

The AMATS Regional Public Transit Plan



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Akron Metropolitan Area Transportation Study
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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.

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Executive Summary

As the Metropolitan Planning Organization (MPO) for the area, AMATS is responsible for the creation of a comprehensive public transportation plan that best serves the needs of our region. There are two primary providers of public transportation in our region: METRO RTA, 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.

As part of the planning process, AMATS has collected and analyzed a wide variety of data, leading to recommendations which will improve existing service for those who already use public transit, as well as attracting new passengers. Overall, the AMATS Regional Public Transit Plan underscores the importance of preserving the existing system through the maintenance of building infrastructure and bus fleets. The AMATS Transit Plan also recommends operation improvements such as increased frequency on high ridership routes as part of traffic congestion management.

At the outset, The AMATS Transit Plan analyzes the current transit system. The current METRO and PARTA systems provide very good coverage within their respective urbanized areas (Akron, Barberton, Cuyahoga Falls, Kent and Ravenna), and service tends to taper off in proportion to a community's distance from these urban cores. Both agencies have made recent improvements in their service frequencies, as explained in the level of service (LOS) analysis. Both RTAs run more frequent service during the day, with varying degrees of service reductions in the evening.

Subsequently in the AMATS Transit Plan, demographic groups with strong correlations to transit ridership are analyzed to determine how well the existing system serves their geographical distribution. Similar to the population in general, these residents are most highly concentrated in larger, urban areas, and are well served by fixed-route transit. Significant concentrations in suburban/rural areas are highlighted, with mixed levels of coverage – some communities offer good access to transit, and some lack it altogether.

A number of land use types are responsible for generating transit ridership. The plan analyzes the distribution of these types, such as employment centers, schools, government offices and recreational centers throughout the AMATS region, and superimposes them on the existing transit network. This allows the identification of concentrations of land uses that are well served by transit, and where they are not.

The plan also includes a discussion of transit services beyond county borders. Census data has been analyzed to determine “desire lines”, or potential areas of strong transit demand. Lines between Akron and the communities of Aurora, Ravenna, Canton and Wadsworth show particularly strong potential for cross-county transit ridership.

Ultimately, the plan leads to the identification of nine key transit corridors, where it is recommended that existing service be expanded upon, or if service is non-existent, that it be added when feasible. Key nodes or segments within these nine corridors have been identified for the potential implementation of transit oriented development/design. These areas could be greatly enhanced through the design of

pedestrian friendly environments, transit, bike and pedestrian amenities, and building designs that embrace the street, rather than recede from it.

In addition to the key transit corridors, the plan also identifies transit gaps at the community level. These gaps consist of municipalities showing strong potential for transit service (population densities, high growth, concentrated land uses and populations likely to use transit), yet lacking regular fixed-route service. The six communities with significant transit gaps are: Aurora, Copley Township, Green, the Village of Mantua, Streetsboro and Twinsburg.

A number of general recommendations are presented at the end of the report, divided into three categories of responsibility: regional-level, municipality-level and recommendations specific to the two area transit providers, METRO and PARTA. Some of the key recommendations include:

- Shifting existing service from lines that show very little ridership and/or growth to areas showing strong demand, allowing the AMATS region to best utilize its transit investments
- Advance the present efforts of NEORide, the Council of Governments (COG) formed by METRO, PARTA and SARTA, to expand cross-county transit service.
- Municipalities should support transit oriented development/design, as appropriate, at important nodes within identified key transit corridors
- Improving existing transit levels of service (i.e. bus frequency), particularly in the evening, to better serve the existing ridership base, and to assist in employment opportunities

The recommendations contained within the AMATS Regional Public Transit Plan are designed to support a convenient and efficient public transportation system for the Greater Akron region. It is intended that this plan will help our area achieve a balance between providing enhanced service to existing, high-demand locations, and extending new service to outlying areas demonstrating a strong need for transit access.

Chapter 1: The Existing Transit System and Coverage

Existing System and Coverage

In the AMATS region, 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. The following tables show the fixed-route service currently offered by PARTA and METRO, as well as a snapshot of the general level of ridership that could be expected during a one-month period:

Table 1: PARTA Fixed-Route Service - as of December 2015

Route #	Description	Passengers Dec. 2015	% Change in Ridership 2014-2015	Passengers Per Revenue Hour
6200	Gateway	868	10.3%	5.8
6300	Interurban	24,923	14.5%	13.8
6300 S	Saturday Interurban	1,696	13.2%	18.8
6400	Suburban	7,748	22.6%	11.9
6400 S	Saturday Suburban	448	21.4%	10.0
6600	Black Squirrel	2,533	23.1%	18.9
6700	Windham-Garrettsville	946	-4.4%	3.0
6800	Raven (Interlined with Interurban)	N/A	N/A	N/A
9100	Kent Circulator	380	31.9%	5.5
5100	Campus Loop	15,319	-8.1%	38.1
5300	Reverse Loop	3,718	-0.4%	17.1
5500	Allerton	4,206	-15.7%	19.1
5600	Downtowner	41	51.9%	3.4
5700	Stadium Loop (KSU Break)	497	12.7%	4.9
5800	Summit East via Stadium	30,754	39.4%	38.7
5900	Late Night Stadium Shuttle	1,389	49.4%	18.3
8900	Akron Express	1,670	-7.4%	6.4
8300	Cleveland Express	360	-30.1%	2.2
Total Fixed-Route Passengers - December 2015:				97,496

Table 2: METRO RTA Fixed-Route Service - as of December 2015

Route #	Description	Passengers Dec 2015	% Change in Ridership 2014-2015	Passengers Per Revenue Hour
1	West Market	49,606	12.0%	28.0
2	Arlington	43,039	-4.7%	27.1
3	Copley/Hawkins	22,783	-3.3%	19.6
4	Delia/N Hawkins	10,004	-12.0%	17.9
5	East Market/Ellet	7,625	1.5%	12.8
6	East Market/Lakemore	18,444	5.1%	18.3
7/7A	Cuyahoga Falls Ave	14,442	-11.7%	17.8
8	Kenmore/Barberton	21,552	1.9%	21.2
9	Wooster/East Ave	12,140	-9.1%	17.4
10	Howard/Portage Trail	19,774	-4.2%	18.5
12	Tallmadge Hill	18,677	15.2%	20.0
13	Grant/Firestone Park	15,296	-12.1%	20.0
14/14X	Euclid/Barberton XP	21,717	-2.5%	13.6
17	Brown/Inman	16,686	-5.8%	18.5
18	Thornton/Manchester	15,588	-0.8%	20.5
19	Eastland	18,870	1.8%	22.5
23	Portage/Graham	-	N/A	-
24	Lakeshore	4,924	-5.0%	17.4
26	W Exchange/White Pond	7,752	-4.6%	14.6
28	Merriman Valley	3,795	27.8%	10.0
30	Goodyear/Darrow	11,682	6.2%	16.1
33	State Rd/Wyoga Lake	4,771	28.8%	12.8
34	Cascade Village/Uhler	16,415	-6.5%	16.4
50	Montrose Circulator	2,508	3.6%	4.9
51	Stow Circulator	1,273	-30.1%	2.4
53	Portage/Graham	2,321	-	5.2
59	Chapel Hill Circulator	1,500	-31.4%	4.5
X-60	Northcoast Express - Chapel Hill	1,738	5.3%	10.5
X-61	Northcoast Express - Montrose	6,333	-3.1%	8.1
101	Richfield/Bath	1,422	2.2%	4.6
102	Northfield Express	2,853	-19.6%	3.8
103	Stow/Hudson	1,695	-7.5%	3.7
104	Twinsburg Creekside	2,587	11.9%	3.8
110	Green/Springfield	2,305	4.0%	6.3
111	South Main/Waterloo	2,360	-3.0%	9.6
Total Fixed-Route Passengers - December 2015:				404,477

Table 3 – Total Population Transit Coverage by Community

(Includes Only Communities with Access to Fixed-Route Transit Service)

Community Name	2010 Census Population	Total Population w/in 1/4 Miles of Transit	% Transit Coverage
Akron	199,110	166,001	83.4%
Barberton	26,550	14,595	55.0%
Bath	9,702	2,009	20.7%
Boston Twp	1,272	29	2.3%
Boston Heights	1,300	291	22.4%
Brady Lake	464	57	12.3%
Brimfield Twp	10,376	1,254	12.1%
Charlestown Twp	1,799	5	0.3%
Copley Twp	17,304	2,427	14.0%
Coventry Twp	10,945	3,013	27.5%
Cuyahoga Falls	49,652	31,612	63.7%
Fairlawn	7,437	3,960	53.2%
Franklin Twp	5,527	4,200	76.0%
Freedom Twp	2,843	240	8.4%
Garrettsville	2,325	836	36.0%
Green	25,699	6,402	24.9%
Hiram	1,406	79	5.6%
Hiram Twp	2,411	90	3.7%
Hudson	22,262	6,119	27.5%
Kent	28,904	19,840	68.6%
Lakemore	3,068	1,259	41.0%
Macedonia	11,188	4,067	36.4%
Mogadore	2,846	94	3.3%
Munroe Falls	5,012	1,234	24.6%
Nelson Twp	3,148	7	0.2%
Northfield	3,677	2,099	57.1%
Northfield Center Twp	5,839	872	14.9%
Norton	12,081	1,182	9.8%
Ravenna	11,724	5,757	49.1%
Ravenna Twp	9,209	2,307	25.1%
Richfield Twp	6,165	231	3.7%
Richfield	3,648	928	25.4%
Sagamore Hills	10,947	437	4.0%
Shalersville Twp	5,670	12	0.2%
Silver Lake	2,519	1,804	71.6%
Springfield Twp	14,644	2,695	18.4%
Stow	34,837	15,440	44.3%
Streetsboro	16,028	2,499	15.6%
Sugar Bush Knolls	177	20	11.3%
Tallmadge	17,257	4,886	28.3%
Tallmadge (Portage)	280	172	61.4%
Twinsburg	18,795	6,291	33.5%
Twinsburg Twp	2,828	1,196	42.3%
Windham	2,209	1,355	61.3%
Windham Twp	1,865	205	11.0%
Total Population with Transit Access:		320,108	44.9%

Total Population Coverage Analysis

Based on data provided by the U.S. Census Bureau, the Table 3 above illustrates the overall level of fixed-route transit coverage in the AMATS region. The table shows the number and percent of residents that live within a comfortable walking distance (1/4 mile is the typical standard). Please note that this table does not include *every* community within the AMATS region – only those with at least some access to fixed-route transit.

Out of the entire AMATS region's population of 713,412 (as of 2010), 320,108 people (or approximately 45% of the population) have access to fixed-route transit. Older established cities such as Akron, Barberton, Kent, etc., generally offer the highest level of transit access, but surprisingly, some smaller, more suburban communities (Coventry and Franklin Townships, Lakemore and Silver Lake) also offer excellent coverage. As would be expected, remote or more rural communities (Charlestown, Nelson and Shalersville Townships, for example) offer very low levels of transit access.

Transit Level of Service Analysis

One way of showing the convenience of a transit line to potential riders is by calculating its level of service (LOS). Unlike highway LOS, which rates the level of congestion of a particular roadway, transit LOS represents the *convenience* of a transit line to potential passengers (*not* how close to capacity the buses are). Specifically, transit LOS represents the average headway, or time between bus arrivals at a particular location. A high LOS means that buses arrive frequently and service is highly attractive, whereas a low LOS means that bus arrivals are sparse and passengers are likely to experience long wait times. Each transit line is assigned an LOS letter grade, from 'A' through 'F', based on the specifications shown in the key below:

Transit LOS Key:			
LOS	Headway (min)	Veh/Hr	Comments
A	< 10	> 6	Passengers don't need schedules
B	10-14	5-6	Frequent service, passengers consult schedules
C	15-20	3-4	Maximum desirable time to wait if bus missed
D	21-30	2	Service unattractive to choice riders
E	31-60	1	Service available during hour
F	> 60	< 1	Service unattractive to all riders

Source: Transportation Research Board

For this LOS analysis, weekday time periods (peak and non-peak) were selected, based on predominant travel patterns observed in the AMATS planning area. Much of the demand for transit service is spread throughout the day, so average daytime and evening headways are also calculated. Using the most recently published timetables for each METRO and PARTA fixed-route line, inbound trips were separated into several time periods (peak and non-peak, daytime and evening), and the average time between buses was calculated. This average time was compared to the transit level of service table (as seen above) and an LOS score was then applied. The results of this analysis are shown on the following two tables:

METRO Fixed-Route LOS Analysis

Trip Frequency		AM Peak (7-9am) Headway (Mins)	LOS	Daytime (6am-7pm) Avg Headway (Mins)	LOS	PM Peak (4-6pm) Headway (Mins)	LOS	Evening (7pm+) Avg Headway (Mins)	LOS	Peak Vehicles	Inbound Trip Length (Mins)
Route #	Description										
1	West Market	22	D	24	D	29	D	70	F	6	45
2	Arlington	20	C	23	D	21	D	70	F	6	50
3	Copley/Hawkins	22	D	34	E	27	D	70	F	5	43
4	Delia/N Hawkins	36	E	43	E	30	D	No Service	N/A	4	35
5	East Market/Ellet	42	E	56	E	48	E	No Service	N/A	3	65
6	East Market/Lakemore	26	D	36	E	35	E	70	F	5	50
7/7A	Cuyahoga Falls Ave	28	D	36	E	32	E	70	F	4	33
8	Kenmore/Barberton	25	D	40	E	28	D	70	F	4	53
9	Wooster/East Ave	40	E	40	E	35	E	70	F	3	29
10	Howard/Portage Trail	34	E	38	E	30	D	70	F	4	48
11	South Akron	70	F	77	F	77	F	No Service	N/A	1	40
12	Tallmadge Hill	33	E	35	E	35	E	70	F	5	46
13	Grant/Firestone Park	25	D	40	E	36	E	70	F	4	34
14	Euclid/Barberton	27	D	34	E	30	D	70	F	5	68
17	Brown/Inman	31	E	38	E	28	D	70	F	5	38
18	Thornton/Manchester	32	E	36	E	38	E	70	F	3	31
19	Eastland	38	E	44	E	27	D	65	F	3	41
21	South Main	40	E	40	E	40	E	No Service	N/A	1	15
24	Lakeshore	60	E	37	E	40	E	No Service	N/A	2	12
26	W Exchange/White Pond	35	E	43	E	50	E	One Trip	N/A	2	38
28	Merriman Valley	45	E	57	E	37	E	No Service	N/A	3	40
30	Goodyear/Darrow	45	E	40	E	43	E	No Service	N/A	3	40
33	State Rd/Wyoga Lake	45	E	143	F	100	F	90	F	2	40
34	Cascade Village/Uhler	28	D	36	E	32	E	70	F	4	48
50	Montrose Circulator	30	D	27	D	28	D	40	E	3	29
51	Stow Circulator	40	E	37	E	35	E	One Trip	N/A	2	23
53	Portage/Graham	43	E	62	F	128	F	No Service	N/A	3	56
54	DASH/Downtown	10	B	10	B	10	B	15	C	4	18
59	Chapel Hill Circulator	44	E	56	E	60	E	55	E	2	42
X-60	Northcoast Express - Chapel Hill									2	96
X-61	Northcoast Express - Montrose									5	77
101	Richfield/Bath	50	E	60	E	80	F	One Trip	N/A	2	52
102	Northfield Express	52	E	57	E	80	F	67	F	2	50
103	Stow/Hudson	62	F	66	F	60	E	60	E	2	57
104	Twinsburg Creekside	56	E	51	E	44	E	67	F	3	52
110	Green/Springfield	55	E	99	F	45	E	One Trip	N/A	2	66

Proposed High Frequency Route

Source: August 2016 Schedule

PARTA Fixed-Route LOS Analysis

Trip Frequency		AM Peak (7-9am) Headway (Mins)	LOS	Daytime (6am-7pm) Avg Headway (Mins)	LOS	PM Peak (4-6pm) Headway (Mins)	LOS	Evening (7pm+) Avg Headway (Mins)	LOS	Peak Vehicles	Inbound Trip Length (Mins)
Route #	Description										
County Service											
10	Kent Circulator	No Service	N/A	130	F	One Trip	N/A	No Service	N/A	1	27
20	Gateway	No Service	N/A	35	E	One Trip	N/A	No Service	N/A	2	18
30	Interurban West (Kent to Stow)	45	E	38	E	33	E	44	E	2	22
35	Interurban East (Kent to Ravenna)	34	E	40	E	29	D	34	E	3	50
40	Suburban North	58	E	52	E	45	E	58	E	1	19
45	Suburban South	53	E	47	E	50	E	75	F	1	15
60	Black Squirrel	One Trip	N/A	30	D	30	D	No Service	N/A	1	9
70	Windham Garrettsville	One Trip	N/A	98	F	One Trip	N/A	No Service	N/A	1	49
80	Raven	One Trip	N/A	96	F	45	E	One Trip	N/A	0	20
90	Akron Express										40
100	Cleveland Express										100
Campus Service											
51	Campus Loop	10	B	10	B	9	A	24	D	0	18
53	Reverse Loop	10	B	10	B	9	A	24	D	3	18
54	Student Center Express	17	C	12	B	15	C	No Service	N/A	2	10
55	Allerton	12	B	12	B	12	B	12	B	1	5
57	Stadium Loop	35	E	35	E	35	E	No Service	N/A	1	22
58	Summit East/Front Campus	13	B	12	B	9	A	18	C	4	14
59	Summit East/Stadium	16	C	12	B	16	C	27	D	2	30

Source: November 2016 Schedule

LOS Analysis

METRO RTA

In recent years METRO has made improvements to their levels of service. Although bus lines offering service at a LOS 'A', 'B' or 'C' are less prevalent, there has been a strong increase in the number of bus lines offering a LOS 'D', and those operating at 'E' or 'F' have decreased proportionally. Although 'D' rated service generally precludes choice ridership (i.e. those who have access to personal automobiles or other transportation), it provides reasonable frequency to those who depend on transit. In terms of rider perception, the difference between 'C' and 'D' service might only be a matter of minutes. METRO's "Driving Forward" initiative will improve the level of service on high ridership routes, coinciding with areas of high traffic volume, thus alleviating roadway congestion.

