

RAIL FREIGHT SYSTEM STUDY



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Executive Summary

In early 2011, the Akron METRO Regional Transit Authority commissioned a study of the movement of rail freight within the METRO region in an effort to better understand how METRO can contribute to the success of the regional economy. Because freight facilities and services are strongly linked to regional economic competitiveness and quality of life, expanding the mission of METRO to be more integrated with the rail freight economy makes good planning sense at this time. METRO owns roughly 41-miles of rail lines in both Stark County and Summit County. As such, a principal goal of this rail freight study is to institutionalize freight needs into the overall METRO planning process.



View along the Sandyville Line

The *METRO Rail Freight System Study* provides a comprehensive analysis of the regional freight rail network in which METRO operates. The study begins with a broad inventory of the existing freight transportation network in and around the study area. The study then examines the demographic profile of Summit and Stark Counties, providing a picture of the socioeconomic fabric of the region. Complementing the demographic analysis, the study includes an industry market analysis. The purpose of the market analysis is to understand the economic development potential of increased rail use that might result from investment in the current rail freight network in Summit and Stark Counties.

Before outlining a series of strategic action steps, the study investigates the viability of placing industries that could be enhanced by or are dependent on utilizing rail as a primary means of freight transport. To do this, we examined the existing land use and zoning patterns along the Akron Secondary Line and the Sandyville Line. This analysis helped to identify key Freight Activity Centers. Ultimately, the study provides key recommendations with regard to creating projects and policies that will strive to improve the viability of freight rail transport and, as a result, freight generating industries, along the METRO rail corridors.

All of these components combined can be used for many purposes, including business development, assisting companies to relocate to the region, regional collaboration, and grant writing. METRO aims to use this information to facilitate a healthy and effective freight rail network to grow Summit and Stark Counties. Further, the information and findings included here are intended to help give METRO a strategic direction for where and how to best invest in freight rail enhancements that will strengthen regional competitiveness.

Supporting Demographics

Summit and Stark Counties are located south of the City of Cleveland, making the Cuyahoga-Summit-Stark tri-county area the largest metropolitan area in the State of Ohio, in terms of population. As the chart to the right indicates, within the METRO study area the population has remained relatively steady over the past 20 years.

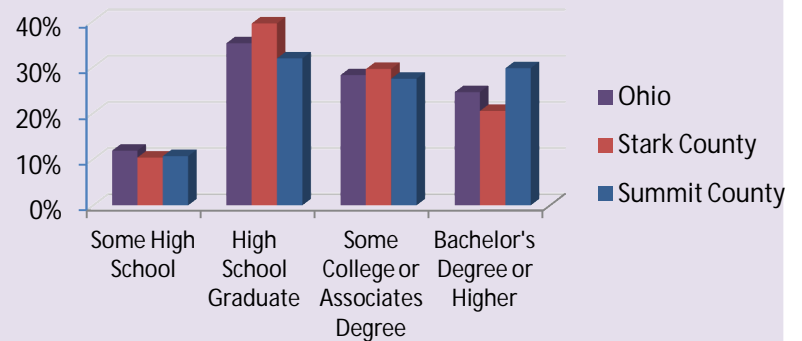
The next chart to the right indicates that both Summit and Stark Counties are relatively well-educated when compared to the State of Ohio. Stark County's educational attainment levels are slightly higher for both high school and some college or Associates Degree than Ohio and Summit County. However, Summit County shows a significantly higher percentage of its population with a bachelor's degree or higher. These statistics indicate a well-balanced regional population of both skilled professional workers as well as management level. This mix of educational attainment may be attractive to attracting new industry to demonstrate that the available workforce can provide both skilled workers to operate manufacturing processes as well as highly educated professionals to perform research and management.

The higher than average unemployment rate may indicate that a potential labor pool exists for future freight-generating industries that will locate in the METRO region. The presence of both the Sandyville and

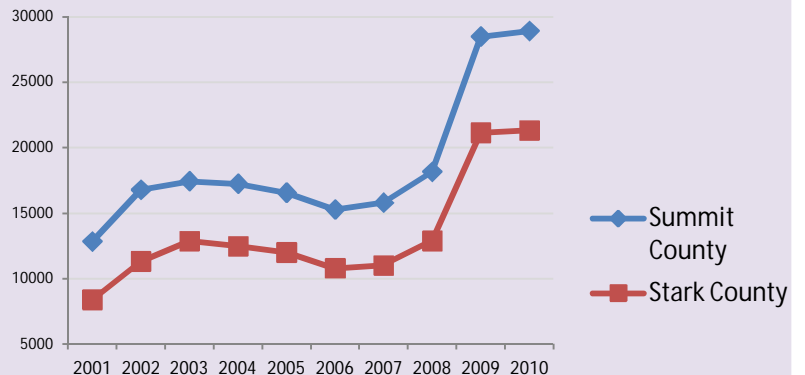
METRO Study Area
Population Change 1990-2010



METRO Study Area
2010 Educational Attainment, 25+



METRO Study Area
Unemployed Individuals 2001-2010



The region has a stable, skilled and innovative labor force that has prior experience in both rail and rail-dependent industries.

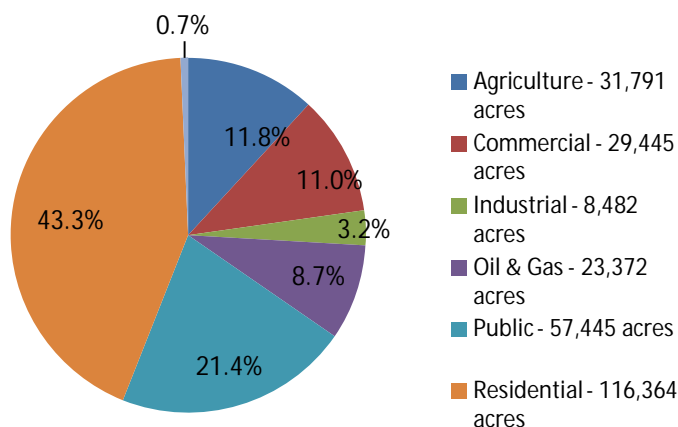
Akron Secondary lines and the potential for utilizing these lines to connect with major Class I freight corridors presents opportunities for economic development involving freight-generating enterprises along METRO-held lines.

Supporting Zoning and Land Uses

Land use and zoning patterns were evaluated for each of the 11 municipalities in which the Akron Secondary and Sandyville Lines pass through. Based on these patterns, we were able to identify six “Freight Activity Centers”, or areas of parcels along METRO-owned rail lines that are zoned “Industrial,” and therefore, support the development and growth of freight-generating land uses. The Freight Activity Centers (FAC) include: Hudson FAC, Akron FAC, Massillon Road Industrial Business Park FAC, Green FAC, Jackson FAC and Canton FAC. It was projected that full build-out of these areas could potentially result in nearly 33 million square feet of industrial development. Working with local governments to protect the economic development potential that the Akron Secondary and Sandyville Lines bring is a critical component to realizing economic growth.

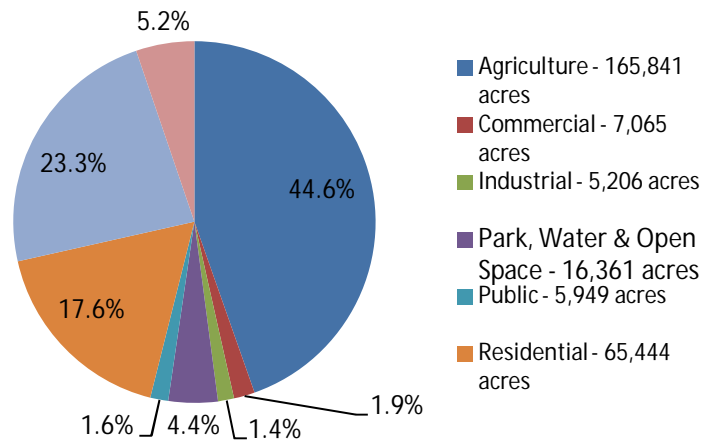
Summit County is approximately 420 square miles in size and is comprised of 268,333 parcels. The most predominant land use in the county is residential, accounting for approximately 43% of the county in terms of area. Industrial uses make up the smallest segment of land use within Summit County, accounting for only 3% of total parcels in Summit County. Most industrial parcels, however, are located strategically within 1.5 miles of the Akron Secondary and Sandyville Lines. In Summit County, the Akron Secondary runs through the City of Hudson, the City of Stow, the Village of Silver Lake and the City of Cuyahoga Falls while the Sandyville line runs through Akron, Springfield Township and the City of Green. Industrially-zoned parcels along the Akron Secondary are concentrated along the Hudson/Stow border, in the City of Akron (near the confluence with several other railroads near Hill Yard) and in the City of Green. Permitted freight-generating uses along the Akron Secondary within industrially-zoned parcels include major manufacturing, foundries, warehousing, fuel production/storage and food manufacturing.

Summit County Land Uses (2011)



Stark County is approximately 528 square miles in size and includes nearly 203,000 distinct parcels of land within its borders. The principal land use in Stark County is agricultural, comprising 44.6% of total land in Stark County. Similar to Summit County, industrial land is the smallest land use in terms of size, and most industrial land is located within a half mile of active rail lines. The Sandyville Line runs through

Stark County Land Uses (2004)



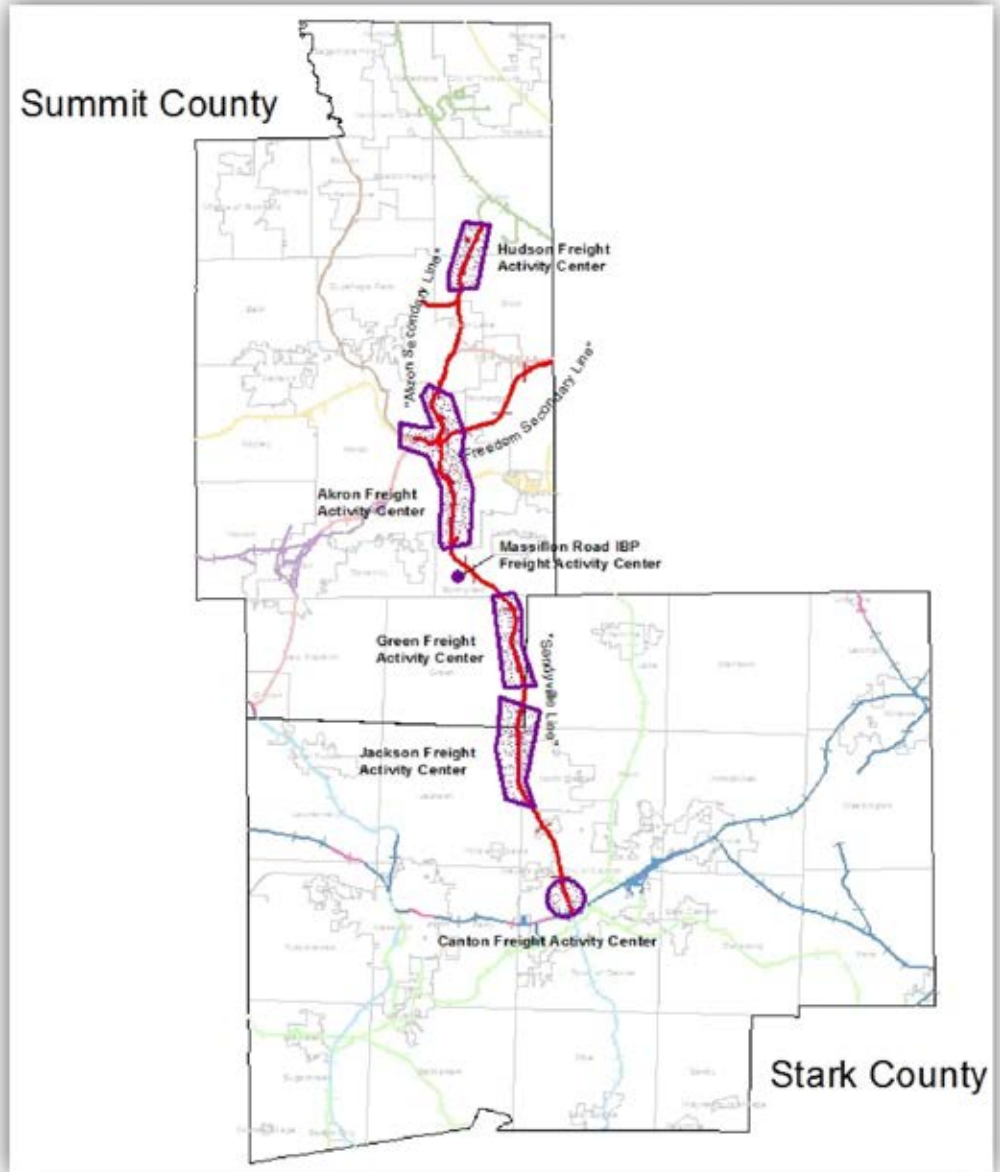
Jackson Township, Plain Township and the City of Canton. Industrially-zoned land in Stark County is concentrated in Jackson Township, as an extension of the City of Green industrial corridor in Summit County, and the City of Canton, near the Canton crossing diamond at the intersection of the Sandyville line and the Class I Norfolk Southern rail line. Permitted industrial uses in the municipalities along the Sandyville line in Stark County include warehousing, manufacturing of durable goods, foundries and facilities that produce and distribute food products.

The presence of several pockets of industrially-zoned land along rail lines owned by the METRO Regional Transit Authority between Hudson in northern Summit County and Canton in central Stark County presents myriad opportunities for economic development and industrial reinvestment in the heartland of Ohio. The realization of these opportunities could occur through the creation of a full service rail line along the Akron Secondary and Sandyville corridors, facilitating the more efficient transfer of freight goods throughout Ohio.

Freight Activity Centers

The purpose of defining Freight Activity Centers (FAC) is to help establish focused investment in the region’s vision for economic growth. For the purpose of this study, a Freight Activity Center is defined as an area of parcels within one-half mile and along the Akron Secondary and Sandyville Lines that are zoned “Industrial,” and therefore support the development and growth of “freight-generating land uses,” including but not limited to manufacturing, agriculture, construction, mining and warehousing. Freight Activity Centers are located at several locations along the Akron Secondary and Sandyville Lines within both Summit County and Stark County. There are six (6) separate Freight Activity Centers along METRO-owned rail lines within the Study Area as discussed above and shown in the map below.

Each of the six distinct Freight Activity Centers not only possess favorable zoning and access to rail lines, but are also located in close proximity to various other forms of transportation. Each designated Freight Activity Center is located in close proximity to road networks large enough to handle vehicles transporting freight received at the Freight Activity Center from rail cars. The Freight Activity Centers are also located in close proximity to major airports, including the Akron-Canton Airport. Many of the defined Freight Activity Centers, namely the Massillon Road Industrial Business Park Freight Activity Center, are being actively marketed by local and regional municipal offices and economic development



groups as key locations for future freight-generating enterprises. Freight Activity Centers along the Akron Secondary Line will require significant upgrades to the existing rail infrastructure in order to realize their full potential as freight-generating hubs.

Using our GIS data we were able to calculate the total number of industrially-zoned parcels located within a one-half mile of the Akron Secondary and Sandyville lines. These parcels were then measured to indicate the amount of industrially-zoned acres within each Freight Activity Center. In total, there are roughly 2,294 acres of industrially-zoned properties within all of the Freight Activity Centers. Using a conservative number of 33% of total building space to cover a parcel (based on the City of Green’s Zoning Ordinance), roughly 757 acres can be covered with industrial buildings. A simple conversion of acres to square feet reveals that nearly 33 million square feet of industrial buildings could be realized at full build out within the defined Freight Activity Centers. Using an industry standard of 1 employee per 500 square feet

for industrial development, full build out of industrially-zoned properties along the Akron Secondary and Sandyville Lines has the potential to result in over 65,000 employees.

Potential Freight-Generating Parcels within ½ mile of		
Freight Activity Center	METRO Rail Lines	Total Acres
Canton	78	131
Jackson	60	293
Green	1	4
Massillon	7	118
Akron	442	1,289
Hudson	57	459
Total	645	2,294
33% of sites covered by industrial buildings*		757 acres
Total square feet of industrial development within FACs		32,975,791
Potential employees at full build-out**		65,952

* Conservative estimate based on City of Green zoning ordinance which states that 33% of a parcel can be covered with buildings.

** At 1 employee per 500 square feet.

While these statistics are compelling, it is important to emphasize that they are based on *full build-out* of these areas. It is unrealistic to assume that these sites will be fully built in any kind of predictable future. The point here is to demonstrate that if economic development initiatives were heavily focused on developing these parcels along the Akron Secondary and Sandyville Lines that they can have dramatic impacts on the regional employment base. However, to help these sites realize their fullest potential, quality and dependable rail freight service will be an important factor for success.

Supporting Industries

In order to better understand the market potential for expansion of the rail freight opportunities along the Akron Secondary and Sandyville Lines, an analysis of the industrial market in Stark and Summit Counties was conducted. The focus of this analysis was to identify the industries that may be inclined to use freight and analyze their projected growth and concentration. The industrial market analysis includes a cluster analysis, gap analysis, location quotient analysis and shift share analysis.

In terms of METRO’s rail freight expansion and clusters that may be interested in seeing investments in the Akron Secondary and Sandyville Lines, a number of manufacturing clusters

have a significant presence in the METRO region such as: Fabricated Metal Product Manufacturing; Primary Metal Manufacturing; Manufacturing Supercluster; and Electrical Equipment, Appliance and Component Manufacturing. These manufacturing clusters are not expected to see an increase in job opportunities, but industrial market analysis indicates that there are competitive advantages for manufacturing companies to locate in the region.

Manufacturing, advanced materials development, fossil fuels development & processing, metal product manufacturing, transportation and logistics comprise some of the largest employers in the study area, accounting for nearly 110,000 jobs in 2010. Many of these freight-generating industries within the METRO region possess the potential for growth over the next decade. Employment in freight-generating industries, including energy and metal manufacturing are forecasted to rise, while other freight-generating industries, including general manufacturing and the manufacturing of advanced materials, are expected to contract.

Several detailed economic analyses were conducted in an effort to both identify existing freight generating business sectors within the study area and to determine growth potential for freight-generating business sectors along METRO-held lines. Through Location Quotient analysis, the study investigated the concentration of various freight-generating industries within the study area, and compared that concentration to the average concentration of those industries throughout the nation, providing insight into the potential competitive advantage of the METRO region over other geographies in Ohio or the United States in certain freight-generating industries. The Location Quotient analysis showed that the METRO region has a significantly higher competitive advantage in both primary metal fabrication and fabricated metal product manufacturing as compared to the State of Ohio and the country as a whole. Trends also show that this competitive advantage will continue increasing over the next decade.

In addition to the study area's competitive advantage in certain freight-generating industries, analysis was performed

The METRO study area has a significantly higher competitive advantage in both primary metal fabrication and fabricated metal product manufacturing as compared to the State of Ohio and the country as a whole. Trends also show that this competitive advantage will continue increasing over the next decade.

This analysis did show that one freight-generating industry, primary metal manufacturing, is growing faster within the METRO region than it is in other parts of the country.

The halting of job losses within freight-generating industries in the METRO study area could be effected in a variety of ways, namely the reinvestment in the rail lines owned and operated by the METRO Regional Transit Authority.

The freight corridor also includes numerous large parcels zoned for industrial uses, allowing for the potential for future freight-generating development to augment the existing freight-generating stock of businesses.

to determine where certain freight-generating industries are growing or contracting when compared to other geographies in the United States. Through shift-share analysis, the findings illustrate that many freight-generating industries within the METRO region, including advanced materials manufacturing, transportation/logistics, general manufacturing and machinery manufacturing are not growing as fast as these same freight-generating industries are in other parts of the country. This analysis did show that one freight-generating industry, primary metal manufacturing, is growing faster within the METRO region than it is in other parts of the country. Forecasts for many of the largest freight-generating industries within the study area show that these industries will continue losing jobs over the next decade. General manufacturing, transportation/warehousing and agriculture are freight-generating industries forecasted to lose between 300 and 5,000 jobs within the study area by 2018. Other freight-generating industries, like mining, quarrying and oil/gas extraction, are forecasted to experience significant gains in jobs by 2018, likely being driven by impending Utica Shale explorations.

The halting of job losses within freight-generating industries in the METRO region could be effected in a variety of ways, namely through reinvestment in the Akron Secondary and Sandyville Lines. The Akron Secondary Line and the Sandyville Line provide prime opportunities for reinvestment and job growth in the freight-generating industries. Although the Freedom Secondary was not a part of this analysis, existing land use patterns and rail conditions suggest strong potential for future Transit-Oriented Design opportunities. The Akron Secondary between Hudson and Akron as well as the Sandyville Line between Akron and Canton would provide a direct connection between both Class I railroads in Ohio, Norfolk Southern and CSX. The METRO freight corridor between Hudson in northern Summit County and the City of Canton in central Stark County possesses many existing freight-generating enterprises that would likely benefit from a through connection between Hudson and Canton. The Class I rail operators would also benefit from a direct connection through the METRO freight corridor, eliminating the need for costly and inefficient detours around the Akron area. Improvements to this line would in turn make freight rail more attractive and affordable for expansion of existing freight-generating industries already on the line. Finally, the freight corridor includes numerous large parcels zoned for industrial uses, allowing for the potential for future freight-generating development to augment the existing freight-generating stock of businesses.

Growing Rail Freight Transport Demand

The above analysis indicates that METRO investments in its rail holdings for freight development can have a significant impact supporting the regional economy. Likewise these investments will allow for METRO to realize a positive net return on these investments over the long-term, allowing for further enhancements to METRO organizational operations. In order for METRO to be effective, a number of issues and challenges will need to be addressed. There are also some key opportunities that METRO can capitalize on to help move the region forward.

Specialty Metals Processing, Inc. has expressed the need for rail service in order to maintain its growth in the steel fabrication industry. Interviews for this project found that Specialty Metals

Processing, Inc. will need to add about 190,000 square feet of industrial space with the ability to expand to 350,000 square feet. This expansion is anticipated to create as many as 100 new jobs. This expansion will require two new rail lines into the facility. This type of industrial expansion is also consistent with findings from the industrial market analysis performed.

The energy industry also brings a strong opportunity for growth. One such operation, Patriot Energy, has indicated interest to locate on a site adjacent to Specialty Metals Processing, Inc. If METRO can reactivate this segment of the Akron Secondary, tremendous growth and employment potential can be realized. Further, natural gas exploration in the Utica Shale has the potential to be a major economic development generator for a number of communities across Ohio. Current activity suggests that both the Akron Secondary and Sandyville Lines could become important players in the movement of materials related to the drilling process. As of December 2011, over 4,300 leases for natural gas and oil drilling have been filed in Stark County during 2010 and 2011 (1,113 in 2010 and 3,211 in 2011). Of those lease agreements, 191 are within three municipalities in which the Sandyville Line travels: City of Canton, Jackson Township and Plain Township.

Recommendations

Our research indicates strong potential for success within a ten-year time frame for both the Akron Secondary and the Sandyville Lines. This is due to several indicators:

- > a skilled, innovative labor force with prior experience in the rail industry
- > the network is wholly-owned by a single entity with connections to two Class 1 railroads
- > Freight Activity Centers with a high degree of industrial development potential
- > growing demand in the Utica Shale drilling industry
- > the location quotient (concentration of employment in particular industries) is very high for many manufacturing industries as compared to the national average

Highest Priority Investments

- > Develop a strategy and administrative capacity to manage all aspects of freight rail operations, infrastructure maintenance and economic development
- > Establish a task force to help preserve, promote and coordinate regional rail development activities
- > Plan, design and construct a transload facility at the Hudson Freight Activity Center

High Priority Investments

- > Repair/replace bridges along the Sandyville Line
- > Work with the City of Akron to maintain rail viability at the Massillon Road Industrial Park
- > Restructure policy to allow METRO to make long-term agreements
- > Develop a strategy to participate in the emerging Utica Shale gas industry
- > Develop mapping inventory of all METRO-owned properties and rights-of-way



Chapter 1: Introduction

Study Purpose

In early 2011, the Akron METRO Regional Transit Authority inaugurated a study of the movement of rail freight within the METRO region to better understand how METRO can contribute to the success of the regional economy. Because freight facilities and services are strongly linked to regional economic competitiveness and quality of life, expanding the mission of METRO to be more integrated with the rail freight economy makes good planning sense at this time. METRO owns roughly 41-miles of rail lines in both Stark County and Summit County. As such, a principal goal of this rail freight study is to institutionalize freight needs into the overall METRO planning process. The U.S. DOT estimates that the demand for rail freight transportation - measured in tonnage - will increase 88 percent by 2035. This study provides a first approximation of the rail freight infrastructure improvements and investments needed to allow METRO to be a part of this projected growth in demand.

The METRO Regional Transit Authority's Mission Statement recognizes that METRO has a role in "providing innovative transportation solutions that are safe, dependable and cost effective." As the region continues to find its balance between continuing to build from its historic manufacturing roots and the new economy, METRO can play an important economic development role. Economic development initiatives are no longer primarily public driven or driven by one unit of government but based on public-private collaboration, including collaboration with multiple government, non-profit and private entities. As a quasi-public agency, METRO can use its resources to foster these collaborative conversations and help to make investments that advance the needs of business and industry growth with community development.

METRO is committed to enhancing the economic health of the communities we serve. In order to enhance this commitment, the primary objectives of this study are to:

1. Establish a basis for METRO's role in the rail freight industry.
2. Develop freight related strategies, policies and projects specific to METRO that can be implemented by METRO to strengthen the regional economy.



Bridge 431 looking south towards Case Avenue along the Sandyville Line.

This study does not forecast passenger rail demand or estimate future passenger rail capacity needs. Concurrent to this study, METRO has developed a Transit Master Plan that is studying the need for improvements and investments to support passenger rail demand. The findings of that study will be reported separately.

The Future of Rail Freight in the Ohio Economy

Short line and regional freight railroads are an integral part of the national freight transportation network, providing vital commercial shipping links for American industry, agriculture and commerce. Class I freight railroads are responsible for transporting the bulk of all freight goods over land in the United States. In 2010, seven Class I railroads were in service in the United States, operating nearly 162,000 miles of track across the country, according to the Association of American Railroads¹. Like nearly every other market sector, freight rail experienced a decline as a result of the recession from 2008 through 2009. As the nation has struggled to emerge from the worst economic situation since the Great Depression, the freight rail industry has begun to show signs of economic improvement on a national scale over the past two years. Freight revenue, carloads, intermodal units, net income and ton-miles have all steadily increased since the height of the recession in 2009 (see table at right)².

The U.S. DOT estimates that the demand for rail freight transportation - measured in tonnage - will increase 88 percent by 2035. The U.S. DOT Freight Analysis Framework (FAF Version 2.2) further estimates that the demand for freight transportation will grow from 19.3 billion tons in 2007 to 37.2 billion tons in 2035, an increase of about 93 percent.

Partially in response to this

	2008	2009	2010
Traffic			
Carloads Originated (million)	30.62	26.01	29.21
Intermodal Units (million):			
Containers	9.02	8.24	9.57
Trailers	2.48	1.64	1.71
Total	11.5	9.88	11.28
Tons Originated (billion)	1.934	1.668	1.851
Ton-miles (trillion)	1.777	1.532	1.691
Operating Statistics			
Freight Revenue Per Ton-Mile (¢)	3.343	3.011	3.33
Average Tons Per Carload	63.1	64.1	63.4
Average Tons Per Train	3414	3546	3585
Average Length of Haul (miles)	919.1	918.5	913.6
Financial			
Freight Revenue (billion \$)	59.4	46.1	56.3
Operating Revenue (billion \$)	61.2	47.8	58.4
Operating Expense (billion \$)	47.3	37.2	42.7
Net Income (billion \$)	8.1	6.4	9.2
Operating Ratio (%)	77.3	77.8	73.1
Return on Average Equity (%)	13.26	9.79	11.23
Source: "Class I Railroad Statistics," Association of American Railroads, June 17, 2011			

¹ "Class I Railroad Statistics," Association of American Railroads, June 17, 2011

² AAR, 2011

growing demand for freight movement, freight rail network improvement projects have been undertaken on both domestic and international fronts over the past decade. The long-awaited expansion of the Panama Canal, for example, will result in a marked increase in the amount of freight being transported to and from the American east coast. Intermodal ports along the east coast, including Savannah, Charleston, Norfolk and New York/New Jersey are being expanded to allow for increased freight capacity imported from the larger boats travelling through the Panama Canal³. As these ports double as intermodal rail hubs, Class I freight rail lines across the United States will continue to experience an increase in the amount of freight transportation activities for the foreseeable future. As a result, Class I freight rail operators like CSX and Norfolk Southern have invested millions of dollars to upgrade their rail lines to accommodate the forecast for increased freight traffic in the United States over the next decade⁴.

The improvements by these freight rail operators to existing Class I rail infrastructure have been undertaken within the State of Ohio in recent years. In February, 2011, CSX announced the opening of the North Baltimore Ohio Intermodal Freight Rail Terminal, a key component to upgrading the “National Gateway” freight corridor, which stretches from Chicago to Philadelphia and New York City, through Ohio cities like Columbus and Akron. According to CSX, the North Baltimore intermodal facility spans nearly 500 acres and is forecasted to handle thirty trains per day and nearly two million freight containers a year. CSX also announced in August, 2011 that it will be investing nearly \$59 million for freight rail improvements to the Columbus Intermodal Terminal, also as part of the National Gateway project. For these Class I freight rail operators, the State of Ohio has served as a crossroads for major intermodal freight transport in our country. According to the Federal Railroad Administration, approximately 1,900 miles of Class I freight rail lines traverse the State of Ohio, with major Class I corridors running through the cities of Cincinnati, Columbus, Toledo, Sandusky Cleveland and Alliance. The State also possesses several large freshwater intermodal ports on Lake Erie in the cities of Toledo, Sandusky and Cleveland, as well as riverine Mississippi River watershed ports in Cincinnati and Huntington, located along the Ohio River, comprising the State’s southern boundary. The State’s six largest airports are also located in these major cities with close proximity to Class I freight lines, including Cleveland, Columbus, Dayton, Akron-Canton, Toledo and Youngstown. The close proximity of the Ohio Class I freight rail network to intermodal water terminals and airports makes the Ohio economy’s dependence on rail as the major method of transporting goods a necessity in the future.

The undertaking of these freight rail improvements is supported by the fact that the Ohio economy is dominated by freight-generating industries. According to the American Economic Census, manufacturing comprised the second largest economic sector in the State of Ohio, employing 638,489 people and accounting for \$30 billion in income in 2009⁵. Freight-generating sectors, namely manufacturing, agriculture, mining/natural resource extraction and

³ “*The Battle of the Ports.*” Spivak, Jeffrey. Planning. American Planning Association. May/June, 2011.

⁴ Spivak, 2011.

⁵ American Economic Census, 2009.

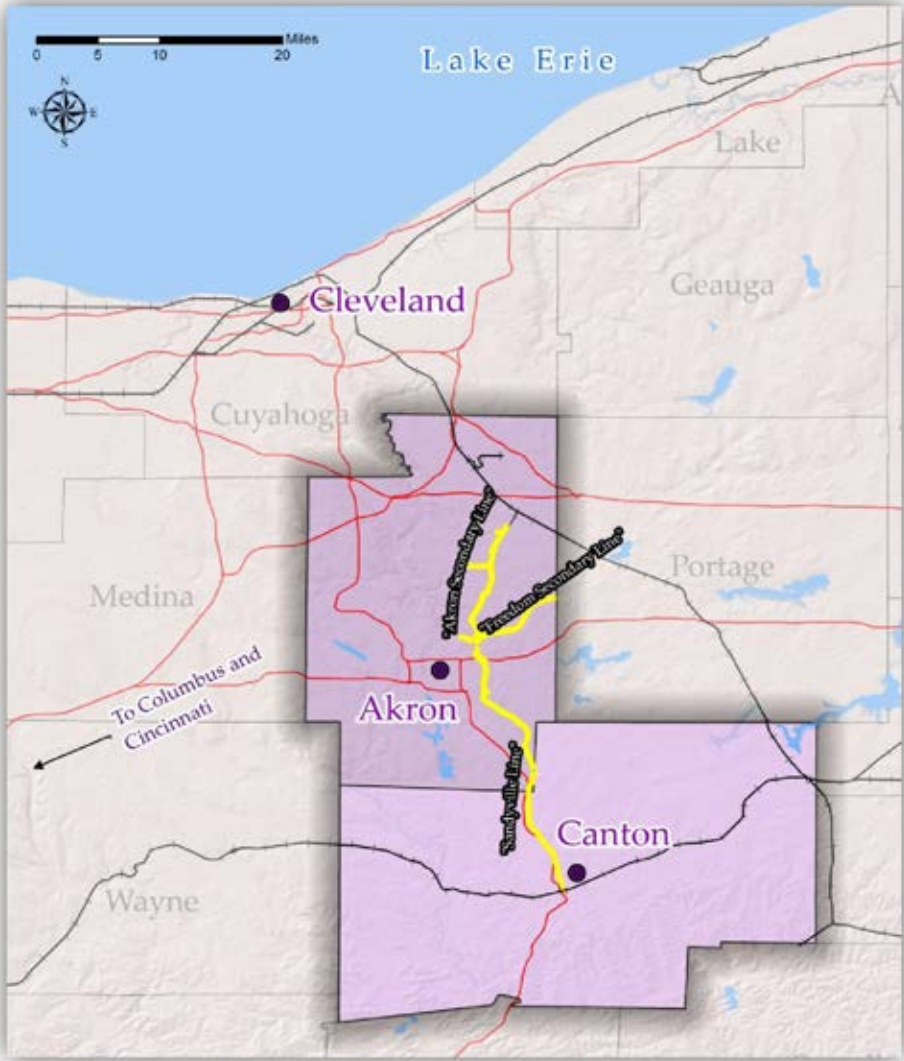
transportation/warehousing, account for 18% of all employees and 21% of the income earned in the State of Ohio. Manufacturing was also the largest revenue-generating sector in the State, earning over \$295 billion in 2009. To freight rail operators, the increasing importance of improved efficiency and environmental sustainability in the transport of freight while concurrently increasing the amount of freight transported serves as the impetus for continued investment in improvements to the freight rail infrastructure throughout Ohio. International projects expanding the capacity of the network transporting freight goods in the United States will continue to drive this necessity for improving access to a larger freight rail network by the freight-generating industries in Ohio. The construction of the North Baltimore Intermodal Terminal, the expansion of the Columbus Intermodal Terminal and the significance of freight-generating sectors in the Ohio economy emphasize the importance of freight rail transport to the future economic outlook of the State.

