS, to find new ways to control NOx and PM emissions from freight transportation sources.

One solution to reducing mobile emissions is the Congestion Mitigation and Air Quality Improvement (CMAQ) Program administered jointly by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). The purpose of the CMAQ Program is to provide funds for projects that assist in meeting the air quality requirements of the National Ambient Air Quality Standards (NAAQS). In the past, the CMAQ program has emphasized reducing traffic bottlenecks, intersection delays and the coordination of traffic signals.

Several years ago USDOT expanded the focus of eligible CMAQ project types. Projects may include new diesel engine technology or retrofits of vehicles or engines. Intermodal facilities that generate lower overall levels of emissions are now eligible projects, along with idle reduction strategies.

The AMATS area formerly received approximately $5 million per year in CMAQ funds exclusive to our area. Although these funds are now overseen by a statewide committee, AMATS continues to utilize CMAQ funding for the benefit of the area. However, a stable level of AMATS-attributable CMAQ funding cannot be guaranteed at this point. In addition to the statewide committee's funding, ODOT may sponsor projects in our area using state-attributable CMAQ funds.

Recent Federal Legislation - The FAST Act

On December 4, 2015, a new federal surface transportation bill was signed into law. Entitled The Fixing America's Surface Transportation (FAST) Act, the law provides $305 billion in transportation funding through 2020. A number of changes have been made from the previous transportation bill (MAP-21), although these changes are still developing pending US DOT's issuance of rules and regulations associated with the FAST Act.

At the federal level, USDOT mandates the development of a national freight strategic plan. The plan is being developed by US DOT in consultation with the states and other appropriate public and private stakeholders. The national plan will be updated every five years.

The FAST Act includes a number of provisions focused on ensuring the safe, efficient, and reliable movement of freight. Specifically, the FAST Act:

- Establishes a National Multimodal Freight Policy that includes national goals to guide decision-making.
- Requires the development of a National Freight Strategic Plan to implement the goals of the new National Multimodal Freight Policy. The National Freight Strategic Plan will address the conditions and performance of the multimodal freight system, identify strategies and best practices to improve intermodal connectivity and performance of the national freight system, and mitigate the impacts of freight movement on communities.
- Creates a new competitive discretionary freight-focused grant program that will invest $4.5 billion over 5 years. This new program allows states, MPOs such as AMATS, and local governments to apply for funding to complete projects that improve safety and eliminate freight bottlenecks associated with the National Highway System.
- Establishes a National Highway Freight Program. The Act provides $6.3 billion in formula funds over five years for states to invest in freight projects on the National Highway Freight Network. Up to 10 percent of these funds may be used for intermodal projects.
- Includes new authorities and requirements to improve project delivery and facilitate innovative finance. The FAST Act includes provisions intended to reduce the time it takes to break ground on new freight transportation projects, including by promoting best contracting practices and innovating financing and funding opportunities and by reducing uncertainty and delays with respect to environmental reviews and permitting.
- Requires each state to develop a statewide freight plan that comprehensively addresses freight planning activities and investments. Among other requirements, a state freight plan must cover a five year forecast period; be fiscally constrained; include a “freight investment plan” with a list of priority projects; and describe how the state will invest and match its National Highway Freight Program funds. The state must update its freight plan at least every five years.

In addition, AMATS continues to work with ODOT to produce a report on the conditions and performance of the freight network and begin development of performance assessment tools to evaluate freight-related projects and impacts in continuity with previous federal legislation.

Appendix A - Sources

American Trucking Associations

Association of American Railroads (AAR)

Federal Highway Administration (FHWA) - Freight Analysis Framework (FAF)

National Transportation Safety Board (NTSB)

Northeast Ohio Logistics Infrastructure Study

Ohio Department of Public Safety (ODPS)

Ohio Department of Transportation (ODOT)

Ohio Rail Development Commission (ORDC)

Ohio Turnpike Commission

United States Department of Transportation (USDOT) - Bureau of Transportation Statistics

NEOTEC: neohiotransportationupdate.com

Appendix B - Glossary

AAR: Association of American Railroads

ADT: Average Daily Traffic

AMATS: Akron Metropolitan Area Transportation Study

At-Grade Crossing: (or Highway-Rail crossing) - A location where one or more railroad tracks intersect a public or private right-of-way, a sidewalk, or a pathway.

Class I Freight Railroad: Defined by the American Association of Railroads each year based on annual operating revenue. For 2009, the threshold for Class I railroads was revenues exceeding $378.8 million. A railroad is dropped from the Class I list if it fails to meet the annual revenue threshold for three consecutive years. The US Class I Railroads in 2009 were: BNSF Railway, CSX Transportation, Grand Trunk Corporation, Kansas City Southern Railway, Norfolk Southern Combined Railroad Subsidiaries, Soo Line Railroad, and Union Pacific Railroad.

Class II Freight Railroad: Defined by the American Association of Railroads each year based on annual operating revenue. A Class II Railroad is a mid-sized freight-hauling railroad, sometimes described as a regional railroad, with operating revenues less than $378.8 million and greater than $51 million.

CMP: Congestion Management Process

Container: A large standard-size metal box into which cargo is packed for shipment aboard specially configured oceangoing containerships. It is designed to be moved with common handling equipment to enable high-speed intermodal transfers in economically large units between ships, railcars, truck chassis, and barges using a minimum of labor. Therefore, the container rather than the cargo in it serves as the transfer unit.

Container Port: A harbor with marine terminal facilities for transferring cargo between containerships and land transportation, such as truck or rail.

Containerization: A system of intermodal freight transportation that uses standard containers that can be loaded onto vessels, railcars, and trucks. It

	involves the stowage of general or special cargo in a container for transport in the various modes.
Containership:	A cargo vessel designed and constructed to transport, within specifically designed cells, portable tanks, and freight containers, which are lifted on and off with their contents intact.
Containerized cargo:	Cargo that is practical to transport in a container and results in a more economical shipment than could be achieved by shipping the cargo in some other form of unitization (e.g., break-bulk).
CSXT:	CSX Transportation is a Class I Railroad HQ in Jacksonville, FL
E-Z Pass:	E-Z Pass is an electronic toll-collection system used on toll roads such as the Ohio Turnpike, allowing vehicles to proceed through toll gates without stopping.
FAST:	The Fixing America's Surface Transportation (FAST) Act is a five-year, $305 billion federal transportation funding and authorization bill signed into law on December 4, 2015.
FFC:	Federal Functional Classification. The Federal Highway Administration classifies roadways according to the character of service they are intended to provide. Generally, highways fall into one of four broad categories: principal arterials, minor arterials, collector roads, and local roads. Functional Classification is one determinant of eligibility for federal transportation Funding
FHWA:	Federal Highway Administration
Intermodal:	A term used to denote movements of cargo containers interchangeably between transport modes—rail, highway, water, and air, where the shipping equipment is compatible within multiple systems.
ISTEA:	Intermodal Surface Transportation Equity Act (covering the years 1992-1997) - US federal law passed by Congress governing transportation planning and funding
LCV:	Long Combination Vehicle. LCVs are combinations of multiple trailers on one tractor truck as compared to a standard 5-axle semi trailer-truck with one trailer. The Ohio Turnpike permits the use of LCVs.

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