METRO's fixed-route service provides broad coverage in central Summit County, particularly within the denser cities such as Akron, Barberton and Cuyahoga Falls. With limited funding and assets available, any transit agency faces a trade-off between maximum geographical coverage and frequency on each particular route. METRO strikes a good balance, providing wide coverage and more frequent service, especially on its highest ridership routes.

One area in need of service improvement is after 7:00pm evening hours. Fixed-route service is very infrequent, with most of the routes exhibiting a level of service of 'F'. This creates a transportation burden on second-shift workers, particularly those in lower-paying service industries, who are among the most likely to use transit to commute to their places of employment.

METRO is in the process of redeveloping its route structure and LOS to meet the needs of the area. Metro intends to increase the frequency of its buses on core routes during peak work hours, and may cut or reduce suburban routes, eliminate some bus stops and create new transfer hubs as part of a major overhaul of its fixed route system.

PARTA

PARTA's fixed-route service is very different from METRO's, as the two agencies' LOS statistics indicate. Whereas METRO provides broad service within most portions of the more urbanized Summit County, PARTA focuses its efforts on the smaller number of urban areas within more rural Portage County. With most service concentrated in the compact college town of Kent and the nearby county seat of Ravenna, PARTA is able to run frequent service in this compact geographical area.

Service in and around Kent State University is very frequent, with nearly 1/3 of fixed-routes operating at LOS 'A' during mid-day time periods. Most of the lines classified as LOS 'D', 'E' or 'F' are the periodic trips to the farthest reaches of the county, or express trips to Akron or Cleveland. Long-haul express trips typically run infrequently for any transit agency, often once per hour for a very limited number of hours each day. Service in the City of Kent, Ravenna and through Kent State University is frequent and highly attractive.

Similarly to METRO (and most transit agencies), service drops off significantly in the evening and at night. Yet, even at night, a moderate percentage of PARTA's fixed routes provide LOS 'B' and 'C', which is beneficial to the local college students and city residents. PARTA is currently in the process of updating its fixed route system to provide more direct routes and improved headways. A restructured system should be in place in early 2017. Dial-a-ride demand response service remains a priority and is available for the general public.

Chapter 2: Transit Capital Assets

Current Transit Assets

METRO and PARTA maintain a diverse fleet of transit vehicles and other transportation assets, allowing these agencies great flexibility in providing an array of services, both now and in the future. Some of the more innovative of these assets include the following:

Compressed Natural Gas (CNG) Buses	Articulated Buses	Commuter Buses
		
<p>CNG buses emit fewer pollutants, reduce dependence on foreign oil, and cost on average 30% less to refuel. METRO is working to convert its entire fleet to CNG, and PARTA will soon be building a CNG fueling station, allowing them to convert their fleet as well.</p>	<p>METRO has recently employed articulated buses, which allow the agency to operate high-capacity service on its highest ridership lines. These articulated buses are CNG powered, so reduce pollution as well as roadway congestion.</p>	<p>Used for METRO's Northcoast Express commuter service to Cleveland, these buses offer comfortable seats for longer trips, and offer a variety of conveniences to travelers, including wireless internet access, computer charging stations and bicycle storage.</p>

Demand-Response Buses	Rail Portfolio	MV 1 Vehicles
		
<p>These smaller buses are used by METRO and PARTA to provide curb-to-curb service for qualified riders. Trips on these vehicles are scheduled in advance, and routes are coordinated so that multiple riders may share the use of the vehicle, when possible.</p>	<p>METRO owns several rail lines connecting Akron to key communities such as Kent, Hudson and points south towards Canton. The agency permits freight service on portions of the rail lines that it possesses, and preserves them for future use.</p>	<p>METRO has started using these modern vehicles to supplement its SCAT/ADA service. These sleek vehicles transport up to five passengers, and allow those using mobility devices to sit up front and facing forward, next to the driver.</p>

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 twelve years or 500,000 miles. For METRO's small buses and vans, the average age is 2.0 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 ten 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 5 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.

Transit Asset Management

One challenge that transit agencies face is maintaining transit infrastructure and equipment in a state of good repair (SGR). There is a concern that a significant proportion of the nation's public transportation assets are in need of capital reinvestment to maintain this state of good repair. This situation is not limited to public transportation assets, but extends to other transportation assets as well, including highways, bridges, safety features, and transportation facilities. To address this issue, transit agencies are developing systems to more effectively manage their physical assets. Ideally these systems use quality inventory and condition data and well-defined objectives to provide a systematic process for allocating funding.

Recent federal legislation requires that METRO and PARTA develop and implement their own transit asset management (TAM) plans. These plans must contain an asset inventory, condition assessments of inventoried assets, a prioritized list of investments to improve state of good repair, and various implementation activities. The rule would require an initial TAM plan to be completed by every transit provider by October 1, 2018. The plans are to be updated every four years and must consider funding levels and funding sources that are reasonably available each fiscal year. The TAM update cycle is also to coincide with major updates to the Transportation Improvement Program (TIP) for which AMATS is responsible as the region's federally designated Metropolitan Planning Organization (MPO).

Transit Asset Management uses asset conditions to help prioritize funding to achieve or maintain transit networks in a state of good repair. For transit as well as for highways, asset management is a proven technique for cost efficiency, potentially providing superior outcomes within constrained budgets. Just

as importantly, by tying asset conditions to performance measures, asset management also provides a framework for analyzing the performance impacts of various financial planning scenarios, demonstrating how increased investments improve system performance.

Rolling stock assets such as buses will be measured by the percent of vehicles by category that have met or exceeded their useful lives. Non-revenue service vehicles will also be measured by the percent of vehicles by category that have met or exceeded their useful lives. For infrastructure such as rail, the performance measure will be the percentage of track segments, signals and systems with poor conditions, such as areas of the track where maintenance is needed. For facilities, the performance will be measured by the percent of facilities within an asset class rated marginal or poor according to FTA guidelines.

The Federal Transit Administration (FTA) is working with local transit agencies to develop a system for tracking the conditions of transit assets and developing the scheduling of preventive maintenance and asset replacement. Within the next year, FTA will assist state DOTs, such as ODOT, and the transit agencies in developing performance measures and goals for the state of good repair of capital assets, as well as bus fleet reliability, on-time performance, and safety and satisfaction data.

Chapter 3: Transit Ridership & Demographics Analysis

Transit Ridership

Those who use public transportation generally fall into one of two different groups of riders:

Transit Dependent – These riders generally form the primary base of transit ridership. For any number of reasons, this population does not have access to personal transportation, or is unable to use it. Some demographic groups with a strong correlation to transit ridership include:

- The Disabled
- Elderly
- Low Income
- Minority
- Students

Choice Riders – This population *has* access to personal automobile transportation, but chooses to use public transportation for a variety of reasons, including (but not limited to):

- It is inexpensive compared to automobile transportation
- It is more convenient in areas of high congestion or limited/expensive parking
- Time spent traveling can be used productively
- Less stressful – only the driver needs to worry about traffic
- Safer – particularly in snowy or other inclement weather conditions

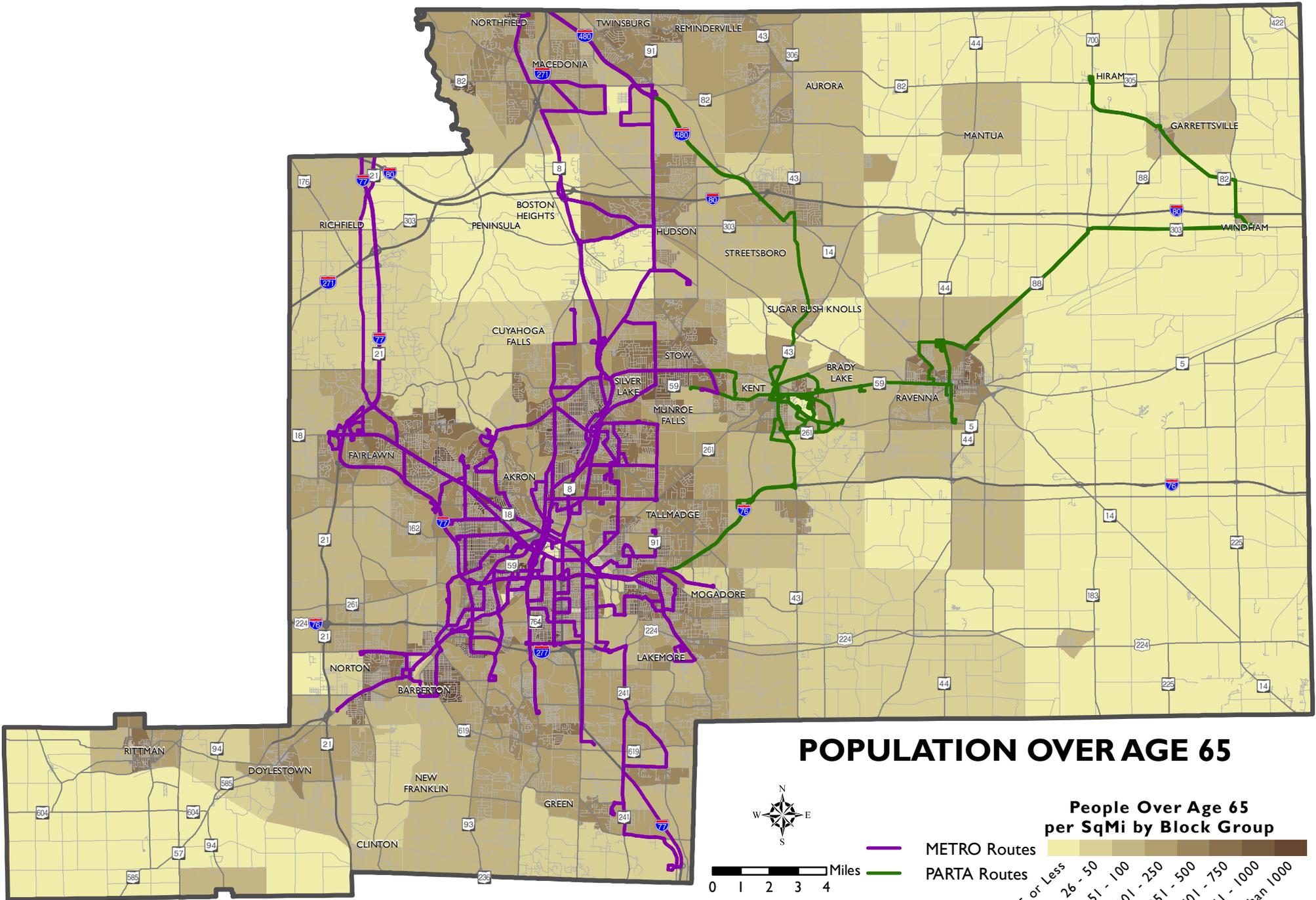
A more detailed discussion on choice riders, and the benefits they provide to local transit agencies, may be found below.

Demographics Analysis

The following series of maps illustrates the geographical dispersion of the following transit dependent demographic groups listed above:

- The Elderly
- Low Income
- Minority
- Disabled

Population data for the elderly, low income and minorities was gathered from 2010 census data and mapped at the census tract level. Next, all existing METRO and PARTA transit lines were then overlaid. Using geographical information systems (GIS) software, a ¼ mile buffer was calculated on each side of the transit lines. This buffer represents the transit “catchment area”, which is the population living within a convenient walking distance to a fixed route. Finally, using GIS population distribution formulas, the total number of residents (both transit dependent and total) living within the transit coverage area (walking distance) was calculated, and percentages were calculated based on the results.



POPULATION OVER AGE 65

People Over Age 65
per SqMi by Block Group

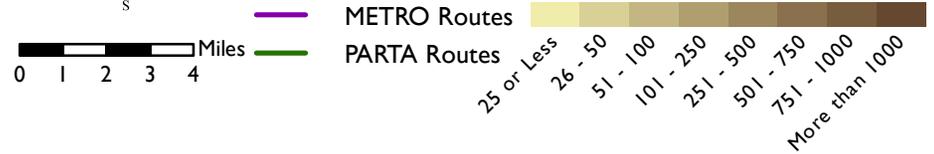


Table 4 – Elderly Population Transit Coverage

(Includes *Only* Communities Offering Fixed-Route Transit Service)

Community Name	Total Elderly Population	Elderly w/in 1/4 Miles of Transit	% Transit Coverage
Akron	25,166	19,205	76.3%
Barberton	4,388	1,873	42.7%
Bath	1,748	457	26.1%
Boston Twp	203	5	2.5%
Boston Heights	157	30	19.1%
Brady Lake	60	6	10.0%
Brimfield Twp	1,194	129	10.8%
Copley Twp	2,596	286	11.0%
Coventry Twp	1,713	693	40.5%
Cuyahoga Falls	7,576	4,953	65.4%
Fairlawn	1,737	538	31.0%
Franklin Twp	719	255	35.5%
Freedom Twp	393	44	11.2%
Garrettsville	322	23	7.1%
Green	3,735	922	24.7%
Hiram	68	7	10.3%
Hiram Twp	335	18	5.4%
Hudson	2,632	765	29.1%
Kent	2,143	1,139	53.1%
Lakemore	436	186	42.7%
Macedonia	1,646	406	24.7%
Mogadore	447	23	5.1%
Munroe Falls	818	127	15.5%
New Franklin	2,525	548	21.7%
Northfield	487	185	38.0%
Northfield Center Twp	1,024	245	23.9%
Norton	1,944	114	5.9%
Ravenna	1,745	907	52.0%
Ravenna Twp	1,428	383	26.8%
Richfield Twp	1,121	50	4.5%
Sagamore Hills	2,073	66	3.2%
Shalersville Twp	650	1	0.2%
Silver Lake	496	324	65.3%
Springfield Twp	2,585	506	19.6%
Stow	4,805	2,535	52.8%
Streetsboro	1,880	180	9.6%
Sugar Bush Knolls	35	3	8.6%
Tallmadge	3,398	913	26.9%
Tallmadge (Portage)	16	8	50.0%
Twinsburg	2,730	729	26.7%
Windham	211	16	7.6%
Windham Twp	290	49	16.9%
Total Elderly Pop. with Transit Access:		39,852	44.4%

Elderly Transit Coverage Analysis

Providing sufficient public transportation for our aging population is an important issues facing transportation planners today. Advances in medicine have extended the average lifespan, with people choosing to remain in their homes as long as possible. According to the Ohio Public Transit Association, the average person will outlive their ability to drive a vehicle by 8 to 10 years. Curb-to-curb service is provided by METRO and PARTA through their demand response services. Many social services agencies also assist with these trips. But at certain times, available resources can barely accommodate medical trips alone.