Chapter 2: Understanding Existing Conditions for Rail Freight Development

Inventory & Analysis

Communities

The area reviewed in the METRO Regional Transit Authority Rail Freight System Study is located in northeastern Ohio, focused primarily around the major cities of Akron and Canton. The study area is comprised of two adjacent counties; Summit County in the northern portion of the study area and Stark County in the southern portion of the study area (refer to Map 1). The study area is located southeast of the City of Cleveland, the second largest city in the State of Ohio. In combination with the City of Cleveland, the study area represents the largest metropolitan area in the State of Ohio according to the 2010 Census.



Map 1 Study Area

Summit County

Summit County comprises the northern portion of the METRO study area. Summit County was incorporated in 1840 as a result of increased industrial, commercial and residential development associated with the City of Cleveland and the Ohio & Erie Canal during the 19th century⁶. Soon after incorporation, rail lines were constructed throughout Summit County, beginning a sustained history of rail transport in Summit County. By 1880, railroads had supplanted the Ohio & Erie Canal as the primary mode for transportation and movement of goods in and around Summit County⁷.

Today, the county is approximately 420 square miles in size and contains nine villages, nine townships and thirteen cities. The Summit County seat is the City of Akron, which at a population of 199,110, makes Akron the largest community in Summit County and the fifth largest City in the State of Ohio according to the 2010 United States Census. Summit County is also home to a large portion of Cuyahoga Valley National Park. Established as a National Park in 2000, Cuyahoga Valley National Park encompasses a 33,000 acre area in north central Summit County. A complete list of Summit County communities is included below:

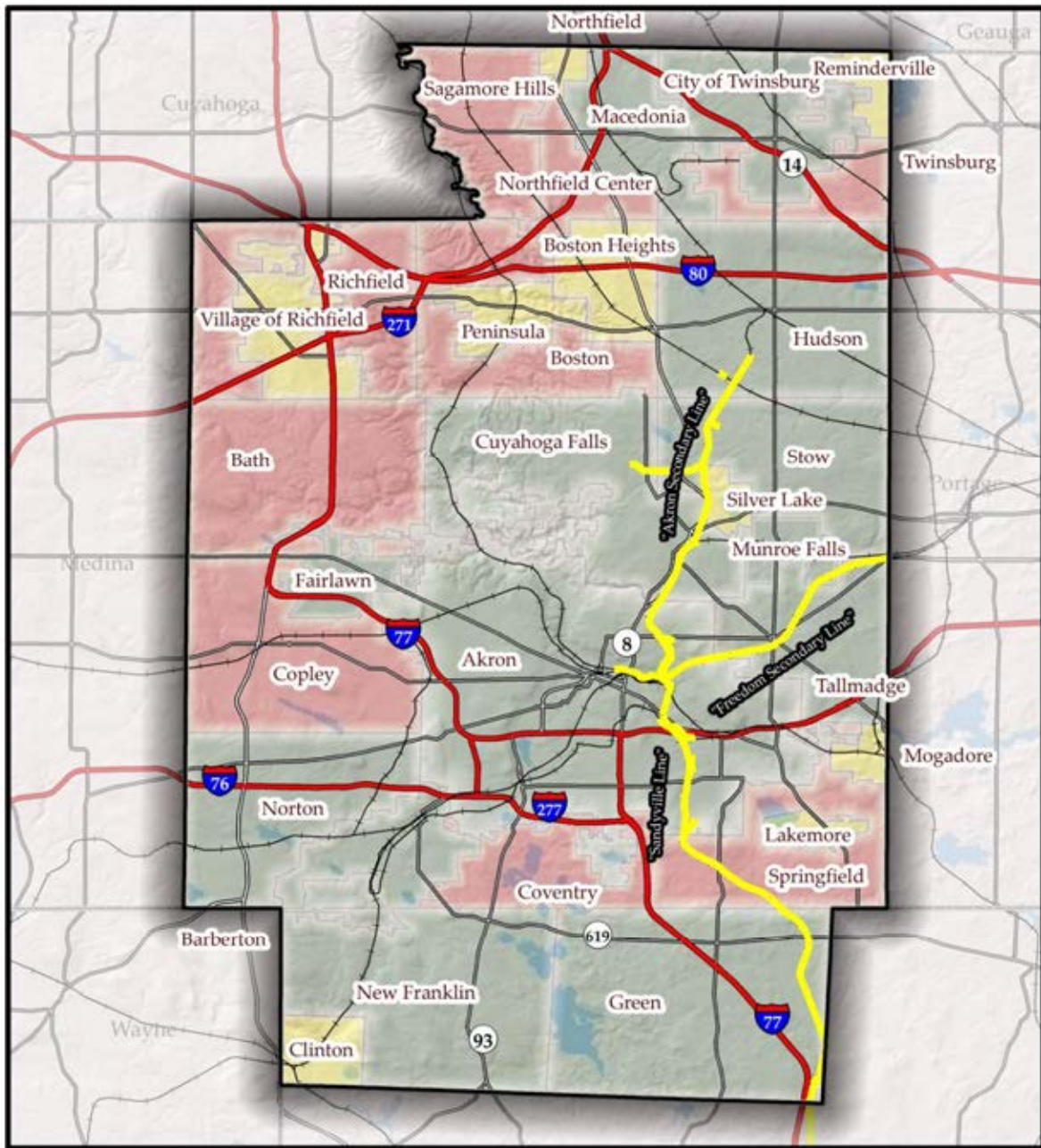
<i>Villages</i>	
Boston Heights	Peninsula
Clinton	Reminderville
Lakemore	Richfield
Mogadore	Silver Lake
Northfield	

<i>Townships</i>	
Bath	Richfield
Boston	Sagamore Hills
Copley	Springfield
Coventry	Twinsburg
Northfield Center	

<i>Cities</i>		
Akron	Hudson	Stow
Barberton	Macedonia	Tallmadge
Cuyahoga Falls	Munroe Falls	Twinsburg
Fairlawn	New Franklin	
Green	Norton	

⁶ Summit County General Plan, 2006

⁷ Summit County General Plan, 2006



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Legend

Summit County	Railroads
Metro-Owned Rail Lines	Interstates
City	State Roads
Township	
Village	

Map designed by

**Bergmann
associates**

**SUMMIT COUNTY
MUNICIPALITIES**

Map 2 Communities in Summit County

Stark County

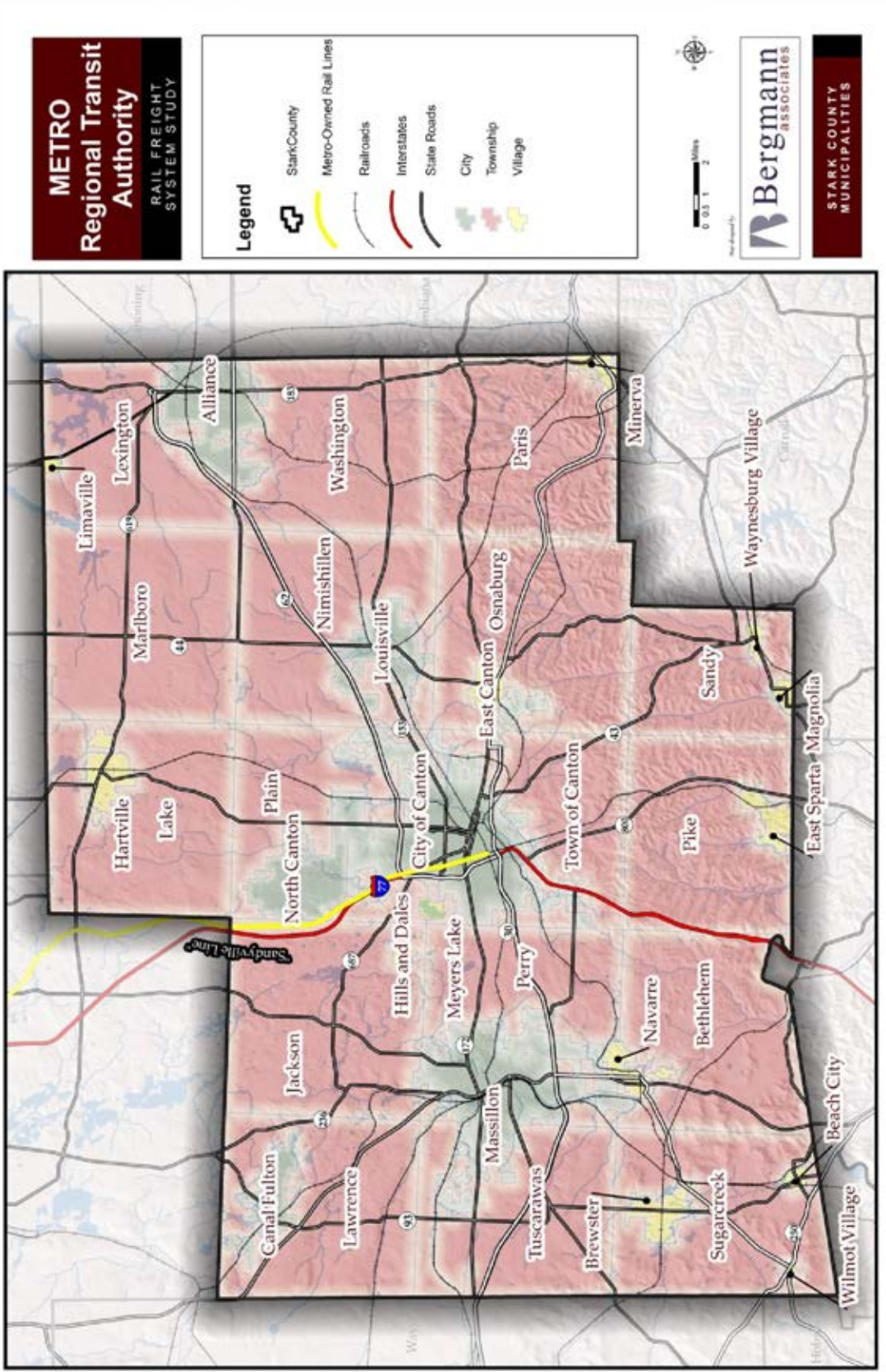
Stark County is located immediately south of Summit County and was incorporated in 1808. Stark County is historically renowned for agriculture, a predominant land use that continues to thrive throughout the County to this day. As a major producer of agricultural commodities, Stark County has relied heavily on rail transportation over the past 200 years as a dependable mode of export.

Today, Stark County is approximately 580 square miles in size and contains thirteen villages, seventeen townships and six cities. The City of Canton is the Stark County seat and is located in the center of the County. At a population of 73,007 in 2010, the City of Canton is the most populous community in Stark County and the 8th largest City in the State of Ohio. A complete list of Stark County communities is included below:

<i>Villages</i>		
Beach City	Hills and Dales	Navarre
Brewester	Limaville	Waynesburg
East Canton	Magnolia	Wilmot
East Sparta	Minerva	
Hartville	Meyers Lake	

<i>Townships</i>			
Bethlehem	Lexington	Perry	Tuscarawas
Canton	Marlboro	Pike	Washington
Jackson	Nimishillen	Plain	
Lake	Osnaburg	Sandy	
Lawrence	Paris	Sugar Creek	

<i>Cities</i>	
Alliance	Louisville
Canal Fulton	Massillon
Canton	North Canton



Map 3 Communities in Stark County

The Akron Secondary and Sandyville lines pass through eleven of the 67 municipalities within Summit and Stark Counties. The communities located along METRO-owned lines, as well as the track mileage within each community, are shown in the table below. The presence of the Akron Secondary and/or the Sandyville lines presents potential economic development opportunities for these communities. The following section identify some factors for economic development by evaluating the region’s demographics, land use and zoning to identify where rail-related might best be located.

Municipalities Located Along METRO-Owned Rail Lines

<i>Mile Post Interval</i>			
Akron Secondary Line			
City of Cuyahoga Falls	7.98	to	5.74
City of Stow	5.74	to	2.97
City of Hudson	2.97	to	1.49
Sandyville Line			
City of Canton	16.24	to	20.1
Township of Plain	20.1	to	21.9
Jackson Township	21.9	to	24.8
Green Township	24.8	to	26.4
Lake Township	26.4	to	26.6
Green Township	26.6	to	30.8
Springfield Township	30.8	to	33.9
City of Akron	33.9	to	40.3

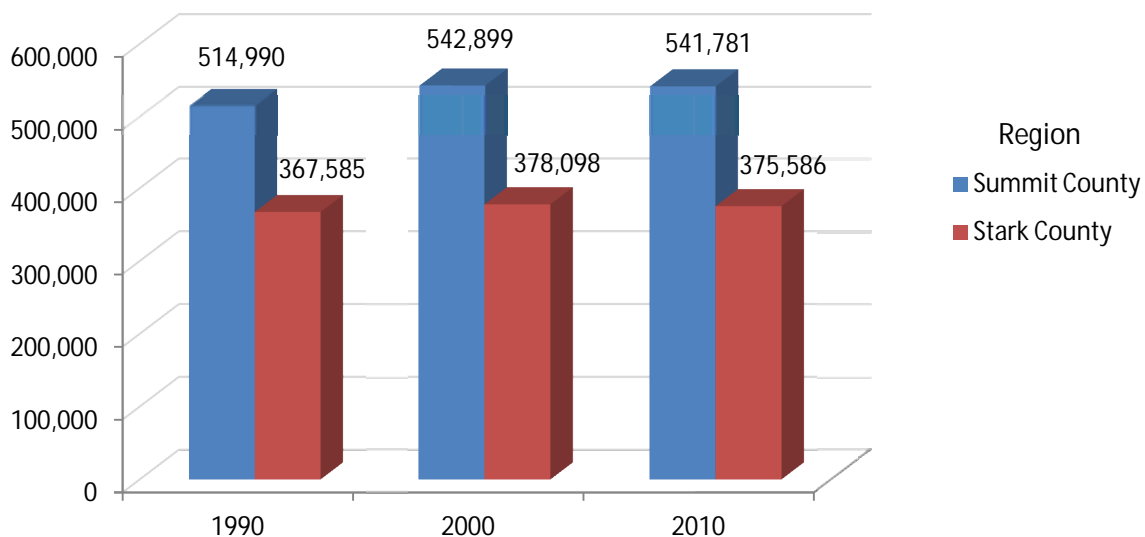
Demographic Profile

Chapter 3 provides a detailed economic analysis to understand the types of business and industry that show signs for economic growth in Summit and Stark Counties. However, before getting to that information we provide a profile of the demographic composition of the region. The intent here is to paint a picture of the labor force in an effort to attract new business and industry to the region, particularly business and industry that have a need for rail services.

The METRO area's workforce diversity advantage is evidenced through the region's long manufacturing history coupled with the presence of institutions like Akron University. This mix of a skilled working class and students and graduates provides a strong opportunity to attract new industries that rely on both demographics, particularly those in the manufacturing industries that would benefit from rail freight opportunities. Further, the City of Akron offers a lifestyle that is increasingly attractive to the young professionals.

After a steep increase between 1990 and 2000, the population of Summit County has leveled off over the past ten years, slightly decreasing by less than 1% to 541,781 people in 2010 (refer to Figure 1). Stark County is considerably less populated than Summit County, with 375,586 residents in 2010. Stark County experienced a smaller decline in population than Summit County between 2000 and 2010, decreasing by 2,512 people (0.66%) over the ten year period. While the populations of Summit and Stark Counties decreased by just under 1%, the population of the State of Ohio increased by 1.6% over the same ten year period. This suggests that as the industrial base declines in the region that people are moving to the jobs.

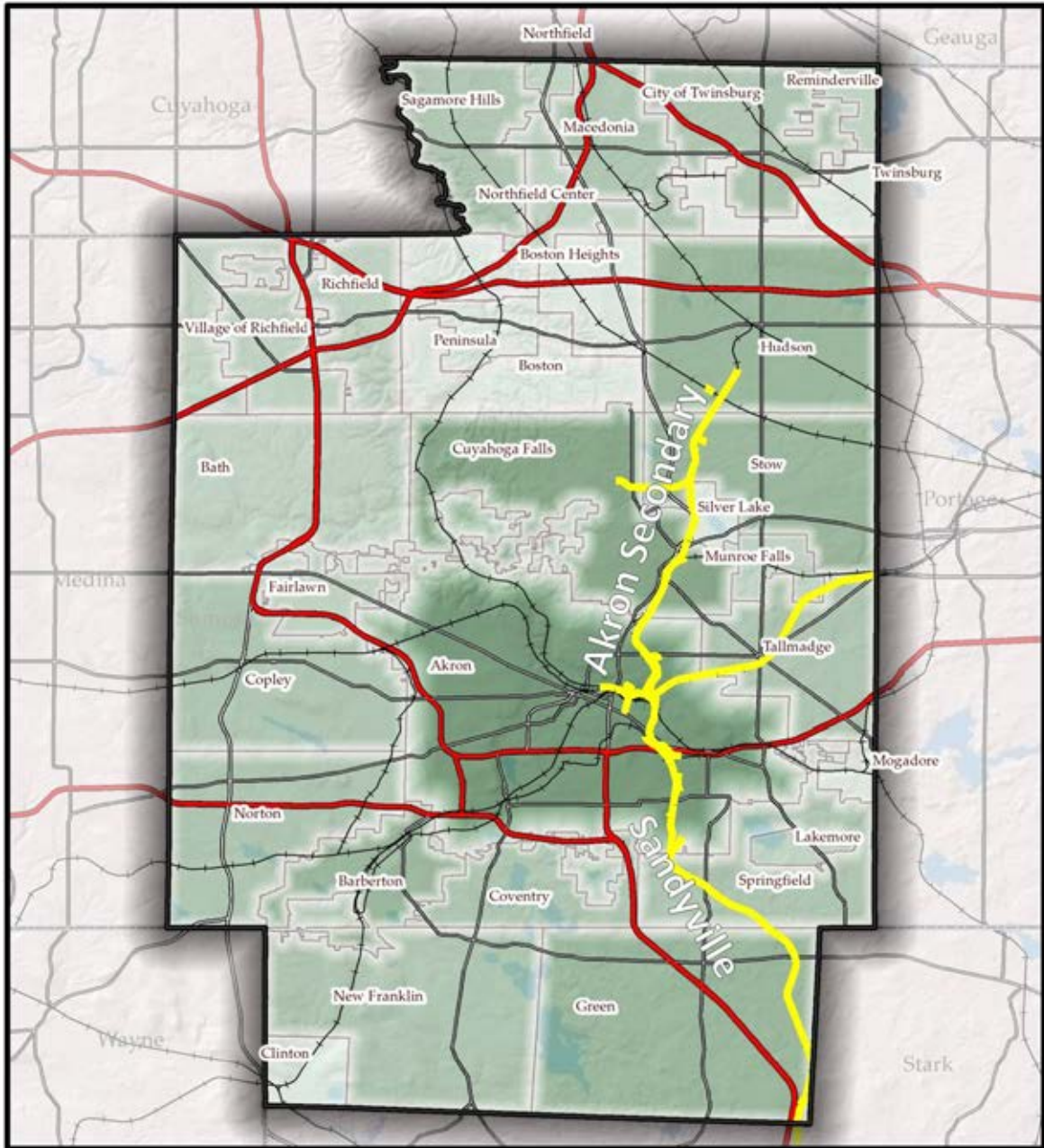
Figure 1 Akron METRO Study Area Population Change 1990-2010



Source: U.S. Census; 1990, 2000, 2010

According to 2010 Census data, Summit County's most populous communities include the City of Akron (199,110), the City of Cuyahoga Falls (49,652) and the City of Stow (34,837). The

most populous communities in Stark County in 2010 include the City of Canton (73,007), Plain Township (52,540) and Jackson Township (40,373). Map 4 and Map 5 on the following pages illustrate the geographic distribution of the population throughout the study area.



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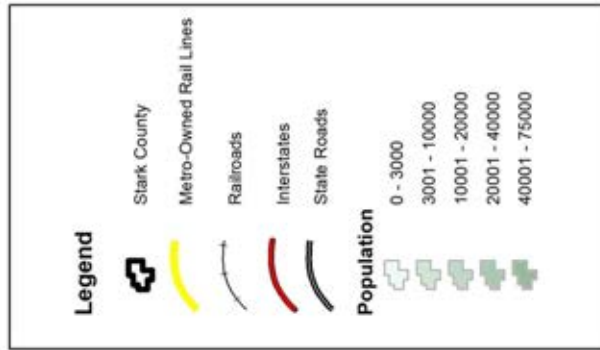
Map designed by:
Bergmann
 associates

SUMMIT COUNTY
POPULATION
BY MUNICIPALITY (2010)

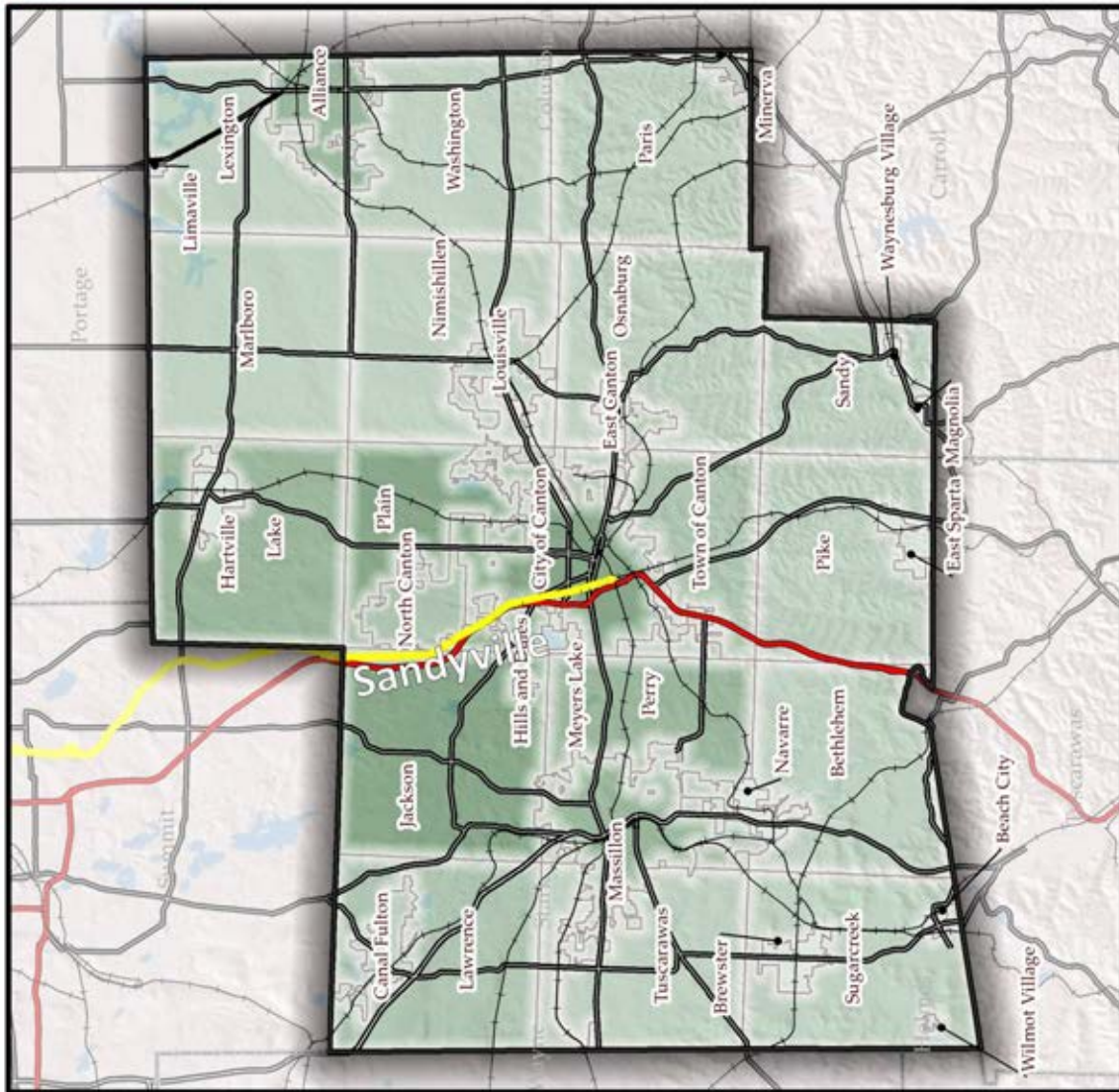
Map 4 Summit County Population Density

METRO Regional Transit Authority

RAIL FREIGHT
SYSTEM STUDY



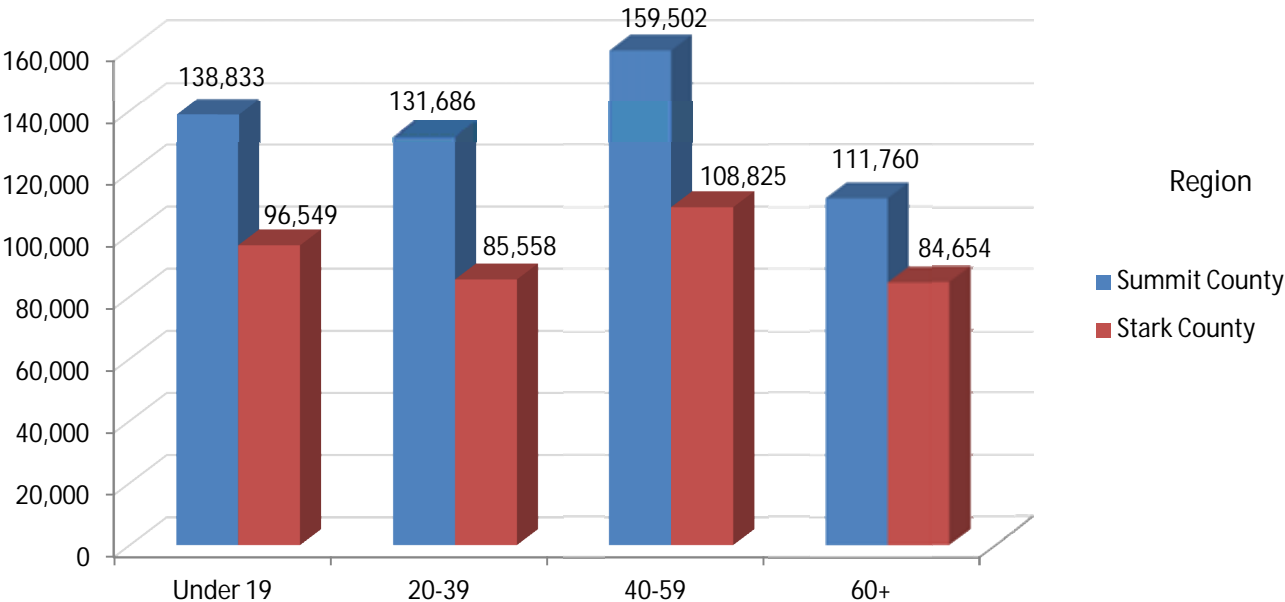
STARK COUNTY
POPULATION
BY MUNICIPALITY (2010)



Map 5 Stark County Population Density

The population age shift across the United States to the “baby-boomer” generation is as equally observable in the Akron METRO Study Area. The most populous age cohort for Summit County in 2010 was the 40 to 59 year old age range, at 159,502 people (refer to Figure 2). In Stark County, the most populous age cohort was also the 40 to 59 year old age range 2010, with 108,825 residents falling into this cohort group (refer to Figure 2). The 40 to 59 year old age cohort accounts for nearly 30% of all residents in the study area. In order for the region to be competitive is attracting new business and industry the communities and economic development leaders should focus on establishing a region that becomes more attractive to the younger cohorts from 20-39, creating a more attractive pool of candidates for employment.

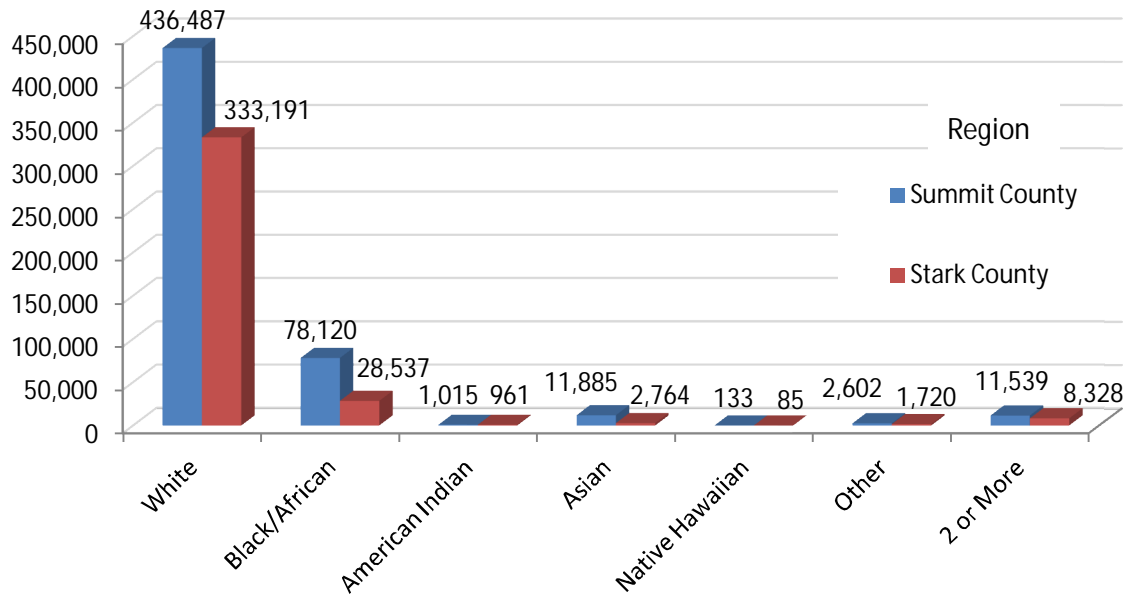
Figure 2 Akron METRO Study Area Population by Age Cohort 2010



Source: U.S. Census; 2010

Racially, the study area is fairly homogenous. Summit County is comprised primarily of Caucasian residents, making up 85% of the total population in Summit County in 2010 (refer to Figure 3). Stark County is also predominantly Caucasian, with 88% of the Stark County population identifying as white in the most recent census.

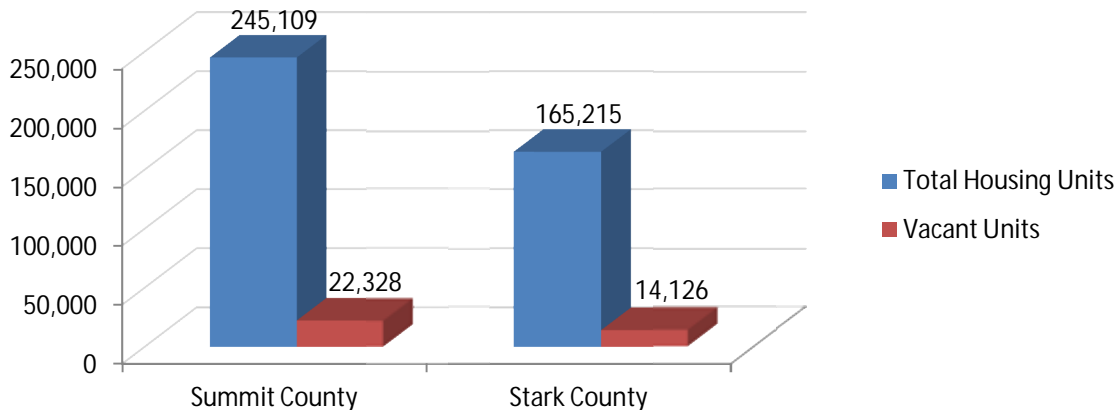
Figure 3 Akron METRO Study Area Population by Race 2010



Source: U.S. Census; 2010

The study area is fairly robust in terms of housing stock. Summit County possesses a total of 245,109 housing units while Stark County has 165,215. In 2010, the average household size for Summit County and Stark County were 2.49 people per unit and 2.51 people per unit, respectively. Housing vacancy rates are low for both counties, with Summit County having a housing vacancy rate of 9.1% and Stark County having a housing vacancy rate of 8.6% (refer to Figure 4). The vacancy rate for both Summit County and Stark County are lower than the vacancy rates for the State of Ohio (10.2%) and United States (11.4%) in 2010.