The most efficient and cost-effective way to get seniors to the shopping, recreational and social events they wish to attend is through the provision of regular and reliable fixed-route public transportation service.

Existing fixed-route transit lines provide good coverage for a large portion of the AMATS region's elderly population, particularly in dense, urban areas such as Akron, Cuyahoga Falls and Kent. Some smaller communities, such as Silver Lake and Lakemore, provide a high level of access as well.

The elderly population map above reveals that there are other areas, however, with significant elderly populations but little to zero transit coverage. The cities of Aurora and Streetsboro show significant elderly populations lacking access to fixed-route transit service. Other areas with large elderly populations but little fixed-route coverage:

- **Summit County:** Copley Township, portions of Fairlawn and Green, Norton, Sagamore Hills, Tallmadge and Twinsburg.
- **Portage County:** Cities of Aurora and Streetsboro.
- **Wayne County (AMATS Portion):** Doylestown and Rittman.

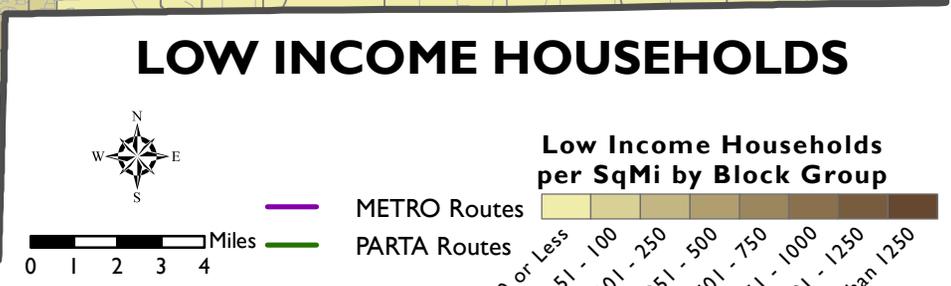
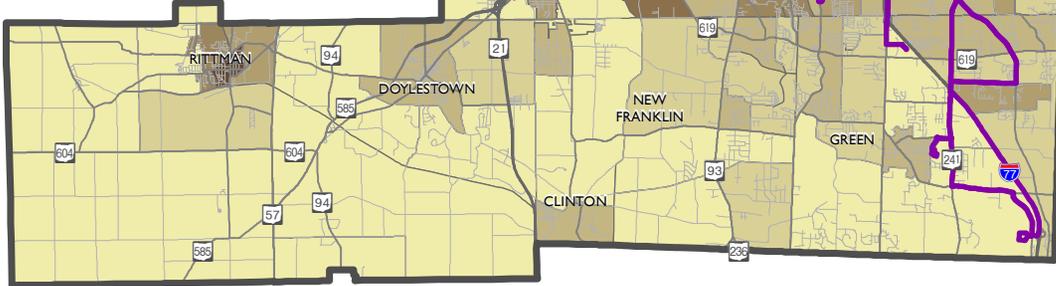
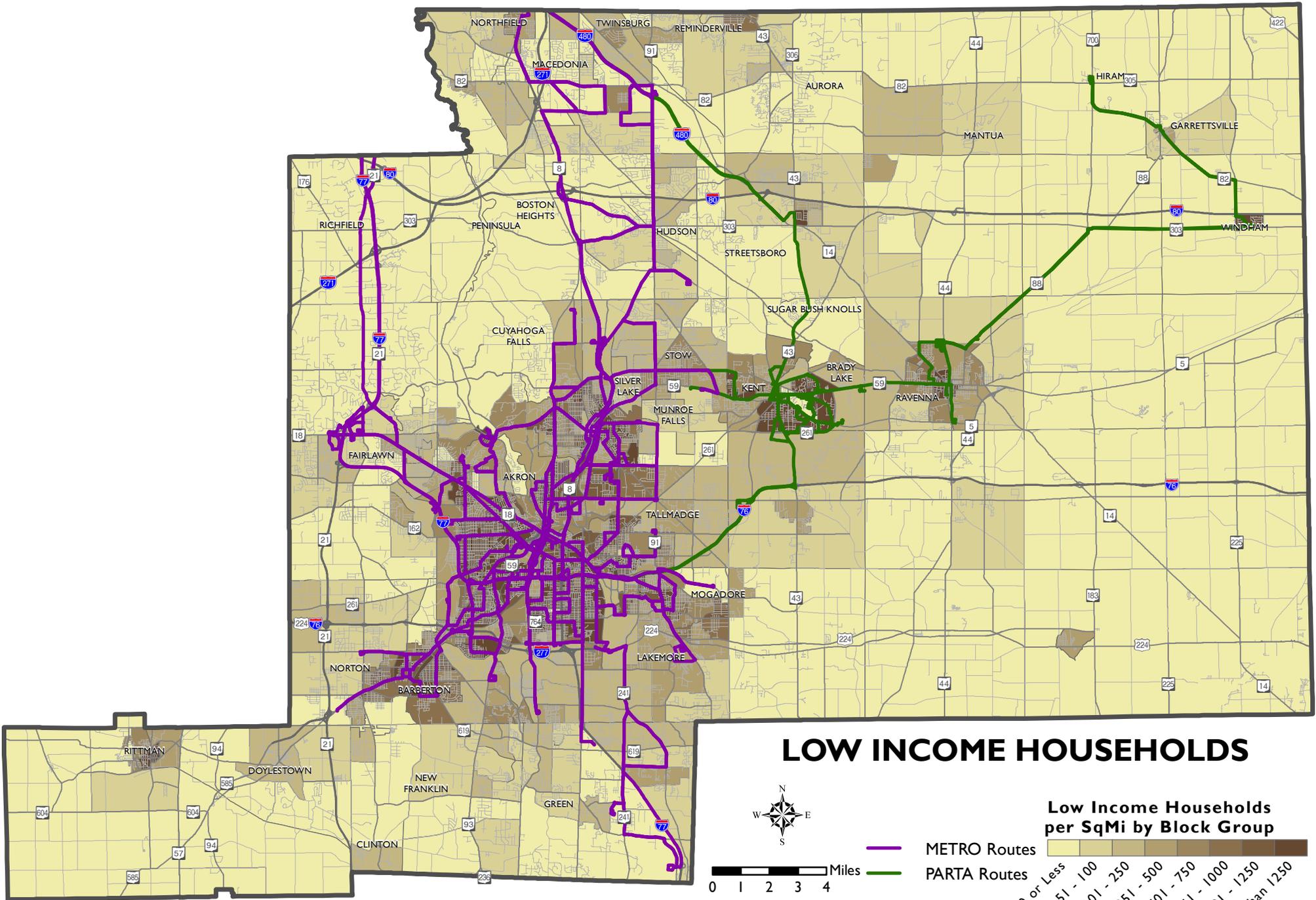


Table 5 – Low Income Population Transit Coverage

(Includes *Only* Communities Offering Fixed-Route Transit Service)

Community Name	Total Low Income Households	Low Income w/in 1/4 Mile of Transit	% Transit Coverage
Akron	75,760	68,315	90.2%
Barberton	8,502	5,162	60.7%
Bath	583	178	30.5%
Boston Twp	119	4	3.4%
Boston Heights	66	19	28.8%
Brady Lake	88	18	20.5%
Brimfield Twp	2,509	337	13.4%
Charlestown Twp	579	2	0.3%
Copley Twp	1,199	210	17.5%
Coventry Twp	2,279	542	23.8%
Cuyahoga Falls	10,410	7,320	70.3%
Fairlawn	481	285	59.3%
Franklin Twp	2,804	1,797	64.1%
Freedom Twp	523	36	6.9%
Garrettsville	229	136	59.4%
Green	2,915	784	26.9%
Hiram	14	8	57.1%
Hiram Twp	341	7	2.1%
Hudson	1,089	310	28.5%
Kent	8,979	7,093	79.0%
Lakemore	594	286	48.1%
Macedonia	484	261	53.9%
Mogadore	856	8	0.9%
Munroe Falls	398	107	26.9%
Nelson Twp	1,056	1	0.1%
Northfield	555	334	60.2%
Northfield Center Twp	333	39	11.7%
Norton	1,398	105	7.5%
Ravenna	3,753	2,424	64.6%
Ravenna Twp	3,006	913	30.4%
Richfield Twp	238	14	5.9%
Richfield	160	59	36.9%
Sagamore Hills	1,055	33	3.1%
Shalersville Twp	1,269	2	0.2%
Silver Lake	274	165	60.2%
Springfield Twp	3,742	705	18.8%
Stow	3,480	1,884	54.1%
Streetsboro	2,131	434	20.4%
Sugar Bush Knolls	3	1	33.3%
Tallmadge	3,339	1,153	34.5%
Tallmadge (Portage)	166	52	31.3%
Twinsburg	1,905	517	27.1%
Twinsburg Twp	588	312	53.1%
Windham	906	694	76.6%
Windham Twp	391	46	11.8%
Total Low Income Pop. with Transit Access:		103,112	68.0%

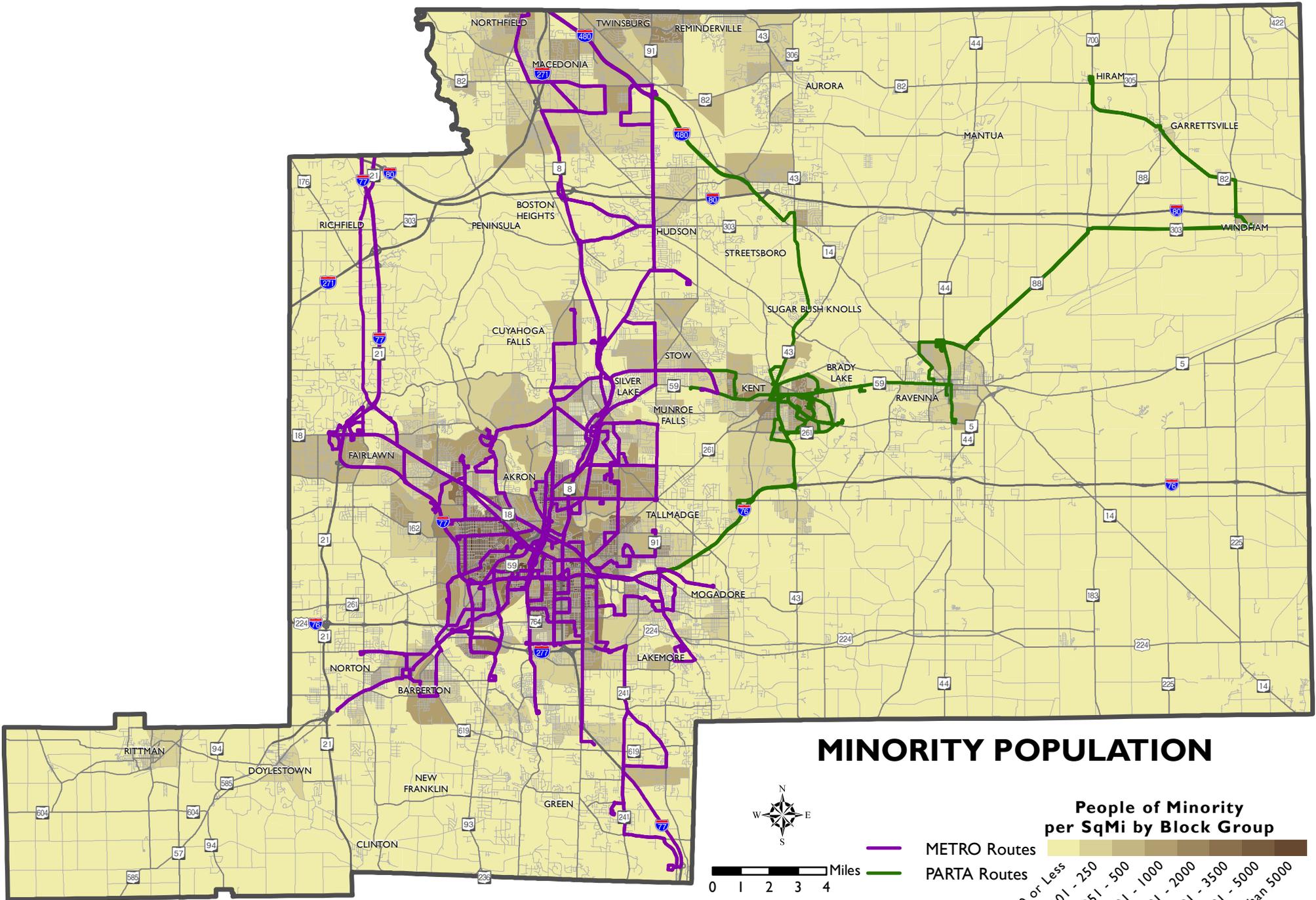
Low Income Transit Coverage Analysis

Low income households are defined as those with annual household incomes below 150% of the national poverty level. Based on 2010 census data, this threshold is set at \$34,999 or below. Previous AMATS reports used lower overall thresholds and at the individual level, but limitations in data availability for the most recent census cycle necessitated these changes.

Generally speaking, METRO and PARTA provide very good coverage of the census tracts identified as containing a significant number of low income households. Large numbers of low income households are concentrated in the central portions of the older established cities within the AMATS area (i.e. Akron, Barberton, Cuyahoga Falls, Kent and Ravenna), and each of these core cities is served by transit relatively well.

Based on an analysis of the low income household distribution map above, the following areas contain significant numbers of low income households and no fixed-route transit service:

- **Summit County:** portions of Barberton, Springfield Township and Twinsburg.
- **Portage County:** the northern portions of Aurora and Streetsboro, as well as the southern half of Ravenna and Ravenna Township.
- **Wayne County:** there is no transit service in the Chippewa and Milton township areas of Wayne County.



MINORITY POPULATION

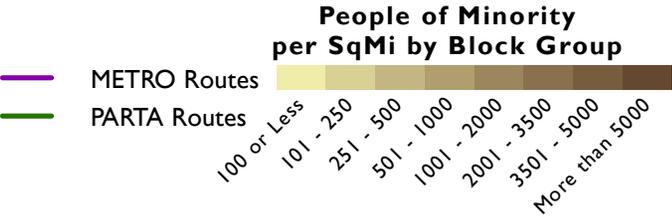
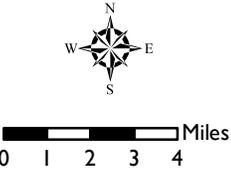


Table 6 – Minority Population Transit Coverage

(Includes *Only* Communities Offering Fixed-Route Transit Service)

Jurisdiction	Total		% Minority	Minority	
	Total Population	Minority Population		Population w/in 1/4 Mile of Transit	% Transit Coverage
Akron	198,492	74,129	37.3%	72,619	98.0%
Barberton	26,375	2,611	9.9%	1,461	56.0%
Bath	9,757	813	8.3%	189	23.2%
Boston Twp	1,336	66	4.9%	1	1.5%
Boston Heights	1,302	62	4.8%	18	29.0%
Brady Lake	405	15	3.7%	2	13.3%
Brimfield Twp	10,362	815	7.9%	160	19.6%
Copley Twp	17,378	3,353	19.3%	669	20.0%
Coventry Twp	10,974	559	5.1%	156	27.9%
Cuyahoga Falls	49,316	3,892	7.9%	2281	58.6%
Fairlawn	7,430	1,464	19.7%	732	50.0%
Franklin Twp	5,499	779	14.2%	397	51.0%
Freedom Twp	2,828	6	0.2%	1	16.7%
Garrettsville	2,801	61	2.2%	43	70.5%
Green	25,835	1,354	5.2%	428	31.6%
Hiram	1,338	8	0.6%	4	50.0%
Hiram Twp	2,339	199	8.5%	1	0.5%
Hudson	22,351	1,615	7.2%	412	25.5%
Kent	29,367	5,084	17.3%	4,157	81.8%
Lakemore	3,056	233	7.6%	89	38.2%
Macedonia	11,364	1,919	16.9%	539	28.1%
Munroe Falls	5,037	348	6.9%	65	18.7%
Northfield	3,658	765	20.9%	437	57.1%
Northfield Center Twp	5,859	1,035	17.7%	158	15.3%
Norton	12,052	293	2.4%	21	7.2%
Ravenna	11,635	904	7.8%	501	55.4%
Ravenna Twp	9,118	703	7.7%	297	42.2%
Richfield Twp	6,198	134	2.2%	9	6.7%
Richfield	3,661	86	2.3%	36	41.9%
Sagamore Hills	11,001	957	8.7%	49	5.1%
Shalersville Twp	5,646	132	2.3%	1	0.8%
Silver Lake	2,520	68	2.7%	44	64.7%
Springfield Twp	14,623	752	5.1%	199	26.5%
Stow	34,741	2,235	6.4%	970	43.4%
Streetsboro	16,152	1,897	11.7%	314	16.6%
Tallmadge	17,246	1,443	8.4%	700	48.5%
Tallmadge (Portage)	217	100	46.1%	32	32.0%
Twinsburg	18,784	4,920	26.2%	1,409	28.6%
Twinsburg Twp	2,905	1,294	44.5%	504	38.9%
Windham	1,998	142	7.1%	109	76.8%
Windham Twp	1,537	16	1.0%	2	12.5%
Total Minority Population with Transit Access:				90,216	76.9%

Minority Transit Coverage Analysis

In this analysis, AMATS used the 2014 American Community Survey (ACS) 5-year estimates to find the number of white, non-Hispanic residents in each of the municipalities within the region. This number was subtracted from the total population of each community to derive the number of residents representing any minority group. Using a population distribution algorithm in GIS, the total minority population was distributed throughout each community. Finally, GIS was used to calculate how many people from a minority group lived within a ¼ mile, comfortable walking distance from an existing fixed-route transit line.

The minority population map above indicates that census tracts with significant minority populations enjoy excellent access to public transportation within the AMATS region. Nearly every large community with a significant minority population (Akron, Barberton, Kent and Ravenna) enjoys a high level of access to fixed route transit service. Several communities with smaller minority populations offer high levels of transit access, including: Coventry and Franklin Townships, Silver Lake and Northfield Village.

There are a few communities showing gaps in the availability of fixed route transit service for their minority populations. The communities with significant minority populations and notable gaps in fixed-route transit access include:

- **Summit County:** portions of Barberton, Fairlawn, Macedonia and Twinsburg.
- **Portage County:** the southern portion of Ravenna and Ravenna Township, as well as portions of Streetsboro.

Disabled Transit Coverage Analysis

As noted above, the 2014 American Community Survey (ACS) estimates provide disabled population data at the county level and for the cities within the region. This paucity of data does not lend itself well to mapping as were the previous demographics datasets. The following table shows the available data for the counties comprising the AMATS region, as well as the cities for which data has been provided. Although Chippewa and Milton townships are the only portion of Wayne County within the AMATS region, this analysis assumes that the countywide percentage applies equally to these areas.

Table 7: AMATS Region – 2014 Disabled Population

Municipality	# of Disabled Persons	%
Summit County	67,132	12.5%
Akron	30,291	15.4%
Barberton	3,987	15.3%
Cuyahoga Falls	6,204	12.7%
Fairlawn	762	10.7%
Green	2,922	11.4%
Hudson	1,252	5.6%
Macedonia	1,058	9.3%
New Franklin	1,884	13.3%
Norton	1,464	12.2%
Stow	3,055	8.9%
Tallmadge	1,967	11.4%
Twinsburg	1,502	8.0%
Portage County	19,049	11.9%
Aurora	1,487	9.7%
Kent	2,672	9.1%
Ravenna	2,023	17.6%
Streetsboro	1,726	10.8%
Wayne County	2,326	12.0%
Rittman	850	13.3%

Summary data shows that the percentage of people with a disability is very similar at the county level, whether urban (Summit County) or largely rural (Portage/Wayne Counties). Largely rural Wayne County has a higher percentage disabled population than more urbanized Summit County does. At the city level, older core cities like Akron and Barberton have a substantially higher disabled population than more suburban cities do. This could be attributable to the fact that these areas have higher population densities in general, but is also likely due to the higher concentrations of medical and social services facilities, as well as access to transportation services, whether public (METRO/PARTA) or private (United Disability Services and other social service providers).

Recently, the AMATS area has experienced the steady suburbanization of medical facilities - moving outward from the older, urban cores and into suburban communities like Twinsburg, Green and Streetsboro. Although the increase in medical service providers in our region is a positive development, steps need to be taken to ensure that these facilities remain accessible to those who will benefit most greatly from their presence in the community (i.e. disabled and elderly residents).

Demand-Response Services

METRO and PARTA both offer demand-response services. These are transit trips provided by small buses, MV 1 vehicles or accessible vans, which generally provide door-to-door, shared ride service. Unlike fixed-route transit or taxi services, demand-response services are not available for same-day service; rather, passengers must call at least 24 hours in advance to schedule a ride. The vehicles will take any variety of routes in order to pick up additional riders and transport them all to their scheduled destinations in the most efficient route possible. At this time, METRO's services are available only to elderly and/or disabled customers. PARTA's service is available to anyone, with lower fares for those with certain qualifications. Specific details for each provider are as follows:

METRO

- SCAT: a curb-to-curb shared ride service for Summit County residents over the age of 65 OR having a disability which prevents them from using regular fixed-route service. Rides are \$2.00 each way, and must be scheduled at least 24 hours in advance. Passengers must plan for a vehicle arrival of up to 20 minutes before or after their scheduled time. Service is available seven days a week.
- ADA: a curb-to-curb, shared ride service that is to be viewed as a "safety-net" for those with disabilities. ADA rides cost \$2.50 each way, and *must* begin and end within $\frac{3}{4}$ of a mile from a METRO fixed-route. Service is available seven days a week.

PARTA

- Dial-a-Ride: a door-to-door, shared ride service available to *all* Portage County residents. As a first-come/first-serve service, routes may vary in order to pick up other passengers, based on the most efficient route to reach all destinations. All trips must be scheduled at least 24 hours in advance. The general fare is \$4.00 each way, but a reduced fare of \$2.00 each way is available to qualified passengers (children, senior citizens and those with disabilities). Service is available Monday through Friday, and service to the more remote portions of Portage County may be limited to only certain days of the week.

Coordination of Demand-Response Services

In 2014, AMATS published its updated *Coordinated Public Transit-Human Services Transportation Plan*, which established regional strategies and priorities for improving transit services for seniors, the disabled and low income residents.

The primary goals of this plan are to identify the needs of key populations with special transportation needs, to identify agencies and organizations capable of providing needed transportation services, to identify service gaps, and finally, to provide recommendations to address those gaps. The overarching goal is to create an environment where all stakeholders are on the same page and working together to provide the simplest, most efficient and comprehensive human services and transportation network possible.

The foremost recommendation was the creation of a regional mobility management system – with the ultimate vision of creating a computer database that could be used by passengers to schedule demand-

response trips, and by transit and public services agencies to fulfill the requests by instantly evaluating available assets and capacity, and assigning trips in the most efficient manner possible.

After many years of planning and significant monetary investments into software and technology, this system is near fruition. The NEORide system was developed through a joint effort led by PARTA, and has been engaged in the testing phase. Upon full implementation, NEORide will consolidate asset availability information for all transit and public service agencies, offering real-time vehicle availability to fulfill scheduled trips in the most efficient manner possible. The NEORide system is integrating the demand response systems of METRO, PARTA and SARTA (in Stark County), so that those wishing to book a trip can enter their dates and destinations and receive real-time information regarding the options available to them.

NEORide is a Council of Governments (COG) formed by Akron METRO, PARTA and SARTA in 2014 to coordinate fixed route and demand response service in northeast Ohio. The on-going transit study is examining the potential for expanded transit service linking Portage, Summit and Stark counties. Integrated services would create transit connections that are needed by transit users across the three Counties, improve the efficiency and effectiveness of existing services, and would reduce the operating costs of all three agencies. The NEORide Inter-County Transit study will identify these inter-county transit needs and develop innovative approaches to improve inter-county services in the region.

NEORide has been rolled out on a limited pilot basis within the last year, with full-scale implementation of services expected in the near future. Ultimately, the area's social service agencies with transportation assets will begin participation in these efforts.

Chapter 4: Performance Measures

Performance Measures

The recently passed federal legislation (MAP-21) features a new federal 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. The new 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.

Under MAP-21, US DOT is in the process of establishing performance measures. ODOT will then develop performance targets in consultation with 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 Transportation Plans. However, MAP-21 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 (FTA) will determine performance measures. These areas include (1) safety, (2) infrastructure condition, (3) congestion reduction, (4) system reliability, (5) freight movement and economic vitality, (6) environmental sustainability, and (7) reduced project delivery delays. To implement these goals, USDOT is developing measures and minimum standards for states to follow for the various core programs established in MAP-21.

In terms of public transportation, USDOT is developing both performance measures and a formal definition for "state of good repair." 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, as well as define new performance targets for the coming fiscal year. Ultimately, funding will be linked to meeting these goals.

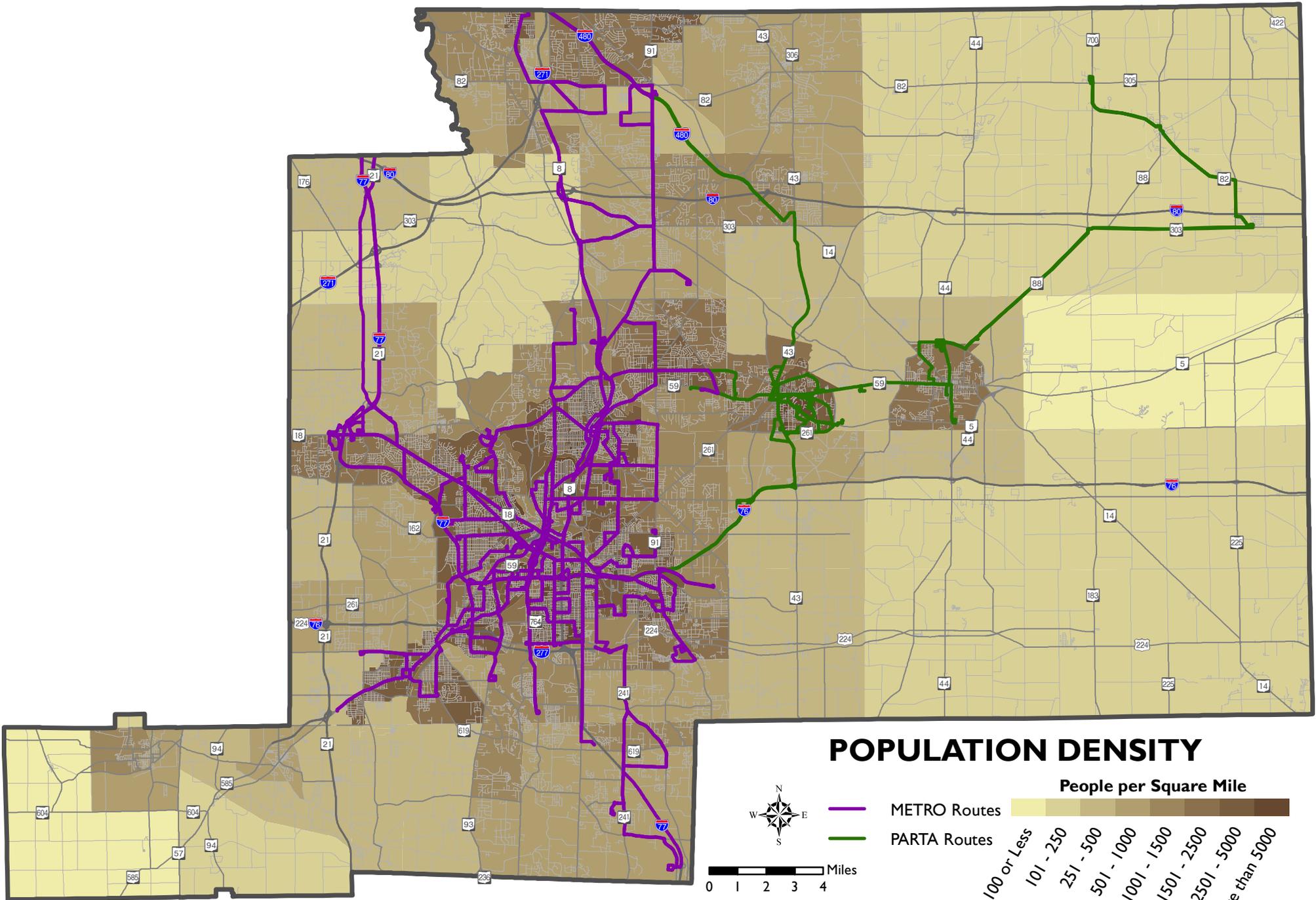
Chapter 5: Transit, Land Use & Density

Ridership Generative Land Uses

A number of land uses tend to generate a greater-than-average concentration of transit trips. Among these land uses are:

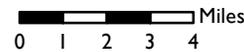
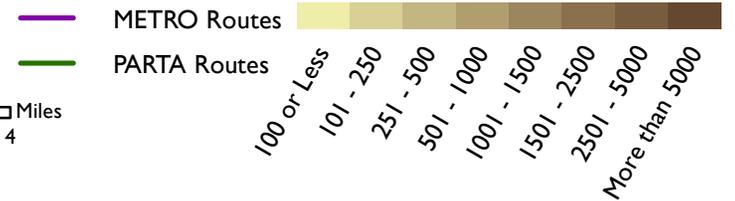
- Areas of dense population
- Job/commercial centers
- Schools/universities
- Transportation nodes (park and ride lots, train stations, airports, etc.)
- Cultural centers/sports facilities

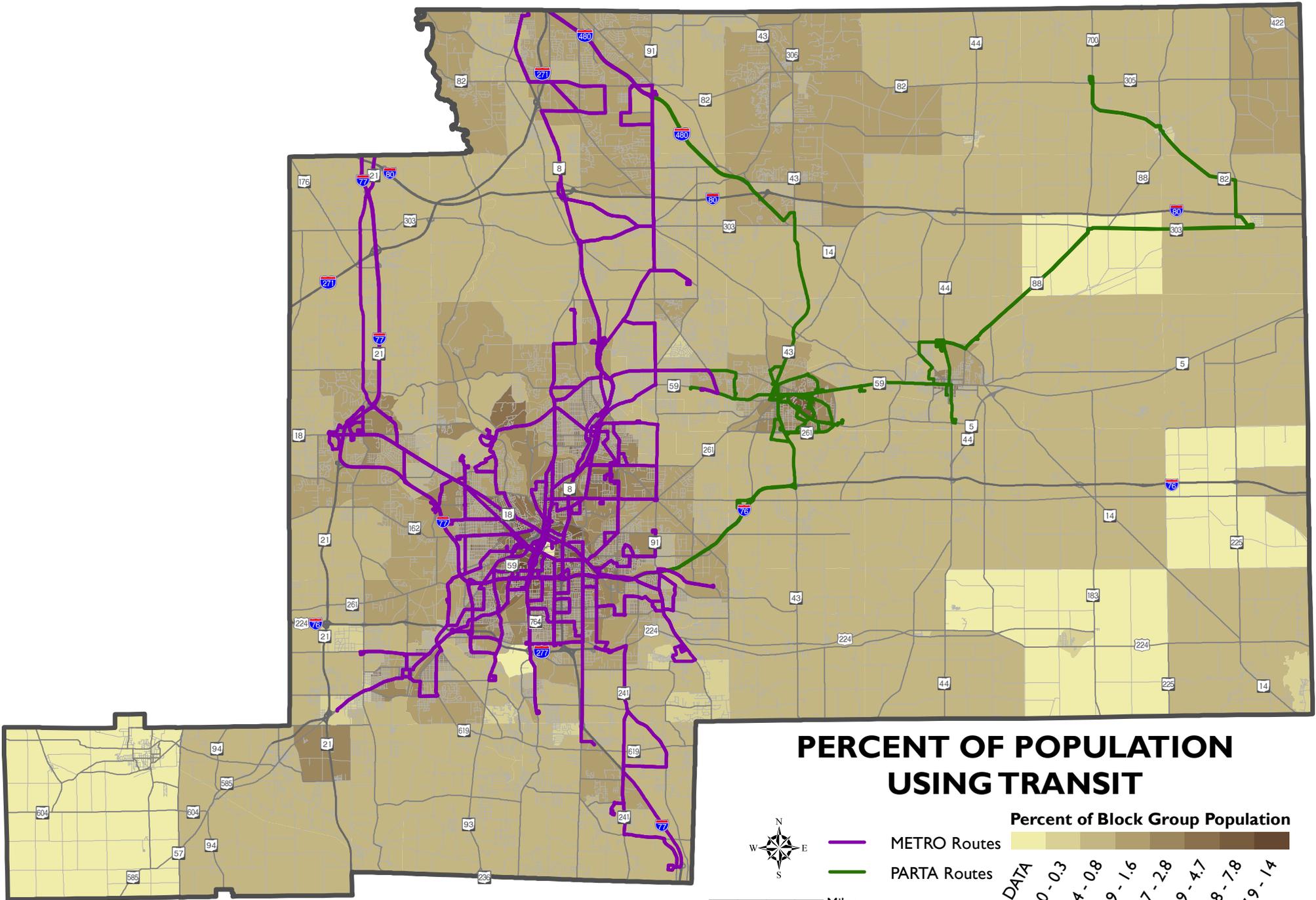
The following maps illustrate the geographical dispersion of the aforementioned land uses throughout the AMATS region.