Figure 4 Akron METRO Study Area Housing Vacancy 2010



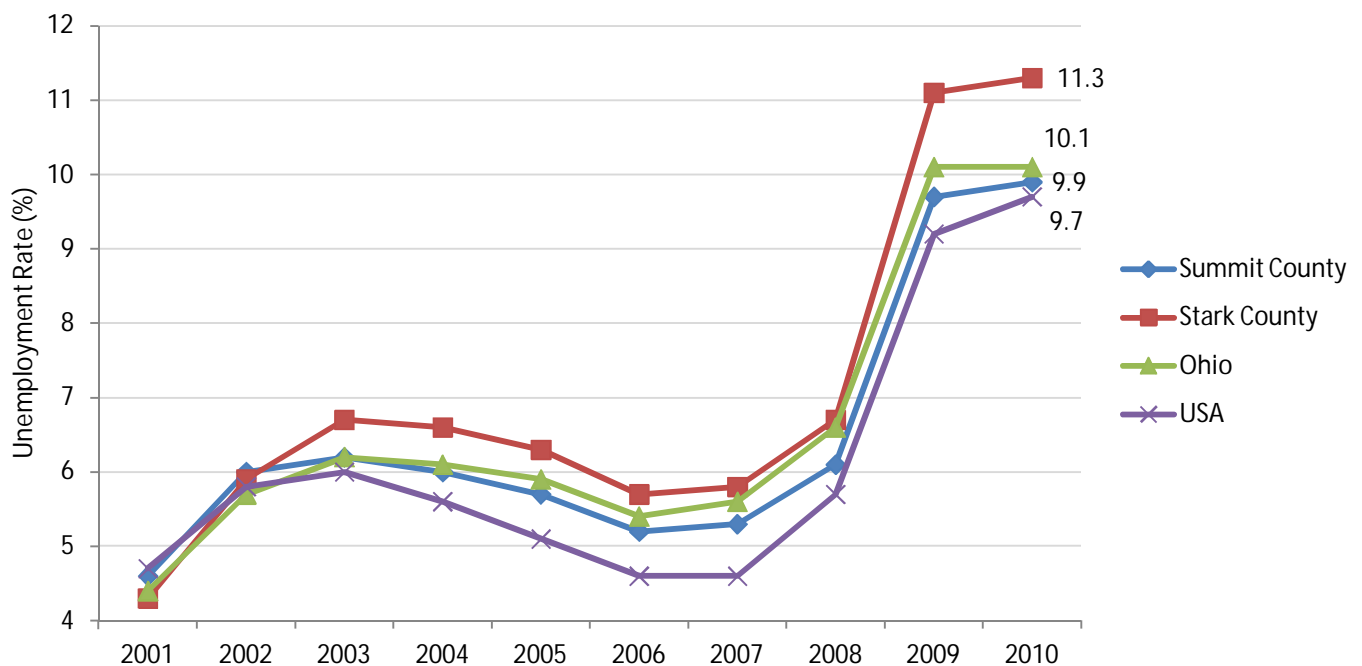
Source: U.S. Census; 2010

Employment and Labor Force Profile

The Akron METRO study area has exhibited statistical signs of economic stress since the recession began around 2007. Typical bellwethers of the economic health of a region, including the unemployment rate, the number of unemployed individuals, the labor force profile and the average weekly wage of workers in the region, were reviewed in an effort to provide an economic inventory of the Akron METRO study area.

Similar to the State and National unemployment rate, the unemployment rates of the counties in the Akron METRO study area have continued to rise since the recession began in 2007. In 2010, the unemployment rate for Summit County continued its four year rise, cresting at 9.9%, in between a state unemployment rate of 10.1% and a national unemployment rate of 9.7% for 2010. Stark County, on the other hand, has experienced higher than average unemployment rates over the past decade. In 2010, the unemployment rate for Stark County topped out at 11.3%, considerably higher than the State and National rates and over a percentage point higher than Summit County. A complete comparison of unemployment rates for each of these geographies over the past decade is provided in Figure 5 below.

Figure 5 Akron METRO Study Area Unemployment 2001-2010

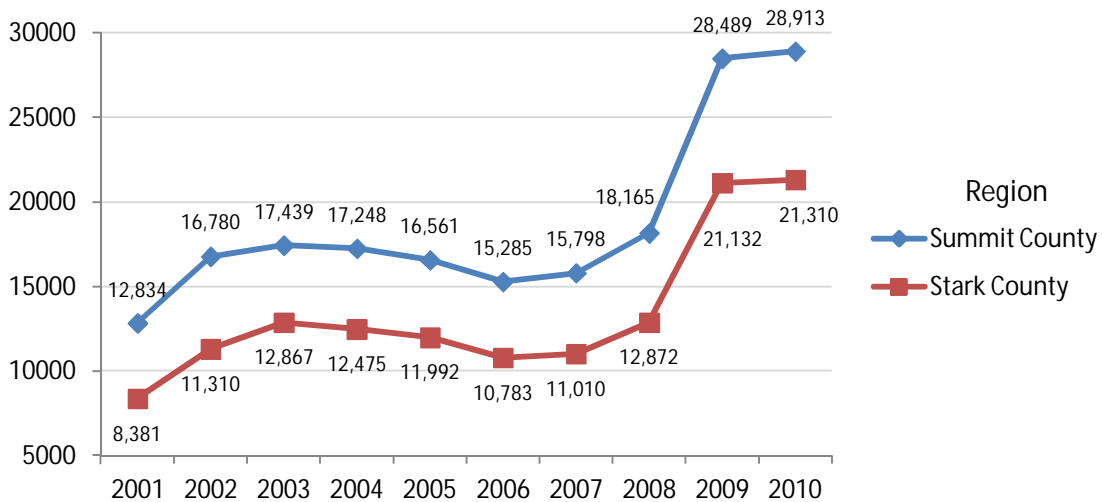


Source: Bureau of Labor Statistics, 2000-2010

Between 2001 and 2010, both Summit County and Stark County experienced significant increases in the total number of unemployed residents (refer to Figure 6). While there was a slight decrease in the population of Summit County in the past decade, the number of

unemployed increased from 12,834 people in 2001 to 28,913 in 2010, a 125% gain. Stark County also declined slightly in population over the past decade. As with Summit County, the number of unemployed residents increased from 8,381 people in 2001 to 21,310 in 2010, an increase of 154%. The study area as a whole saw the number of unemployed individuals increase from 21,215 in 2001 to 50,223 in 2010, an increase of 137% over the past ten years.

Figure 6 Akron METRO Study Area Unemployed Individuals 2001-2010

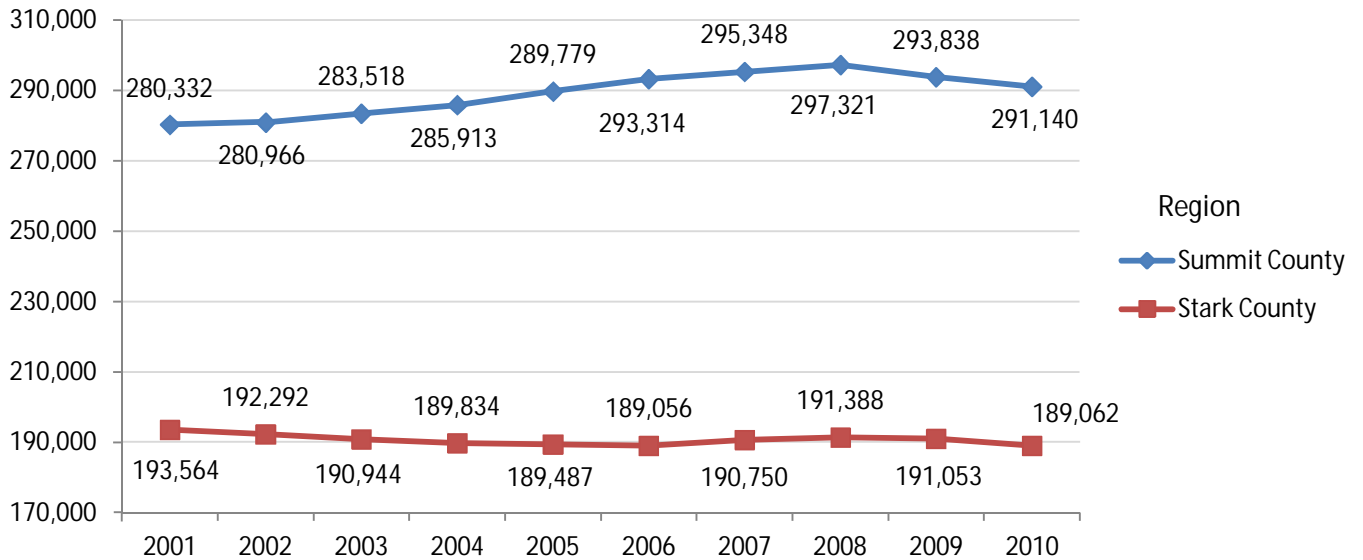


Source: Bureau of Labor Statistics, 2000-2010

The two counties that comprise the Akron METRO study area also differ with respect to population currently in the labor force. Historically, Summit County has had a higher population in the labor force than its counterpart to the south. In 2010, Summit County had a labor force of 291,140 people, compared to Stark County, which had a labor force of 189,062 residents (refer to Figure 7). As a percentage of total population, the Summit County labor force accounted for 54% of its total population, compared to 50% in Stark County in 2010. These percentages are comparable to the State average labor force (51% of the total population) and the National average labor force (50% of the total population) for 2010.

Between 2001 and 2010, Summit County experienced a 5.6% increase in labor force population, a gain of 10,808 people over the ten year period (refer to Figure 7). During that same period, Stark County experienced a 2.3% loss in labor force population, a decrease of 4,502 people. Combining the data for Summit County and Stark County, the labor force population in the Akron METRO study area rose between 2001 and 2010 by 6,306 people, a gain of 1.3% over the ten year period.

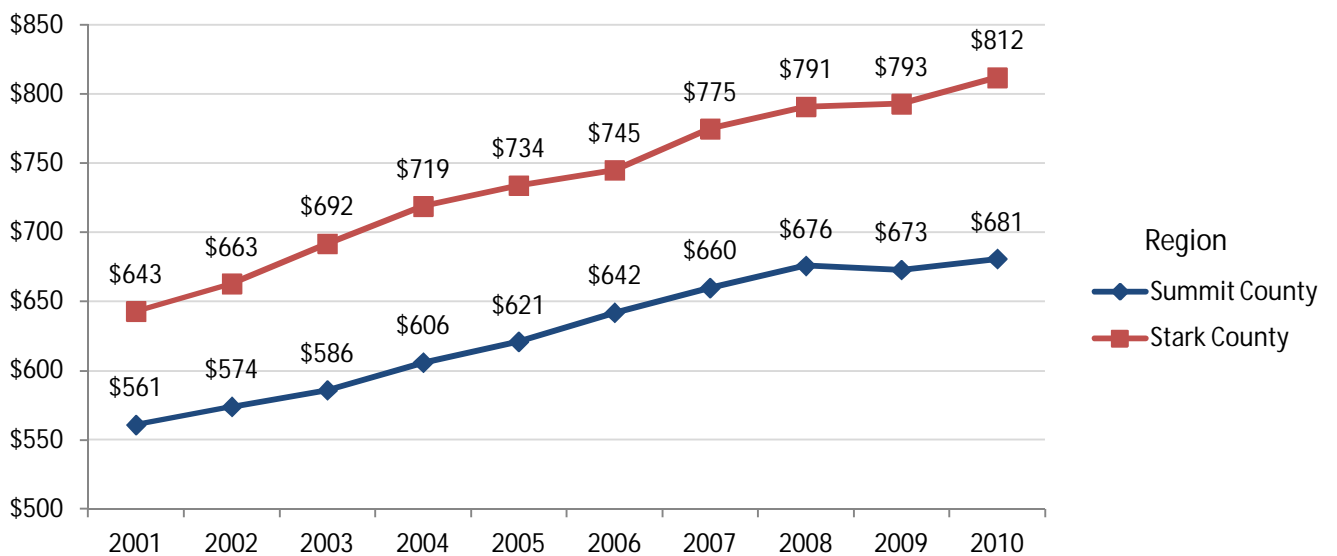
**Figure 7 Akron METRO Study Area Labor Force
2001-2010**



Source: Bureau of Labor Statistics, 2000-2010

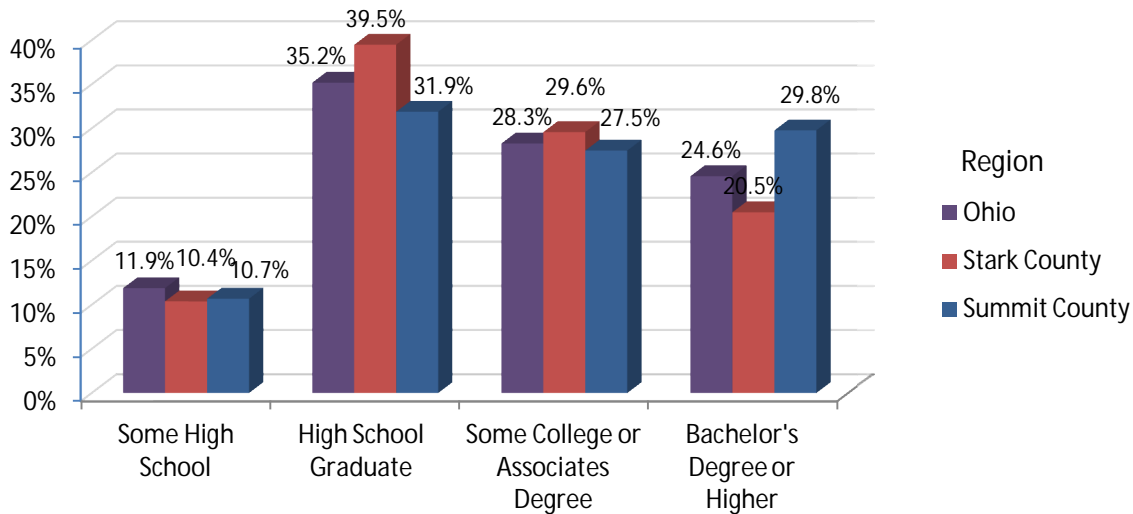
Despite the increased rate of unemployment within the Akron METRO Study Area over the past decade, average weekly wages have been steadily increasing on an annual basis over the past decade. Weekly wages in Summit County are on average approximately \$100 higher than weekly wages in Stark County (refer to Figure 8). Summit County wages have increased by 21% while wages in Stark County have increased approximately 26% since 2001.

**Figure 8 Akron METRO Study Area Average Weekly Wage
2001-2010**



Source: Bureau of Labor Statistics, 2000-2010

Figure 9 Akron METRO Study Area
Educational Attainment Ages 25 & Over, 2010



Both Summit and Stark Counties are relatively well-educated when compared to the State of Ohio. Stark County’s educational attainment levels are slightly higher for both high school and less than a bachelor’s degree than Ohio and Summit County. For the same two categories, Summit County is lower than the State as well as Stark County. However, Summit County shows a significantly higher percentage of its population with a bachelor’s degree or higher. These statistics indicate a well-balanced regional population of both skilled professional workers and management level. This mix of educational attainment may be attractive to attracting new industry to demonstrate that the available workforce can provide both skilled workers to operate manufacturing processes as well as highly educated professionals to perform research and management.

Land Use

Summit County

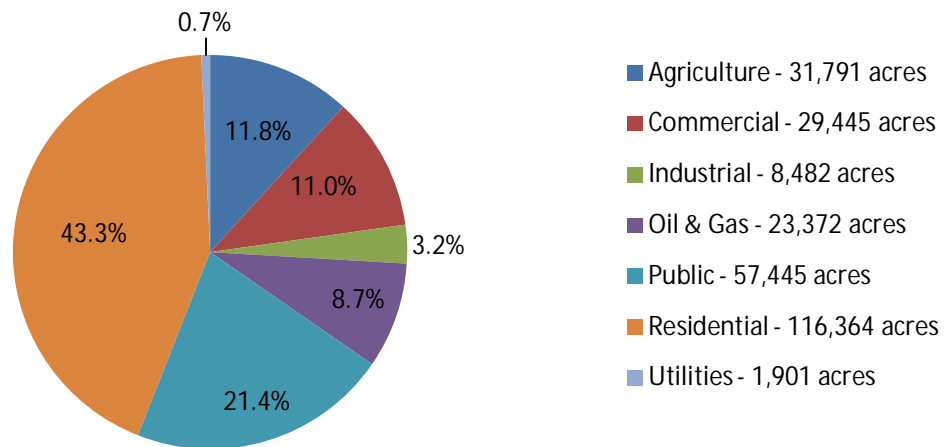
Summit County is approximately 420 square miles in size and is comprised of 268,333 parcels. According to data provided by the Summit County Fiscal Office, the most predominant land use in the County is residential. There are 233,666 residential parcels over 116,364 acres, accounting for approximately 43% of the County in terms of area (refer to Figure 9). Residential parcels are distributed throughout the County with strong concentrations around the City of Akron in the central part of the County and in the suburbs of Cleveland in the northern part of the County.

Public properties owned by local, state and federal entities comprises the second largest land use in Summit County. The majority of public land in Summit County is made up of the

Cuyahoga Valley National Park. At 32,947 acres in size, Cuyahoga Valley National Park makes the United States government one of the largest property owners in Summit County. Agricultural and commercial land uses are the third and fourth largest land uses in Summit County at 11.8% and 11% of total Summit County land area, respectively.

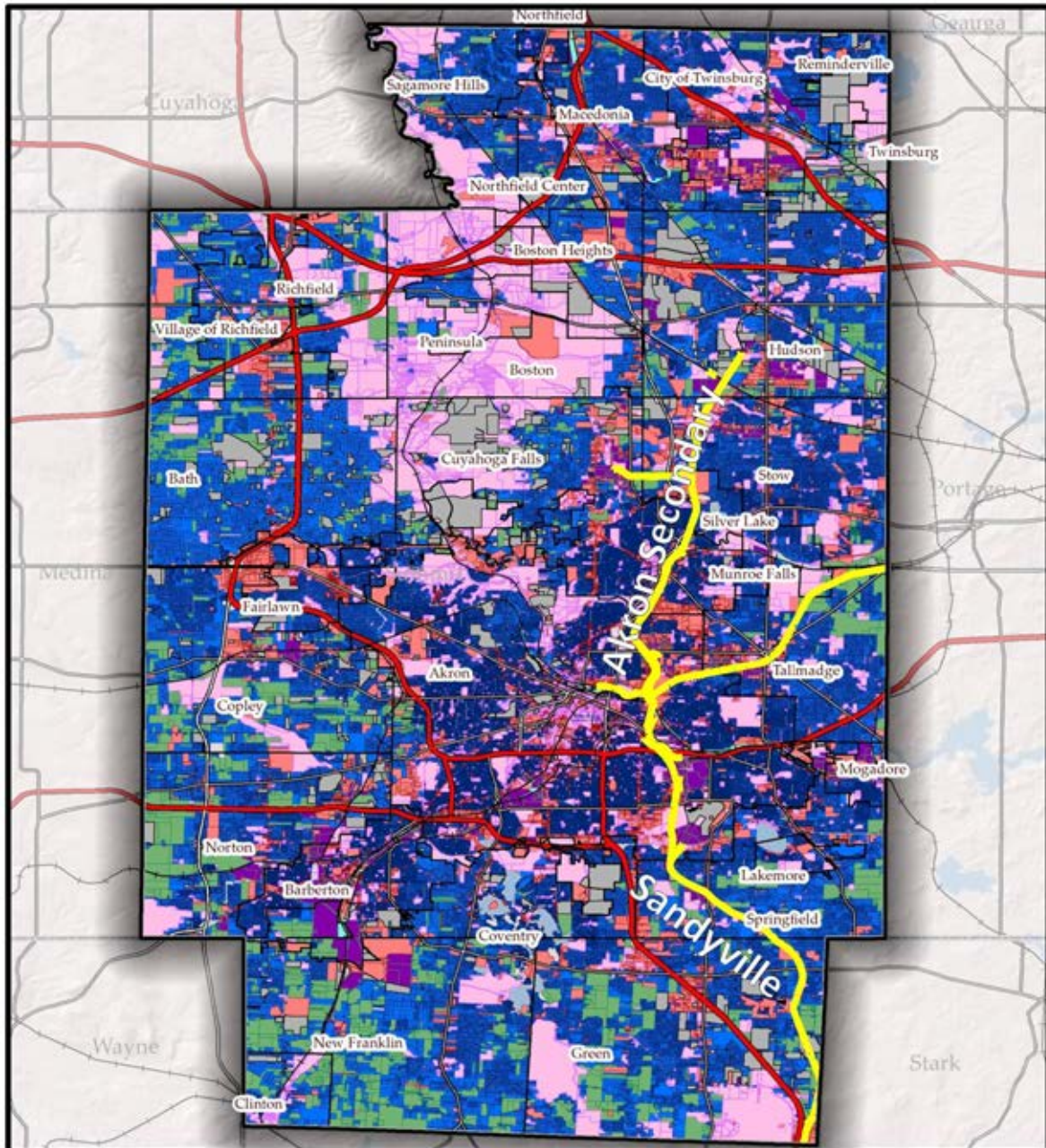
Oil, gas and other national resource extraction uses primarily associated with the Marcellus Shale formation in northern and northeastern Summit County account for 8.3% of the County at 23,372 acres. Industrial uses make up the smallest segment of land use within Summit County, and it is important to note that a majority of the industrially-classified parcels in Summit County are located along existing rail lines.

Figure 10 Summit County Land Uses (2011)



Source: Summit County Fiscal Office, 2011

Map 6 Summit County Land Use



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Legend	
	Summit County
	Metro-Owned Rail Lines
	Municipal Boundaries
	Railroads
	Interstates
	State Roads
Land Use	
	Agriculture
	Commercial
	Public
	Industrial
	Oil and Gas
	Residential
	Utility

0 1 2 4 Miles

Map designed by:

SUMMIT COUNTY
LAND USE

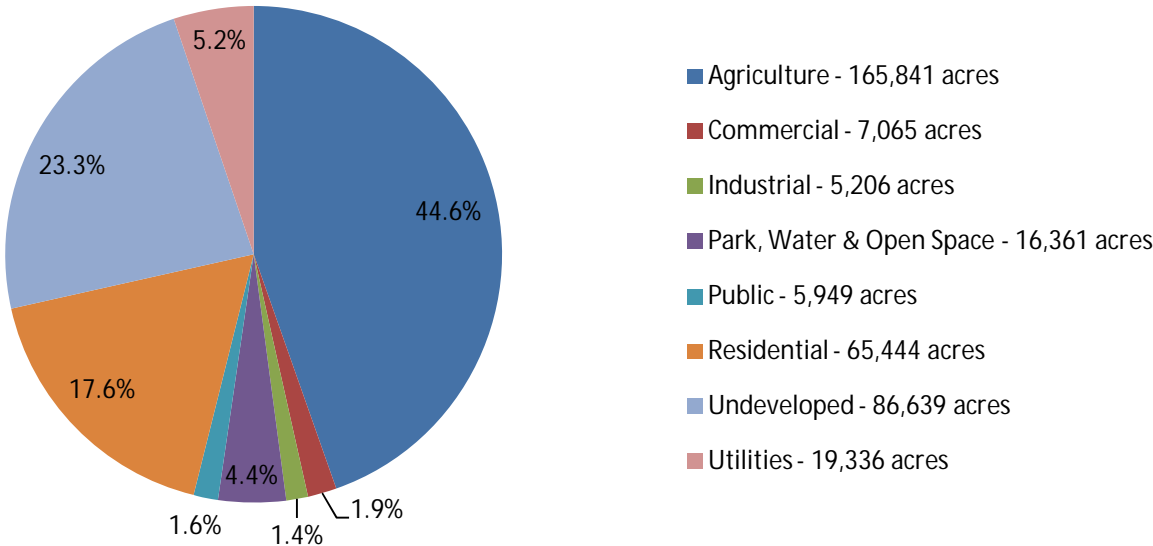
Stark County

Stark County is approximately 528 square miles in size and includes nearly 203,000 distinct parcels of land within its borders. Map 4 on the following page illustrates the mix of land uses throughout Stark County, and compared to Summit County, the principal land uses in Stark County contrast significantly. Stark County is predominantly agricultural, with 165,841 acres of land (44.6% of total land in Stark County) classified as agricultural land. Undeveloped land comprises the second most significant use of land in Stark County, accounting for 23.3% (86,639 acres) of land within the County. Undeveloped land includes parcels within floodplains, on steep slopes, forested areas and land dedicated to mining and other natural resource extraction activities. Residential land is the third largest land use in Stark County, accounting for 17.6% (65,444 acres) of all land in Stark County. Most residential land is concentrated in and around the City of Canton and close to major transportation arterials.

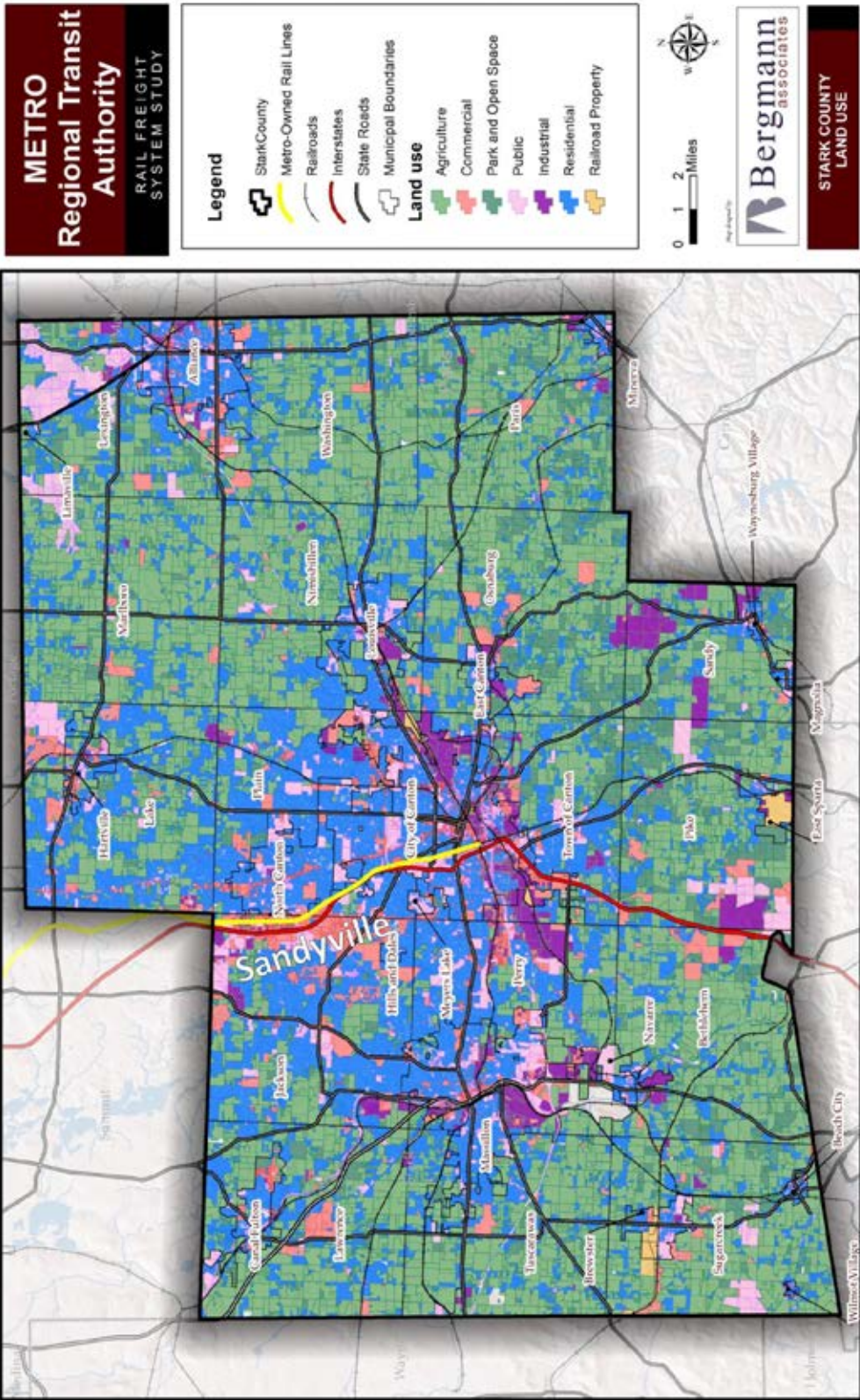
Open Space, utility, commercial, industrial and public/institutional land uses comprise the remaining portions of Stark County (refer to Figure 10). A majority of the mapped publically-owned land in the County is located in northeastern portion of the County and corresponds to the Deer Creek, Walborn and Berlin Reservoirs, federal flood-control projects located in Lexington Township.

Like Summit County to the north, industrial land occupies the smallest area of land at 5,206 acres (1.4% of the County). And, like Summit County, most industrial parcels are located adjacent to rail lines and major highway networks.

Figure 11 Stark County Land Uses (2004)



Source: Stark County Regional Planning Commission, 2005



Map 7 Stark County Land Use

Zoning

All municipalities within Summit County have enacted zoning, with most updating both their zoning ordinance and zoning map on a fairly regular basis. The Akron Secondary line is located entirely within Summit County, while only the northern portion of the Sandyville line is located within Summit County. The remaining portions of the Sandyville Line are located in northwestern Stark County. The majority of the municipalities in Stark County, including the municipalities through which the Sandyville Line runs, possess a zoning ordinance and map.

Summit County Municipalities with Zoning

Municipality	Zoning*
Village of Boston Heights	Yes (2005)
Village of Clinton	Yes
Village of Lakemore	Yes (2003)
Village of Mogadore	Yes
Village of Northfield	Yes (2011)
Village of Peninsula	Yes (2011)
Village of Reminderville	Yes
Village of Richfield	Yes
Village of Silver Lake	Yes
Township of Bath	Yes
Township of Boston	Yes
Township of Copley	Yes
Township of Coventry	Yes
Township of Northfield Center	Yes
Township of Richfield	Yes
Township of Sagamore Hills	Yes
Township of Springfield	Yes
Township of Twinsburg	Yes
City of Akron	Yes
City of Barberton	Yes (2006)
City of Cuyahoga Falls	Yes (2009)
City of Fairlawn	Yes
City of Green	Yes (2009)
City of Hudson	Yes (2011)
City of Macedonia	Yes
City of Munroe Falls	Yes
City of New Franklin	Yes (2010)
City of Norton	Yes
City of Stow	Yes (2010)
City of Tallmadge	Yes
City of Twinsburg	Yes (2011)

**Date provided indicates most recent zoning update, if available.*

Indicates municipality along the Akron Secondary Line

Indicates municipality along the Sandyville Line

Stark County Municipalities Zoning Summary

Municipality	Zoning*
Village of Beach City	No
Village of Brewster	No
Village of East Canton	Yes (2010)
Village of East Sparta	Yes
Village of Hartville	Yes
Village of Hills and Dales	No
Village of Limaville	Yes
Village of Magnolia	Yes
Village of Minerva	Yes
Village of Meyers Lake	Yes
Village of Navarre	Yes
Village of Waynesburg	Yes
Village of Wilmot	No
Township of Bethlehem	Yes
Township of Canton	Yes (2006)
Township of Jackson	Yes (2011)
Township of Lake	Yes (2003)
Township of Lawrence	Yes (2010)
Township of Lexington	Yes
Township of Marlboro	Yes
Township of Nimishillen	Yes (2009)
Township of Osnaburg	Yes (2010)
Township of Paris	No
Township of Perry	Yes (2008)
Township of Pike	Yes (2011)
Township of Plain	Yes
Township of Sandy	No
Township of Sugar Creek	No
Township of Tuscarawas	No
Township of Washington	Yes (2002)
City of Alliance	Yes (2011)
City of Canal Fulton	Yes (2011)
City of Canton	Yes (2011)
City of Louisville	Yes (2011)
City of Massilon	Yes (2011)
City of North Canton	Yes (2011)

**Date provided indicates most recent zoning update, if available.*

Indicates municipality along the Sandyville Line

Zoning Along the Akron Secondary Line

The Akron Secondary line is a non-operational, rail right-of-way located in north-central Summit County. The Akron Secondary begins as a one-track line in the City of Hudson with an at-grade crossing of Barlow Road, traveling approximately 1.5 miles south through Hudson into the City of Stow. The Akron Secondary runs for approximately 2.75 miles within the City of Stow, entering the Village of Silver Lake at an at-grade crossing of Graham Road. The line runs adjacent to State Route 8 for approximately 0.5 miles, entering the City of Cuyahoga Falls just west of Ivanhoe Road. The tracked portion of the line runs for approximately 2.25 miles through the City of Cuyahoga Falls before the existing Akron Secondary track joins the CSX line approximately 0.05 miles north of Broad Boulevard. The final 0.6 miles of the Akron Secondary, between the Cuyahoga Falls Electric Services property and Broad Boulevard, the line runs west of and immediately adjacent to the main east-west CSX two-track rail line that enters Summit County from Portage County to the east. The Akron Secondary right-of-way continues south untracked for approximately 3.5 miles, running between Broad Boulevard in Cuyahoga Falls to its connection with the Sandyville Line in the City of Akron just north of the Hill Rail Yard.

City of Hudson – Summit County

The parcels along the Akron Secondary within the City of Hudson are all zoned “8 – Industrial/Business Park.” Uses permitted by right in this district include wholesale trade establishments, light industrial, industrial business park uses, warehouses for distribution & storage and commercial and industrial planned developments (City of Hudson Land Development code, July 2011). More intensive land uses, including heavy industrial, commercial nurseries, automobile storage facilities are conditional uses, subject to “Conditional Use Approval” review by the City Manager’s Office and the City Planning commission. All uses in the City of Hudson, whether permitted or conditional are also subject to Site Plan Review by the office of the City Manager and the City Planning Commission. The industrial parcels along the Akron Secondary Line are approximately one mile east of the Seasons Road interchange on State Route 8, providing the opportunity for intermodal freight transportation in the City of Hudson. Based on the favorable existing zoning in the City of Hudson along the Akron Secondary and the line’s proximity and connection to State Route 8 and the Class I Freight Railroad in Hudson, the ability to develop a freight activity center in the City of Hudson is high.

City of Stow – Summit County

Within the City of Stow, the Akron Secondary runs for approximately 1.25 miles through land zoned as “I-2, Industrial” (Codified Ordinances of Stow: Part 11, Planning and Zoning Code, 2010). The I-2 district in Stow provides an uninterrupted connection with industrial zoned land in the City of Hudson. Permitted uses in the I-2 district include fabrication and assembly facilities, wholesale warehousing and distribution facilities and printing and publishing plants. Conditional uses allowed in the I-2 district include truck terminals, fuel distribution facilities, Planned Industrial Developments, foundries, construction/contractor storage yards and major manufacturing. Permitted uses are required to undergo Site Plan Review by the City of Stow Planning Commission, with final confirmation and approval of the Site Plan by the Stow City

Council. In addition to the Site Plan Review requirements listed above, “Conditional Uses” must also obtain a Conditional Use Permit through the City Planning Commission and City Council. The remaining 1.5 miles of the line’s route through Stow is zoned for single family residential, moderate density residential, multi-family residential, offices and highway service where the Akron Secondary runs immediately adjacent to the Graham Road Exit off of State Route 8. Based on the favorable existing zoning in the northern portion of the City of Stow along the Akron Secondary and the line’s proximity and connection to existing Class I Freight Railroads, the ability to develop a freight activity center in the City of Stow (as an extension of the city of Hudson freight activity center) is high.

Village of Silver Lake

The Village of Silver Lake is an affluent suburb north of Akron only 1.6 square miles in area. The Village is zoned entirely as rural residential and single family residential. The portions of the Village that are not comprised of residential housing are made up of lakes (Silver Lake and Crystal Lake) and the Silver Lake Country Club. Due to the residential nature of the Village, there is little to no potential for freight generating activity along the Akron Secondary Line within the Village of Silver Lake.

City of Cuyahoga Falls

The parcels along the Akron Secondary within the City of Cuyahoga Falls are predominantly zoned E-1; “Employment District.” The half of the Akron Secondary north of Broad Boulevard is tracked while the half of the Akron Secondary south of Broad Boulevard is untracked to the boundary with the City of Akron. According to the Cuyahoga Falls Development Code (2009), the Employment District allows civic uses (schools, government offices, open space), office buildings and general personal service establishments are allowed, subject to review against the City’s general zoning and design standards. Industrial, manufacturing or other freight-generating uses are fairly limited within the Employment District. Limited, clean and general industrial/manufacturing uses are allowed, however these uses are restricted and subject to the City’s zoning and design standards specific to the E-1 district. Most, if not all freight generating activities in the E-1 district would be considered major projects under the existing Zoning Ordinance, and would require Major Site Plan Review by the City of Cuyahoga Falls. An application for Major Site Plan approval requires review by the City’s Planning Department, the City Planning Commission and the City Council. Parcels zoned E-1 along the Akron Secondary are also adjacent to or within 1,000 feet of the CSX Class I Freight Railroad line running between the City of Akron and the City of Kent, east of the Study Area in Portage County. The potential for freight generating activity along the Akron Secondary in the City of Cuyahoga Falls is high, however the close proximity of the line to the Urban Center (MU-5) and Downtown (MU-6) of the City of Cuyahoga Falls could potentially affect the types of development proposed along the Akron Secondary in the future.

City of Akron

From the City of Cuyahoga Falls border with the City of Akron, the Akron Secondary continues untracked for approximately 2.5 miles to its connection with the Sandyville Line in the vicinity of Eastwood Avenue. The entire corridor along the Akron Secondary within the City of Akron is zoned for Industrial use. The line is bordered by parcels zoned for Ordinary Industry (U-5) or Heavy Industry (U-6) according to Chapter 153 (Zoning) of the Akron Code of Ordinances (2011). Land uses permitted in the U-5 district include freight rail yards, textile manufacturing, machinery manufacturing, food manufacturing/distribution, chemical manufacturing/distribution, rubber manufacturing/distribution, glass/brick/iron works and bulk fuel distribution/ storage and warehousing of goods. Land uses permitted in the U-6 district include all permitted uses in the U-5 district, as well as locomotive manufacturing, pulp/plaster manufacturing, manufacturing/distribution/storage of petroleum products, wood & coal distillation and metal refineries. All projects in the City of Akron must submit an application for a Building Permit to the City of Akron Department of Planning and Urban Development, accompanied by a detailed site plan showing proposed improvements to a property. All industrial uses in the City of Akron must conform to the special industrial use requirements laid out in Chapter 153, Section 310 of the Akron Code of Ordinances, which lays out in detail minimum setback requirements, parking requirements, lighting, landscaping and other special requirements for industrial uses in the U-5 and U-6 districts. Certain intense industrial uses, including animal stock, distribution and rendering facilities, stone processing facilities, refuse transfer facilities and vehicle storage or dismantling yards, must also obtain a Conditional Use Permit through the City of Akron Department of Planning and Urban Development, the City Planning Commission and the City Council. Based on the existing zoning in the City of Akron and proximity to both freight rail and highway networks, the potential for freight generating activity along the Akron Secondary in the City of Akron is high.

Zoning Along the Sandyville Line

The Sandyville Line begins in the City of Akron at Howard Street, at the eastern terminus of the Cuyahoga Valley Scenic Railroad. The Sandyville line continues approximately 1.6 miles east, where the Akron Secondary right-of-way joins just south of Eastwood Avenue. From this junction, the Sandyville Line continues approximately 4.75 miles south through the City of Akron into Springfield Township. The line runs for approximately 3.1 miles southeast through Springfield, where it enters the City of Green at an at-grade crossing of State Route 619. From the at-grade crossing, the line continues for approximately 6 miles before exiting Summit County just west of the Akron-Canton Airport. The Sandyville Line enters Stark County in Jackson Township at an at-grade crossing of Mount Pleasant Road, continuing southeast approximately 2.85 miles into Plain Township at the at-grade crossing of Whipple Avenue. The Sandyville Line travels approximately 1.85 miles southeast through Plain, entering the City of Canton approximately 300 feet north of the Interstate 77 overpass above 38th Street. The Sandyville Line travels south through the City of Canton for approximately 3.9 miles just east of Interstate 77, ultimately terminating at the Canton Crossing Diamond where the Sandyville Connects to the former Conrail line operated by Wheeling & Lake Erie and Norfolk Southern, a Class I freight railroad.

City of Akron

The parcels along the Sandyville Line in the City of Akron are, like the Akron Secondary, zoned predominantly Ordinary Industry (U-5) and Heavy Industry (U-6) between the connection with the Cuyahoga Valley Scenic Railroad in the west through to the connection with the Akron Secondary in the east. The parcels along the portion of the Sandyville Line in Akron between the Akron Secondary connection and the Akron/Springfield border are also predominantly zoned U-5 or U-6, with several small pockets of U-4 Commercial intermittently located along the line. A description of the City of Akron zoning requirements for parcels zoned U-5 and U-6 can be found in the Akron Secondary Zoning section above.

Springfield Township

The parcels along the Sandyville Line in Springfield Township are zoned predominantly Medium Density Residential (R-3). A 0.6 mile section of the Sandyville Line runs along the Massillon Road Industrial Park, between Pickle Road and State Route 214. The 96 acres Massillon Road Industrial Park is zoned by the Town of Springfield as a Planned Industrial Park District (PIPD). According to the Springfield Township Zoning Resolution (2011), permitted uses within the PIPD include distribution facilities, warehouses, research and development facilities, light industrial uses, industrial service uses, truck transfer facilities, and laboratories. Any proposed new construction in Springfield Township must obtain a Zoning Certificate and Certificate of Conformance from the Township Zoning Administrator, and all proposed projects in the PIPD must also conform to the PIPD general development standards. While the majority of parcels along the Sandyville Line provide no significant freight generating ability, the Massillon Industrial Business Park presents a unique opportunity for potential freight generation. The City of Akron Mayor's Office of Economic Development is actively advertizing the 56 remaining undeveloped

acres of the park as freight rail accessible and within five miles of the major Interstate 277 and Interstate 77 interchange. As such, the potential for freight generating activity in Springfield Township is moderate.

City of Green

The City of Green has zoned the parcels along the Sandyville Line almost exclusively as “General Industrial” (“I”). This industrial corridor is interrupted only in two locations; several Single Family Residential (R-1) parcels where the Sandyville Line intersects Wise Road, and several General Business (B-1) parcels where the Sandyville Line intersects with Greensburg Road. Permitted Uses with freight generating potential within the “I” district include distribution facilities, truck terminals, warehouses and light industrial uses⁸. Mineral extraction and heavy industrial uses are considered “Conditional Uses” with freight generating potential in the “I” district.⁹ All Permitted Uses in the “I” district are required to undergo “Site Plan Review” through the City of Green Planning Department and the City Planning and Zoning Commission. Conditional Uses in the “I” district are required to procure a Conditional Use permit from the Planning Department and the City Planning and Zoning Commission, concurrently with the required Site Plan Review. The presence of the industrially-zoned corridor, complete with a number of large vacant lots, presents the opportunity for the City of Green to serve as a future freight activity center.

Jackson Township

In Stark County, the parcels along the Sandyville Line in Jackson Township are zoned entirely as “I1- Industrial,” providing an extension to the City of Green Industrial corridor that exists north of Jackson. The industrial corridor extends from the Summit County/Stark County border in northern Jackson to the Jackson Township/Plain Township boundary in east-central Jackson. The Sandyville Line also runs parallel to an immediately east of Interstate 77, with two exits the connecting the parcels along the Sandyville Line with Interstate 77. According to the Jackson Township Zoning Resolution Book (2011), potential freight-generating land uses allowed by right in the Jackson “I” district include warehouses, outdoor storage, experimental research/testing facilities, indoor bakery distribution centers and factories involved with manufacturing, compounding, processing, assembling or packaging. “Conditional Permitted Uses” with the potential for freight generation in the “I” district include product manufacturing from raw materials, junkyards, auto-wrecking yards, recycling facilities, transfer facilities and transportation terminals. Project sponsors of proposed uses permitted by right in the “I” district are required to obtain a “Zoning Certificate” form the Jackson Township Zoning Inspector. For proposed projects where the use is listed as a “Conditional Use,” the project sponsors are required to obtain a Conditional Use Permit from the Jackson Township Board of Zoning

⁸ “The manufacturing, processing, or assembly of products within a fully enclosed structure where noise, odor, light, or vibrations is not noticeable from the adjacent properties,” according to the City of Green Land Development Code (2009)

⁹ “Manufacturing or other enterprises with significant external effects, or which pose significant risks due to the involvement of explosives, radioactive materials, poisons, pesticides, herbicides, or other hazardous materials or processes in the manufacturing or other process,” according to the City of Green Land Development Code (2009).

Appeals. The Green/Jackson Industrial corridor has the potential ability to serve as a freight generating activity center along the Sandyville Line.

Plain Township

For approximately 1.85 miles, the Sandyville Line runs along the northeastern boundary of Plain Township. The Sandyville Line is cut off from parcels to the west of the rail right-of-way by Interstate 77 in Plain Township. Parcels along the eastern edge of the rail right-of-way are zoned as Single Family Residential (R-1), One and Two Family Residential (R-2) and Low Density Multi-Family (R-3), before entering the City of Canton just north of 38th Street. The abundance of densely zoned residential parcels along the Sandyville Line in Plain Township would likely prohibit potential freight generating activity from becoming a viable enterprise in this municipality.

City of Canton

The final municipality through which the Sandyville Line runs is the City of Canton. Between 38th Street and Tuscarawas Street, the Sandyville Line traverses through the Open Space (OS) district, accounting for 71% of all land along the Sandyville Line in Canton. The parcels along the Sandyville Line in this district are part of Arboretum Park, West Park, McKinley Memorial Park and Water Works Park. According to the Codified Ordinances of the City of Canton (2011), the only allowable uses in this district are parks, conservation uses, agriculture and open space recreation uses. As the Sandyville Line continues south of Tuscarawas Street, it enters a large corridor zoned as “light-industrial” (I-1) that continues until the terminus of the Sandyville Line at the Canton Crossing Diamond. Parcels zoned I-1 account for 29% of the land along the Sandyville Line in Canton. Permitted freight-generating uses in the Canton I-1 district include cosmetic, pharmaceutical, toiletry and food product manufacturing and durable goods (materials made from metal, fiber, cloth, rubber, wood, etc.) manufacturing. Several other freight-generating uses, including manufacturing blacksmith/foundries, petroleum product bulk storage and building materials storage yards, are permitted, however they must maintain a 100 to 200 foot buffer between the industrial operation and adjacent residentially-zoned parcels. The parcels in the industrial corridor along the Sandyville Line are less than a mile from the Norfolk Southern/Wheeling & Lake Erie connection at the Canton Crossing Diamond. The Norfolk Southern/Wheeling & Lake Erie line is a designated Class I Freight Railroad, providing immediate freight access to the southern portion of the Sandyville Line. The light industrial-zoned corridor is also within a mile of several exits onto Interstate 77 and major east-west connector State Route 30, making the City of Canton a key location for intermodal accessibility.

A summary of future freight development potential in communities located along METRO-owned rail lines is included in the table below.

**Future Freight Development Potential
Along METRO-Owned Rail Lines**

Municipality	Future Freight Development Potential
Township of Springfield	Moderate
City of Akron	High
City of Cuyahoga Falls	High
City of Green	High
City of Hudson	High
City of Stow	High
Village of Silver Lake	Low
Township of Jackson	Moderate
Township of Plain	Low
City of Canton	High
City of North Canton	Low

Freight Activity Centers

The purpose of defining Freight Activity Centers is to establish their role and place in a region’s vision for economic growth. Growth in these areas should be compatible with the land use and growth vision for surrounding areas. Policies and strategies that preserve these areas and provide opportunities for industrial growth are major considerations for implementing the Akron METRO Rail Freight Plan.

In order to expand the regional economy, METRO should work with local municipal planners and representatives of the private transportation industry to identify and designate new areas for industrial growth that are in close proximity to the regional and statewide trade corridors.

“Freight Activity Centers” (FAC) are located at several locations along the Akron Secondary and Sandyville lines within both Summit County and Stark County. For the purpose of this Study, a Freight Activity Center is an area of parcels along these METRO-owned rail lines that are zoned “Industrial,” and therefore support the development and growth of “freight-generating land uses,” including but not limited to manufacturing, agriculture, construction, mining and warehousing. There are six (6) discernable Freight Activity Centers along METRO-owned rail lines within the Study Area:

- Hudson FAC
- Akron FAC
- Massillon Road IBP FAC
- Green FAC
- Jackson FAC
- Canton FAC

Hudson Freight Activity Center – Summit County

The City of Hudson Freight Activity Center contains parcels that zoned entirely as “8 – Industrial/Business Park on both sides of the Akron Secondary Line. The industrial parcels along the Akron Secondary Line are approximately one mile east of the Seasons Road interchange on State Route 8, providing the opportunity for intermodal freight transportation in the City of Hudson. Within the City of Stow, the Akron Secondary runs untracked for approximately 1.25 miles through land zoned as “I-2, Industrial,” with this land serving as an extension for the Hudson Freight Activity Center. The industrially-zoned parcels in Stow provide an uninterrupted connection with industrial zoned land in the City of Hudson, extending the Hudson Freight Activity Center south into Stow along the untracked Akron Secondary. The Hudson Freight Activity Center also runs parallel to State Route 8, allowing for future intermodal freight transport opportunities. Through the entire Hudson Freight Activity Center, however, the Akron Secondary Line is untracked, without an existing rail connection between the Class I freight railroad operated by Norfolk Southern in Hudson to the north and the existing freight railroad operated by CSX to the south in Cuyahoga Falls. The fact that the Akron Secondary is untracked within the Hudson Freight Activity Center severely limits the growth and development of the industrially-zoned parcels along the Akron Secondary.

Akron Freight Activity Center – Summit County

The Akron Freight Activity Center along the Akron Secondary and the Sandyville Lines within the City of Akron are zoned entirely for Industrial use. The lines are bordered by parcels zoned for Ordinary Industry (U-5) or Heavy Industry (U-6) according to Chapter 153 (Zoning) of the Akron Code of Ordinances (2011). Most freight-generating activities in the City of Akron are focused on the Hill Rail Yard, in the heart of the Akron Freight Activity Center. Hill Yard serves as the confluence for several major rail lines in Ohio. In addition to the Akron Secondary and Sandyville Lines, the METRO’s “Freedom Secondary,” the CSX rail line, the Wheeling & Lake Erie rail line and the Cuyahoga Valley Scenic Railroad.

Massillon Road IBP Freight Activity Center (Springfield Township) – Summit County

The parcels along the Sandyville Line in Springfield Township are zoned predominantly Medium Density Residential (R-3), however, a 0.6 mile section of the Sandyville Line runs along the Massillon Road Industrial Park, between Pick Road and State Route 214. The 96 acre Massillon Road Industrial Park is zoned by the Town of Springfield as a Planned Industrial Park District (PIPD). While the majority of parcels along the Sandyville Line provide no significant freight generating ability, the Massillon Industrial Business Park presents a unique opportunity for potential freight generation. The Massillon Road IBP Freight Activity Center is actively being marketed as being freight rail accessible and within only a few miles of the major Interstate 277 and Interstate 77 interchange, giving this Freight Activity Center large potential for intermodal freight transportation opportunities.

Green Freight Activity Center – Summit County

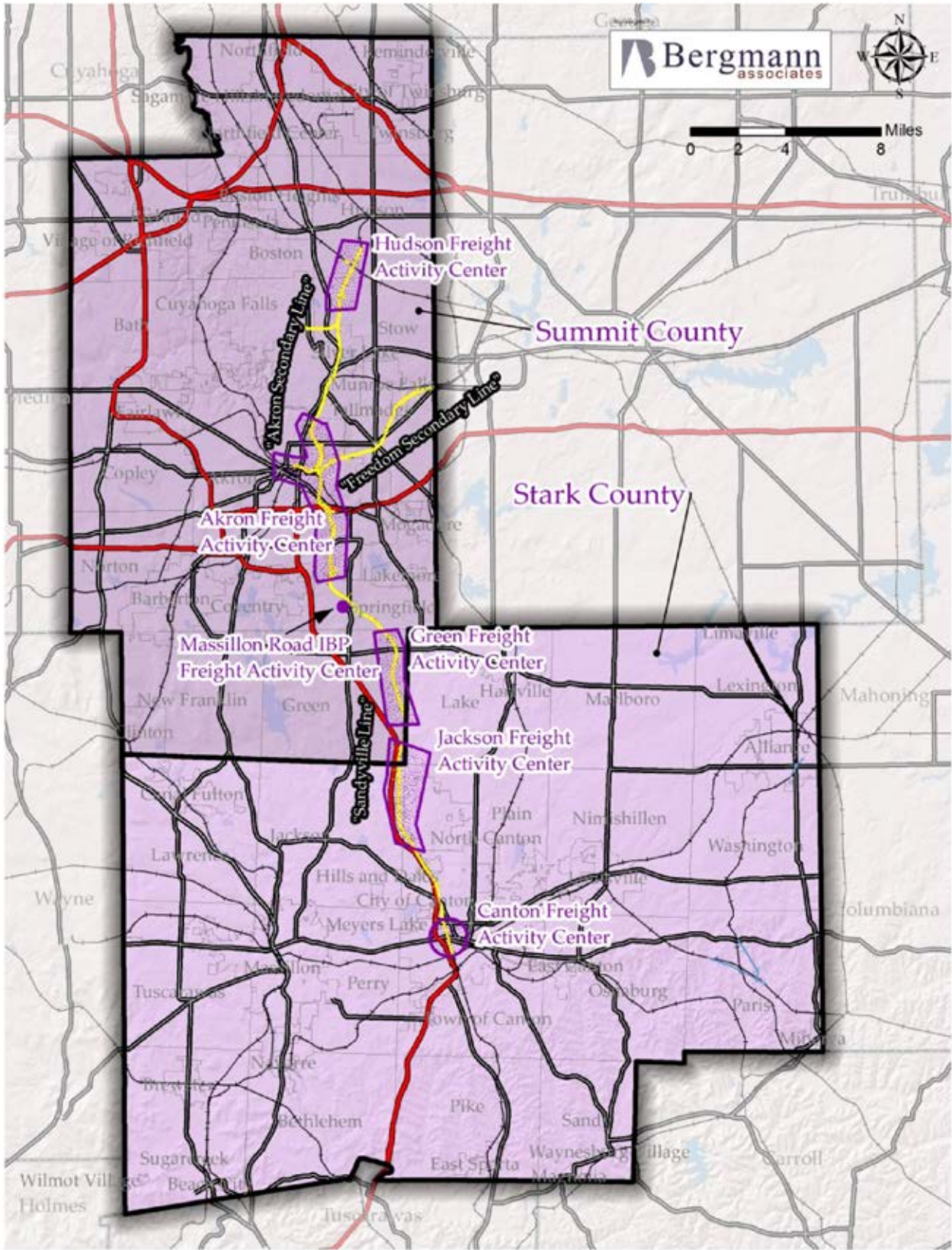
The Green Freight Activity Center includes parcels along the Sandyville Line zoned exclusively as “General Industrial” (“I”). The Green Freight Activity Center contains several large vacant parcels along the Sandyville line, zoned for industrial use. The Green Freight Activity Center is separated from the Jackson Freight Activity Center to the south by the commercial area in and around the Akron-Canton Airport. While the proximity to both the airport and Interstate 77 gives this Freight Activity Center potential for future intermodal freight transport opportunities, the residential parcels surrounding the industrial corridor may limit large scale freight-generating developments.

Jackson Freight Activity Center – Stark County

The parcels along the Sandyville Line in the Jackson Freight Activity Center are zoned entirely as “I1- Industrial,” emanating south from the City of Green Industrial corridor and the Akron-Canton Airport. The industrial corridor extends from the Summit County/Stark County border in northern Jackson to the Jackson Township/Plain Township boundary in east-central Jackson. The Sandyville Line also runs parallel to an immediately east of Interstate 77, with two exits the connecting the parcels along the Sandyville Line with Interstate 77. The Jackson Freight Activity Center contains ample large, industrially-zoned lots, however most of these parcels are already being utilized for freight-generating enterprises. The proximity of the Jackson Freight Activity Center to both the Akron-Canton Airport and Interstate 77 also makes this Freight Activity Center a key space for existing and future intermodal freight transport opportunities.

Canton Freight Activity Center – Stark County

South of Tuscarawas Street, the parcels along the Sandyville Line create a large corridor zoned as “light-industrial” (I-1) that continues until the terminus of the Sandyville Line at the Canton Crossing Diamond, comprising the Canton Freight Activity Center. Parcels zoned I-1 account for 29% of the land along the Sandyville Line in the City of Canton. The parcels in the Canton Freight Activity Center along the Sandyville Line are less than a mile from the Norfolk Southern/Wheeling & Lake Erie connection at the Canton Crossing Diamond. The Norfolk Southern/Wheeling & Lake Erie line is a designated Class I Freight Railroad, providing immediate freight access to the southern portion of the Sandyville Line. The Canton Freight Activity Center is also within a mile of several exits onto Interstate 77 and major east-west connector State Route 30, making the City of Canton a key location for intermodal accessibility.



Map 8 Freight Activity Centers along the Akron Secondary & Sandyville Lines

Development Potential at Full Build-Out within Freight Activity Centers

Using our GIS data we were able to calculate the total number of industrially-zoned parcels located within a one-half distance of the Akron Secondary and Sandyville lines. These parcels were then measured to indicate the amount of industrially-zoned acres within each FAC. In total, there are roughly 2,294 acres of industrially-zoned properties within all of the FACs. Using a conservative number of 33% of total building space to cover a parcel (based on the City of Green’s Zoning Ordinance), roughly 757 acres can be covered with industrial buildings. A simple conversion of acres to square feet reveals that nearly 33 million square feet of industrial buildings could be realized at full build out. Using an industry standard of 1 employee per 500 square feet, full build out of industrially-zoned properties along the Akron Secondary and Sandyville lines could result in over 65,000 employees.

Potential Freight-Generating Parcels within ½ mile of		
Freight Activity Center	METRO Rail Lines	Total Acres
Canton	78	131
Jackson	60	293
Green	1	4
Massillon	7	118
Akron	442	1,289
Hudson	57	459
Total	645	2,294
33% of sites covered by industrial buildings*		757 acres
Total square feet of industrial development within FACs		32,975,791
Potential employees at full build-out**		65,952

* Conservative estimate based on City of Green zoning ordinance which states that 33% of a parcel can be covered with buildings.

** At 1 employee per 500 square feet.

While these statistics are compelling, it is important to emphasize that they are based on *full build-out* of these areas. It is unrealistic to assume that these sites will be fully built in any kind of predictable future. The point here is to demonstrate that if economic development initiatives were heavily focused on developing these parcels along the Akron Secondary and Sandyville Lines that they can have dramatic impacts on the regional employment base. However, to help these sites realize their fullest potential, quality and dependable rail freight service will be an important factor for success.

Freight Infrastructure and Analysis

Ohio Distribution Network

Independent warehouses and transloaders link rail-served and nonrail-served industry. These facilities manage rail-to-truck and truck-to-rail transfer facilities. They include general warehouses, food grade warehouses, paper distribution centers, steel distribution facilities, and independent lumber transloads. Both CSX and Norfolk Southern keep an updated inventory of available warehouses and bulk terminals that receive rail service that is publicly available. These facilities are identified below.

The warehouses and transload facilities are potential teaming partners for METRO. These facilities as freight transfer locations along the freight distribution supply chain could potentially direct freight movements over METRO's holdings.

Intermodal is the transportation of goods by more than one form of carrier during a single journey. Both CSX and Norfolk Southern operate intermodal terminals in Ohio and adjacent states, that when connected by freight rail make up the intermodal network. The Class I railroads have ten (10) intermodal facilities in Ohio and nine (9) in the adjacent states. These facilities are identified below.

The intermodal facilities are hub destinations of large transfers of freight between truck and rail. These hubs are focal points of the Class I's networks and should be included in any discussions regarding freight movements about Ohio. The activity and productivity within these hubs could provide reason and opportunity for the Class I's to consider the future use of METRO's holdings.

The Ohio Department of Transportation commissioned the Ohio Freight Rail Choke Point Study that was published in August 2007. The study was to identify the most severe rail choke points in Ohio where trains routinely experience recurring congestion delays because volumes are approaching or exceeding capacity. Thirty choke points were identified in the study but only one was adjacent to METRO's holdings. The location identified was the section of track between Lambert (in South Akron) and Warwick on the CSX New Castle Subdivision that is single-tracked for nine miles. The proposed solution was to construct a second, parallel main line.

Freight movement by air as a percentage of freight movement by either weight or value is a negligible percentage of the overall freight movements either originating or terminating in Ohio. However, most airports are located adjacent to rail access and should not be overlooked in the freight movement logistics chain. A summary of the Ohio airports with scheduled operations of commercial services by cab-certified carriers or intrastate carriers is provided below:

Airport Facilities Data				
County	City	Facility Name	Owner	Operations Commercial
FRANKLIN	COLUMBUS	PORT COLUMBUS INTL	COLUMBUS REGIONAL AIRPORT AUTH	60536
CUYAHOGA	CLEVELAND	CLEVELAND-HOPKINS INTL	CLEVELAND-CUYAHOGA COUNTY PORT AUTHORITY	59229
MONTGOMERY	DAYTON	JAMES M COX DAYTON INTL	CITY OF DAYTON, OHIO	27624
SUMMIT	AKRON	AKRON-CANTON RGNL	AKRON CANTON RGNL ARPT AUTHORITY	22704
LUCAS	TOLEDO	TOLEDO EXPRESS	TOLEDO LUCAS COUNTY PORT AUTHORITY	9634
FRANKLIN	COLUMBUS	RICKENBACKER INTL	COLUMBUS RGNL AIRPORT AUTHORITY	4862
TRUMBULL	YOUNGSTOWN /WARREN	YOUNGSTOWN-WARREN RGNL	WESTERN RES PORT AUTH	646
CUYAHOGA	CLEVELAND	BURKE LAKEFRONT	CITY OF CLEVELAND	109
CLINTON	WILMINGTON	WILMINGTON AIR PARK	CLINTON COUNTY PORT AUTHORITY	100
HAMILTON	CINCINNATI	CINCINNATI MUNI AIRPORT LUNKEN FIELD	CITY OF CINCINNATI, OHIO	64

Source: Federal Aviation Administration, Airport Data & Contact Information, (YEAR)

According to the Ohio DOT, Ohio has 716 miles of navigable waterways surrounding the state on three sides. It is 8th in the nation for total water tonnage moved and its maritime ports and river terminals handle over 103 million tons of commodities values at \$11 billion annually. These waterways are primarily the 265 miles of coast line on Lake Erie and the 451 miles of coast line for the Ohio River System.

The need for a multimodal solution to freight movements will be critical to keeping up with the projected maritime freight growth. The ports in Ohio are a mix of public and privately owned facilities. These facilities are set up to directly service their business needs or handle general freight for various customers. These freight transfer facilities are also potential teaming partners for METRO.

All modes of transportation to and from adjacent freight hubs around METRO's holdings should be considered potential future teaming partners or clients. The revenue demands to make METRO's corridors viable are much less than typical corridors, particularly due to METRO's lack of a tax burden as a public agency. Therefore, lines of communication should remain open and annually relevant amongst METRO and the various freight transportation providers.

METRO Regional Transit Authority

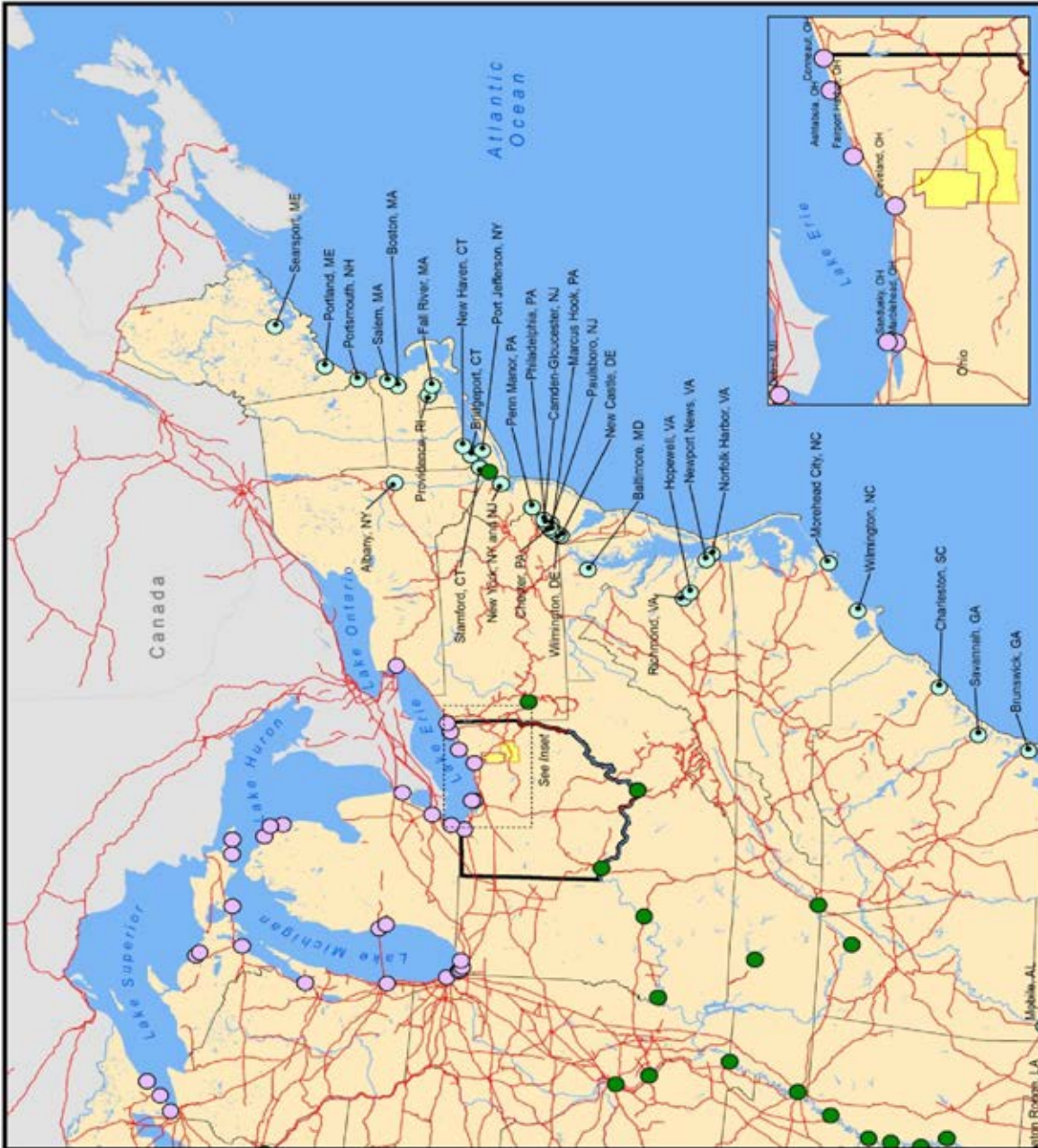
RAIL FREIGHT SYSTEM STUDY

Legend

- Great Lakes Port
- Inland River Terminal
- Tidal/Coastal Port
- Class I Freight Railroad
- Summit County, Ohio
- Stark County, Ohio
- Akron METRO Study Area
- Body of Water
- Navigable River
- Ohio
- United States
- Canada



NORTHEASTERN UNITED STATES
FREIGHT NETWORK



Product Movement in Ohio

According to the Association of American Railroads there are thirty-six (36) common carrier freight railroads operating in Ohio over 5,286 route miles. A summary of commodities originating in Ohio carried by freight railroads in 2009 is provided:

Commodities Originating In Ohio Carried by Freight Railroads in 2009		
Commodity	Tons	% of Weight
Coal	13,593,000	27.0
Iron Ore	7,341,000	14.6
Farm Products	6,253,000	12.4
Primary metal products	4,360,000	8.7
Stone, sand, gravel	4,110,000	8.2
Other	14,360,000	29.1

Source: Association of American Railroads, Freight Railroads in Ohio 2009

A summary of commodities terminating in Ohio carried by freight railroads in 2009 is provided:

Commodities Terminating in Ohio Carried by Freight Railroads in 2009		
Commodity	Tons	% of Weight
Coal	32,768,000	49.4
Chemicals	5,304,000	8.0
Primary metal products	5,248,000	7.9
Waste and scrap	4,577,000	6.9
Stone, sand, gravel	3,664,000	5.5
Other	14,799,000	22.3

Source: Association of American Railroads, Freight Railroads in Ohio 2009

The summaries for commodities originating and terminating in Ohio demonstrate that coal is the major commodity for the state. As the nature of coal freight movements for rail is typically unit trains for long distances, coal is not an ideal commodity to be shipped along METRO's holdings. Chemical, stone, metal products comprise nearly 21% of all commodity shipments in Ohio.