POPULATION DENSITY

People per Square Mile



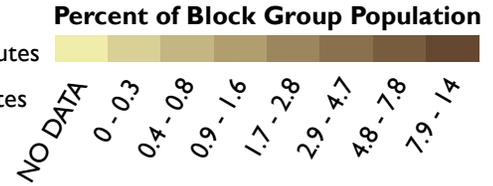


PERCENT OF POPULATION USING TRANSIT



0 1 2 3 4 Miles

- METRO Routes
- PARTA Routes



Population Density Analysis

The population density map above (page 31) shows that, for the most part, the most densely populated areas within the AMATS region are served well by fixed-route transit. In particular, older established cities such as Akron, Barberton, Cuyahoga Falls and Kent are well served. In most instances, suburban cities, villages and townships have moderate levels of service.

There are, however, some notable gaps in transit service to areas with higher population density. The cities of Twinsburg and Aurora, in the north-central portion of the AMATS region, are more densely populated, yet Twinsburg is only served by infrequent commuter and express routes, and Aurora lacks transit service altogether.

Small clusters of population are scattered throughout the southern half of Portage County, as well as in the villages of Doylestown and Rittman in Wayne County, and fixed-route transit service is entirely absent. However, their populations are either too sparse or their locations generally too remote to justify regular transit service at this time.

The map above (page 31) shows existing transit users, based on survey data gathered from the U.S. Census Bureau. Communities that exhibit moderate ridership but no service overlap strongly with those unserved in the general population density map – mainly Aurora, Twinsburg and Streetsboro. Other areas include Copley Township, Doylestown, Norton and Sagamore Hills.

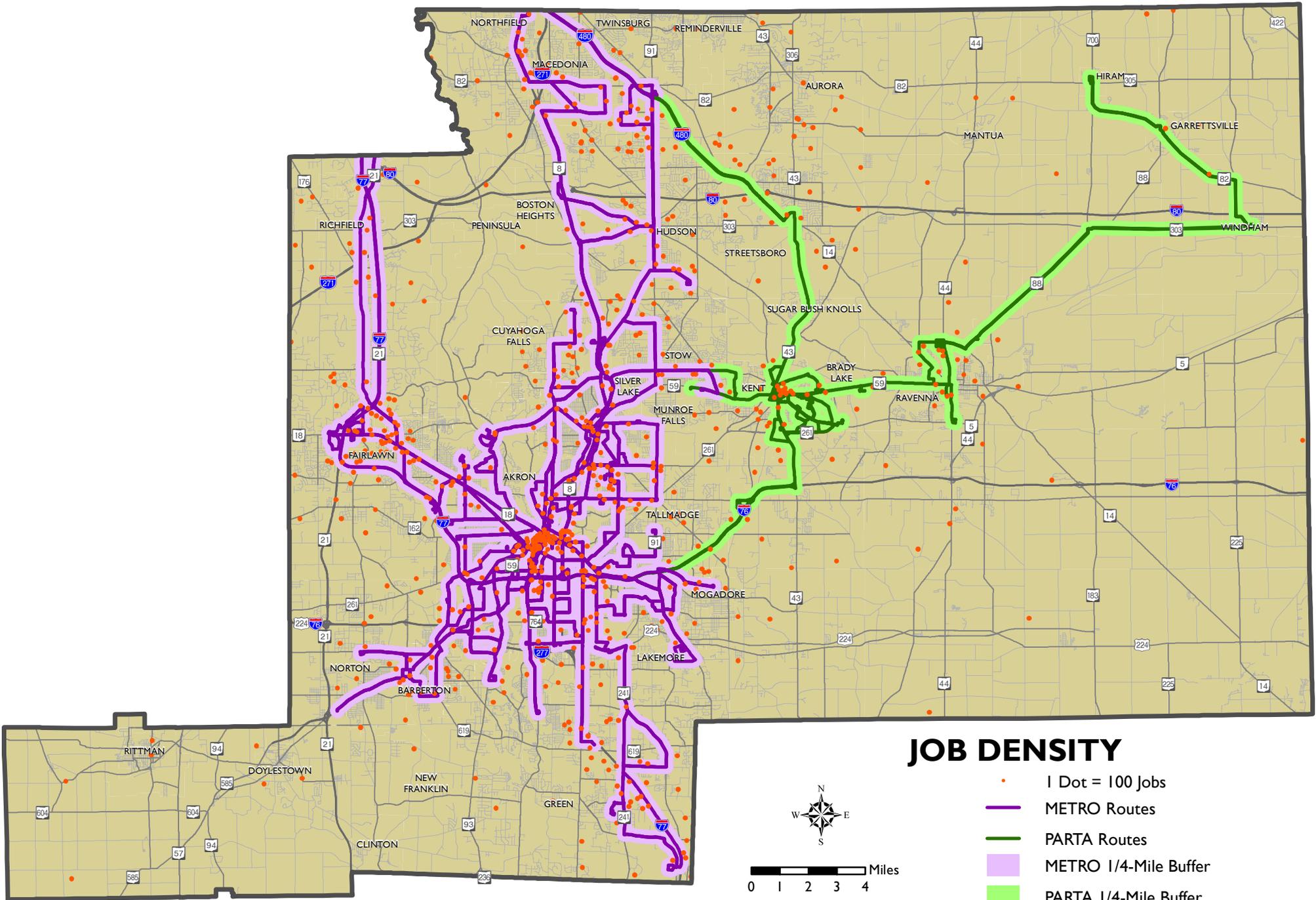
Key Transit Gaps: Aurora, Copley Township, Fairlawn, Sagamore Hills, Streetsboro, Twinsburg and Northfield Village.

Projected Transit Need: Population Growth

In addition to identifying concentrations of people likely to use transit, as well as land uses likely to generate additional transit trips, it is important to forecast areas of strong population growth to estimate where demand for transit service may increase in the future.

The *AMATS 2040 Planning Data Forecast* projected the region's population through 2040. The report concluded that although older core cities such as Akron, Barberton and Ravenna are predicted to lose population over the forecasted period, moderate to strong growth is projected elsewhere in the AMATS region. Cities and townships lying to the north of Akron, particularly those adjacent to Cuyahoga County, are expected to see the strongest population growth.

When comparing these forecasted high-growth municipalities to METRO and PARTA's service areas, it's clear that transit service is sparse (and in many cases, completely absent) in these communities. Please see the *AMATS 2040 Planning Data Forecast* on the AMATS website for further discussion.



Job Density Analysis

METRO and PARTA are to be commended in their efforts to provide transit service to key employment zones within the AMATS region. Both agencies regularly speak 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, as these mutually beneficial relationships will enhance ridership growth and reduce area congestion.

Most of the zones with the greatest concentrations of employment have regular access to transit. In Akron, the Downtown, Montrose, West 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 satisfactory fixed-route transit service.

Notable gaps in transit service to key employment center are 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.

Key Transit Gaps: Aurora, Copley Township, Green, Mantua Village, Macedonia, Richfield Village, Twinsburg and Streetsboro.

School Coverage Analysis

Fixed-route bus access to local schools is important in ensuring that students (both children and adults) have a safe, comfortable and reliable alternative in the absence of traditional school buses, automobile access or other forms of transportation. Although grade school students typically have access to buses or live within easy walking distance of their local school, inclement weather, late arrivals/early releases and other unpredictable circumstances could require access to public transit.

Students of colleges and universities of all types, from two-year trade and technical schools to four-year institutions, could all benefit from transit connections between their home communities and institutions of higher education. The main campuses of the University of Akron and Kent State University both have excellent access to transit service. However, smaller for-profit technical and trade schools, as well as branch campuses of large universities (KSU's Twinsburg center, for example) are rapidly being built in suburban locations. As long as their growth leads to critical masses of potential transit riders, area transit providers should assess the feasibility of serving them with fixed-route transit lines.

In general, the largest clusters of school facilities in the AMATS region are served by transit. Most township schools are not served, but do not have sufficient student populations to feasibly provide fixed-route service. The two areas which may have the greatest need for transit service based on significant school clusters would be the Village of Mantua and Copley Township. The City of Hudson also shows a cluster of schools unserved by transit.

Key Transit Gaps: Aurora, Copley Township, Doylestown, Rittman, eastern Hudson and Mantua Village

Table 8: AMATS Regional Transportation Nodes

Transit Node	Location	City	Significance
Akron Fulton Airport-AKR	1600 Triplett Blvd	Akron	General and business airport. Close to numerous major employers and attractions
METRO RKP Transit Center - Downtown Akron	631 S Broadway St	Akron	Downtown hub for most fixed-route service. Amenities available for passengers. Connections to PARTA, Greyhound and SARTA (Stark County transit provider)
METRO Fixed-Route Transfer Area	Brown St & Wilbeth Rd	Akron	An important transfer point in south Akron, served by three fixed-routes
Rolling Acres Transit Center	Romig Rd (Former Rolling Acres Mall parking lot)	Akron	Served by two routes covering most of Akron's west side and Barberton
University of Akron Transfer Area	Brown & Exchange Streets at the UA Campus	Akron	A transfer point served by three routes, serving Downtown, south, east and west Akron
East Akron Transfer Area	S. Arlington, E. Exchange and E. Market Streets	Akron	The convergence of five METRO routes, serving numerous commercial, residential, employment and other areas
Chapel Hill Transfer Area	Chapel Hill Mall Area, primarily Buchholzer Blvd and Howe Ave	Akron/Cuyahoga Falls	The convergence of five METRO routes, serving one of the region's important commercial corridors. Commuter service to Cleveland
Downtown Barberton Transfer Area	2nd St NW and West Tuscarawas Ave	Barberton	Where both routes serving Downtown Barberton converge; an important commercial corridor
James Fisher Park and Ride Lot	438 Ghent Rd	Bath	Large, well-lighted parking area where METRO offers express service between Richfield and Downtown Akron, as well as commuter service to Cleveland
ODOT Park and Ride Lot	6100 Chittenden Rd	Boston Heights	Small parking area near the intersection of SR 8 and SR 303 offering convenient commuter service to Cleveland
Montrose Transfer Area	Flight Memorial & Brookwall Drives	Fairlawn	The convergence of two METRO lines, serving the largest commercial area in the AMATS region; Ample parking for park and ride commuting to Downtown Akron
Kent Central Gateway (opened in 2013)	E. Erie and S. Depeyster Streets, Downtown Kent	Kent	Large, multi-modal transit center serving as the hub of all PARTA service; Serves Downtown Kent and Kent State University
Kent State Student Center Transit Center	Risman Drive	Kent	Large, sheltered bus stop in the heart of the Kent State campus, served by frequent, fare-free bus service
Kent State Midway Transit Center	Terrace Annex: Terrace Dr at (approx.) Midway Dr	Kent	Large, sheltered bus stop in the heart of the Kent State campus, served by frequent, fare-free bus service

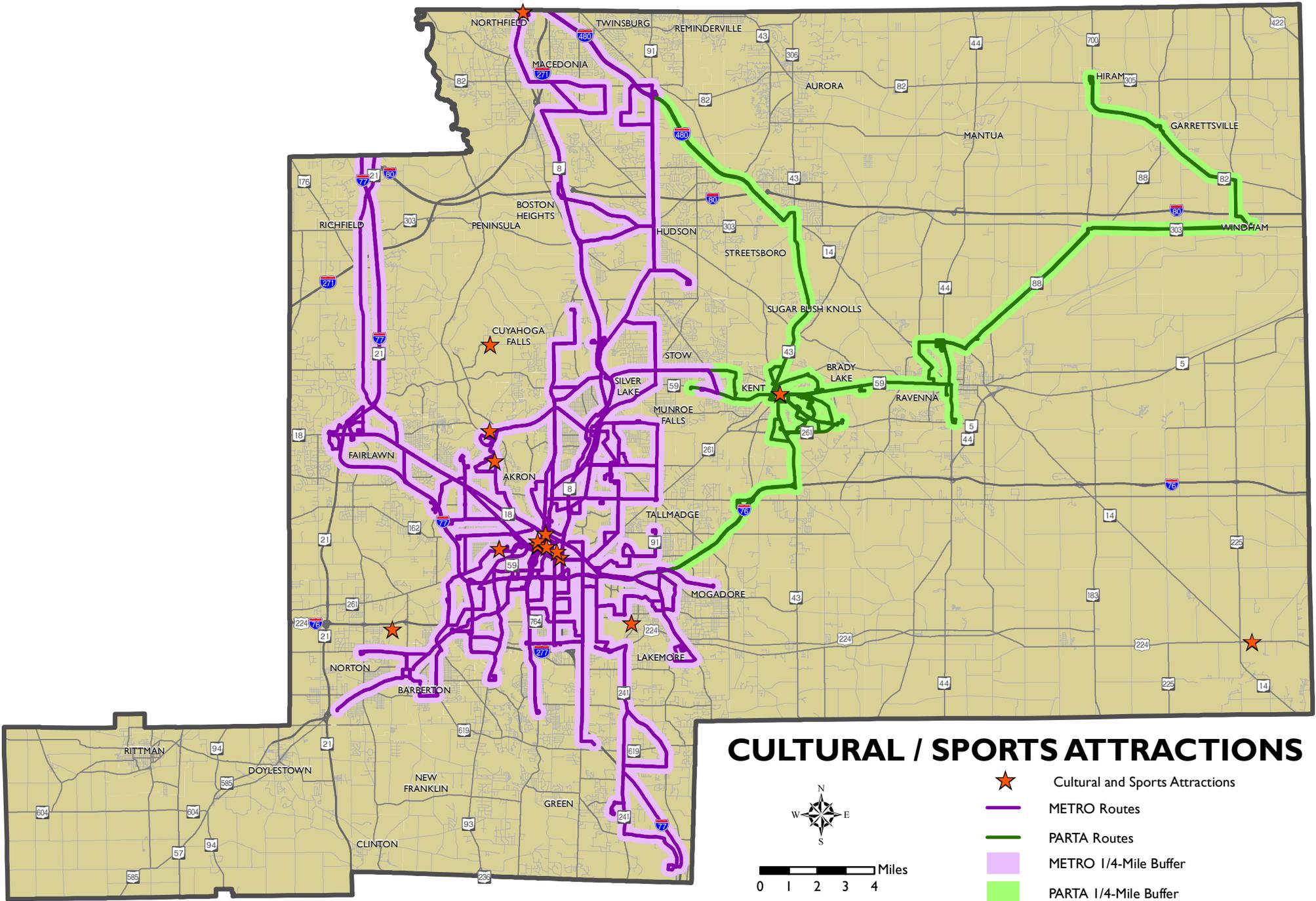
Transit Node	Location	City	Significance
Akron - Canton Airport (CAK)	5400 Lauby Rd	Green	The region's growing passenger airport, providing non-stop service to many major cities
Summit Plaza Park and Ride	10392 Northfield Rd (near SR 8)	Northfield	Park and ride facilities offering express service to Downtown Akron, near the casino/entertainment complex at Northfield Park
Target Plaza - METRO/PARTA Connection	4246 Kent Rd	Stow	One of the few points where passengers can transfer between PARTA and METRO services
Creekside Park and Ride	2690 Creekside Dr	Twinsburg	Parking area for access to METRO commuter service to Cleveland

Transportation Nodes Analysis

The Akron-Canton Airport (CAK) is a significant transportation node in the region. CAK has experienced rapid passenger growth, due to its convenient size, relatively low airfares, an increasing roster of service providers and number of non-stop destinations served. Although METRO serves CAK with its Green/Springfield (110) route, the route only stops at the airport five times each day: twice in the early morning, once at mid-day, and two closely-spaced stops in the early evening. In contrast, CAK's online departures schedule shows flights leaving every 10 to 40 minutes from 10:00 am through 8:00 pm. METRO's two morning trips (20% of its service) arrive two to three hours before the first daily flights arrive or depart. Likewise, bus service ends more than an hour before daily flights cease. This lack of frequency could be hampering the potential growth of this transit line, due to the lack of convenience posed to airline passengers. Another issue is that the 110 bus does not run on weekends.