A summary of destinations of commodities originating in Ohio from the 2007 Commodity Flow Survey from the Research and Innovative Technology Administration (RITA) is provided:

Outbound Shipments for State of Ohio by Value and Weight		
State of Destination	% of Value	% of Weight
Ohio	35.2	65.9
Michigan	7.3	4.5
Texas	4.8	
New York	4.7	
Illinois	4.7	2.2
Indiana	4.6	4.2
Kentucky		2.7
Pennsylvania		3.4
Other	38.6	17.0

Source: RITA Bureau of Transportation Statistics, 2007 Commodity Flow Survey State Summary

Inbound Shipments for State of Ohio by Value and Weight		
State of Destination	% of Value	% of Weight
Ohio	40.2	58.2
Indiana	5.6	3.4
Pennsylvania	5.5	3.5
Michigan	5.5	4.4
Illinois	5.3	
Kentucky	3.5	7.5
West Virginia		6.2
Other states	34.5	16.8

*Source: RITA Bureau of Transportation Statistics,
2007 Commodity Flow Survey State Summary*

A summary of domestic distance shipped for commodities originating in Ohio from the 2007 Commodity Flow Survey from RITA is provided:

Domestic Distance Shipped for Commodities Originating in Ohio		
Distance Shipped	% of Value	% of Weight
Less than 50 miles	24.5	56.4
50 to 99 miles	10.6	11.4
100 to 249 miles	19.1	13.5
250 to 499 miles	22.3	10.7
500 to 749 miles	8.4	3.6
750 to 999 miles	4.5	1.7
1,000 to 1,499 miles	4.1	1.7
1,500 to 1,999 miles	3.9	0.7
2,000 miles or more	2.5	0.4

*Source: RITA Bureau of Transportation Statistics,
2007 Commodity Flow Survey State Summary*

The summaries of outbound and inbound shipments demonstrate that most of the freight for the state of Ohio is solely moved around the state of Ohio. The impression that Ohio freight mostly moves around Ohio is corroborated by the distances shipped summary with a large portion of the freight shipping distances 100 miles or less. The short distance transportation of goods is precisely the market that METRO's rail holdings are best suited.

Highway Network

Major Roadway Corridors

The highway network in Ohio has 26 million truck vehicle miles of traffic on the state highway system on a daily basis. This network interfaces with the rail network through a multifaceted intermodal system to move freight to, from and through the state.

The METRO Sandyville and Akron Secondary Lines are in close proximity to multiple interstate and state highways. IR-77 traverses Summit and Stark counties north-south for approximately 50 miles. IR-77 is a major trucking route for commodities to and from Cleveland. It is also a heavily trafficked commuter route for people working and living in Cleveland. Any reduction in trucking traffic would provide a significant decrease in the safety concerns of truck to passenger incidents and overall highway maintenance needs. This interstate parallels the Sandyville and Secondary for the entirety of the lines.

IR-76 crosses the Sandyville line and travels east-west through Summit County for approximately 16 miles. IR-277 is a short east-west connector linking IR-76 and IR-77 in Akron. IR-80 is a major transcontinental corridor connecting California and New York City. This interstate traverses Summit County east-west for approximately 13 miles perpendicular and approximately 2 miles north of the Secondary.

Traffic in Summit & Stark Counties

The Ohio Department of Transportation reports an estimate of Annual Average Daily Traffic volumes by cars and trucks for all Ohio Interstate, US and State highway system routes. The reports are generated using a combination of short-term and permanent counts collected during the calendar year. The results for the relevant sections of major Interstate, US and State routes in Summit and Stark counties in close proximity to the Sandyville and Secondary lines are presented here:

Route	Cars (AADT)	Trucks (AADT)	Total Vehicles (AADT)
IR-77	62830	11530	74360
IR-80	NA	17651	NA
SR-172	15860	1120	16980
SR-687	23180	1010	24190
US-62	54080	2670	56750
SR-619	10480	320	10800
SR-241	23830	1570	25400
IR-277	59520	3500	61360
SR-224	26150	1750	27900
IR-76	79390	14820	94210
SR-764	11770	420	12190
SR-59	15650	590	16240
SR-8	100750	9680	110430
SR-303	15650	590	16240

Source: Ohio Department of Transportation, Traffic Survey

Railroads Classifications

The Surface Transportation Board (STB) classifies railroads based on their annual operating revenues. The Class to which a carrier belongs is determined by comparing its adjusted operating revenues for three consecutive years to the following scale:

- > Class I - \$250 million or more
- > Class II - \$20 million or more
- > Class III - \$0 to \$20 million

Class II railroads are also defined as regional railroads. These railroads, as defined by the Association of American Railroads (AAR), are line-haul railroads operating at least 350 miles of road and/or earning revenue within the Class II threshold. Class II railroads are also defined as short line railroads. These railroads, also as defined by the AAR, fall into two categories:

- > Local railroads are line-haul railroads below the Regional criteria, plus switching and terminal railroads
- > Switching & terminal railroads are railroads that are either jointly owned by two railroads for the purpose of transferring cars between railroads or operate solely within a facility or group of facilities

Class I railroads operate long-distance (100's of miles), heavy-haul (130+ car) trains across multiple lines carrying raw materials, intermediate products and finished goods. These trains operate between individual industries, electric generating facilities, mines, distribution centers, and transload and intermodal facilities.

Class II railroads operate within a region along a single line between destination facilities usually carrying multiple cars of a sole good. The Class II railroads also interchange with Class I railroads to provide interconnectivity among the different rail systems.

Class III railroads operate along a short section of track between destination facilities, within a facility providing car switching services, or between Class I railroads to provide interconnectivity.

METRO's holdings currently support the Wheeling and Lake Erie railroad, a Class II railroad, and the Akron Barberton Cluster Railway, a Class III railroad on the Sandyville Line. The existing track structure on the Sandyville Line is sufficient to continue to support these existing freight movements and has the capacity for increased freight traffic. METRO also owns track right-of-way on two more inactive lines that could be reactivated for additional freight traffic opportunities.

Rail Lines in Stark & Summit Counties

CSX operates over and maintains more than 4,000 miles of track in Ohio. In particular CSX owns and operates a line east-west through Summit County that passes through Kent, to Cuyahoga Falls, to Akron, to Fairlawn, and through Copley. This line crosses the Sandyville line in Akron and is adjacent to the Freedom Secondary in Kent. The line is part of the New Castle Subdivision and extends from West Pittsburgh, PA to Boyd for approximately 139 miles. The line is double-tracked except for 9 miles between Lambert and Warwick.

Norfolk Southern owns and operates more than 2,000 miles of track in Ohio. Specifically Norfolk Southern owns and operates a line northeast-southwest through Summit County that passes through Rootstown, to Hudson, to Macedonia and through to Cleveland. This line intersects the north end of the Secondary line at a Wye in Hudson. This line is the Cleveland Line and overall extends between Cleveland and Rochester, PA. The line is double-tracked and is part of the NS intermodal network.

Norfolk Southern also owns and operates a line east-west through Stark County that passes through Canton, to Louisville, and through Maximo. This line intersects the south end of the Sandyville line at Wye in Canton. This line is the Fort Wayne line and overall extends between Crestline and Pittsburgh, PA. The line is double-tracked and is part of the NS intermodal network.

METRO is fortunate to have two Class I railroads currently operating adjacent to its rail and land holdings. There is potential to receive through freight traffic for interchanges between Norfolk Southern and CSX or to provide Norfolk Southern with an additional connection corridor between current line operations.

METRO also has the potential to offer future clients the ability to locate along their existing right-of-way and have the ability to interchange with multiple major rail providers. This unique situation would allow for more competitive rates for businesses located along METRO's holdings.

METRO Owned Rail Lines

METRO owns three rail lines, totaling 41 miles in length. These rail lines were purchased in order to preserve them for future use. Possible uses include transit service, freight service, excursion rail service or recreational trail usage. The three rail lines that METRO owns are:

- > The former CSX Transportation Sandyville Line between Akron and Canton (approximately 24 miles)
 - > The former Conrail Akron Secondary between Hudson and Akron (approximately 7 miles)
 - > The former Conrail Freedom Secondary between Akron and Kent (approximately 10 miles)

Sandyville Line

The Sandyville Line was purchased by METRO in 2000. Track ownership of the Sandyville by METRO RTA extends 24 miles from the switch off the Norfolk Southern track at Marion St. (MP 16.38) in Canton, Ohio, to Howard St. (MP 40.42) in Akron, Ohio, where the National Park Service assumes ownership of the track. The line is used for local freight service and passenger excursion service.

The Sandyville Line connects at Marion St. in Canton to the Norfolk Southern RR and the Wheeling & Lake Erie RW. Northern connections in Akron include the Wheeling & Lake Erie, the Akron Barberton Cluster RW, CSXT, and an excursion line, the Cuyahoga Valley Scenic Railroad.

Rail users include Eliokem (chemicals), Republic Steel (steel scrap), Russell Sage (JASA Asphalt, proposed), Landmark Plastics (plastics), Terminal Warehouse (plastics), McCann Plastics (plastics), and Schneider Lumber (lumber, but since 9/07 closed).

The passenger traffic on the line is provided by the Cuyahoga Valley Scenic Railroad (CVSR) who operates on 51 miles of track from Independence south through Cuyahoga Valley National Park to Akron and Canton on the Sandyville Line. The current freight traffic on the line is operated by Wheeling and Lake Erie (WLE) between MP 16 and MP 25.3 and Akron Barberton Cluster Railway (ABC) from MP 40 to MP 33.55. There is currently an average of approximately five freight cars per week. The line is dispatched by the CVSR who is to provide separate excursion and freight windows.

The Sandyville Line is currently classified as Class 2¹⁰ track. Bergmann Associates recently completed the Sandyville Line Track Rehabilitation Report (December 2010) where it was recommended that the line merits a line and surface in addition to a tie replacement program. These recommendations are to repair the existing deficiencies identified in the report and potentially elevate the track to a Class 4 designation.

METRO RTA does not operate freight or passenger rail service, but owns freight rights leased to the Akron Barberton Cluster RW (MP 33.5 to MP 40.42) and the Wheeling & Lake Erie RW (mp 16.38 to MP 26.2). In addition, METRO has a three way operating agreement with the National Park Service and the Cuyahoga Valley Scenic Railroad in which METRO leases rail cars to the Cuyahoga Valley Scenic Railroad (\$4,500/year) and receives track maintenance services from the National Park Service (work to the equivalent of \$25,000/year). METRO owns the train station near Akron's Northside district. This station is served by the Cuyahoga Valley Scenic Railway. Parking is available at the station as well as a driveway for connecting buses. The parking lot and driveway improvements are owned by the City of Akron.

¹⁰ Class of Track as defined by the Code of Federal Regulations Title 49 Track Safety Standards Part 213. The Class of Track defines the maximum allowable operating speeds for track meeting all of the minimum safety requirements of the designated Class. Class of Track is not related to railroad classification as defined by the STB.

Akron Secondary

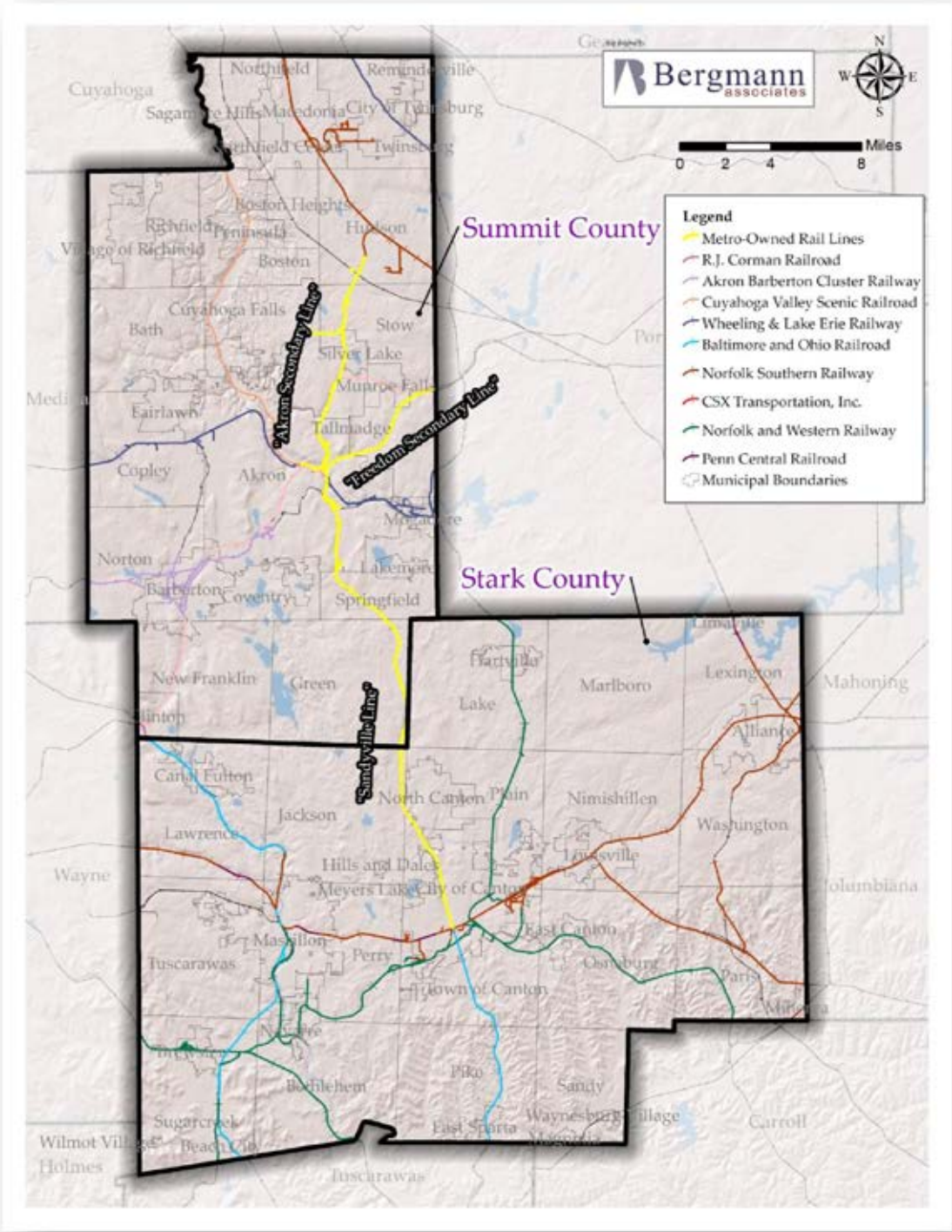
The Akron Secondary is currently inactive and has been for approximately 20 years. The existing track structure is heavily covered with thick brush. The line extends from approximately Tallmadge Rd. in Cuyahoga Falls to Barlow Rd. in Hudson. The north end of the line connects to an existing Wye with Norfolk Southern. The south end of the line stems off an existing CSX line.

The Akron Secondary could be reactivated to provide a connection between CSX in Cuyahoga Falls to Norfolk Southern in Hudson. The line could also provide service to existing or potential clients adjacent to the right-of-way. The right-of-way would need to be cleared and grubbed and the trackage would need to be upgraded to Class 1 by replacing the deteriorated ties and surfacing and lining the track.

Freedom Secondary

The Freedom Secondary is also inactive and segments of track structure have been removed from the right of way. This right-of-way extends from approximately Mill Street in Akron to Mogadore Road, in Kent. The north end of the right-of-way for the Freedom Secondary ties into an existing wye with the Wheeling and Lake Erie and Norfolk Southern. The south end of the right-of-way does not have any existing track that connects with existing freight carriers.

The Freedom Secondary could be reactivated along the right-of-way to provide a connection between the Wheeling and Lake Erie and Norfolk Southern lines at the north end in Kent with the Wheeling and Lake Erie and CSX lines at the south end in Akron. The line could also provide service to existing or potential clients adjacent to the right-of-way. The right-of-way would need to be cleared and grubbed and new track structure would need to be constructed.



Map 10 METRO Rail Connections to the Regional Rail Network

METRO Rail Holdings and Finances Analysis

Rights-of Way & Usage

METRO has a cooperative agreement with the National Park Service and the Cuyahoga Valley Preservation and Scenic Railway Association for excursion passenger rail service between Akron and Canton. METRO owns Valley Railways trackage from the Cuyahoga Valley National Park (CVNP) boundary at Howard Street, Akron (MP 40.3), south to Marion Street, Canton (MP 16.3).

The Cooperative Agreement states that NPS agrees to reimburse METRO an amount not-to-exceed \$10,000 per fiscal year for signal repair and inspection costs. NPS also agrees to provide repair and/or replacement of damaged trackage and associated improvements not-to-exceed an aggregate amount of \$50,000 per fiscal year. METRO is responsible for all repair and/or replacement of damaged trackage and associated improvements above an aggregate cost of \$50,000 per fiscal year.

The Cooperative Agreement obliges the Cuyahoga Valley Scenic Railway (CVSR) to provide excursion passenger rail service linking the CVNP with Akron and Canton, Ohio along the CVSR Operating Segment. The CVSR is to cooperate with NPS and METRO in scheduling its excursion passenger rail service and oblige to release its track authority to establish and preserve strict temporal separation between freight rail service and excursion rail service on the Canton-Akron Line.

The Cooperative Agreement allows METRO to add freight traffic to the Canton-Akron Line at will but with the understanding that NPS and CVSR are to be notified and brought into agreement. The CVSR shall have the exclusive right to run excursion passenger trains on the Canton-Akron Line. METRO, CVSR, and NPS agree to coordinate activities to encourage and facilitate other entities' involvement in and support for the Canton-Akron Line including grants, capital development, financial and operational assistance.

METRO has also entered into a Freight Operations Lease Agreement (The Northern Segment Lease) with Akron Barberton Cluster Railways Company (ABC) and a separate Shared Use Agreement with the Wheeling & Lake Erie Railway Company (WLE). The freight rail traffic by volume as reported by METRO is provided in the following table:

Freight Rail Traffic by Volume						
	ABC			WLE		
Year	Engines	Loads	Revenue	Engines	Loads	Revenue
2004	191	471	\$21,184	195	307	\$10,563
2005	178	443	\$20,083	Unavailable	Unavailable	\$10,901
2006	172	432	\$19,811	207	164	\$11,000
2007	119	262	\$13,335	108	214	\$7,248
2008	99	202	\$10,535	115	195	\$7,145
2009	55	104	\$5,883	104	137	\$5,663

Source: Information provided by METRO

The Northern Segment Lease between METRO and ABC is for the portion of the Sandyville Line between the Southern boundary of the CVNP and Krumroy Rd. ABC provides service to Distribution Freight, Inc. over the #9 switch on the Line. The Shared Use Agreement between METRO and WLE is for the portion of the line between Krumroy Rd. to Marion St.

METRO owns and maintains 39 switches on the Sandyville Line including a derail. These switches provide rail access to adjacent properties that are current or potential revenue sources for METRO. A list of switches, general location, and the serviced facility or owner is provided in the following table:

METRO Switch List				
#	Location	Facility/ Property Owner	Address	Adjacent Land Use
1	Near 7 th St. SW	IAC Canton LLC	1212 7 th St. SW Canton	Manufacturing assembly
2	Near Patterson	IAC Canton LLC	1212 7 th St. SW Canton	Manufacturing assembly
3	Near 2 nd St.	Schneider Corp	1409 5 th St. SW Canton	Commercial Warehouse
4	7 th St. NW	Canton Station		
5	Tuscarawas	Canton Station		
6	Fulton Rd	METRO	Fulton Rd	
7	Portage St	Mathie Supply	4215 Portage St. Canton	Landscape supplies
8	Mt Pleasant	Design Investments LLC	4305 Mt. Pleasant Rd. Canton	84 Lumber Company
9	Mayfair Rd	McCann Plastics	5600 Mayfair Rd. Canton	Engineered plastics
10	Krumroy Rd	CDSF Ltd	1779 Marvo Dr. Akron	Distribution Freight Inc
11	Exeter Rd	City of Akron	1353 Exeter Rd. Akron	Diamond Network Polymers
12	Exeter Rd	Stag Capital Partners	1331 Kelly Ave., Akron	Manufacturing/processing
13	Techway Rd	Eliokem	1452 East Archwood Ave. Akron	Manufacturing chemicals
13	Techway Rd	Hayes Lemmerz International Inc	428 Seiberling St. Akron	Steel wheel manufacturing
14	Techway Rd	Dowco Properties	1371 Markle St., Akron	Manufacturing
15	Kelly Ave	171 Kelly Ave Ltd	171 Kelly Ave. Akron	Industrial plan
16	Hazel St.	Republic Services	964 Hazel St. Akron	Waste collection
17	Hazel St	Carter Jones Lumber	172 Case Ave. Akron	Lumber production
17	Hazel St.	Russell Standard	990 Hazel St. Akron	Asphalt emulsion plant
18	Erie OH Bridge	CSX	Evans Ave	Rail yard
19	CSX OH Bridge	CSX	Evans Ave	Rail yard
20	Arlington St OH Bridge			
21	Out of Service			
22	Out of Service			
23	RT 8 OH Bridge			
24	N Broadway St.	ABC	N High St., Akron	Stub track
25	Derail			

26	Out of Service	
27	Out of Service	
28	Out of Service	
29	Out of Service	
30	Out of Service	
31-39	RT 8 Overhead Bridge	Yard Switches

Source: Information provided by METRO

Finances

METRO receives income from its track holdings from licensing agreements with pipe and wire line crossings, royalties from materials taken from the property, freight fees from the local carries (ABC & WLE) and maintenance reimbursements from NPS. The following is METRO's income from the Sandyville Line in 2010:

METRO Railroad Income		
Source	Rate	Note
License Agreements	\$25,994	
Royalties		
Oil	NA	
Stone	\$14,839	Down from \$26k in 2008
Fees		
Freight	\$7,657	ABC has not yet paid its fees. Expected to exceed \$11,547
Reimbursements	\$9,949	NPS reimbursement for crossing maintenance costs
Total	\$58,439	
Total, w/o Reimbursement	\$48,490	

Source: Information provided by METRO

Land Valuation

The railroad right-of-way and adjacent properties are a potential source of income from liquidating assets. METRO owns a significant amount of additional acreage outside a necessary minimum right-of-way corridor for railroad operations. The parcels owned by METRO according to the Summit and Stark counties offices of the auditor are summarized in the following table:

METRO Land Holdings			
County	# Parcels	Total Acreage	Estimated Market Value
Summit	55	401	\$10,524,040*
Stark	33	76.3	\$1,417,200
Total	88	477.3	\$11,941,240
*\$2,811,950 appraised value of rail/bus terminal @ 631 Broadway St., Akron			

Source: Stark County Auditor's Office & Summit County Auditor's Office

Along with the extra acreage that METRO owns adjacent to the railroad right-of-way METRO is also the owner of multiple buildings including storage sheds, warehouses and homes. METRO obtained many of these properties from the purchase of the track right-of-way from CSX. Several of these properties and structures are extraneous resources that could be liquidated to provide funds for the rehabilitation and reactivation of the track. A complete inventory of the

property ownership for METRO is outside the scope of this study and should be considered in a future study.

Depreciation of Rail Assets

METRO is studying the feasibility of reactivating inactive rail properties for the purpose of constructing new track structures in non-developed railroad rights-of-way in order to facilitate industrial development. Those capital expenditures should be depreciated as part of typical accounting practices. The following is generally accepted accounting practices gathered from the Department of Treasury.

Depreciation is the decrease in value of physical properties with the passage of time and use. Depreciation accounting is generally permitted for all assets except land. Under depreciation accounting, a monthly charge is made to operating expenses in order to recover the net cost of assets over their estimated service lives. For track accounts, the original cost of the asset plus estimated removal costs less estimated gross salvage value is used in determining the amount to be charged to operating expense over the life of the asset. At retirement, actual removal costs are charged to the depreciation reserve rather than to operating expense.

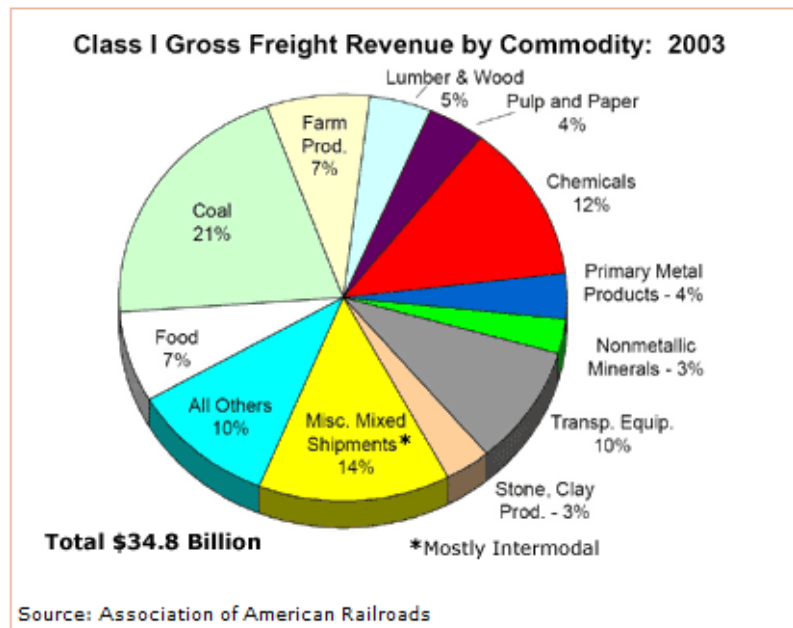
The principal method for computing depreciation deductions for property in engineering projects is the Modified Accelerated Cost Recovery System (MACRS). For an asset to be depreciated under MACRS, the following information is needed before deductions can be calculated: the cost basis, the date the property was placed in service, the property class and recovery period, the MACRS depreciation method to be used (GDS or ADS) and the time convention that applies. According to the Department of the Treasury Internal Revenue Service 2010 Instructions for Form 4562 Depreciation and Amortization railroad track is classified as a 7-year property.

Chapter 3: Industry Cluster Analysis

In order to better understand the market potential for expansion of the rail freight opportunities along the Akron METRO lines, an analysis of the industrial market in Stark County and Summit County was conducted. The focus of this analysis was to identify what industries may be inclined to use freight and analyze their project growth and concentration. The industrial market analysis includes a cluster analysis, gap analysis, location quotient analysis and shift share analysis. These are all tools used by economic development professionals to better understand the local economy, identify what industries are growing and which are declining and what industries may have a competitive advantage in terms of job growth and regional assets.

Throughout the analysis industries have been highlighted in the tables which we believe may support or have the potential to support the expanded freight service. This assessment is based on an understanding of the individual industries, information regarding the freight industry and background research conducted for this analysis. These industries may be industries in which Akron METRO could focus their economic development efforts to utilize an enhanced freight network. The information developed here will be helpful to METRO in its efforts to attract potential customers to the areas identified in the Freight Activity Centers.

The pie chart to the right, assembled by the Association of American Railroads, illustrates the breakdown of commodities transported by rail freight. The commodity that makes up the largest percentage of transported goods is Coal at 21%, followed by Miscellaneous Mixed Shipments (14%), Chemicals (12%), All Others (10%), and Transportation Equipment (10%).¹¹



¹¹ Source: Overview of U.S. Freight Railroads. http://nationalatlas.gov/articles/transportation/a_freightrr.html. Accessed 8/29/2011.

Detailed Industry Cluster & Sector Analysis

The industry and occupation analysis begins with identifying the existing conditions and recent trends within industry clusters and individual sectors. Industry trends of Summit County and Stark County (“Study Area”) are compared to trends of the State of Ohio. By evaluating and comparing industry trends of local and regional geographies, the performance of local industries can be evaluated within the regional context.

Industry and occupation data used in this analysis is provided by EMSI (Economic Modeling Specialists, Inc.). EMSI combines covered employment data from the Quarterly Census of Employment and Wages (QCEW) produced by the Department of Labor with data from the Regional Economic Information System (REIS) published by the Bureau of Economic Analysis (BEA) and augmented with County Business Patterns (CBP) and Nonemployer Statistics (NES) published by the U.S. Census Bureau. Projections are based on the latest available EMSI industry data combined with past trends in each industry, industry growth rates in national projections (Bureau of Labor Statistics), and projections and data from the Department of Labor.

The data includes all employment covered by unemployment insurance – only the self-employed, student workers, unpaid family workers, and some agricultural workers are excluded. Unlike the decennial Census, QCEW measures jobs by place of *work*, not place of *residence*, so it is a strong measure of economic activity taking place in a particular region.

Most of the data presented in this report are broken down into industry sectors, organized using the North American Industrial Classification System (NAICS).

The following sections provide an overview of the economic conditions within the region.

Industry Clusters

A group of industries closely connected by supply chains and/or similar labor pools is considered an industry cluster. A cluster develops when businesses in inter-related industries choose to locate in close proximity to take advantage of a region’s inherent advantages. These businesses then become interdependent on each other, which enhances their operating environments and makes them more competitive in the global market. Clusters transcend industry sectors and subsectors in that they often can include industries that are in different sectors as defined by NAICS.

EMSI groups industries into clusters based on national and regional business to business purchasing patterns. Their detailed cluster definitions and methodologies are explained further in *Unlocking Rural Competitiveness: The Role of Regional Clusters* produced by the Center for Regional Development, Purdue University (January 2007). EMSI is used to identify cluster strengths for the Study Area and the related geographies.

Largest Clusters

The following tables list industry clusters within the Study Area and the State of Ohio.

Study Area Industry Clusters	
Cluster Name	2010 Jobs
Biomedical/Biotechnical (Life Sciences)	55,064
Business & Financial Services	52,342
Manufacturing Supercluster	29,262
Advanced Materials	27,928
Energy (Fossil & Renewable)	25,019
Fabricated Metal Product Manufacturing	14,581
Arts, Entertainment, Recreation & Visitor Industries	13,997
Defense & Security	13,812
Information Technology & Telecommunications	13,597
Transportation & Logistics	13,552
Chemicals & Chemical Based Products	11,606
Education & Knowledge Creation	9,376
Printing & Publishing	8,755
Agribusiness, Food Processing & Technology	8,020
Forest & Wood Products	6,960
Machinery Manufacturing	4,884
Apparel & Textiles	3,644
Transportation Equipment Manufacturing	3,630
Primary Metal Manufacturing	3,358
Computer & Electronic Product Manufacturing	1,416
Electrical Equipment, Appliance & Component Manufacturing	1,392
Glass & Ceramics	1,162
Mining	674

Source: EMSI Complete Employment - 2011.3

State of Ohio Industry Clusters	
Cluster Name	2010 Jobs
Business & Financial Services	658,359
Biomedical/Biotechnical (Life Sciences)	613,219
Manufacturing Supercluster	344,433
Energy (Fossil & Renewable)	280,237
Advanced Materials	279,589
Information Technology & Telecommunications	209,521
Transportation & Logistics	205,865
Defense & Security	202,821
Arts, Entertainment, Recreation & Visitor Industries	179,765
Agribusiness, Food Processing & Technology	163,449
Education & Knowledge Creation	133,774
Chemicals & Chemical Based Products	133,045
Printing & Publishing	114,925
Forest & Wood Products	104,207
Transportation Equipment Manufacturing	96,879
Fabricated Metal Product Manufacturing	95,632
Machinery Manufacturing	68,405
Apparel & Textiles	38,461
Primary Metal Manufacturing	36,808
Electrical Equipment, Appliance & Component Manufacturing	25,758
Glass & Ceramics	23,218
Computer & Electronic Product Manufacturing	20,951
Mining	13,295

Source: EMSI Complete Employment - 2011.3

The State of Ohio and the Study Area have all of the top five industry clusters in common: **Biomedical/Biotechnical, Business & Financial services, Manufacturing Supercluster, Advanced Materials** and **Energy**. The order of the clusters are slightly different between the two regions, with the largest cluster in the Study Area being Biomedical/Biotechnical with over 55,000 jobs and the largest cluster in the State of Ohio being Business & Financial Services with over 650,000 jobs.

It is interesting to note that the top two clusters in both regions have significantly more jobs than the third cluster. In both regions, the top two clusters have approximately double the number of jobs as the third largest cluster, indicating strong dominance and importance of the top two clusters as job creators and economic engines for the region.

In consideration of the Akron Metro freight industry, the **Transportation and Logistics** cluster is stronger in the State (7th largest cluster) than in the Study Area (10th largest cluster), but a number of clusters that would possibly benefit from the expanded freight line are showing strength in both regions. For example, the manufacturing clusters (i.e. Fabricated Metal Product Manufacturing is the sixth largest cluster in the Study Area) are potential customers of a variety of transportation /distribution options.

Fastest Growing Clusters

The following tables list the industry clusters for each of the geographic regions by projected change in number of jobs from 2010 to 2018.

Study Area Industry Cluster Growth				
Cluster Name	2010 Jobs	2018 Jobs	Change	% Change
Biomedical/Biotechnical (Life Sciences)	55,064	62,980	7,916	14%
Business & Financial Services	52,342	59,127	6,785	13%
Energy (Fossil & Renewable)	25,019	27,798	2,779	11%
Education & Knowledge Creation	9,376	11,199	1,823	19%
Defense & Security	13,812	14,442	630	5%
Arts, Entertainment, Recreation & Visitor Industries	13,997	14,046	49	0%
Primary Metal Manufacturing	3,358	3,372	14	0%
Printing & Publishing	8,755	8,738	(17)	0%
Mining	674	630	(44)	(7%)
Information Technology & Telecommunications	13,597	13,538	(59)	0%
Glass & Ceramics	1,162	1,098	(64)	(6%)
Computer & Electronic Product Manufacturing	1,416	1,263	(153)	(11%)
Apparel & Textiles	3,644	3,459	(185)	(5%)
Fabricated Metal Product Manufacturing	14,581	14,360	(221)	(2%)
Electrical Equipment, Appliance & Component Manufacturing	1,392	1,123	(269)	(19%)
Transportation Equipment Manufacturing	3,630	3,258	(372)	(10%)
Agribusiness, Food Processing & Technology	8,020	7,620	(400)	(5%)
Forest & Wood Products	6,960	6,278	(682)	(10%)
Machinery Manufacturing	4,884	3,834	(1,050)	(21%)
Transportation & Logistics	13,552	12,258	(1,294)	(10%)
Manufacturing Supercluster	29,262	27,211	(2,051)	(7%)
Chemicals & Chemical Based Products	11,606	9,298	(2,308)	(20%)
Advanced Materials	27,928	24,418	(3,510)	(13%)

Source: EMSI Complete Employment - 2011.3

State of Ohio Industry Cluster Growth				
Cluster Name	2010 Jobs	2018 Jobs	Change	% Change
Business & Financial Services	658,359	755,113	96,754	15%
Biomedical/Biotechnical (Life Sciences)	613,219	700,640	87,421	14%
Energy (Fossil & Renewable)	280,237	312,397	32,160	11%
Defense & Security	202,821	229,932	27,111	13%
Information Technology & Telecommunications	209,521	230,562	21,041	10%
Transportation & Logistics	205,865	220,845	14,980	7%
Education & Knowledge Creation	133,774	148,420	14,646	11%
Arts, Entertainment, Recreation & Visitor Industries	179,765	192,420	12,655	7%
Printing & Publishing	114,925	118,228	3,303	3%
Mining	13,295	13,856	561	4%
Apparel & Textiles	38,461	37,858	(603)	(2%)
Glass & Ceramics	23,218	21,328	(1,890)	(8%)
Primary Metal Manufacturing	36,808	33,874	(2,934)	(8%)
Electrical Equipment, Appliance & Component Manufacturing	25,758	22,429	(3,329)	(13%)
Computer & Electronic Product Manufacturing	20,951	17,440	(3,511)	(17%)
Fabricated Metal Product Manufacturing	95,632	91,463	(4,169)	(4%)
Machinery Manufacturing	68,405	63,490	(4,915)	(7%)
Forest & Wood Products	104,207	97,485	(6,722)	(6%)
Agribusiness, Food Processing & Technology	163,449	155,073	(8,376)	(5%)
Chemicals & Chemical Based Products	133,045	120,957	(12,088)	(9%)
Transportation Equipment Manufacturing	96,879	83,584	(13,295)	(14%)
Advanced Materials	279,589	261,398	(18,191)	(7%)
Manufacturing Supercluster	344,433	312,281	(32,152)	(9%)

Source: EMSI Complete Employment - 2011.3

The top industry clusters in terms of number of jobs are also the clusters that are experiencing the fastest rate of growth. For example, the **Biomedical/Biotechnical** cluster is also expected to grow substantially in the next eight years, adding 7,916 jobs (14% increase) to the Study Area. Some industries that may be interested in the expanded rail freight service are expected to see a decline in jobs over the next eight years including:

- **Fabricated Metal Product Manufacturing**
- **Machinery Manufacturing**
- **Transportation Equipment Manufacturing**
- **Manufacturing Supercluster**

Cluster Location Quotient

Location Quotient (LQ) is a way of evaluating how concentrated a region's industry, occupation, or other measure is in relation to the nation. A LQ analysis of industry clusters compares the percentage of a region's jobs to the percentage of the nation's jobs within each cluster.

Generally, it is considered to be statistically significant if the LQ is above 1.2 or below 0.8 (i.e. the region is 20% higher or 20% lower than what is expected based on the national average).

The following set of tables rank the industry clusters for the Study Area and the State of Ohio by 2010 LQ. For each geographic region, industry clusters with a LQ of 1.2 or greater are listed in the tables below.

Study Area Industry Cluster Location Quotients				
Cluster Name	2010 Jobs	2010 LQ	2018 LQ	Percent Change LQ
Fabricated Metal Product Manufacturing	14,581	3.75	3.89	4%
Primary Metal Manufacturing	3,358	3.11	3.30	6%
Advanced Materials	27,928	1.89	1.71	(9%)
Chemicals & Chemical Based Products	11,606	1.86	1.60	(14%)
Manufacturing Supercluster	29,262	1.75	1.75	(1%)
Machinery Manufacturing	4,884	1.57	1.28	(18%)
Glass & Ceramics	1,162	1.43	1.51	6%
Biomedical/Biotechnical (Life Sciences)	55,064	1.36	1.42	4%
Electrical Equipment, Appliance & Component Manufacturing	1,392	1.27	1.14	(10%)

Source: EMSI Complete Employment - 2011.3

State of Ohio Industry Cluster Location Quotients				
Cluster Name	2010 Jobs	2010 LQ	2018 LQ	Percent Change LQ
Primary Metal Manufacturing	36,808	2.78	2.67	(4%)
Glass & Ceramics	23,218	2.33	2.36	1%
Fabricated Metal Product Manufacturing	95,632	2.01	1.99	(1%)
Transportation Equipment Manufacturing	96,879	1.94	1.78	(8%)
Electrical Equipment, Appliance & Component Manufacturing	25,758	1.91	1.83	(4%)
Machinery Manufacturing	68,405	1.79	1.71	(4%)
Chemicals & Chemical Based Products	133,045	1.73	1.68	(3%)
Manufacturing Supercluster	344,433	1.68	1.61	(4%)
Advanced Materials	279,589	1.54	1.48	(4%)
Biomedical/Biotechnical (Life Sciences)	613,219	1.24	1.27	3%

Source: EMSI Complete Employment - 2011.3

Overall, with respect to LQ of industry clusters, the Study Area has a strong concentration of **Fabricated Metal Product Manufacturing** and that strength is expected to increase over the next eight years to 3.89. There are a number of manufacturing clusters that have significant location quotients which indicates potential for increased use of rail if the freight service was expanded.

The industries that had the high growth and job numbers do not have as high location quotients (for example Business & Financial Services had large job numbers and growth projections but an insignificant LQ) indicating that those types of jobs are growing throughout the nation and the Study Area does not have a competitive advantage.

Industry Cluster Shift Share Analysis

Shift share analysis is another tool in regional economic analysis and is primarily used to analyze changes in local employment over a given time period. These changes are categorized into three contributing factors: (1) the national growth share; (2) the industrial mix component; and (3) the local or competitive share.

Like the location quotient method, shift share analysis is largely descriptive; it does not explain *why* an industry has slower or faster growth locally. However, it does allow economic development professionals to separate local growth factors from national ones, determine industries in which a region is particularly competitive, and identify areas where further analysis or qualitative research (e.g., surveys, interviews) may be necessary.

The three contributing factors examined through shift share analysis are as follows:

- The *national growth component* tells you how many jobs in an industry can be attributed to the overall growth (or contraction) of the national economy. It is based on the percentage change in employment for all industries nationwide over a given time period. It answers the question, "What if regional employment in an industry had changed at the same rate as total employment nationally?"
- The *industry mix component* measures how well that industry has grown, net of the effects of the national business cycle. It is based on the percentage change in employment for a specific industry nationwide over a given time period, minus the

national growth component. It responds to the question, “What if regional employment in an industry had changed at the same rate as that industry nationally?”

- The third and final component is the *competitive share* (also referred to as the *local share*). It assumes that once you account for the national growth and industry mix components, any additional change in employment must be due to local factors. A *positive* competitive share suggests a local comparative advantage in that industry: higher productivity, superior technology, market access, and so on. A *negative* competitive share, on the other hand, may reflect a local comparative disadvantage, such as local wage rates, inefficient production processes, differences in management, etc.

The following table shows the competitive effect of the industry clusters and indicates which clusters are experiencing growth and is it faster or slower than the national average.

Regional Shift Share Analysis					
Cluster Name	Job Change 2010-2018	Ind Mix Effect	Nat Growth Effect	Expected Change	Competitive Effect
Education & Knowledge Creation	1,823	627	844	1,471	352
Primary Metal Manufacturing	14	(358)	302	(56)	70
Glass & Ceramics	(63)	(183)	105	(78)	15
Apparel & Textiles	(185)	(495)	328	(167)	(18)
Fabricated Metal Product Manufacturing	(221)	(1,465)	1,313	(152)	(68)
Mining	(44)	(31)	61	30	(74)
Computer & Electronic Product Manufacturing	(153)	(200)	127	(73)	(80)
Biomedical/Biotechnical (Life Sciences)	7,916	3,108	4,957	8,065	(150)
Agribusiness, Food Processing & Technology	(400)	(947)	722	(225)	(175)
Electrical Equipment, Appliance & Component Manufacturing	(269)	(215)	125	(90)	(179)
Transportation Equipment Manufacturing	(372)	(445)	327	(118)	(254)
Forest & Wood Products	(682)	(953)	627	(326)	(355)
Printing & Publishing	(16)	(376)	788	412	(428)
Defense & Security	631	(15)	1,243	1,228	(598)
Energy (Fossil & Renewable)	2,779	1,224	2,252	3,476	(697)
Machinery Manufacturing	(1,050)	(448)	440	(8)	(1,042)
Information Technology & Telecommunications	(58)	(133)	1,224	1,091	(1,149)
Manufacturing Supercluster	(2,051)	(3,410)	2,634	(776)	(1,275)
Arts, Entertainment, Recreation & Visitor Industries	48	240	1,260	1,500	(1,452)
Business & Financial Services	6,785	3,918	4,712	8,630	(1,845)
Chemicals & Chemical Based Products	(2,308)	(1,434)	1,045	(389)	(1,919)
Transportation & Logistics	(1,294)	(130)	1,220	1,090	(2,384)
Advanced Materials	(3,509)	(2,390)	2,514	124	(3,634)

Source: EMSI Complete Employment - 2011.3

Three clusters are growing in the Study Area after factoring out the national growth rate and the industry’s implied likely growth: **Education & Knowledge Creation; Primary Metal Manufacturing; Glass & Ceramics**. The rest of the clusters are not growing as fast in the Study Area as they are in other parts of the country. The least competitive industry is **Advanced Materials**, which has lost 3,600 more jobs than would be expected for that industry. All of the other manufacturing clusters are growing less quickly than would be expected compared to the nation.

Gap Analysis

The table below shows the purchasing needs of existing regional industries at the most detailed level available (6-digit NAICS code level), along with how much of those needs are satisfied inside and outside the region. The difference between these is the “import gap.” For example, all regional industries need to purchase \$1,120,534,000 in services supplied by ‘Commercial Banking’, (the “\$ Required” column), but are currently only purchasing \$257,532,000 from that regional service industry (the “\$ Satisfied in Region” column), then the ‘Commercial Banking’ import gap is \$863,002 (the “Difference” column).

The ten regional industries with the largest import gaps are shown in the table below. These are the main industries that would need to be developed or brought to the region to most reduce the region’s overall import dependence. Because they represent industries that are relatively undersupplied in the region there may be potential to attract these businesses to the area. All of the industries listed are present in the Study Area, but there is room to expand current operations or target additional companies.

Study Area - Best Industries to Meeting Regional Requirements					
NAICS Code	Description	\$ Required(K)	\$ Satisfied in Region(K)	Difference(K)	In Region
522110	Commercial Banking	\$1,120,534	\$257,532	\$863,002	yes
11A000	Crop and animal production	\$814,632	\$159,319	\$655,313	yes
324110	Petroleum Refineries	\$886,390	\$288,977	\$597,413	yes
325412	Pharmaceutical Preparation Manufacturing	\$392,309	\$0	\$392,309	yes
611310	Colleges, Universities, and Professional Schools	\$392,008	\$26,694	\$365,314	yes
531210	Offices of Real Estate Agents and Brokers	\$531,778	\$199,198	\$332,581	yes
541330	Engineering Services	\$330,941	\$12,634	\$318,307	yes
721110	Hotels (except Casino Hotels) and Motels	\$367,738	\$63,118	\$304,620	yes
523920	Portfolio Management	\$324,337	\$31,822	\$292,515	yes
551114	Corporate, Subsidiary, and Regional Managing Offices	\$884,883	\$605,980	\$278,904	yes

Source: EMSI Complete Employment - 2011.3

Industry Sectors (2-Digit NAICS)

Largest Industries

The following tables rank the industries in the Study Area and the State of Ohio by size (i.e. number of jobs) within each 2-digit NAICS code.

State of Ohio Top Industries - Two Digit NAICS Code			
NAICS Code	Description	2010 Jobs	2018 Jobs
62	Health Care and Social Assistance	824,069	968,973
90	Government	806,743	803,846
44-45	Retail Trade	659,687	647,892
31-33	Manufacturing	642,086	588,527
72	Accommodation and Food Services	437,977	461,475
56	Admin and Support and Waste Management and Remediation Services	373,689	423,314
54	Professional, Scientific, and Technical Services	371,022	433,963
52	Finance and Insurance	315,568	345,265
81	Other Services (except Public Administration)	297,168	317,032
23	Construction	296,521	316,122
48-49	Transportation and Warehousing	238,982	250,442
42	Wholesale Trade	235,461	243,744
53	Real Estate and Rental and Leasing	232,730	262,694
61	Educational Services	151,730	172,916
71	Arts, Entertainment, and Recreation	119,845	134,263
55	Management of Companies and Enterprises	111,337	118,085
51	Information	94,220	92,449
11	Agriculture, Forestry, Fishing and Hunting	92,868	84,412
21	Mining, Quarrying, and Oil and Gas Extraction	35,614	48,940
22	Utilities	21,637	20,521
Total		6,358,954	6,734,875

Source: EMSI Complete Employment - 2011.3

Study Area Top Industries - Two Digit NAICS Code			
NAICS Code	Description	2010 Jobs	2018 Jobs
62	Health Care and Social Assistance	74,694	87,354
44-45	Retail Trade	57,034	54,461
90	Government	53,443	52,925
31-33	Manufacturing	53,174	48,030
72	Accommodation and Food Services	36,389	38,158
56	Administrative and Support and Waste Management and Remediation Services	33,413	38,740
54	Professional, Scientific, and Technical Services	28,440	32,489
81	Other Services (except Public Administration)	26,344	26,820
23	Construction	24,788	26,180
52	Finance and Insurance	23,983	25,528
42	Wholesale Trade	21,919	22,233
53	Real Estate and Rental and Leasing	17,819	19,119
48-49	Transportation and Warehousing	16,108	14,613
55	Management of Companies and Enterprises	15,237	15,885
61	Educational Services	11,085	13,375
71	Arts, Entertainment, and Recreation	9,846	10,760
51	Information	6,989	6,789
21	Mining, Quarrying, and Oil and Gas Extraction	3,673	5,192
11	Agriculture, Forestry, Fishing and Hunting	2,325	2,047
22	Utilities	1,800	1,954
Total		518,503	542,649

Source: EMSI Complete Employment - 2011.3

As shown by the list above, the **Health Care and Social Assistance, Government, Retail Trade, Manufacturing** and **Accommodation and Food Service** make up the top five industries for both geographies. Just as the industry clusters were similar at the Study Area level and the State level, the individual industries are similar at the two digit NAICS code. Note that the Health Care and Social Assistance industry has the highest number of employment and is expected to increase in total number of jobs by 2018 in both the Study Area and the State.

Fastest Growing Industries

The following tables summarize the projected fastest growing industries from 2010 to 2018 by 2-digit NAICS Code.

Study Area Industry Growth - Two Digit NAICS Code					
NAICS Code	Description	2010 Jobs	2018 Jobs	Change	% Change
62	Health Care and Social Assistance	74,694	87,354	12,660	17%
56	Admin and Support and Waste Management and Remediation Services	33,413	38,740	5,327	16%
54	Professional, Scientific, and Technical Services	28,440	32,489	4,049	14%
61	Educational Services	11,085	13,375	2,290	21%
72	Accommodation and Food Services	36,389	38,158	1,769	5%
52	Finance and Insurance	23,983	25,528	1,545	6%
21	Mining, Quarrying, and Oil and Gas Extraction	3,673	5,192	1,519	41%
23	Construction	24,788	26,180	1,392	6%
53	Real Estate and Rental and Leasing	17,819	19,119	1,300	7%
71	Arts, Entertainment, and Recreation	9,846	10,760	914	9%
55	Management of Companies and Enterprises	15,237	15,885	648	4%
81	Other Services (except Public Administration)	26,344	26,820	476	2%
42	Wholesale Trade	21,919	22,233	314	1%
22	Utilities	1,800	1,954	154	9%
51	Information	6,989	6,789	(200)	(3%)
11	Agriculture, Forestry, Fishing and Hunting	2,325	2,047	(278)	(12%)
90	Government	53,443	52,925	(518)	(1%)
48-49	Transportation and Warehousing	16,108	14,613	(1,495)	(9%)
44-45	Retail Trade	57,034	54,461	(2,573)	(5%)
31-33	Manufacturing	53,174	48,030	(5,144)	(10%)
Total		518,503	542,649	24,146	5%

Source: EMSI Complete Employment - 2011.3

State of Ohio Industry Growth - Two Digit NAICS Code					
NAICS Code	Description	2010 Jobs	2018 Jobs	Change	% Change
62	Health Care and Social Assistance	824,069	968,973	144,904	18%
54	Professional, Scientific, and Technical Services	371,022	433,963	62,941	17%
56	Admin and Support and Waste Management and Remediation Services	373,689	423,314	49,625	13%
53	Real Estate and Rental and Leasing	232,730	262,694	29,964	13%
52	Finance and Insurance	315,568	345,265	29,697	9%
72	Accommodation and Food Services	437,977	461,475	23,498	5%
61	Educational Services	151,730	172,916	21,186	14%
81	Other Services (except Public Administration)	297,168	317,032	19,864	7%
23	Construction	296,521	316,122	19,601	7%
71	Arts, Entertainment, and Recreation	119,845	134,263	14,418	12%
21	Mining, Quarrying, and Oil and Gas Extraction	35,614	48,940	13,326	37%
48-49	Transportation and Warehousing	238,982	250,442	11,460	5%
42	Wholesale Trade	235,461	243,744	8,283	4%
55	Management of Companies and Enterprises	111,337	118,085	6,748	6%
22	Utilities	21,637	20,521	(1,116)	(5%)
51	Information	94,220	92,449	(1,771)	(2%)
90	Government	806,743	803,846	(2,897)	0%
11	Agriculture, Forestry, Fishing and Hunting	92,868	84,412	(8,456)	(9%)
44-45	Retail Trade	659,687	647,892	(11,795)	(2%)
31-33	Manufacturing	642,086	588,527	(53,559)	(8%)
Total		6,358,954	6,734,875	375,921	6%

Source: EMSI Complete Employment - 2011.3

The **Health Care and Social Assistance**; **Professional, Scientific and Technical Services** and; **Admin Support** industries are each within the top five fastest growing industries for the two geographic regions. The **Health Care and Social Assistance** industry is projected to grow by 17% over the next eight years and add 12,000 jobs to the Study Area region.

Manufacturing is expected to decrease over the next eight years in both the Study Area (5,144 jobs lost) and the State of Ohio (53,559 jobs lost) as is **Transportation and Warehousing** which is expected to lose 1,500 jobs over the next eight years in the Study Area (projected gains in the State).

Top 2-Digit Industry LQ

This next set of tables lists industries by 2-digit NAICS code in order of 2010 LQ. The following tables show industries with a significant (greater than 20%) LQ compared to the national levels in 2010.

Study Area Industry Location Quotient - Two Digit NAICS Code				
NAICS Code	Description	2010 National LQ	2018 National LQ	% Change in LQ
55	Management of Companies and Enterprises	2.56	2.63	2.73%
31-33	Manufacturing	1.46	1.42	-2.74%
62	Health Care and Social Assistance	1.30	1.35	3.85%
42	Wholesale Trade	1.20	1.20	0.00%

Source: EMSI Complete Employment - 2011.3

State of Ohio Industry Location Quotient - Two Digit NAICS Code				
NAICS Code	Description	2010 National LQ	2018 National LQ	% Change in LQ
55	Management of Companies and Enterprises	1.52	1.57	3.29%
31-33	Manufacturing	1.44	1.40	-2.78%

Source: EMSI Complete Employment - 2011.3

The Study Area and the State both have significant industry LQ in **Management** and **Manufacturing**. The **Management** LQ is increasing, whereas the **Manufacturing** LQ is declining by approximately 2% over the next eight years (in both the Study Area and the State).

The low number of industries with significant LQ's indicates that the Study Area and the State of Ohio are relatively similar to the rest of the United States in terms of employee concentration and distribution.

Industry Sectors (4-Digit NAICS)

The following series of tables examines the local and regional industries by 4-digit NAICS code.

Largest Industries

The tables below list the top 30 largest 4-digit industries within the Study Area and the State of Ohio.

Study Area Top Industries - Four Digit NAICS Code			
NAICS Code	Description	2010 Jobs	2018 Jobs
9300	Local government	39,980	39,822
6221	General Medical and Surgical Hospitals	22,704	24,875
7221	Full-Service Restaurants	15,594	15,911
7222	Limited-Service Eating Places	15,569	17,259
5511	Management of Companies and Enterprises	15,237	15,885
5613	Employment Services	10,643	14,202
9200	State government	10,299	10,203
6211	Offices of Physicians	9,631	11,544
5617	Services to Buildings and Dwellings	9,631	10,745
4451	Grocery Stores	9,126	9,003
6231	Nursing Care Facilities	8,183	9,014
5311	Lessors of Real Estate	7,295	7,524
8131	Religious Organizations	6,794	6,748
5614	Business Support Services	6,106	6,730
2382	Building Equipment Contractors	5,909	6,559
6216	Home Health Care Services	5,766	7,726
3329	Other Fabricated Metal Product Manufacturing	5,764	5,839
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	5,193	6,407
5239	Other Financial Investment Activities	5,172	6,851
5242	Agencies, Brokerages, and Other Insurance Related Activities	5,022	4,788
5241	Insurance Carriers	4,942	4,487
6241	Individual and Family Services	4,941	6,152
4521	Department Stores	4,900	3,850
4841	General Freight Trucking	4,854	2,867
7139	Other Amusement and Recreation Industries	4,814	5,040
2383	Building Finishing Contractors	4,636	4,739
5313	Activities Related to Real Estate	4,541	5,313
4529	Other General Merchandise Stores	4,159	5,444
5416	Management, Scientific, and Technical Consulting Services	4,156	5,138
5419	Other Professional, Scientific, and Technical Services	4,138	4,434

Source: EMSI Complete Employment - 2011.3

State of Ohio Top Industries - Four Digit NAICS Code			
NAICS Code	Description	2010 Jobs	2018 Jobs
9300	Local government	532,338	532,685
6221	General Medical and Surgical Hospitals	228,844	242,845
7222	Limited-Service Eating Places	187,022	198,759
9200	State government	185,542	184,775
7221	Full-Service Restaurants	172,172	181,260
5617	Services to Buildings and Dwellings	116,526	131,871
5613	Employment Services	114,871	138,524
5511	Management of Companies and Enterprises	111,337	118,085
6231	Nursing Care Facilities	105,079	122,697
5311	Lessors of Real Estate	95,054	104,590
4451	Grocery Stores	94,402	97,160
6211	Offices of Physicians	93,247	111,689
11A0	Crop and animal production	79,613	69,362
8131	Religious Organizations	73,082	72,630
4529	Other General Merchandise Stores	72,385	84,970
6216	Home Health Care Services	71,677	96,001
2382	Building Equipment Contractors	70,696	78,306
4841	General Freight Trucking	70,309	74,163
5415	Computer Systems Design and Related Services	67,054	86,480
5241	Insurance Carriers	64,392	63,632
5221	Depository Credit Intermediation	63,361	64,322
5239	Other Financial Investment Activities	61,110	78,616
6244	Child Day Care Services	60,315	67,630
5313	Activities Related to Real Estate	60,192	71,501
5242	Agencies, Brokerages, and Other Insurance Related Activities	58,897	63,745
5419	Other Professional, Scientific, and Technical Services	58,712	66,126
6113	Colleges, Universities, and Professional Schools	58,029	61,055
3363	Motor Vehicle Parts Manufacturing	54,623	44,264
2383	Building Finishing Contractors	54,125	55,178
9110	Federal government, civilian, except postal service	53,000	51,500

Source: EMSI Complete Employment - 2011.3

Local Government is the largest industry in both of the geographies. The **General Medical and Surgical Hospitals** industry, **Full Service Restaurants** and **Limited-Service Eating Places** also rank in the top five for both regions. There are a number of professional services that are within the top 30 industries in the Study Area including:

- Business Support Services
- Accounting, Tax Preparation, Bookkeeping and Payroll Services
- Agencies, Brokerages, and Other Insurance Related Activities

In general, manufacturing, production and transportation are not particularly prevalent in the Study Area's top thirty industries at the 4-digit NAICS code level. The largest manufacturing industry is the **Other Fabricated Metal Product Manufacturing** sector, with 5,765 jobs in the Study Area. **General Freight Trucking** is in the top 25, but it appears as though a significant number of jobs are expected to be lost over the next eight years.

Within the State of Ohio, **Motor Vehicle Parts Manufacturing** is in the top 30 with 54,623 jobs in 2010, but that industry is expected to decrease by 10,000 jobs by 2018.

Fastest Growing Industries

The following set of tables list the top thirty 4-digit fastest growing industries at the Study Area and state level. The top 30 fastest growing industries within each of these geographies are shown in the tables below.

Study Area Industry Growth - Four Digit NAICS Code					
NAICS Code	Description	2010 Jobs	2018 Jobs	Change	% Change
5613	Employment Services	10,643	14,202	3,559	33%
6221	General Medical and Surgical Hospitals	22,704	24,875	2,171	10%
6216	Home Health Care Services	5,766	7,726	1,960	34%
6211	Offices of Physicians	9,631	11,544	1,913	20%
7222	Limited-Service Eating Places	15,569	17,259	1,690	11%
5239	Other Financial Investment Activities	5,172	6,851	1,679	32%
2111	Oil and Gas Extraction	3,336	4,927	1,591	48%
4529	Other General Merchandise Stores	4,159	5,444	1,285	31%
5412	Accounting, Tax Prep., Bookkeeping, and Payroll Services	5,193	6,407	1,214	23%
6241	Individual and Family Services	4,941	6,152	1,211	25%
5617	Services to Buildings and Dwellings	9,631	10,745	1,114	12%
5416	Management, Scientific, and Technical Consulting Services	4,156	5,138	982	24%
6233	Community Care Facilities for the Elderly	3,706	4,683	977	26%
6213	Offices of Other Health Practitioners	3,573	4,522	949	27%
6231	Nursing Care Facilities	8,183	9,014	831	10%
5313	Activities Related to Real Estate	4,541	5,313	772	17%
2389	Other Specialty Trade Contractors	3,901	4,582	681	17%
6232	Residential Mental Retardation, Mental Health and Substance Abuse Facilities	2,825	3,502	677	24%
4251	Wholesale Electronic Markets and Agents and Brokers	3,153	3,814	661	21%
2382	Building Equipment Contractors	5,909	6,559	650	11%
5511	Management of Companies and Enterprises	15,237	15,885	648	4%
8121	Personal Care Services	3,732	4,363	631	17%
5614	Business Support Services	6,106	6,730	624	10%
3362	Motor Vehicle Body and Trailer Manufacturing	820	1,443	623	76%
6116	Other Schools and Instruction	2,065	2,647	582	28%
5415	Computer Systems Design and Related Services	3,488	4,052	564	16%
3324	Boiler, Tank, and Shipping Container Manufacturing	2,502	3,042	540	22%
6212	Offices of Dentists	2,802	3,336	534	19%
5231	Securities and Com. Contracts Intermediation and Brokerage	2,309	2,835	526	23%
6113	Colleges, Universities, and Professional Schools	3,385	3,864	479	14%

Source: EMSI Complete Employment - 2011.3

State of Ohio Industry Growth - Four Digit NAICS Code						
NAICS Code	Description	2010 Jobs	2018 Jobs	Change	% Change	
6216	Home Health Care Services	71,677	96,001	24,324	34%	
5613	Employment Services	114,871	138,524	23,653	21%	
6241	Individual and Family Services	52,203	72,851	20,648	40%	
5415	Computer Systems Design and Related Services	67,054	86,480	19,426	29%	
6211	Offices of Physicians	93,247	111,689	18,442	20%	
6231	Nursing Care Facilities	105,079	122,697	17,618	17%	
5239	Other Financial Investment Activities	61,110	78,616	17,506	29%	
5617	Services to Buildings and Dwellings	116,526	131,871	15,345	13%	
5416	Management, Scientific, and Technical Consulting Services	51,665	66,410	14,745	29%	
6221	General Medical and Surgical Hospitals	228,844	242,845	14,001	6%	
2111	Oil and Gas Extraction	25,860	38,736	12,876	50%	
4529	Other General Merchandise Stores	72,385	84,970	12,585	17%	
7222	Limited-Service Eating Places	187,022	198,759	11,737	6%	
6213	Offices of Other Health Practitioners	41,948	53,280	11,332	27%	
5313	Activities Related to Real Estate	60,192	71,501	11,309	19%	
8121	Personal Care Services	40,070	49,614	9,544	24%	
5311	Lessors of Real Estate	95,054	104,590	9,536	10%	
7221	Full-Service Restaurants	172,172	181,260	9,088	5%	
2382	Building Equipment Contractors	70,696	78,306	7,610	11%	
5419	Other Professional, Scientific, and Technical Services	58,712	66,126	7,414	13%	
6214	Outpatient Care Centers	26,781	34,102	7,321	27%	
6244	Child Day Care Services	60,315	67,630	7,315	12%	
5312	Offices of Real Estate Agents and Brokers	52,393	59,682	7,289	14%	
5511	Management of Companies and Enterprises	111,337	118,085	6,748	6%	
6233	Community Care Facilities for the Elderly	32,568	38,900	6,332	19%	
4931	Warehousing and Storage	39,236	45,431	6,195	16%	
7139	Other Amusement and Recreation Industries	51,386	57,239	5,853	11%	
5614	Business Support Services	48,347	54,172	5,825	12%	
6116	Other Schools and Instruction	23,550	29,334	5,784	25%	
6111	Elementary and Secondary Schools	45,400	51,182	5,782	13%	

Source: EMSI Complete Employment - 2011.3

Of the top five fastest growing industries for each region, health care industries are expected to see the largest change over the next eight years. With **General Medical and Surgical Hospitals, Home Health Care Services** and **Offices of Physicians** making up three of the top five fastest growing industries in the Study Area. Manufacturing industries are underrepresented in the list of top thirty fastest growing industries in the Study Area and the State of Ohio. Two manufacturing industries appear on the Study Area's list including **Motor Vehicle Body and Trailer Manufacturing** (growing by 623 jobs) and **Boiler, Tank and Shipping Container Manufacturing** (growing by 540 jobs).

Top 4-digit Industry LQ

The next set of tables list the 4-digit industries of the Study Area and the State of Ohio by 2010 LQ. Only industries with an LQ of higher than 1.2 are shown below.