The Stark Area Regional Transit Authority (SARTA – the Canton area's bus transit provider) *does* provide hourly service to CAK throughout the day. SARTA's "Canton/Akron Express" also serves the City of Green and the METRO transit center in Downtown Akron. One issue is that three of METRO's five daily buses to CAK arrive at the same time as SARTA's buses, which is an inefficient duplication of services. An optimal solution would be for METRO to provide reciprocal service, timing routes to alternate with SARTA's, thus providing bus service every half-hour and a high level of convenience to airline passengers.

Key Transit Gaps: Akron-Canton Airport (Green), service to some park and ride lots.



Cultural and Sporting Attractions Analysis

The large crowds and difficult parking situations that often accompany cultural center and sporting events lend themselves to transit service. In general, cultural and sporting event facilities in the AMATS region are served well by transit. In some cases, such as college football games, special transit service is offered for that specific event.

Entertainment venues *not* served by fixed-route transit:

- Blossom Music Center – a large, outdoor concert venue in Cuyahoga Falls
- Firestone Country Club – Home of the PGA's World Golf Championship Bridgestone Invitational – an annual golf tournament that welcomes an international audience
- Hard Rock Rocksino Northfield Park – a harness racing track in the Village of Northfield, recently redeveloped into a regional casino and entertainment venue

Of these facilities with no transit access, two are of special concern. Blossom Music Center hosts numerous popular music, Cleveland Orchestra and other music events each year. With a capacity of over 19,000 concert goers, events tend to gridlock area roads before and after every show. Even if area demographics do not allow for a permanent fixed-route bus line, special event shuttles leaving from key park and ride locations such as Downtown Akron, Downtown Cuyahoga Falls or the Merriman Valley could help eliminate a large amount of pre and post-concert congestion from area streets.

Also of concern is the lack of transit access to Northfield Park. Currently, METRO's Northfield/Twinsburg Express Route (Route 102) terminates approximately ½ mile south of the race track. Recently, Northfield Park and Hard Rock International collaborated on the development of a \$275 million casino, restaurant and entertainment complex on the existing property. This entertainment complex is now generating higher demand for transportation to the area. If feasible, it is recommended that the METRO route to Northfield be extended to the Northfield Park property, and run with more regularity than the existing express route does.

Key Transit Gaps: Blossom Music Center (Cuyahoga Falls) and Northfield Park Hard Rock Rocksino and Harness Racing Track

Chapter 6: Key Transit Gaps

The Identification of Key Transit Gaps

Using the above analyses, we can identify gaps in the current transit system. From AMATS’ regional perspective, “gaps” may generally be defined as communities with concentrated populations, land uses and attractions which could support transit service, yet are locations where fixed-route transit service is either non-existent or limited.

These gaps do not necessarily mean that transit service is automatically assumed to be feasible, nor do we propose specific routes or locations to address the gaps. Each transit provider should complete a more detailed economic assessment of these areas to make those specific determinations. Rather, these gaps are included to bring attention to areas that correlate a lack of service with transit ridership potential.

Table 9: AMATS Transit System Gaps

Community	Preliminary Warrants for Increased Transit Service	Possible Route(s)
Aurora	Low Income Population, Minority Population, General Unserved Population, Job Concentration, Government Centers, Population Growth	SR 82 (Garfield Rd) SR 43 (N. Aurora Rd/Chilicothe Rd) SR 306 (Chilicothe Rd)
Copley Twp	Elderly Population, Low Income Population, Minority Population, General Unserved Population, Job Concentration, Schools, Government Centers, Population Growth	SR 162 (Copley Rd) S. Cleveland-Massillon Rd
Green	Elderly Population, Low Income Population, Job Concentration, Airport Service, Population Growth	S. Arlington Rd SR 241 (Massillon Rd) SR 619 (E. Turkeyfoot Lake Rd) Lauby Rd (CAK Airport)
Mantua	Elderly Population, Low Income Population, Job Concentration, Schools, Government Centers	SR 44 (Painesville Ravenna Rd), High St/Mennonite Rd
Streetsboro	Population, General Unserved Population, Job Concentration, Government	SR 14 (Cleveland East Liverpool Rd) SR 303 (Streetsboro Rd) SR 43 (Cleveland Canton Rd)
Twinsburg	Unserved Population, Job Concentration, Park and Ride, Population Growth	SR 82 (Aurora Rd) SR 91 (Darrow Rd) Ravenna Rd

Chapter 7: Cross-County Service

Cross-County Service

The operating expenses of our area’s public transit systems are largely paid for through a dedicated fraction of the local county sales tax - a funding structure which to this point has encouraged agencies to provide service only within their own county borders. Although the greatest demand for service will certainly lie within an agency’s own county, people living outside the county borders likely pay a significant share of those sales tax revenues during their visits to the county. The primary charge of a transit agency is to assist anyone living, visiting or working in the county (and therefore, paying county sales tax) in getting where they need to go, and that may include those outside of the county line.

The future population growth discussed in the *AMATS 2040 Planning Data Forecast* shows a preponderance of the area’s high-growth areas lying along the Cuyahoga, Stark and Medina County lines. In many instances, these communities function as bedroom communities lying just beyond a county line from important job centers. The U.S. Census Bureau provides journey-to-work data, which allows us to identify the demand for transportation between various communities. Based on this data, the following tables illustrate daily work commuting patterns between cities in the AMATS area, and those beyond the Summit, Portage and Chippewa/Milton township borders. Once demand is determined, planners can make decisions as to whether transit connections might be warranted.

Table 10: Job Inflow/Outflow Totals – By County

County	Daily Commuters Entering <i>from</i> Other Counties	Daily Commuters Commuting <i>to</i> Other Counties	Workers Residing and Working Within the Same County
Portage	31,562	48,277	22,416
Summit	129,406	107,440	137,194
Cuyahoga	285,008	124,469	440,449
Medina	32,218	61,350	26,072
Stark	61,047	69,220	98,401

The above table illustrates the significance of surrounding counties’ contributions to our local workforce. Nearly half of Summit County workers arrive each day from other counties. This trend is even more prominent in Portage County, where the *majority* of employees call other counties home. Portage and Summit Counties also export a significant number of workers daily, most often to adjacent counties (shown in gray, and included for purposes of comparison).

Areas Demonstrating Demand

The following two tables list the communities attracting the most daily commuters from outside the county, as well as those exporting the most workers daily to other outside counties.

**Table 11:
Significant Cross-County
Trip Destinations**

Community	Avg Daily Commuters Arriving
Cleveland	89,199
Akron	42,520
Solon	14,658
Canton	14,618
Green	10,851
Twinsburg	9,454
Cuy. Falls	8,155
Kent	7,607
Massillon	5,970
Stow	5,916
Wadsworth	5,795
Hudson	5,705
Streetsboro	5,645
Aurora	4,466
Barberton	4,082
Tallmadge	3,691
N. Canton	2,997
Chpwa/Doyles	452

**Table 12:
Significant Cross-County
Trip Origins**

Community	Avg Daily Commuters Leaving
Akron	28,626
Cleveland	27,233
Canton	11,193
Cuy. Falls	8,847
Wadsworth	8,731
Twinsburg	7,871
Stow	7,170
Kent	6,550
Hudson	6,153
Streetsboro	5,681
Massillon	5,647
Green	4,787
Barberton	4,527
Aurora	3,867
Tallmadge	3,104
Solon	3,053
Chpwa/Doyles	2,784
N. Canton	2,585

It is significant that certain communities outside of the AMATS area are competitive with Cleveland in their attraction of daily work commuters, despite their comparison in size. Canton (Stark County) and Wadsworth (Medina County) both draw a large number of commuters from the AMATS area. Akron and Stow are important employment destinations for workers outside of Summit County (including those commuting from Portage County). Similarly, a significant portion of the populations of Kent, Twinsburg, Green and Streetsboro leave their home counties daily to work in adjacent ones.

One of the primary purposes of this analysis is to identify communities showing strong reciprocity in their attraction of daily workers. The analysis shows that there are strong workforce ties between the communities of Akron and Canton, Wadsworth and Akron, Solon and several communities in the northern portion of the AMATS region, and strong ties between Kent/Ravenna and several central Summit County communities. Through an analysis of the Census' journey-to-work data, several sets of contiguous communities show strong relationships to one another, and demonstrate the types of daily commuting patterns that could lend themselves to popular fixed-route, cross-county commuter bus/rail lines. The following table illustrates these potential cross-county commuter service lines:

Table 13: Potential Cross-County Commuter Routes
(Flow in order of highest demand)

						Potential Daily In-Bound	Potential Daily Reverse
Aurora	Streetsboro	Hudson	Stow	Cuy Falls	Akron	12,306	9,253
Ravenna	Kent	Stow	Cuy Falls	Akron		11,497	7,994
Solon	Twinsburg	Hudson	Stow	Tallmadge	Akron	7,351	7,017
Canton	N. Canton	Green	Akron			6,944	2,014
Wadsworth	Norton	Barberton	Akron			4,301	2,457
Akron	Fairlwn/Mont	Medina				3,399	651
Chpwa/Doys	Barberton	Akron				3,103	1,549
Kent	Tallmadge	Akron				3,046	1,924
Kent	Streetsboro	Aurora	Solon			1,556	352

This planning level analysis does not attest to the economic feasibility of the proposed commuter routes shown above; it simply illustrates the important economic and employment relationships between communities within and just beyond the AMATS region’s borders. The relationships between Akron and Cleveland, and Kent and Akron have been well established, and are currently served by METRO and PARTA commuter lines. The intent of the above analysis is to bring attention to relationships at a smaller scale – communities that are in some cases mere feet apart (i.e. Twinsburg and Solon), yet public transportation between them is entirely absent. The above relationships may warrant a more detailed feasibility analysis, and if practical, then subsequent consideration for service.

The map on page 45 illustrates the potential cross-county commuter routes proposed in Table 13.

Areas Demonstrating Lack of Demand

The identification of areas demonstrating a lack of cross-county transit service demand is just as important as identifying those where it *does* exist. No one benefits from using limited resources on routes with little demand. The analysis of the U.S. Census’ journey-to-work data revealed certain areas with limited demand in terms of daily work commuting patterns. Some cross-county service may not be warranted at this time. Some of these key areas include:

- Cleveland/Cuyahoga County to the AMATS area – at the county level, there are relatively few people commuting to Summit or Portage counties. Cleveland and its Cuyahoga County suburbs (with the exception of Solon) seem to interact independently.
- The city of Akron to Portage County – Although a number of Akron residents commute to Medina and Stark counties, census data indicates that there is not a lot of commuting to neighboring Portage County. Akron residents are largely employed within Akron or Summit County.
- Chippewa Township/Doylestown – Although 18.4% and 16.3% (respectively) of daily work trips from this area leave Wayne County for other counties, the actual number of trips is very small. Transit service to these municipalities would not be cost effective, and therefore, is not recommended at this time.

- Mahoning/Trumbull Counties – a study of census data shows that there are only a handful of daily work commutes between these Eastern Ohio counties and the AMATS region. Regular commuter service does not appear to be in demand, and would not be cost effective.

Summary: Cross-County Service

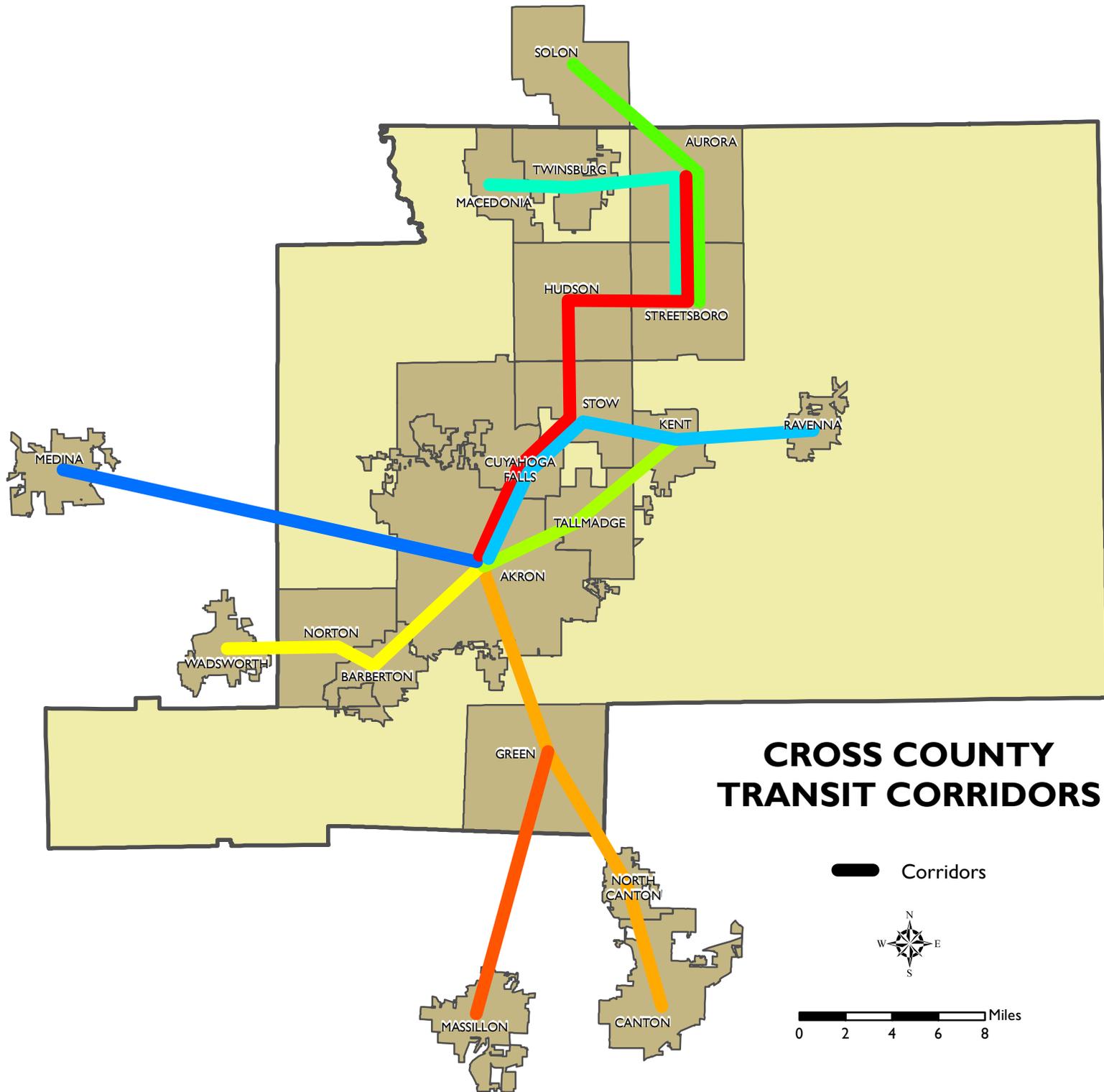
The demand for a range of cross-county transit service seems clear. And in several instances, local transit agencies are already providing it. METRO, PARTA and the Stark Area Regional Transit Authority (SARTA – the public transportation provider for Canton/Stark County) provide limited express services that cross county lines:

- METRO Northcoast Express – two lines connecting Downtown Akron to Downtown Cleveland
- PARTA Cleveland Express – service between Kent and Downtown Cleveland
- PARTA Akron Express – service between Kent and Downtown Akron
- SARTA Canton/Akron Express – connects Downtown Canton to Akron-Canton Airport and Downtown Akron
- SARTA Canton/Cleveland Express – connects Downtown Canton to Downtown Cleveland

These cross-county connections provide an excellent opportunity for long-distance travel throughout the region, and most of them have experienced steady ridership growth. At this time, cross-county service is infrequent, with no more than a handful of round-trips each business day, and no weekend service available.