Study Area Industry Location Quotient - Four Digit NAICS Code				
NAICS Code	Description	2010	2018	% Change in LQ
		National LQ	National LQ	
3324	Boiler, Tank, and Shipping Container Manufacturing	9.68	12.38	27.89%
3329	Other Fabricated Metal Product Manufacturing	7.58	8.18	7.92%
3322	Cutlery and Handtool Manufacturing	6.77	5.94	-12.26%
3312	Steel Product Manufacturing from Purchased Steel	6.49	5.23	-19.41%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	4.66	5.03	7.94%
3315	Foundries	4.36	6.09	39.68%
3335	Metalworking Machinery Manufacturing	3.88	2.69	-30.67%
3149	Other Textile Product Mills	3.80	3.07	-19.21%
3262	Rubber Product Manufacturing	3.53	2.49	-57.79%
3332	Industrial Machinery Manufacturing	3.29	2.79	-15.20%
4235	Metal and Mineral (except Petroleum) Merchant Wholesalers	2.71	3.10	14.39%
3255	Paint, Coating, and Adhesive Manufacturing	2.69	2.05	-23.79%
3261	Plastics Product Manufacturing	2.63	2.58	-1.90%
3328	Coating, Engraving, Heat Treating, and Allied Activities	2.57	2.67	3.89%
5511	Management of Companies and Enterprises	2.56	2.63	2.73%
3321	Forging and Stamping	2.51	2.66	5.98%
3362	Motor Vehicle Body and Trailer Manufacturing	2.47	4.42	78.95%
6112	Junior Colleges	2.36	3.77	59.75%
3113	Sugar and Confectionery Product Manufacturing	2.31	3.91	69.26%
4542	Vending Machine Operators	2.26	2.46	8.85%
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	2.22	1.89	-14.86%
3259	Other Chemical Product and Preparation Manufacturing	2.19	0.90	-58.90%
4247	Petroleum and Petroleum Products Merchant Wholesalers	2.14	2.57	20.09%
2212	Natural Gas Distribution	2.05	2.54	23.90%
4831	Deep Sea, Coastal, and Great Lakes Water Transportation	1.98	0.56	-71.72%
4246	Chemical and Allied Products Merchant Wholesalers	1.97	1.60	-18.78%
3325	Hardware Manufacturing	1.96	3.29	67.86%
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	1.89	0.94	-50.26%
3353	Electrical Equipment Manufacturing	1.89	1.85	-2.12%
8134	Civic and Social Organizations	1.82	1.90	4.40%
5614	Business Support Services	1.79	1.85	3.35%
3311	Iron and Steel Mills and Ferroalloy Manufacturing	1.76	0.56	-68.18%
4413	Automotive Parts, Accessories, and Tire Stores	1.76	1.91	8.52%
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	1.74	1.77	1.72%
6221	General Medical and Surgical Hospitals	1.72	1.80	4.65%
3271	Clay Product and Refractory Manufacturing	1.71	1.26	-26.32%
3119	Other Food Manufacturing	1.70	1.81	6.47%
8122	Death Care Services	1.65	1.69	2.42%
3339	Other General Purpose Machinery Manufacturing	1.62	1.61	-0.62%
6231	Nursing Care Facilities	1.62	1.60	-1.23%
4922	Local Messengers and Local Delivery	1.60	1.54	-3.75%
3251	Basic Chemical Manufacturing	1.59	1.97	23.90%
3352	Household Appliance Manufacturing	1.56	0.16	-89.74%
6233	Community Care Facilities for the Elderly	1.56	1.71	9.62%
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	1.51	1.81	19.87%
6232	Residential Mental Retardation, Mental Health and Substance Abuse Facilities	1.51	1.70	12.58%
3313	Alumina and Aluminum Production and Processing	1.50	1.58	5.33%
3372	Office Furniture (including Fixtures) Manufacturing	1.50	1.06	-29.33%
7121	Museums, Historical Sites, and Similar Institutions	1.50	1.62	8.00%
4442	Lawn and Garden Equipment and Supplies Stores	1.49	1.21	-18.79%
3118	Bakeries and Tortilla Manufacturing	1.47	1.36	-7.48%
3363	Motor Vehicle Parts Manufacturing	1.47	0.92	-37.41%
8113	Com. and Industrial Machinery and Equip (except Automotive and Electronic) Repair and Main.	1.46	1.58	8.22%
3326	Spring and Wire Product Manufacturing	1.45	1.57	8.28%
4884	Support Activities for Road Transportation	1.45	1.42	-2.07%
4236	Electrical and Electronic Goods Merchant Wholesalers	1.44	1.27	-11.81%
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	1.43	1.36	-4.90%
2111	Oil and Gas Extraction	1.39	1.42	2.16%
4511	Sporting Goods, Hobby, and Musical Instrument Stores	1.36	1.35	-0.74%
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	1.35	0.99	-26.67%
6242	Community Food and Housing, and Emergency and Other Relief Services	1.34	1.08	-19.40%
4241	Paper and Paper Product Merchant Wholesalers	1.33	1.03	-22.56%
5241	Insurance Carriers	1.33	1.32	-0.75%
5322	Consumer Goods Rental	1.33	1.43	7.52%
6216	Home Health Care Services	1.33	1.42	6.77%

Study Area Industry Location Quotient - Four Digit NAICS Code (continued)				
NAICS Code	Description	2010 National LQ	2018 National LQ	% Change in LQ
3399	Other Miscellaneous Manufacturing	1.30	1.42	9.23%
4239	Miscellaneous Durable Goods Merchant Wholesalers	1.28	1.11	-13.28%
3231	Printing and Related Support Activities	1.27	1.24	-2.36%
8121	Personal Care Services	1.27	1.29	1.57%
5613	Employment Services	1.26	1.51	19.84%
6219	Other Ambulatory Health Care Services	1.26	1.38	9.52%
4452	Specialty Food Stores	1.25	1.54	23.20%
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	1.25	1.46	16.80%
7222	Limited-Service Eating Places	1.24	1.30	4.84%
7224	Drinking Places (Alcoholic Beverages)	1.24	1.01	-18.55%
3115	Dairy Product Manufacturing	1.23	0.91	-26.02%
3323	Architectural and Structural Metals Manufacturing	1.22	1.09	-10.66%
6211	Offices of Physicians	1.22	1.27	4.10%
8131	Religious Organizations	1.20	1.18	-1.67%

Source: EMSI Complete Employment - 2011.3

State of Ohio Industry Location Quotient - Four Digit NAICS Code				
NAICS Code	Description	2010 National LQ	2018 National LQ	% Change in LQ
3352	Household Appliance Manufacturing	4.19	4.06	-3.10%
3312	Steel Product Manufacturing from Purchased Steel	3.81	3.82	0.26%
3363	Motor Vehicle Parts Manufacturing	3.52	3.25	-7.67%
3335	Metalworking Machinery Manufacturing	3.22	3.22	0.00%
3361	Motor Vehicle Manufacturing	3.22	2.74	-14.91%
3255	Paint, Coating, and Adhesive Manufacturing	3.03	2.88	-4.95%
3321	Forging and Stamping	2.99	3.11	4.01%
3311	Iron and Steel Mills and Ferroalloy Manufacturing	2.96	2.52	-14.86%
3315	Foundries	2.88	2.84	-1.39%
3271	Clay Product and Refractory Manufacturing	2.85	2.93	2.81%
4812	Nonscheduled Air Transportation	2.75	3.05	10.91%
3262	Rubber Product Manufacturing	2.75	2.46	-10.55%
3279	Other Nonmetallic Mineral Product Manufacturing	2.71	2.67	-1.48%
3324	Boiler, Tank, and Shipping Container Manufacturing	2.67	2.81	5.24%
3322	Cutlery and Handtool Manufacturing	2.57	2.71	5.45%
3328	Coating, Engraving, Heat Treating, and Allied Activities	2.46	2.51	2.03%
4542	Vending Machine Operators	2.38	3.10	30.25%
3272	Glass and Glass Product Manufacturing	2.38	2.36	-0.84%
3339	Other General Purpose Machinery Manufacturing	2.37	2.32	-2.11%
3329	Other Fabricated Metal Product Manufacturing	2.28	2.23	-2.19%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	2.19	2.33	6.39%
3332	Industrial Machinery Manufacturing	2.16	2.19	1.39%
3314	Nonferrous Metal (except Aluminum) Production and Processing	2.12	2.28	7.55%
4235	Metal and Mineral (except Petroleum) Merchant Wholesalers	2.10	2.09	-0.48%
3261	Plastics Product Manufacturing	2.05	1.98	-3.41%
3369	Other Transportation Equipment Manufacturing	2.01	2.13	5.97%
4889	Other Support Activities for Transportation	1.99	2.30	15.58%
6112	Junior Colleges	1.96	2.63	34.18%
3251	Basic Chemical Manufacturing	1.92	1.77	-7.81%
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	1.86	1.92	3.23%
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	1.81	2.02	11.60%
4246	Chemical and Allied Products Merchant Wholesalers	1.78	1.86	4.49%
3313	Alumina and Aluminum Production and Processing	1.72	1.67	-2.91%
6231	Nursing Care Facilities	1.69	1.75	3.55%
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	1.65	2.40	45.45%
3351	Electric Lighting Equipment Manufacturing	1.65	0.59	-64.24%
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	1.60	1.80	12.50%
3222	Converted Paper Product Manufacturing	1.58	1.55	-1.90%
3353	Electrical Equipment Manufacturing	1.54	1.53	-0.65%
3326	Spring and Wire Product Manufacturing	1.53	1.19	-22.22%
3115	Dairy Product Manufacturing	1.53	1.38	-9.80%
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Mfg	1.53	1.40	-8.50%
3259	Other Chemical Product and Preparation Manufacturing	1.53	1.17	-23.53%
5511	Management of Companies and Enterprises	1.52	1.57	3.29%
8134	Civic and Social Organizations	1.43	1.56	9.09%
6221	General Medical and Surgical Hospitals	1.41	1.41	0.00%
4931	Warehousing and Storage	1.41	1.43	1.42%
5241	Insurance Carriers	1.41	1.51	7.09%
8122	Death Care Services	1.40	1.47	5.00%
5211	Monetary Authorities-Central Bank	1.39	1.62	16.55%
3274	Lime and Gypsum Product Manufacturing	1.39	1.54	10.79%
4841	General Freight Trucking	1.37	1.41	2.92%
4442	Lawn and Garden Equipment and Supplies Stores	1.37	1.45	5.84%
3111	Animal Food Manufacturing	1.37	1.26	-8.03%
4882	Support Activities for Rail Transportation	1.36	1.39	2.21%
6216	Home Health Care Services	1.34	1.43	6.72%
3359	Other Electrical Equipment and Component Manufacturing	1.32	1.60	21.21%
3362	Motor Vehicle Body and Trailer Manufacturing	1.31	1.14	-12.98%
4541	Electronic Shopping and Mail-Order Houses	1.30	1.29	-0.77%
6232	Residential Mental Retardation, Mental Health and Substance Abuse Facilities	1.29	1.34	3.88%

State of Ohio Industry Location Quotient - Four Digit NAICS Code (continued)				
NAICS Code	Description	2010 National LQ	2018 National LQ	% Change in LQ
4922	Local Messengers and Local Delivery	1.29	1.22	-5.43%
4529	Other General Merchandise Stores	1.28	1.29	0.78%
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	1.28	1.28	0.00%
5622	Waste Treatment and Disposal	1.27	1.11	-12.60%
3231	Printing and Related Support Activities	1.27	1.29	1.57%
6111	Elementary and Secondary Schools	1.26	1.31	3.97%
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	1.26	1.36	7.94%
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	1.25	1.25	0.00%
7222	Limited-Service Eating Places	1.22	1.21	-0.82%
3325	Hardware Manufacturing	1.22	2.21	81.15%
4861	Pipeline Transportation of Crude Oil	1.22	1.25	2.46%
4241	Paper and Paper Product Merchant Wholesalers	1.22	1.28	4.92%
4413	Automotive Parts, Accessories, and Tire Stores	1.21	1.26	4.13%

Source: EMSI Complete Employment - 2011.3

The location quotient analysis on the four digit NACIS code found that the Study Area and State of Ohio have a number of industries with a high concentration of employment as compared to the national average. Manufacturing industries are highly concentrated in the Study Area and State of Ohio. For example, the **Boiler, Tank and Shipping Container Manufacturing** industry has an LQ of 9.68 in 2010 and that is expected to increase over the next eight years. The top five LQ's are in the manufacturing industry for the Study Area and the top six are manufacturing in the State of Ohio.

The location quotient analysis showed that even though the manufacturing industries are not growing in the Study Area or the State of Ohio, they do play a very important role in the local economy and there are aspects of the Study Area and State that is conducive to manufacturing companies. This is most likely a result of the legacy of Ohio's concentration in manufacturing-intensive industries.

Growth in Freight-Utilizing Industries

The following section focuses on growth in Study Area industries which may have the propensity to utilize freight. This will help establish the total potential market for rail freight services and whether that market is likely to grow or shrink over the next seven years. The following tables list the current jobs and 2018 projected jobs in industries which Camoin Associates felt had potential to use freight.

Freight-Utilizing Industries - Study Area Growth (Four Digit NAICS Code)					
NAICS Code	Description	2010 Jobs	2018 Jobs	Change	% Change
1133	Logging	67	68	1	1%
1153	Support Activities for Forestry	21	16	(5)	(24%)
2111	Oil and Gas Extraction	3,336	4,927	1,591	48%
2121	Coal Mining	22	37	15	68%
2122	Metal Ore Mining	<10	<10	--	--
2123	Nonmetallic Mineral Mining and Quarrying	104	70	(34)	(33%)
2131	Support Activities for Mining	203	156	(47)	(23%)
2211	Electric Power Generation, Transmission and Distribution	984	976	(8)	(1%)
2212	Natural Gas Distribution	705	872	167	24%
2361	Residential Building Construction	3,014	3,007	(7)	0%
2362	Nonresidential Building Construction	1,638	1,647	9	1%
2371	Utility System Construction	775	761	(14)	(2%)
2373	Highway, Street, and Bridge Construction	1,073	1,257	184	17%
2379	Other Heavy and Civil Engineering Construction	156	146	(10)	(6%)
3111	Animal Food Manufacturing	101	114	13	13%
3112	Grain and Oilseed Milling	<10	<10	--	--
3113	Sugar and Confectionery Product Manufacturing	490	741	251	51%
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	726	480	(246)	(34%)
3115	Dairy Product Manufacturing	490	355	(135)	(28%)
3116	Animal Slaughtering and Processing	1,488	1,662	174	12%
3117	Seafood Product Preparation and Packaging	<10	<10	--	--
3118	Bakeries and Tortilla Manufacturing	1,312	1,140	(172)	(13%)
3119	Other Food Manufacturing	911	983	72	8%
3121	Beverage Manufacturing	204	94	(110)	(54%)
3152	Cut and Sew Apparel Manufacturing	60	33	(27)	(45%)
3159	Apparel Accessories and Other Apparel Manufacturing	24	33	9	38%
3162	Footwear Manufacturing	0	0	0	0%
3169	Other Leather and Allied Product Manufacturing	23	20	(3)	(13%)
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	157	132	(25)	(16%)
3219	Other Wood Product Manufacturing	290	372	82	28%
3222	Converted Paper Product Manufacturing	975	709	(266)	(27%)
3241	Petroleum and Coal Products Manufacturing	115	124	9	8%
3251	Basic Chemical Manufacturing	694	695	1	0%
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	519	224	(295)	(57%)
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	19	41	22	116%
3254	Pharmaceutical and Medicine Manufacturing	12	17	5	42%
3255	Paint, Coating, and Adhesive Manufacturing	503	370	(133)	(26%)
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	1,553	1,580	27	2%
3259	Other Chemical Product and Preparation Manufacturing	611	226	(385)	(63%)
3261	Plastics Product Manufacturing	4,109	3,669	(440)	(11%)
3262	Rubber Product Manufacturing	1,334	486	(848)	(64%)
3271	Clay Product and Refractory Manufacturing	229	151	(78)	(34%)
3272	Glass and Glass Product Manufacturing	72	79	7	10%
3273	Cement and Concrete Product Manufacturing	324	266	(58)	(18%)
3274	Lime and Gypsum Product Manufacturing	<10	<10	--	--
3279	Other Nonmetallic Mineral Product Manufacturing	240	261	21	9%
3311	Iron and Steel Mills and Ferroalloy Manufacturing	466	138	(328)	(70%)

Freight-Utilizing Industries - Study Area Growth (Four Digit NAICS Code) (continued)					
NAICS Code	Description	2010 Jobs	2018 Jobs	Change	% Change
3312	Steel Product Manufacturing from Purchased Steel	1,047	847	(200)	(19%)
3313	Alumina and Aluminum Production and Processing	249	235	(14)	(6%)
3314	Nonferrous Metal (except Aluminum) Production and Processing	99	215	116	117%
3315	Foundries	1,498	1,937	439	29%
3322	Cutlery and Handtool Manufacturing	851	567	(284)	(33%)
3323	Architectural and Structural Metals Manufacturing	1,218	1,148	(70)	(6%)
3324	Boiler, Tank, and Shipping Container Manufacturing	2,502	3,042	540	22%
3325	Hardware Manufacturing	143	202	59	41%
3326	Spring and Wire Product Manufacturing	190	175	(15)	(8%)
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	2,260	1,830	(430)	(19%)
3329	Other Fabricated Metal Product Manufacturing	5,764	5,839	75	1%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	330	339	9	3%
3332	Industrial Machinery Manufacturing	1,033	725	(308)	(30%)
3333	Commercial and Service Industry Machinery Manufacturing	88	74	(14)	(16%)
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Mfg	175	173	(2)	(1%)
3335	Metalworking Machinery Manufacturing	1,966	1,298	(668)	(34%)
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	142	122	(20)	(14%)
3339	Other General Purpose Machinery Manufacturing	1,149	1,103	(46)	(4%)
3341	Computer and Peripheral Equipment Manufacturing	186	53	(133)	(72%)
3342	Communications Equipment Manufacturing	146	200	54	37%
3343	Audio and Video Equipment Manufacturing	<10	<10	--	--
3344	Semiconductor and Other Electronic Component Manufacturing	316	197	(119)	(38%)
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	767	810	43	6%
3346	Manufacturing and Reproducing Magnetic and Optical Media	<10	<10	--	--
3351	Electric Lighting Equipment Manufacturing	40	13	(27)	(68%)
3352	Household Appliance Manufacturing	279	24	(255)	(91%)
3353	Electrical Equipment Manufacturing	783	667	(116)	(15%)
3359	Other Electrical Equipment and Component Manufacturing	290	419	129	44%
3361	Motor Vehicle Manufacturing	14	34	20	143%
3362	Motor Vehicle Body and Trailer Manufacturing	820	1,443	623	76%
3363	Motor Vehicle Parts Manufacturing	1,865	1,008	(857)	(46%)
3364	Aerospace Product and Parts Manufacturing	884	727	(157)	(18%)
3365	Railroad Rolling Stock Manufacturing	17	<10	--	--
3366	Ship and Boat Building	<10	<10	--	--
3369	Other Transportation Equipment Manufacturing	25	37	12	48%
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	475	721	246	52%
3372	Office Furniture (including Fixtures) Manufacturing	464	289	(175)	(38%)
3379	Other Furniture Related Product Manufacturing	<10	<10	--	--
3391	Medical Equipment and Supplies Manufacturing	680	648	(32)	(5%)
3399	Other Miscellaneous Manufacturing	1,361	1,459	98	7%
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	1,756	1,763	7	0%
4232	Furniture and Home Furnishing Merchant Wholesalers	203	211	8	4%
4233	Lumber and Other Construction Materials Merchant Wholesalers	550	462	(88)	(16%)
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	2,836	3,300	464	16%
4235	Metal and Mineral (except Petroleum) Merchant Wholesalers	953	1,059	106	11%
4236	Electrical and Electronic Goods Merchant Wholesalers	1,414	1,210	(204)	(14%)
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	732	633	(99)	(14%)
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	2,742	2,643	(99)	(4%)
4239	Miscellaneous Durable Goods Merchant Wholesalers	1,655	1,502	(153)	(9%)
4241	Paper and Paper Product Merchant Wholesalers	541	369	(172)	(32%)
4242	Drugs and Druggists' Sundries Merchant Wholesalers	254	248	(6)	(2%)
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	119	66	(53)	(45%)
4244	Grocery and Related Product Merchant Wholesalers	2,483	2,754	271	11%
4245	Farm Product Raw Material Merchant Wholesalers	<10	<10	--	--
4931	Warehousing and Storage	1,997	2,172	175	9%
	Total	78,500	76,147	(2,336)	(3.00%)

Source: EMSI Complete Employment - 2011.3

In total, rail freight-utilizing industries employ approximately 78,500 people. However, those industries are expected to decrease total employment by 3%, or 2,336 jobs, over the next seven years.

Industry Cluster Analysis: Key Findings

Industry Clusters

The Biomedical/Biotechnical cluster is one of the strongest and best performing industry clusters both within the Study Area and in the State and regionally. This cluster is one of the largest, fastest growing, and holds a significant LQ at each of the three geographies examined.

The Business and Financial Cluster is one of the overall largest and fastest growing industry clusters at the Study Area and State level; however, its LQ levels are not significant. Business and Financial Cluster includes many industries that are likely much more heavily concentrated in other parts of the country like New York City, Boston and California which explains why they may not have a significant location quotient.

In terms of METRO's rail freight expansion and clusters that may be interested in seeing the expansion completed, a number of manufacturing clusters have a significant presence in the Study Area such as Fabricated Metal Product Manufacturing; Primary Metal Manufacturing; Manufacturing Supercluster; and Electrical Equipment, Appliance and Component Manufacturing. These manufacturing clusters are not expected to see an increase in job opportunities, but the high location quotient indicates that there is some competitive advantage for manufacturing companies to locate. The Primary Metal Manufacturing cluster also showed a slight competitive advantage based on the shift share analysis conducted.

Freight-Utilizing Industries

Health Care industries continue to rise to the top in terms of top industries and largest projected increase in job opportunities. While this is interesting to note for the overall economic review, it is not necessarily helpful when trying to understand the market for the expansion of the freight line. In terms of considering the demand and potential benefit of an expansion of the freight line, it is important to analyze the changes that are projected to occur in freight-utilizing industries. It is likely that production/manufacturing industries with heavy and large products to transport would be interested in utilizing the freight or other intermodal systems and an increase in these types of industries would indicate that demand for transportation access would increase as well. Unfortunately, the data suggests that employment in these manufacturing industries will likely decline modestly.

However, the location quotient (concentration of employment in particular industries) is very high for many manufacturing industries as compared to the national average. While the total number of jobs is expected to decrease over the next eight years, building on the competitive advantage of the Study Area (for example, through the development of the rail freight line) could potentially increase this advantage and reverse the trends of manufacturing/production industry decline. Reducing the cost of operations, through the development of a transportation system that is affordable for businesses to use, could strengthen the existing manufacturing/production firms and potentially slow the decline in job opportunities thereby helping to maintain current employment levels and opportunities.

Chapter 4: Policy & Project Recommendations

Introduction

The above analysis indicates that METRO investments in its rail holdings for freight development can have a significant impact supporting regional economy growth. Likewise, these investments will allow for METRO to realize a positive net return, allowing for further enhancements to METRO organizational operations.

In its current state, it is not economically viable to operate the Akron Secondary and Sandyville Lines given the current freight business unless more shipper volume is generated. However, through a dedicated long-term, incremental investment program that includes a partner, both lines can become economically viable over the long term. At a minimum, this will involve a dedication of staff time and resources for at least 5 years to make the lines viable. The long-term success of both lines will be hinge on maintaining the most important rail-dependent areas identified in the Freight Activity Centers as well as the connection that these lines provide to two Class 1 railroads.

Several improvement projects clearly emerge as the keys to developing a stronger rail freight system in the METRO region. However, partnerships must be forged with the private sector freight carriers, shippers and industry as well as local governments, in working toward the goal of improving the regional freight rail system, which includes infrastructure, services and business practices. METRO policies and investments can help to leverage private investments and working relationships, thereby magnifying the positive contributions of all other entities.

Summary of Challenges and Opportunities Moving Forward

In order for METRO to be effective, a number of issues and challenges will need to be addressed. There are also some key opportunities that METRO can capitalize on to help move the region forward. Some of these key indicators are summarized below and establish the foundation for the development and implementation of specific policies, strategies, and projects outlined in the next section.

Physical
▪ Need an inventory of land owned by METRO.
▪ Previously used industrial sites have known or perceived contamination issues. Need to understand those sites that are ready to go to market and those that need to be remediated.
▪ No rail connection to the airport.
▪ Region is experiencing increased highway congestion. Season's Rd. is experiencing congestion issues as freight-dependent industries grow.
▪ Bridge 428 needs repairs or replacement.
▪ Passenger rail could create conflicts for efficient freight movement.
▪ Akron Secondary Line: inactive, covered with thick brush.
▪ METRO lines have the ability to be THE connection between multiple Class I and II railroads.
▪ Akron Secondary and Sandyville Lines provide opportunities for industrial expansion with supporting zoning in key areas.
▪ Class I railroads would benefit from improvements to the Akron Secondary and Sandyville Lines

by eliminating costly and inefficient detours around the Akron area. Improvements would also make freight rail more attractive and affordable for businesses.
<ul style="list-style-type: none"> ▪ Identified Freight Activity Areas should be protected for future regional industrial growth. ▪ Industrial-zoned lands adjacent to rail lines should be held until appropriate development comes to these sites.
Political & Economic Development
<ul style="list-style-type: none"> ▪ Some land uses along the rail lines are being developed for non-rail dependent uses. ▪ METRO can only make procurement agreements for a maximum of 5 years, limiting METRO's ability to effectively market the rail lines to prospective users. ▪ Unknown impacts resulting from future Utica Shale hydrofracking. ▪ Available skilled labor to support growth opportunities in rail dependent industries. ▪ Growing metal manufacturing industry. ▪ Increasing fuel costs are making truck transport more costly and rail more attractive.
Management & Operations
<ul style="list-style-type: none"> ▪ Existing operations are expressing a need for rail connection now, particularly for a trans-load facility along the Akron Secondary near McCauley Road. ▪ METRO has the ability to form public-private partnerships and leverage resources to foster enhanced economic development opportunities. ▪ Rail is not a core competency of METRO. ▪ METRO and region lack brownfield and industrial reuse expertise. ▪ Need to create a management system for all rail lines owned by METRO. ▪ Lack of coordinated efforts to access funding for rail improvements. ▪ Regional economic development and rail groups need improved coordination and communication. ▪ Need to 'market' projects to potential partners and funding agencies.

Policies & Projects to Support METRO Rail Freight Development

Physical

Complete transload facility study at Hudson FAC

Specialty Metals Processing, Inc. has expressed the need for rail service in order to maintain its growth in the steel fabrication industry. Interviews for this project indicated that Specialty Metals Processing, Inc. will need to add about 190,000 square feet with the ability to expand to 350,000 while creating as many as 100 new jobs. This expansion will require two new rail lines into the facility. In addition, Patriot Energy has expressed growth intentions adjacent to this property. Combined, these two operations are projecting to generate roughly 20 cars per day of rail freight. The revenue generated from this activity alone could justify investments in the rail segment between Barlow Road and Seasons Road along the Akron Secondary. However, in addition to this activity, the property owner south of McCauley Road has also expressed interest in creating new development opportunities for rail-dependent business operations in this area. In a relatively short period of time many more carloads could be added to rail freight activities along this segment of the Akron Secondary.

The investment in this transload facility and adjoining lines has the potential to create the activity necessary for continued investments at other locations along the Akron Secondary and Sandyville lines.

Repair/replace bridges along the Sandyville Line

There are 15 bridges which carry the Sandyville Line over various features such as creeks, rivers and roads. A list of bridges and pertinent information is listed below:

Bridge Number	Milepost	Structure Number	Features Intersected	Nearby Surface Road	Description
418 1/2	20	6160-034P	Nimishillen Creek	38th St NW (19.8)	Twin Concrete Box Culverts
420	20.7	6160-033P	Zimber Ditch	Everhard Rd (21.25)	Two Span Rolled Beam on Concrete Abutments
421	21.3	6160-032P	Zimber Ditch	Everhard Rd (21.25)	2 Steel Span Girders on Steel Abutments and Piers
422	21.6	6160-031P	Zimber Ditch	Whipple Rd (21.7)	2 Steel Span Girders on Steel Abutments and Piers
423	22.4	6160-030P	Zimber Ditch	Dressler Rd (22.2)	2 Steel Span Girders on Steel Abutments and Piers
425	24.6	6160-029P	Zimber Ditch	Mt Pleasant Rd (24.6)	2 Steel Span Girders on Steel Abutments and Piers
426	26.9	6160-028P	Ditch	Wise Rd (27.0)	2 Steel Span Girders on Steel Abutments and Piers
427	28.9	6160-027P	Tuscarawas River	Raber Rd (28.8)	2 Steel Span Girders on Steel Abutments and Piers
428	31.2	6160-026P	Tuscarawas River	Pressler Rd (31.3)	Single Span Open-Deck Thru-Girder on Concrete Abutments with Spread Footing on Piles
430	37.5	6160-025P	Little Cuyahoga River	Case Ave (37.6)	4 Steel Stringers with Open-Deck Rolled Beam on Combination Masonry and Concrete Gravity-Type Abutments and a Concrete Pier
431	37.6	6160-024P	Little Cuyahoga River	Case Ave (37.6)	4 Steel Stringers with Open Deck on Concrete Abutments and One Concrete Pier with Concrete and Sandstone Wingwalls
432	38	6160-023P	Little Cuyahoga River	Bank St (37.74)	Single Span Concrete Arch
433	38.1	6160-022P	Little Cuyahoga River	Hazel St (38.31)	Single Span Riveted Plate Girder Bridge on Stone Masonry Abutments
434	38.6	6160-021P	Little Cuyahoga River	Hazel St (38.31)	Single Span Riveted Plate Girder Bridge on Stone Masonry Abutments
435	39.7	6160-020P	Furnace Rd	Furnace Rd	Two Span Rolled Beam Bridge on Concrete and Masonry Abutments and One Steel Pier Bent

The Federal Highway Administration (FHWA) is currently tasked with performing the biennial inspections of the bridges and providing inspection reports and recommendations to METRO. In 2011 the superstructure for Bridge 430 was replaced and will not need to be rehabilitated for many years. The FHWA is requesting the Bridges 421 and 422 be replaced. It was estimated that these replacements would cost approximately \$1.2 million. In addition, National Environmental Policy Act (NEPA) documentation was submitted to the Federal Transit Administration (FTA) in 2010 for the rehabilitation of Bridge 428 and the replacement of Bridge 432 with pipe culverts. Both of these projects received a Categorical Exclusion (CE) and can be advanced to final design and construction. These projects should be undertaken to maintain the viability of the Sandyville Line as a valuable freight goods movement route within the region.

Develop mapping inventory of all METRO-owned properties and rights-of-way

GIS plays an important role at METRO as both an information repository and as a decision support tool. While METRO's current GIS database provides important information about the transit network, a similar inventory should be developed of the rail lines that METRO currently owns. This inventory will allow METRO to effectively manage these resources and provide the most up-to-date information regarding the rail network. Information to be included in the database should include rail conditions, rail gauge, crossings, mile markers, bridges (including bridge conditions and height), spurs,

adjacent land uses and zoning, adjacent property ownership, adjacent industrial and commercial operations within one-quarter mile, environmental features and permit tracking, as well as scheduled maintenance, and freight movement schedules. In total, this information will allow METRO to effectively manage the rail network as well as provide important information to prospective new business and industry that may be considering locating on or near the Akron Secondary or Sandyville Lines.

[Develop inventory of brownfield sites along Akron Secondary and Sandyville lines](#)

A brownfield is a property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Properties all along rail corridors throughout the country are littered with the remnants of the country's industrial heritage, especially in communities like Akron and Canton with their rich industrial heritage. An inventory can assist in the prioritization of brownfield sites for redevelopment and create a marketing tool for interested redevelopment partners.

A Brownfield Inventory can assist METRO in efforts to partner with communities when prioritizing sites for redevelopment by identifying its assets and liabilities in terms of redevelopment potential. With this information compiled, potential redevelopment partners can identify sites that have the criteria they are looking for to locate their project. Easily accessible information facilitates communication with potential developers and can expedite site selection for a project. The inventory will also help METRO and the municipalities keep track of issues which may be complicating site redevelopment for certain properties, therefore allowing them to dedicate resources, such as grant funding, to sites that have a higher potential for redevelopment.

Although this inventory can be a significant economic development tool, during the interviews for this project it was expressed that the region generally lacks brownfields redevelopment expertise. With that, development of this inventory should also include cultivation of expertise in brownfields redevelopment through either internal training or bringing in outside expertise as a new hire or consultant.

[Purchase line segment at the north end of the Akron Secondary Line connecting with Norfolk Southern](#)

Norfolk Southern owns and maintains the segment of the Akron Secondary from Barlow Road north to the intersection with the main Norfolk Southern line near milepost 97 of the Cleveland Line, which is about 1.4 miles. This is an important link for METRO to acquire because it will give METRO control of the entire Akron Secondary Line between Canton and Norfolk Southern's Cleveland Line. Additionally, this segment is important for METRO to acquire because in the future Norfolk Southern could identify the line as an asset to infuse some capital into corporate operations by selling the rail as scrap, thereby eliminating the lines connection to the main line.

Before entering into negotiations with Norfolk Southern on the purchase of this segment of the Akron Secondary, METRO should conduct an engineering study to address track quality problems associated with the deferred maintenance by Norfolk Southern and

understand rehabilitation costs. This information will be useful in negotiations with Norfolk Southern on the purchase price.

[Explore the feasibility of connecting the Sandyville Line to the Akron-Canton Airport](#)
Forecasts developed by AASHTO, with use of TRANSEARCH data, indicate that nationwide air freight will experience growth between 2000 and 2020 of roughly 181%, from 9 million tons in 2000 to 25 million tons in 2020. If TRANSEARCH data trends hold true and the Freight Activity Centers take hold along the Akron Secondary and Sandyville Lines, then an intermodal facility on the Sandyville Line could help spur air freight opportunities in the future. Although the Akron-Canton Airport does not have a strong air freight component today, a planning study ought to be developed to investigate the feasibility of a connection between the Sandyville Line and the Akron-Canton Airport.

Political & Economic Development

[Establish a Regional Rail Board to coordinate regional rail development in support of economic growth](#)

While there are a number of organizations that are actively involved in economic development in the region, including attracting rail-dependent business and industry, during interviews for this project it was determined that there is a need to create a unified dialog among these organizations. The intent behind developing a Regional Rail Board would be to facilitate stronger communication among those with a common goal to strengthen the regional economy. The primary goal of the Board would be to enhance the use of the region's rail network. The Board could meet on a quarterly basis to share information about industrial trends and opportunities; improve cross-marketing coordination and communication; promote, where necessary, changes in existing laws or regulations to facilitate the realization of mutual objectives; and enhance economic development opportunities by realizing where resources can be shared to achieve success.