In 2014, METRO, PARTA and SARTA formed a Council of Governments (COG) called NEORide (also discussed earlier). The main purpose of this COG is to develop ways that the three transportation authorities, and potentially other area transit authorities, could form partnerships in a way that would streamline operations between the counties and assist passengers in traveling in the multi-county area.

Specifically, the three transit agencies are working to coordinate their existing routes, and then move on to operate one or more new joint routes. The three systems also are looking at coordinating in other ways, such as creating a pass that could be used to ride buses operated by all three systems. For more information, see the NEORide Feasibility Study (March 2016).



Cross-County Service and Choice Riders

The primary use of cross-county transit service is likely to be for daily work commutes, but is not limited to that purpose. Regular transit service with effective connections will allow for residents of Summit and Portage Counties to reach concentrations of employment, medical, educational and other attractions in Cleveland, Canton and portions of Medina County. Likewise, business owners in our region could enjoy an increased customer base arriving from these counties.

A large percentage of riders using existing cross-county service to Cleveland and Akron are choice riders – those who have access to a personal automobile, but choose transit for its affordability and convenience. If kept affordable and running at an acceptable frequency throughout the day, evenings and weekends, enhanced services could attract further ridership. Cleveland has a large employment base that, if additional transit options were offered, could allow for significant growth in ridership. Also, under current conditions, the only option for a resident of the AMATS area to attend an evening or weekend sporting event, concert, or other major event in Cleveland is to drive to the area. Commuting, of course, has a much larger impact on travel patterns than one-time entertainment events.

Although the primary goal of our local transit agencies should be to provide affordable, efficient and convenient transportation services to their existing ridership base, many of the greatest potential benefits of transit service will be realized through growth in choice ridership. Some of these benefits include:

- Ridership Growth – as noted above, transit dependent riders choose transit out of necessity, and provide a stable or slow growth in ridership base. Attracting and retaining choice riders ensures a strong public transit system.
- Economic – Attracting and retaining choice riders is an effective way of increasing farebox revenue, which in turn, allows transit agencies to provide even more service, thanks to the corresponding increase in operating revenue. In addition, choice riders are likely to have higher incomes than transit dependent individuals, and are more likely to utilize transit options with necessarily higher fares (i.e. commuter buses or passenger rail, which often charge higher base fares than standard local bus services do).
- Congestion Alleviation – Since choice riders are by definition those who have access to personal vehicles, every choice rider drawn to transit takes essentially one car off of local streets and highways. Providing high frequency bus service on congested roadways reduces congestion.
- Environmental – Each vehicle taken off of area roads leads to incremental reductions in emissions related pollution, noise pollution and fossil fuel consumption.

Challenges to Cross-County Service

The primary setback to cross-county travel is that transit operations are largely funded through local county sales taxes. The counties in the AMATS region have proven very supportive of local transit operations through voter approval of sales tax increases, even during periods of significant financial difficulty. The above discussion illustrates the heavy volume of travel between the counties in and around the AMATS region, and increasing cross-county transit service should be an important goal for local transit agencies.

AMATS feels it is important for local transit agencies and municipal governments to create mutually beneficial solutions to provide cross-county transit service. And AMATS supports the efforts of

NEORide. The benefits of such service will result in convenient commuting, congestion reduction and the maximum leveraging of transit allocated resources. Demonstrated successes in coordinated, cooperative transit funding might also lead to additional state and/or federal assistance.

Cross-County Demand-Response Service

Although the existing demand-response services offered by METRO and PARTA (discussed above in more detail) stay within the agencies' home counties, the two agencies have begun meeting with other Northeast Ohio transit agencies and AMATS to discuss the potential to coordinate and offer these services across county borders. Although services have to be scheduled in advance, and are therefore not an ideal substitute to fixed-route, cross-county service, such a service provides an excellent preliminary step towards the overall expansion of cross-county transit service. Success in this area would further illustrate the need for expanded service.

Chapter 8: Key Transit Corridors and TOD Nodes

Key Transit Corridors and Transit Oriented Development Nodes

The identification of transit corridors is essential in best determining where to concentrate limited funding. The concentration of frequent, convenient service in key corridors will help build transit service from the ground up, leading to an environment and ridership culture that may work to increase transit feasibility for other areas that we may not have considered previously.

Transit corridors not only guide us in the investment of transit service and infrastructure - when implemented correctly, they can guide overall community development and investment. Popular transit corridors and the heavy foot traffic they generate create an opportunity to develop complementary land uses (for example: residential, retail, office, etc.) within close proximity to each other. Developments of this type are known as mixed-use developments. Mixed-use development spurred by, and complementary to, a transit corridor is also known as transit oriented development (TOD).

There are a number of benefits to transit oriented development. Generally compact in nature, these developments are designed to be comfortable for non-motorized transportation, such as walking or bicycling. One can easily walk from home to work, dine or relax in an aesthetically pleasing green space. The close proximity of many daily needs, combined with readily available transit service, can greatly reduce reliance on the automobile.

The automobile is fully accommodated for in transit oriented development. However, the automobile does receive a slightly subordinate status to walking. For example, parking is located behind the buildings, rather than in front of them. The trade-off is attractive, livable communities that generally maintain their property values and sense of community. Transit oriented development is flexible and adaptive: from the streetcar suburbs of our urban past, to modern efforts in urban design.

Much of the existing development in the AMATS region was designed with the automobile in mind, and the transit corridors identified in the next section are no exception. Although the style of TOD used by some cities is not possible (nor appropriate) in some portions of these corridors, AMATS recommends that at key nodes (major intersections, concentrated areas of commerce, etc.), communities in the region should consider changes to zoning that would allow for higher density, mixed-use development. New construction, ownership changes and other key transition periods could provide the opportunity to retrofit existing developments at these nodes to better accommodate transit and pedestrians.

The map below (page 55) identifies the key transit corridors within the AMATS region, as well as potential nodes/segments where TOD principles should be considered by local communities. Additional information about TOD, mixed-use development and livable communities may be found in AMATS' *Connecting Communities* report (see pg. 39 of that report), which may be viewed at www.amatsplanning.org.

Identification of AMATS Key Transit Corridors and TOD Nodes

Table 14: Key Transit Corridors

#	Corridor	From	To	Affected Communities
1	Market Street	Crystal Lake Rd (Bath Twp)	S. Arlington St (Akron)	Akron, Bath Twp, Copley Twp, Fairlawn
2	S. Arlington St	SR 619 (E. Turkeyfoot Lake Rd) (Green)	SR 18 (E. Market St) (Akron)	Akron, Green, Coventry Twp, Springfield Twp
3	SR 91	US 224 (E. Waterloo Rd) (Springfield Twp)	Solon Rd (Solon)	Akron, Hudson, Lakemore, Munroe Falls, Springfield Twp, Stow, Tallmadge, Twinsburg Twp, Twinsburg, Solon
4	Main Street/ State Rd	W. Waterloo Rd (Akron)	Steels Corners Rd (Cuyahoga Falls)	Akron, Cuyahoga Falls
5	Kenmore Blvd/ Wooster Rd N.	W. Tuscarawas Ave (Barberton)	METRO Transit Center (Akron)	Akron, Barberton
6	SR 82	Olde 8 Rd/Brandywine Rd (Northfield Center)	SR 306 (N. Chilicothe Rd) (Aurora)	Aurora, Macedonia, Northfield Center Twp, Twinsburg, Twinsburg Twp
7	Graham Rd/ Fairchild Ave	State Rd (Cuyahoga Falls)	Kent Central Gateway	Cuyahoga Falls, Kent, Silver Lake, Stow
8	SR 59	Broad Blvd (Cuyahoga Falls)	SR 44 (Ravenna Twp)	Cuyahoga Falls, Kent, Franklin Twp, Ravenna, Ravenna Twp, Silver Lake, Stow
9	SR 14	SR 82 at SR 91 (Twinsburg)	N. Chestnut at SR 59 (Ravenna)	Ravenna, Ravenna Twp, Streetsboro, Twinsburg, Twinsburg Twp

Table 15: Potential TOD Nodes

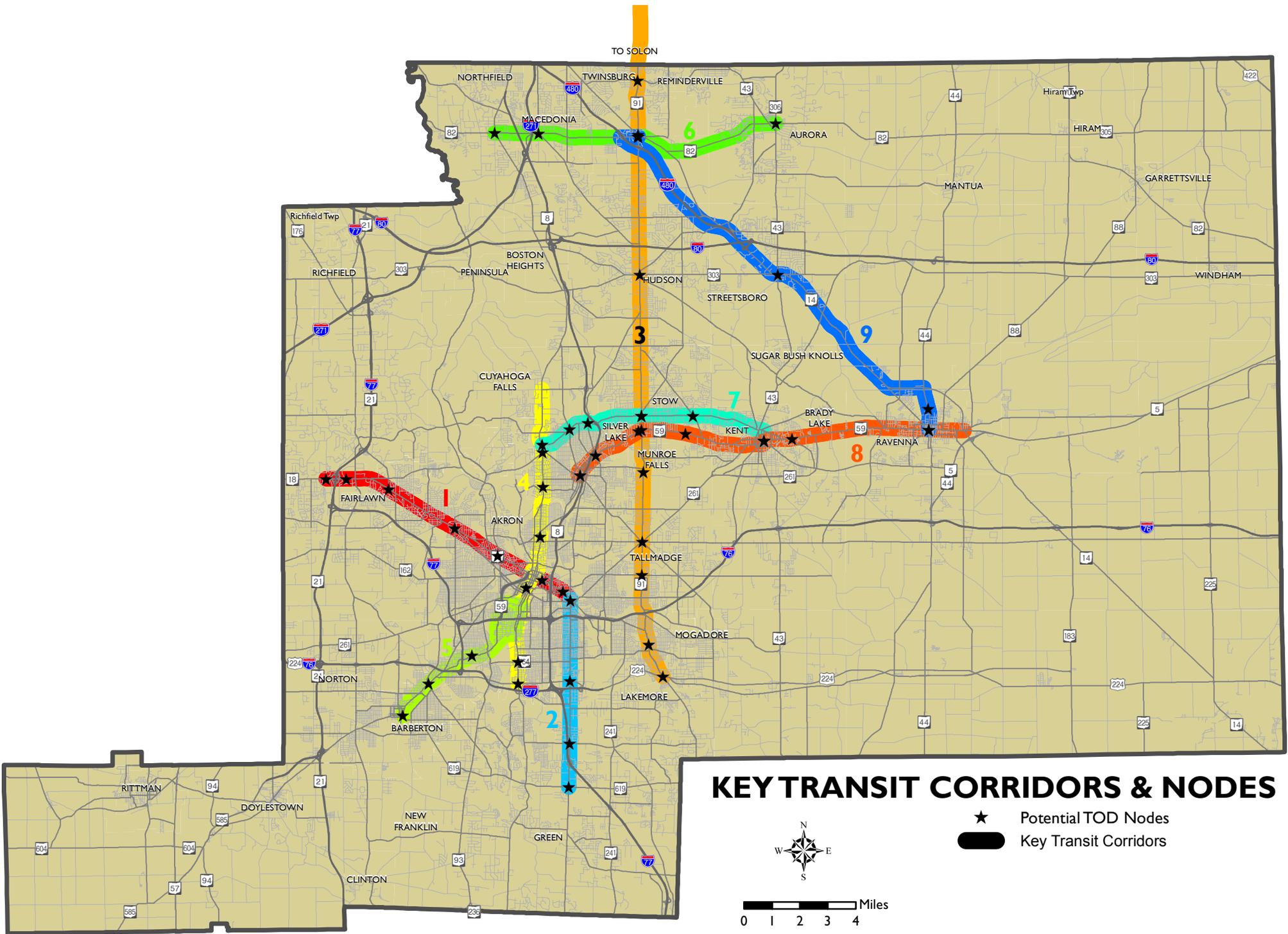
Node ID	Intersection/Segment	Community	Ridership Attractions/Generators
#1: Market Street Corridor			
1A	Crystal Lake Rd/Montrose W. Ave at SR 18	Bath and Copley Twps	Medical Center, Restaurant/Retail, Office, Residential
1B	Flight Memorial Pkwy at SR 18	Bath and Copley Twps	Major Commercial/Retail Hub
1C	Ghent Rd at SR 18	Fairlawn	Commercial/Retail, Medical, Hotel, Residential
1D	S. Hawkins Ave/W. Exchange St at SR 18	Akron	Dense Residential, Commercial, Park Space
1E	Highland Square: SR 18 from Portage Path to Merriman Rd	Akron	Existing Mixed-Use Community: Retail/Commercial, Entertainment, Residential, Educational
1F	Downtown Akron: SR 18 from Main St SR 8	Akron	Existing Mixed-Use Community: Retail/Commercial, Employment, Residential, Educational, Entertainment
1G	University Park: SR 18 from SR 8 to S. Arlington St	Akron	Medical Center, University Area, Retail, Residential
#2: South Arlington Street Corridor			
2A	SR 619 (E. Turkeyfoot Lake Rd) at S. Arlington Rd	Green	Office, Retail, Developable Land
2B	Kilian Rd at S. Arlington Rd	Coventry and Springfield Twps	Employment, Retail/Commercial, Medical, Residential
2C	E. Waterloo Rd at S. Arlington Rd	Akron and Coventry Twp	Employment, Educational, Retail/Commercial, Residential
2D	E. Exchange St/E. Market St at S. Arlington St	Akron	Commercial/Retail, Employment, Educational, Residential
#3: State Route 91 Corridor			
3A	US 224 (E. Waterloo Rd) at SR 91	Lakemore, Springfield Twp	Retail/Commercial, Residential
3B	Ellet: from Albrecht Ave to Wedgewood Dr	Akron	Retail/Commercial, Residential
3C	Eastwood Ave at SR 91	Akron and Tallmadge	Retail/Commercial, Residential, Park
3D	Tallmadge Circle	Tallmadge	Retail/Commercial, Government, Park, Residential, Medical/Office
3E	Downtown Munroe Falls: from S. River Rd to Munroe Falls Ave at SR 91	Munroe Falls	Retail/Commercial, Government, Residential, Office, Park
3F	SR 59 (Kent Rd) at SR 91	Stow	Retail/Commercial, Library, Office/Medical
3G	Graham Rd at SR 91	Stow	Government, Commercial/Retail, Residential
3H	Downtown Hudson: Aurora St at SR 91	Hudson	Commercial/Retail, Government, Park, Office, Residential
3I	Downtown Twinsburg: Ravenna Rd at SR 91	Twinsburg	Commercial/Retail, Government, Park, Office, Residential
3J	Glenwood Dr at SR 91	Twinsburg	Commercial/Retail, Office/Medical, Residential
3K	Bainbridge Rd at SR 91	Solon	Commercial/Retail, Park, Government

Table 15: Potential TOD Nodes (Continued)

Node ID	Intersection/Segment	Community	Ridership Attractions/Generators
#4: Main Street/State Road Corridor			
4A	Waterloo Rd at S. Main St	Akron	Commercial/Retail, Residential
4B	Wilbeth Rd at S. Main St	Akron	Employment, Retail, Residential, Park, Entertainment
4C	Downtown Akron: S. Main St from Bartges St to North St	Akron	Existing Mixed-Use Community: Commercial, Office/Medical, Park, Government, Residential, Educational
4D	North Hill: N. Main St from E. Tallmadge Ave to E. Cuyahoga Falls Ave	Akron	Existing Mixed-Use Community: Commercial/Retail, Residential, Library
4E	South State Rd: from Grant Ave to Broad Blvd	Cuyahoga Falls	Retail/Commercial, Residential, Medical
4F	Portage Trail at State Rd	Cuyahoga Falls	Retail/Commercial, Residential, Park, Educational, Religious Institutions
#5: Kenmore Boulevard/Wooster Road North Corridor			
5A	Downtown Barberton: W. Tuscarawas Ave at Wooster Rd N.	Barberton	Existing Mixed-Use Community: Park, Retail/Commercial, Employment, Government, Residential, Educational
5B	W. State St at Wooster Rd N.	Barberton	Retail/Commercial, Towpath Trail, Employment, Residential, Educational
5C	Kenmore Town Center: from 17th St to 11th St	Akron	Existing Mixed-Use Community: Retail/Commercial, Residential, Educational
#6: State Route 82 Corridor			
6A	Northfield Center Town Center: Olde 8 Rd/ Brandywine Rd at SR 82	Northfield Center Twp	Retail/Commercial, Park, Government, Educational, Residential
6B	Valley View Rd at SR 82	Macedonia	Retail/Commercial, Office/Medical, Government
6C	Downtown Twinsburg: SR 91 (Darrow Rd) at SR 82	Twinsburg	Retail/Commercial, Educational, Park, Government, Residential
6D	SR 306 (N. Chillicothe Rd) at SR 82	Aurora	Retail/Commercial, Residential, Park, Educational

Table 15: Potential TOD Nodes (Continued)

Node ID	Intersection/Segment	Community	Ridership Attractions/Generators
#7: Graham Road/Fairchild Avenue Corridor			
7A	State Rd at Graham Rd	Cuyahoga Falls	Retail/Commercial, Residential, Park
7B	Wyoga Lake/Oakwood Dr at Graham Rd	Cuyahoga Falls/Stow	Retail/Commercial, Government, Residential
7C	Hudson Dr at Graham Rd	Cuyahoga Falls/Stow	Retail/Commercial, Residential, Office
7D	SR 91 (Darrow Rd) at Graham Rd	Stow	Retail/Commercial, Government, Park, Residential
7E	Fishcreek Rd at Graham Rd	Stow	Retail/Commercial, Government, Park, Educational, Residential
7F	Kent Central Gateway: SR 59 at Erie St	Kent	Existing Mixed-Use, Multi-Modal District: Retail/Commercial, Educational, Park, Government, Entertainment, Residential
#8: State Route 59 Corridor			
8A	Downtown Cuyahoga Falls: Front St at Broad Blvd	Cuyahoga Falls	Office/Employment, Government, Park, Educational, Retail/Commercial, Entertainment, Residential
8B	Hudson Dr at SR 59	Cuyahoga Falls	Retail/Commercial, Office/Medical, Park, Residential
8C	SR 59 (Kent Rd) from Sycamore Dr to SR 91	Stow	Retail/Commercial Corridor, Office, Library, Residential
8D	Stow Target Plaza: 4200 Kent Rd	Stow	Retail/Commercial, Residential, Multi-Modal Connection
8E	Kent Central Gateway: SR 59 at Erie St	Kent	Existing Mixed-Use, Multi-Modal District: Retail/Commercial, Educational, Park, Government, Entertainment, Residential
8F	Kent State Campus: SR 59 from S. Lincoln St to SR 261	Kent	Educational, Retail/Commercial, Park, Employment, Residential
8G	Downtown Ravenna: N. Chestnut St at SR 59 (Main St)	Ravenna	Existing Mixed-Use Community: Retail/Commercial, Employment, Government, Residential
#9: State Route 14 Corridor			
9A	Downtown Twinsburg: SR 91 (Darrow Rd) at SR 82	Twinsburg	Retail/Commercial, Educational, Park, Government, Residential
9B	SR 43/SR 303 at SR 14	Streetsboro	Retail/Commercial, Medical, Employment, Residential
9C	N. Chestnut St at Chestnut Hill Dr	Ravenna	Medical, Employment, Educational, Office
9D	Downtown Ravenna: N. Chestnut St at SR 59 (Main St)	Ravenna	Existing Mixed-Use Community: Retail/Commercial, Employment, Government, Residential



TO SOLON

NORTHFIELD

TWINSBURG

REMINDERVILLE

Hiram Twp

MACEDONIA

AURORA

HIRAM

MANTUA

GARRETTSVILLE

Richfield Twp

RICHFIELD

BOSTON HEIGHTS
PENINSULA

HUDSON

STREETSBORO

WINDHAM

CUYAHOGA FALLS

SUGAR BUSH KNOLLS

STOW

BRADY LAKE

KENT

5

FAIRLAWN

AKRON

MUNROE FALLS

TALLMADGE

MOGADORE

14

NORTON

BARBERTON

LAKEMORE

224

44

RITTMAN

DOYLESTOWN

NEW FRANKLIN

GREEN

CLINTON

619

241

226

93

77

226

226

226

226

226

226

Chapter 9: Transit Recommendations

Recommendations

The purpose of the AMATS Transit Plan is to aid in the development of a convenient, efficient and cost effective public transit network for our region. Upon consideration of the previous analyses, as well as the informative input of the local transit agencies, AMATS presents the following recommendations to accomplish this goal.

To assist in the assigning of responsibility for each recommendation, they have been divided into three categories:

- Regional-Level Recommendations
- Municipality-Level Recommendations
- Transit Agency-Level Recommendations

Regional-level recommendations are broad in their scale, and would generally be best implemented after dialogue between all stakeholders, which could include the transit agencies, local officials, local residents and other concerned parties.

Municipality-level recommendations would generally include changes to local zoning ordinances, which only the local legislative body would have the authority to address.

The majority of recommendations in this plan are at the transit agency level. They primarily involve increasing or expanding transit services, most of which would be implemented from the operating budgets of the two area transit agencies. The majority of the federal funds that AMATS allocates to METRO and PARTA are used for capital expenditures, not operating expenses. Therefore, the transit providers must address the feasibility of each proposed recommendation prior to implementation.

Regional Recommendations

RECOMMENDATION 1

Reduce/Eliminate Service on Very Low-Ridership Lines

With limited funding available for public transit services, METRO and PARTA may wish to focus their assets on areas in which they will be most cost effective. Feasibility studies are being conducted for fixed-route transit lines that are showing very low ridership numbers and are not growing at a level to justify their continued operation.

RECOMMENDATION 2

Continued Support for NEORide – Cross County Service and Coordination

Public transportation in Ohio has historically been funded through a dedicated portion of the county

sales tax. Because of this funding structure, there has been a long-standing culture of only operating services within an agency's home county.

The U.S. Census' journey to work data confirms the AMATS region's interconnectedness with several key communities beyond the Summit and Portage county borders. Travel between various communities in Portage and Summit Counties (i.e. Stow to Kent, Streetsboro to Akron, etc.) shows strong demand, as does travel between certain AMATS communities and Canton, Medina and Solon.

Cross-county service is a key strategy to growing overall transit ridership and a positive transit culture in our region. Cross-county transit service is also discussed above.

KEY CROSS-COUNTY CORRIDORS

- Aurora - Streetsboro - Hudson - Stow - Cuyahoga Falls – Akron
- Akron - Cuyahoga Falls - Stow - Kent – Ravenna
- Akron - Green - North Canton – Canton
- Akron - Barberton - Norton – Wadsworth
- Solon - Aurora - Streetsboro

Municipality Recommendations

RECOMMENDATION 3

Consider Transit Oriented Development/Design Codes at Key Transit Nodes

Certain intersections or neighborhoods are particularly viable for frequent transit service. Transit stops with characteristics such as high population and job densities, proximity to popular destinations and overall neighborhood vitality may be greatly enhanced through the establishment of transit oriented development/design (TOD) codes.

TOD codes are typically located within a municipality's zoning, development or urban design ordinance, and usually established as an overlay district on the existing zoning map. These codes encourage a variety of design treatments to create pedestrian, bicycle and transit friendly neighborhoods. Successful implementation can lead to vibrant, livable neighborhoods.

Please chapter 8 for specific TOD recommendation areas.

COMMON TOD TREATMENTS

- Wide, pedestrian friendly sidewalks
- Buildings containing a mixture of uses, and built near the street, facing towards the street
- Incorporation of an inviting ground-level feel: active uses, transparency, pedestrian shelters, attractive signage, etc.
- Parking located behind the building, typically with alleyway access
- Well-designed bus shelters and bus pull-offs for comfortable waiting and loading/unloading

Transit Agency Recommendations

RECOMMENDATION 4

Increase Service Frequency/Capacity in Nine Key Transit Corridors

As a result of the analyses performed in the AMATS Regional Public Transportation Plan, nine key corridors have been identified as warranting new or expanded service. Each of these corridors connects multiple densely populated communities; contain large concentrations of demographic groups likely to use public transit, and dense clusters of land uses known to generate transit ridership.

In some of these corridors (Market St., S. Arlington St., etc.) service is already present. The analysis in this plan, however, shows that an increase in bus frequency would address unmet demand and capacity issues. Increased service frequency (increased level of service) has also been shown to reduce automobile congestion.

In other corridors (SR 82 and SR 91), bus service is largely absent, yet analyses indicates that they have the potential to attract significant ridership. It is recommended that service be implemented in these corridors as METRO/PARTA determine feasible.

Please see the preceding chapter for detailed corridor descriptions.

KEY TRANSIT CORRIDORS

Corridor #1: Market Street

Corridor #2: South Arlington Street

Corridor #3: State Route 91

Corridor #4: Main Street/State Road

Corridor #5: Kenmore Blvd/Wooster Road North

Corridor #6: State Route 82

Corridor #7: Graham Road/Fairchild Ave

Corridor #8: State Route 59

Corridor #9: State Route 14

RECOMMENDATION 5

Provide New Fixed-Route Service to Close Transit Gaps

The analyses performed in the plan indicate that, for the most part, existing transit service adequately covers the larger, urban areas in the AMATS region. However, as the population has decentralized over recent decades, transit service has not kept up with the pace of outward migration. In many cases, suburban/rural densities are far too low to justify fixed-route service. However, there *are* locations that seem to contain sufficient population densities, employment opportunities and clusters of attractions to warrant fixed-route transit service.

Six communities exhibit precisely these qualities - clusters of population, jobs and attractions but lacking regular fixed-route service, and are designated by this plan as “gaps” in the existing public

transportation system.

It is recommended that starter service is run to the centers of these “gap” communities, as determined feasible by the transit agencies. If warranted, service could be increased in the future.

GEOGRAPHIC “GAPS” IN TRANSIT SERVICE

- City of Aurora
- Copley Township
- City of Green
- Village of Mantua
- City of Streetsboro
- City of Twinsburg

RECOMMENDATION 6

Increase Service Frequency/Extend Service Hours on Existing Cross-County Services

In the “Regional Recommendations” section, a policy discussion on new cross-county service is discussed. Currently, both METRO and PARTA operate very popular cross-county service to Cleveland and between Akron and Kent.

In their current form, these services are aimed almost exclusively at first-shift, Monday-through-Friday commuters. The region could greatly benefit if these existing services increased the number of daily round trips and extended their hours of operation so that commuters working later shifts or choosing to take transit for non-work trips may do so.

Important to this recommendation is the recent opening of the new casino in Downtown Cleveland, as well as a proposed casino in Northfield. Casinos are proven generators of bus ridership. Although the casinos would be one of the key generators of 24-7 traffic, existing attractions such as professional sporting events, concerts, conventions and general business between Cleveland and Portage/Summit Counties would also be greatly enhanced by the expansion of these services.

RECOMMENDATION 7

Increase Hours of Operation on Existing Services

In Chapter 1 of this plan, an analysis of the level of service (LOS) was conducted for various timeframes throughout the day for both area transit agencies. Unlike highway LOS ratings, which rate the level of congestion on a particular roadway, transit LOS measures the overall convenience of a transit route to potential riders; the higher the LOS, the more frequently a bus arrives, thus the more appealing potential riders will find that particular route.

Starting with the key transit corridors (see Recommendation #4), and growing as ridership and/or funding allows, it is recommended that METRO and PARTA increase service frequency on existing fixed-routes, especially in the evenings.

Routes serving communities with high population and job densities should receive priority for increased service.

Chapter 10: Implementation

Implementation

In order to implement the recommendations proposed in the previous section of this report, adequate funding is essential. In addition to local revenues, which are typically expended on operating expenses (salaries, fuel, maintenance, etc.), a number of state and federal grant/funding programs are administered by AMATS to aid in the acquisition of capital assets (buses, facilities, etc.). State, federal and AMATS attributable funding are also used for special projects or initiatives, such as specific plans or special services. The following list describes the current funding mechanisms available for the implementation of transit recommendations.

Federal/State Funding Programs (administered at the state level by the Ohio Department of Transportation) – Generally used for capital expenses

- FTA Urbanized Area Formula Program (Section 5307) – transit dedicated funding which may be used for capital expenses such as new buses, equipment, preventive maintenance and planning.
- FTA Elderly and Disabled Program (Section 5310) – funding assistance to qualified social service and transit agencies for the purpose of providing transportation for the elderly and disabled.
- FTA Section 5339 Bus and Bus Facilities Program – funding dedicated to the purchase of new buses or capital facilities.
- FHWA Surface Transportation Program (STP) – versatile funding for a wide variety of projects
- Congestion Mitigation Air Quality Program (CMAQ) – funding for projects demonstrating an improvement in air quality. Examples: intersection turn lanes, traffic signal improvements, CNG buses, park and ride lots, etc.

Local Funding – Generally used for operations and to match federal capital funds

- Farebox Revenue – funds received from fare-paying riders. Typically accounts for 10% - 20% of operating budget, varying substantially by month and by route.
- Transit Dedicated Local Sales Tax – local levies, approved by voters, dedicating a fixed percentage of the county sales tax to the local transit authority.
 - Summit County/METRO = 0.50%
 - Portage County/PARTA = 0.25%

Chapter 11: Conclusion

Overall, the AMATS area has a strong existing public transportation system. Especially in the larger, established cities, the existing fixed-route system serves the majority of the populations most likely to rely on transit for their transportation needs.

Demand-response service in our region is excellent, and is currently undergoing technological enhancements so that anyone in the region may telephone a central location, and the most efficient transit provider will be scheduled to assist them. Although this curb-to-curb, demand-response service has historically been limited to serving the elderly and disabled only, PARTA now offers this service to anyone who would like to schedule it. Although curb-to-curb service is extremely convenient, it is expensive, and those wishing to use it must schedule their trip in advance.

Fixed-route service is the key to making the most effective and efficient use of the limited transportation dollars available to our region. Fixed-route service is predictable, and when properly planned and implemented, can carry large groups of passengers to their desired destinations on a frequent basis. The more passengers each bus carries, the lower the cost-per-passenger expenses are, improving the effectiveness of transit investments. METRO RTA is in the process of reconfiguring its fixed-route system to better meet demand and increase ridership. In addition, METRO is developing a set of transit nodes (hubs) to link multiple routes beyond the current radial system centered on the downtown transit center on South Broadway. PARTA and the City of Kent (with Kent state University) are improving transit access in and around the University, the center of PARTA's fixed route system.

The primary purpose of the AMATS Regional Public Transit Plan is to assist in achieving a balance between providing the best service to the existing public transit passenger base, while expanding in a way to best capture the demands of choice riders. Existing transit riders provide the foundation upon which the current system is built, and choice riders allow for true ridership growth.

The land use and demographics analyses performed in this report indicate that the majority of population and business growth in the AMATS region has been away from traditional city centers, and is now primarily in suburban locations. By focusing on the nine key corridors within the region, we can provide service to these communities, and potentially influence development to take place inwardly (rather than continuing towards suburban areas), thus preserving undeveloped land and maximizing the utility of existing infrastructure.

As part of the Congestion Management Process, AMATS identifies potential strategies to alleviate congestion and evaluates the expected effectiveness of those strategies in improving the efficiency and safety of existing and future transportation systems. As an established method for reducing single occupancy vehicles (SOVs), strategies aimed at making transit more attractive or accessible can help to reduce the number of vehicles on the road. Strategies include: realigning routes and services to meet demographic changes, flexible fare policies and employer-based incentive programs, transit oriented land use development, high frequency fixed route transit service in key corridors, integrating the scheduling and services of the region's several transit agencies and improving access to multiple modes of travel (pedestrian, bicycle, vehicle).

Public transportation will never completely replace the automobile for most people. However, with a well maintained and effective public transit system, an increasing percentage of people may come to rely on transit for their transportation needs. Everyone pays for transit (through federal and state income taxes, federal and state gas taxes and the county sales tax), so we should support a transit system that benefits as many people as possible. Efficient service will result in increased ridership, allowing people to use travel time more productively and save money. Ultimately, any increase in transit use will reduce congestion and vehicle emissions in the AMATS area.