The members of the Board should involve the agencies and entities that are charged with, in one way or another, regional economic development. Such entities might include METRO, Akron Metropolitan Area Transportation Study (AMATS), Akron-Canton Airport, local and County economic development departments, the Ohio Rail Development Commission and the Ohio Department of Development. In addition to these public and quasi-public entities, private sector interests should also be included such as the Wheeling & Lake Erie Railway, BNSF Logistics and the Cuyahoga Valley Scenic Railroad, among others.

[Work with City of Akron to maintain rail viability at the Massillon Road Industrial Park](#)

The Massillon Road Business Park is located in the Town of Springfield west of Massillon Road, east of Pickle Road and south of the Sandyville Line. Primary road access to the site is provided via Picton and Boyer Parkways and Massillon Road. The

Sandyville Line defines the northern edge of the Park. The Park is owned by the City of Akron and is about 98 acres in total with about 56 acres remaining for industrial development. The site is roughly 1.7 miles from U.S. 224, which provides a connection to I-77 and I-76.

While the Park has relatively good access to the interstate highway system, it is further reinforced with its direction connection to the Sandyville Line and the potential for a spur. This rail connection is a unique opportunity for the creation of rail-dependent industry to locate at the industrially-zoned property. Three business operations are currently located at the southern end of the property: Quality Mold, AESCO Electronics and Universal Tire Molds. Roughly 42 acres remain undeveloped directly adjacent to the Sandyville Line. There are approximately another 13.5 acres contiguous to these properties, creating opportunities for about 55 acres of rail-dependent uses.

METRO should develop an agreement with the City of Akron to maintain this property for rail-dependent uses. During interviews it was noted that some municipalities are allowing non-rail dependent uses, or even non-industrial uses, to locate adjacent to the Akron Secondary and Sandyville Lines. Because such activity is taking place, it will be critical for METRO to proactively reach out to municipalities and property owners, such as the Springfield Township and the City of Akron, to share long-term plans to re-engage these lines for active rail freight.

[Develop a strategy to participate in the emerging Utica Shale gas industry](#)

Based on developments in Pennsylvania related to the Marcellus Shale, natural gas exploration in the Utica Shale has the potential to be a major economic development generator for a number of communities across Ohio. Current activity suggests that both the Akron Secondary and Sandyville lines could become important players in the movement of materials related to the drilling process. As of December 2011, over 4,300 leases for natural gas and oil drilling have been filed in Stark County for 2010 and 2011 (1,113 in 2010 and 3,211 in 2011). Of

those lease agreements, 191 are within three municipalities in which the Sandyville Line travels: City of Canton, Jackson Township and Plain Township. The primary gas and oil company filing leases in Stark County has been

Stark County Municipality with Sandyville Line	Gas Drilling Leases
City of Canton	12
Jackson Township	85
Plain Township	94

Chesapeake Energy. Other gas and oil companies currently involved in Stark County include Anadarko E&P Co. LP and Devon Energy Production Co. Other companies involved in the gas exploration business include Schlumberger Technologies Corp., Unimin Corp., Fairmount Minerals, D&I Silica Co., Halliburton, Weatherford International, Frac Tech International, and Preferred Sands.

The Utica Shale is expected to produce natural gas, oil and wet gases (propane, ethane and butane). Extracting these products will require sand, cement, pipe and other materials for drilling operations. The primary product being moved for the drilling will

include sand, most of which will likely come from Illinois and Wisconsin. Drilling-process waste and debris will also likely be hauled from the site. If trends established for the Marcellus Shale hold for the Utica Shale, rail will be an important component to moving the product: Norfolk Southern has indicated that in 2009 they moved roughly 6,000 carloads of product to support Marcellus Shale drilling operations in Pennsylvania. In 2010, that volume had grown to 24,000 carloads, an increase of 300%. Clearly, the Utica Shale gas exploration industry has significant growth potential.

Norfolk Southern is heavily involved in the Marcellus Shale gas exploration business. In order to effectively respond to the needs of the industry, Norfolk Southern is working closely with over 18 short line railroads in Pennsylvania, including: Lycoming Valley Railroad; Lehigh Railway; Wellsboro & Corning Railroad; Reading, Blue Mountain and Northern Railroad; Owego Harford Railway; Southwest Pennsylvania Railroad; and the Buffalo-Pittsburgh Railroad. Norfolk Southern reports that about 85 percent of the material hauled for Marcellus Shale drilling operations is frac sand. Contact with Norfolk Southern and/or some of the supporting short line railroads would be a good starting point for METRO to better understand how to best prepare the Akron Secondary and Sandyville Lines to become involved in future Utica Shale drilling operations.

Given that Utica Shale extraction is likely to occur within the region, METRO should begin to understand how the industry could impact the Akron Secondary and Sandyville Lines. Further, and perhaps most important, METRO should determine how it wants to respond to the exploration: should METRO support exploration or not? This will be a fundamental question for METRO to answer before any strategy can be developed to respond to the coming gas exploration industry.

Management & Operations Options

[Restructure policy to allow METRO to make long-term agreements](#)

METRO's current policies limit its ability to establish long-term agreements to just 5 years. It is likely that any short line operator or Class 1 railroads will want to establish longer agreements. METRO should consider amending this policy to allow METRO to enter into longer agreements, at least for operations taking place on the Akron Secondary and Sandyville Lines.

[Educate local governments on the value and importance of protecting rail opportunities in the region](#)

Through stakeholder meetings it was learned that some communities are allowing land use activities to take place that could reduce the value of the Akron Secondary and Sandyville Lines. As an example, the City of Green recently considered rezoning an area along the Sandyville Line to residential, which long-term could limit economic development opportunities in the Green Freight Activity Center. Further, residential land use activities located near areas with such economic development potential could cause

problems later when attracting business and industry as neighbors will likely oppose these types of projects for a variety of reasons.

In a similar fashion, the City of Stow recently approved a residential subdivision adjacent to the Akron Secondary Line. The potential concern for this project long-term could involve neighbors protesting as freight rail activity increases with investments made along the Akron Secondary.

While the two examples above involve residential development projects, it will also be important to recognize other non-rail dependent uses could bring similar challenges. As an example, the City of Canton recently allowed a church to locate at the Hoover Warehouse along the Sandyville Line. While the Religious Land Use and Institutionalized Persons Act (RLUIPA) of 2000 allows religious institutions to avoid zoning law restrictions, at the very least municipalities may be able to work with such institution to find alternative sites instead of locating along the rail lines.

The Federal Rail Administration (FRA) has made a clear case for the increased demand for freight rail. The FRA states that an interconnected rail system “will relieve congestion, promote livable communities, facilitate economic expansion, respect environmental sustainability and provide choices for the American public.” The FRA’s analysis has shown that the growing population will bring a growing demand for the movement of freight: within the next 25 years 2.8 billion more tons of freight will need to be transported; within the next 40 years 4 billion more tons of freight will need to be transported. This increase in freight movement will likely bring an increase in congestion along the nation’s highway network. Based on population projections developed by the U.S. Census Bureau and analysis performed by the US DOT, by the year 2050 40.3 tons of freight will be generated per capita. The Texas Transportation Institute estimated that the cost of congestion in 2007 was \$87.2 billion and 2.8 billion gallons of gasoline wasted in 439 urban areas. While the federal government continues to make investments in strengthening the national rail network, those communities that have established connections to this network will likely realize meaningful economic development opportunities.

The communities along the Akron Secondary and the Sandyville Lines have an economic advantage over those communities not located along a rail line, particularly a line with such significant potential and access to two Class 1 railroads. These statistics should be used to educate the local communities about the value of the Akron Secondary and Sandyville Lines.

[Develop a strategy and administrative capacity to manage all aspects of freight rail operations, infrastructure maintenance and economic development](#)

The following identifies three options for METRO to consider in its efforts to reactivate the Akron Secondary and Sandyville Lines for freight. While other options may be available, each of these options present opportunities for METRO to retain control of future use of the rail lines to support regional economic development and create a potential source of income for METRO operations.

Option 1: Lease the Akron Secondary and Sandyville Lines to a Short Line Railroad

METRO already has ownership of these two important rail corridors. This option establishes an agreement between METRO and a short line operator that will create improved economic development opportunities for the region. Making both lines available to a single short line operator would make this option more attractive to a short line operator because it ensures connectivity between two Class 1 railroads (Norfolk Southern and CSX), thereby eliminating potential surcharges associated with two separate companies operating each line.

There currently is likely not enough shipping activity on either line to attract a short line railroad. However, based on interviews for this study, it has been determined that immediate investments in the portion of the Akron Secondary between Barlow Road and Seasons Road could result in at least 20 carloads of activity per week near the Hudson Industrial Complex. At \$75 per carload, this would result in \$30,000 income on a monthly basis. Continued investments in this segment could result in significantly more rail-dependent operations to locate within or near the Hudson Industrial Complex. Specifically, Specialty Metals Processing, Inc. has expressed a need for rail service in order to maintain its growth in the steel fabrication industry. The property owner south of McCauley Road has also expressed interest in creating new development opportunities for rail-dependent business operations in this area. In a relatively short period of time many more carloads could be added to rail freight activities along this segment of the Akron Secondary.

If this option is pursued, then before METRO makes these investments it should attempt to attract a line operator who would lease the right to operate for an agreed upon amount and term or operate on the line while doing some form of revenue sharing with METRO. It would cost approximately \$1.4 million to upgrade the rail line segment between Barlow Road and Season Road.

By maintaining ownership of the Akron Secondary and Sandyville Lines, METRO is ensuring that both lines will be kept available for future rail-dependent uses. By establishing an agreement with a short line operator, METRO will not need to hire additional staff with rail operations expertise, which will be a critical component to the success of the operations along both lines. Establishing a lease agreement with a short line before making the improvements may also result in more favorable terms from potential lenders and government financial assistance. Finally, METRO could significantly benefit from sharing the profits generated from the railroad operation any potential tax revenue from new businesses that might find rail access attractive.

While this option allows for some clear benefits, there are still some weaknesses to it. First, given the relatively low level of shipping activity potential in the short-term along both lines, a short line operator will likely require METRO to make all necessary improvements to upgrade the lines to become active. With that, METRO will need to consider the opportunity cost of such a large sum of money. There are also liabilities

associated with owning the rail. The most common liability would be injury liability. METRO would also need to comply with all environmental rules and regulations and make necessary investments where appropriate (i.e. endangered species habitat protections, wetland mitigations, etc). As with any option to operate rail freight on these lines, METRO will need to make appropriate internal administrative arrangements to ensure that these assets are being appropriately managed and supported. Finally, METRO runs risk that additional business activity may not come after the investments are made and the operator is not able to break even, and METRO could be left with a non-performing asset.

Option 2: Form a Partnership with a Short Line Operator

Establishing a partnership with a short line operator would provide funds to help upgrade the Akron Secondary and Sandyville Lines. Together, METRO and the short line operator could explore federal and state financing options. In today's business climate, many potential financiers, public and private alike, find these types of partnerships to be more attractive investment options because of the shared, cooperative interest in success. Further, by establishing a partnership with a short line operator, METRO can maintain partial control and influence in the future of both rail lines.

Pursuing a partnership arrangement with a short line operator has a number of advantages. First, a short line operator may find it more attractive to do business if it only had to invest part of the funds required to upgrade the Akron Secondary and Sandyville Lines. A short line operator may also be interested in the business development and financing options that METRO can bring into the operation of both lines. This arrangement further allows METRO to maintain partial control of the future of both lines and may be able to guarantee rail as a transport option for local businesses to expand and to attract more rail-dependent operations. A revenue sharing agreement can be structured that would allow METRO to receive a part of the profit from the operation of the short line as well as the management expertise that the short line operator brings to the operations. Finally, this partnership approach allows for security in maintaining operations along both lines.

Although there appears to be some compelling rationale for establishing a partnership with a short line operator, there are also some concerns that need to be recognized. First, developing an agreement with a short line operator could be difficult. A short line operator is in business to make a profit, while METRO's more altruistic mission is to enhance economic opportunity and the quality of life for the community. Additionally, the use of public resources in today's political climate to help cover operation costs for a private, for-profit short line operator could result in political pressure, especially if the operation does not result in significant employment opportunities in a relatively short period of time. This could create a highly contentious political topic as an inappropriate use of public resources. It is also important to note that METRO is limited to only five-year agreements. This will likely need to be amended in order for any short line operator to enter into a partnership agreement with METRO.

While this partnership arrangement may make the public sector more interested in providing grants and related financial resources to enhance and maintain the rail lines, there is the possibility that METRO is not able to secure the necessary public resources to support its end of the partnership agreement. In this case, METRO may then be required to divert monies away from its transit operations into supporting freight rail operations.

Option 3: METRO Operates the Akron Secondary and Sandyville Lines as a Short Line Railroad

Due to the condition of the track along the Akron Secondary Line, it is critical that the rail be upgraded in order to support operation. Due to the high costs associated with the repair, it has not been viable for a short line operator to purchase and repair the rail line. However, METRO recognizes, and this study supports, the long-term economic viability of maintaining the rail line as well as the potential of generating income for various regional public entities.

This option puts METRO into the role of a short line operator. If this option is pursued, then METRO will need to make the necessary investments to bring the rail up to grade and purchase or lease necessary equipment. The most logical starting point would be for METRO to get the segment of between Barlow Road and Season Road operational as quickly as possible to start generating income from those businesses that have already expressed interest and need for rail service. METRO can justify these investments by getting appropriate agreements/commitments in place before any investment is made on the line. These commitments will further strengthen METRO's ability to get assistance from potential lenders and government agencies.

This option puts the full responsibility of not only bringing the rail lines up to usable quality, but will also require METRO to substantially invest in personnel and equipment to operate as a short line railroad. Very quickly this option becomes costly with investments in management, trackmen, mechanics, and trainmen as well as locomotives and fuel.

If METRO were to operate as a short line railroad it would be classified as a Class 3 railroad. A Class 3 railroad is defined as having less than \$28 million in carrier operating revenue. The Akron Secondary and Sandyville Lines will always be classified as Class 3 railroads because Class 2 railroads must have 350 miles of track. Even combined, these lines are not likely to reach this level in the future with additions.

Operating as a short-line will require METRO to develop long-term relationships with the Class 1 railroads for a variety of reasons. For one, a short line railroad collects a portion of the freight bill from a Class 1 railroad as a fee for moving the shipper's railcars over the track owned by the short line railroad. The relationship with the Class 1 railroad is so important because the freight rate paid to the short line railroad is often dictated by the Class 1 railroad in a long term interchange agreement. METRO's current policy limits METRO to 5 year agreements, which may make agreements with the Class 1 railroads more difficult. While short lines have the ability to collect additional fees, the Class 1

railroads tend to hold all of the bargaining power as the Class 3 railroads are so heavily dependent on connecting with the Class 1 rail network. Some of this bargaining power held by the Class 1 railroads can be softened by METRO’s ability to connect to two separate Class 1 railroads.

Breakeven Analysis

The analysis to the right is based on several assumptions that are necessary to analyze and present operating as a short line railroad. The analysis is intended to give an order of magnitude and does not delve into as great of detail as a full business plan. The analysis is based on an annual operating expense of \$792,100 which includes labor, equipment, routine track maintenance and general overhead. Labor includes a general manager, two trackmen, a mechanic and an engineer (trainman). Equipment costs include leasing two locomotives, fuel and maintenance. Routine track maintenance includes both track and signal repairs. General overhead includes office supplies, liability insurance and a budget for marketing and business development.

Annual Expenses Estimate Summary	
Labor Expenses	\$ 230,000
Equipment Expenses	\$ 171,600
Routine Track Maintenance	\$ 323,500
General Overhead	\$ 67,000
Annual	\$ 792,100

Break Even		
Carloads per month	Cost per Carload	Annual Income
1320	\$ 50	\$ 792,000
880	\$ 75	\$ 792,000
660	\$ 100	\$ 792,000
528	\$ 125	\$ 792,000

Were METRO to operate as a short line railroad, car fee rates would need to be \$50 to \$125, depending on car load activity from 528 to 1320 cars per month, in order to break even.

Recommended Option

Of the three options outlined above, Option 2 is recommended. Option 2 creates the opportunity to keep both the Akron Metro and the Sandyville Lines in operation as important economic development tools while creating a potential funding stream for METRO to invest back into METRO operations. Likewise, Option 2 allows METRO to maintain some control in the decision-making to keep the rail lines in operation. This option also involves significantly less investment than Option 3, which would require substantial investments in not only upgrading the lines, but also in the personnel and equipment necessary to operate as a short line railroad.

By sharing the costs to upgrade these lines and with help from METRO to market the lines to prospective companies, a short line operator may be more interested in being involved in the Akron Secondary and Sandyville Lines because some of the risk of operations will be shared. Likewise, METRO will have a greater likelihood of maximizing benefits while minimizing risk in these lines. A short-term, “quick win” investment could come from making investments first at the north end of the Akron Secondary Line that

already has businesses calling for rail as well as adjoining property owners that have expressed interest in attracting rail-dependent uses. This investment may further attract additional industries as they see the line as another viable option for shipping.

Phasing & Implementation

Action	Priority	Potential Partners
Establish staff capacity	Highest	
Establish a Regional Rail Board to coordinate regional rail development	Highest	Summit Port, AMATS, ORDC, local and county Eco. Dev., Ohio Department of Development, W&LER, BNSF, CVSR
Complete Transload facility study at Hudson FAC	Highest	Consultant, Specialty Metals, Hudson Industrial Complex
Repair/replace bridges along the Sandyville Line	High	ORDC, Ohio Department of Development
Work with the City of Akron to maintain rail viability at the Massillon Road Industrial Park	High	City of Akron
Restructure policy to allow METRO to make long-term agreements	High	Legal assistance
Develop a strategy to participate in the emerging Utica Shale gas industry	High	AMATS, ORDC, Ohio Department of Development Norfolk Southern, Chesapeake Energy, short line railroads supporting NS in Pennsylvania in the Marcellus Shale gas drilling
Develop mapping inventory of all METRO-owned properties and rights-of-way	High	Consultant
Educate local governments on the value and importance of protecting rail opportunities in the region	Medium	AMATS
Purchase line segment at the north end of the Akron secondary connecting with Norfolk Southern	Medium	AMATS, ORDC, FRA, USDOT
Develop inventory of brownfield sites along Akron Secondary and Sandyville lines	Medium	Consultant, USEPA
Explore the feasibility of connecting the Sandyville Line to the Akron-Canton Airport	Low	Consultant

Funding Sources

Rail improvements are often easier said than done largely because rail does not have a dedicated federal funding source, unlike other transportation modes. Consequently, any federal funding programs that are rail-oriented are discretionary and awarded on a competitive, nationwide basis. No state is guaranteed to receive federal rail funding. Because of this competitiveness for funding, coupled with tightening budgets everywhere, the call for establishing partnerships has never been more important. One of the most important strategies outlined above is the establishment of a Regional Rail Board involving key players involved in regional economic development and rail operations as a mechanism to developing effective freight opportunities along the Akron Secondary and Sandyville Lines.

Below are some key programs for METRO to use in its efforts to improve the Akron Secondary and Sandyville Lines. It is also important to regularly track new programs as well as existing programs to understand where new opportunities are emerging for federal aid. The best resource for understanding funding opportunities is the Ohio Rail Development Commission, as many federal funds are channeled through this agency in the State of Ohio.

TIGER Discretionary Grants

The US DOT has appropriated funds since 2009 for the TIGER+ grant program. TIGER grants are for capital investments in surface transportation infrastructure awarded on a competitive basis. Projects are evaluated on primary criteria that include safety, economic competitiveness, livability, environmental sustainability, state of repair and short-term job creation. The process is typically a two-stage process in which applicants initially submit a pre-application followed by a final application. The program is highly competitive and can have significant impacts for awardees: in the 2011 round the average award was \$13.25 million.

As a transit agency, METRO is an “Eligible Applicant” for TIGER funding. However, in today’s ever increasingly competitive funding environment, METRO could make for a significantly more competitive application if it were partnered with a state and/or local government and/or a private sector entity. This notion of diverse partnerships has long been held as an important attribute in the world of grant funding. As the industry becomes increasingly more competitive, these partnerships are fast becoming a necessity just to be competitive.

The most competitive applications are also those that are most ready to move into the construction phases. With that, METRO should continue to invest in the appropriate studies and design phases to move projects as close to construction as possible before submitting a TIGER application. This also means, if possible, starting the NEPA process, which can often be lengthy.

Appendix A:

Sandyville Line Rehabilitation Program

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METRO Regional Transit Authority SANDYVILLE LINE TRACK REHABILITATION REPORT



PO #211080-000 / December 2010

By:



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Scope

The METRO Regional Transit Authority (METRO) has tasked Bergmann Associates (BA) to evaluate and report on the existing conditions of the track structure for the METRO owned Sandyville Line (Line) and recommend appropriate rehabilitation work. This effort is undertaken as a Task Assignment under BA's existing general engineering contract.

Executive Summary

The Sandyville Line, which was formerly owned by CSXT, was purchased by METRO in 2000 to preserve the rail right-of-way for future freight and passenger services. Akron's ownership of the Line begins at the clear limits of the turnout off the Norfolk Southern main line in Canton at MP 16.24 and ends at MP 40.30 just south of the undergrade bridge carrying METRO over Howard Street in Akron.

The METRO right-of-way is located within three (3) Congressional Districts of Ohio. The Line runs through the 16th Congressional District from the southernmost point at MP 16.24 to MP 24.81 (Mount Pleasant Street). The 17th Congressional District begins at MP 24.81 (Mount Pleasant Street) and extends to MP 39.5 (SR 8). Between MP 39.5 (SR 8) and the northernmost point of the Line at MP 40.3 (N. Howard Street) the right-of-way is within the 13th Congressional District.

The passenger traffic on the Line is provided by the Cuyahoga Valley Scenic Railroad (CVSR) who operates on 51 miles of track from Independence south through Cuyahoga Valley National Park to Akron and Canton on the Sandyville Line. The current freight traffic on the Line is operated by Wheeling and Lake Erie (WLE) between MP 16 and MP 25.3 and Akron Barberton Cluster Railway (ABC) from MP 40 to MP 33.55. There is currently an average of approximately five freight cars per week.

However, possible development in Akron brings about the likelihood that this line will receive more traffic in the near future. The Massillon Road Industrial Complex will be served by WLE. This new service will bring much needed revenue to METRO and is a vital source of new jobs in a state currently ranked 41st in the nation in unemployment with a rate of 10% according to the Bureau of Labor Statistics. It is imperative that the Line be properly maintained for current and future needs such that new businesses which require reliable rail service are not forced to find other locations.

An inspection of the 24 mile Line was performed by BA and included the visual examination from a hi-rail vehicle as well as stop-and-check assessments. This report includes the analysis and resulting recommendations for track rehabilitation which is required to maintain the track in compliance with



FRA criteria and bring the line into a state of good repair. The recommended repairs discussed throughout the report include line and surface, placing additional ballast, tie replacement, replacement of missing and damaged tie plates, curve patch and vegetation control. If these recommended repairs are completed the track should be able to be maintained on a yearly basis for approximately \$10,000 per mile. If funding for the repairs cannot be secured the cost to METRO could increase substantially. As a result of recent citations from the FRA it can be expected that this line will receive increased scrutiny and more frequent inspections from the FRA.

In addition, recommendations are made for future projects not associated with typical track maintenance. These future projects include drainage studies, right-of-way security and grade crossing evaluations.

This project is absolutely necessary to maintain the viability of METRO as an owner of railroad right-of-way. It is the first step in addressing maintenance concerns so that a cost effective yearly maintenance program can be implemented. It also increases the Line's viability for the development of an industrial complex which will bring much needed jobs to the area.

Existing Ownership

History

The Akron Regional Transit Authority acquired the former B&O Valley Line (approximately 24 miles of track) between Akron and Canton in May 2000 from CSX. The purpose of the purchase was to preserve the track and right-of-way for possible future Akron to Canton commuter rail service as well as maintain existing freight service along the line.

Track

The Line BA was tasked to evaluate begins in Canton, OH at the southern end and terminates at the northern end in Akron, OH. Akron's ownership of the Line begins at the clear limits of the number 10 turnout off the Norfolk Southern main line in Canton at MP 16.24. The ownership ends at MP 40.3 just south of the undergrade bridge carrying METRO over Howard Street in Akron. The Line is typically 112lb or 115lb, single track welded rail with various segments of jointed rail.

There are 22 switches on the mainline track that stem off to multiple sidings owned by METRO and private industries. It traverses 15 bridges and 51 at-grade crossings.



Traffic

The current freight traffic on the Line is operated by two short lines, Wheeling and Lake Erie (WLE) and Akron Barberton Cluster Railway (ABC) a subsidiary of WLE. The WLE service operates two trips per week with an average of approximately three cars per week from MP 16 to MP 25.3. The ABC service extends from MP 40 to MP 33.55 with an average of approximately two cars per week.

The passenger traffic on the Line is from the Cuyahoga Valley Scenic Railroad (CVSR). The CVSR operates on the 24 miles of track from Akron to Canton on the Sandyville Line. Passenger service is provided by CVSR on the Sandyville Line during June, July and August, Wednesday thru Sunday. It also operates a Polar Express™ train on 10 to 13 days in November and December.

Track Assessment

Methodology

The track was inspected over the course of four days with two Bergmann Associates employees utilizing a METRO hi-rail truck operated by METRO personnel with the appropriate track protection. The inspection included the visual examination from the hi-rail as well as stop-and-check assessments throughout the four days. The inspection focused primarily on the track structure with emphasis on the ballast section, cross-ties, rails, and other track materials (OTM's). Note was taken in regards to drainage including ditching and culverts, vegetation concerns and cursory bridge appraisal. However, structure evaluation was not included in the scope of the inspection as it is not considered a standard part of a rail rehabilitation project.

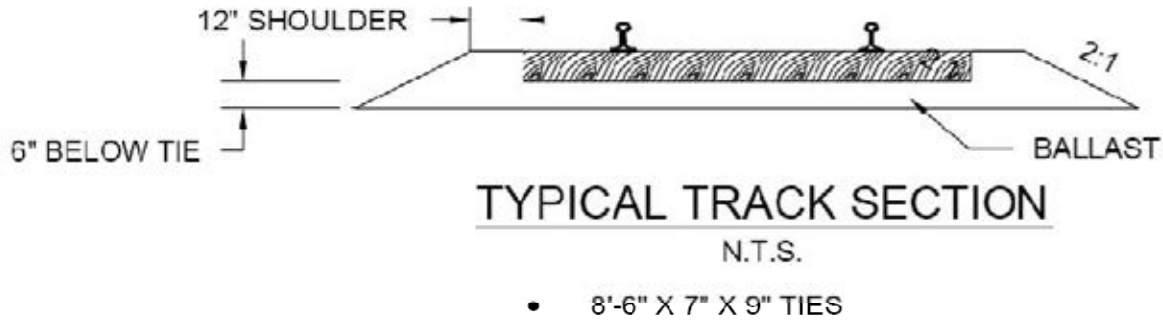
In addition, a cursory overview of the grade crossing surfaces was performed. Recommendations for surface improvements were not considered as part of the track rehabilitation but was noted as possible future work where warranted.

After the inspection the Line was segmented by existing features to provide a basis for reporting, analyzing and estimating recommendations. The features used to segment the Line include length of track, condition of track structure, waterway encroachment and other physical features that were similar along segments of track.

The recommendations for tie replacement were based on a count of existing defective ties as well as ties projected to be classified as defective within the next five years. The intent is that the track should continue to operate at its current classification in the event a tie replacement program is not undertaken within the next five years. The classification of a defective tie comes from 49 CFR Part 213 as is provided in Appendix A.



The quantity of new ballast to be distributed along the Line is based on an estimate required to reestablish the recommended ballast section as per the AREMA Manual for Railway Engineering Chapter 1 Part 2 as shown below. The manual recommends a shoulder width of not less than 12 inches for standard gage construction of continuous welded rail.



These recommendations are further summarized in the following sections.

Analysis

The analysis of the Line is a detailed summary of the results of the inspection conducted by Bergmann Associates. The Line is currently classified as Class 2 track which allows a maximum operating speed of 25 MPH for freight trains and 30 MPH for passenger trains. However, there are instances along the Line where the requirements for FRA classification would not merit the Class 2 designation because of defective ties and insufficient ballast. The following is BA's estimation of the deficiencies identified.

Segment 1: The Removed Marion Ave At-grade Crossing MP 16.24 to 7th St. MP 17.30

Segment 1 consists of 11 at-grade crossings, including 7th Street. The entire segment requires a 50% tie replacement. The curve (Photo 1) from the clear point of the turnout to Marion Avenue has a number of single shoulder or missing tie plates that need to be replaced. There is approximately 1800 track feet with vegetation growth in the ballast section.

Portions of Segment 1 consist of buried ties (Photo 2) which will require a complete ballast replacement. The soil must be excavated two (2) feet from the end of tie and two (2) inches below the bottom of tie. This will require the placement of approximately 1600 tons of ballast for surfacing and to reestablish the typical track section throughout the entire segment. It is estimated that these buried sections will also require a 50% tie replacement.

The switch rail at the turnout located just south of the 7th Street at-grade crossing slides when it is engaged most likely caused by wear of the bolt holes. The switch rail must be replaced.



The cables for the active warning devices at the 9th Street at-grade crossing are worn should be replaced and buried within a conduit.

Segment 2: 7th St. MP 17.30 to Fulton Rd. MP 18.59

Segment 2 consists of 2 at-grade crossings, including Fulton Road. The entire segment requires a 3% to 5% tie replacement and ballast for crib and shoulder repairs (Photo 3). This segment of track requires approximately 1700 tons of ballast to reestablish the typical track section. There is approximately 2600 track feet with vegetation growth in the ballast section.

The cables for the active warning devices at the 7th Street and 12th Street at-grade crossings are worn and are in need of repair. The cables should be replaced and buried within a conduit.

Segment 3: Fulton Rd. MP 18.59 to Everhard Rd. MP 21.45

Segment 3 consists of 2 at-grade crossings, including Everhard Road. The segment requires sections of 33% and 50% tie replacement and ballast for crib and shoulder repairs (Photos 4 – 6). This segment requires approximately 3800 tons of ballast for surfacing and to reestablish the typical track section. There is approximately 4500 track feet with vegetation growth in the ballast section.

Segment 4: Everhard Rd. MP 21.45 to Mt. Pleasant Rd. MP 24.81

Segment 4 consists of 9 at-grade crossings, including Mount Pleasant Road. The entire segment requires a 25% tie replacement. The section of track from Everhard Road to Dressler Road requires ballast for minor east and west shoulder repairs (Photos 7 - 9). The section of track from Dressler Road to Portage Street requires ballast for minor shoulder repair (Photos 10 & 11). The section of track from Portage Street to Shuffle Street requires ballast for surfacing (Photo 12). The section of track from Shuffle Street to Mount Pleasant Road requires ballast for minor repair (Photo 13). The siding approaching Portage Street is used to store track equipment and consists of buried ties. The soil must be excavated two (2) feet from the end of tie and two (2) inches below the tie and the placement of a full new ballast section. This segment of track requires approximately 2200 tons of ballast for surfacing and to reestablish the typical track section. There is approximately 2100 track feet with vegetation growth in the ballast section.

Segment 5: Mt. Pleasant Rd. MP 24.81 to Mayfair Rd. MP 25.50



Segment 5 consists of 2 at-grade crossings, including Mayfair Road. The section of track from Mount Pleasant Road to the turnout at MP 25.36 requires 33% tie replacement and ballast for surfacing and minor east and west shoulder repairs (Photo 14). The section of track from the turnout to Mayfair Road requires 65% tie replacement and ballast for surfacing (Photo 15). This segment is adjacent to a waterway that is encroaching upon the track. It also receives overflow due to the existing highway drainage (Photo 16) that often results in washed out track and has in the past washed out the turnout at MP 25.36. This condition requires a full drainage study and a site specific drainage design. The entire segment requires approximately 400 tons of ballast for surfacing and to reestablish the typical track section. There is approximately 600 track feet with vegetation growth in the ballast section.

Segment 6: Mayfair Rd. MP 25.50 to Wise Rd. MP 27.21

Segment 6 consists of 2 at-grade crossings, including Wise Road. The entire segment requires a 25% tie replacement. The section of track from Mayfair Road to the point of tangent at approximately MP 25.72 requires ballast for surfacing and full shoulder repairs (Photo 17). The section of track from the point of tangent to State Road requires ballast for west shoulder repair (Photo 18). Records also indicate that this section of ballast is also contaminated. As such, the entire ballast section must be excavated to two (2) inches below the bottom of tie and new ballast added to reestablish the typical track section. The section of track from State Road/Greensburg Road to Wise Road requires ballast for surfacing (Photo 19). The entire segment requires approximately 1000 tons of ballast for surfacing and to reestablish the typical track section.

Segment 7: Wise Rd. 27.21 to Triplett Blvd MP 35.48

Segment 7 consists of 14 at-grade crossings. The segment requires sections of 40% and 50% tie replacement and one section of 10% tie replacement. The section of track from Wise Road to Heckman Road requires ballast for full shoulder repairs. The section of track from Heckman Road to Turkeyfoot Lake Road requires ballast for surfacing and full shoulder repair (Photos 20 – 23). The section of track from Turkeyfoot Lake Road to Killian Road requires ballast for surfacing and minor shoulder repair (Photos 24- 26). The section of track from Killian Road to the turnout at MP 35.13 requires ballast for surfacing and full shoulder repair (Photos 27 & 28). The section of track from the turnout to Triplett Boulevard is contaminated with slag and requires a complete ballast replacement, as previously described in Segment 4 to establish the typical track section (Photo 29). The entire segment requires approximately 6000 tons of ballast for surfacing and to reestablish the typical track section. There is approximately 8800 track feet with vegetation growth in the ballast section. In addition, there is a section of track at approximately MP 29.1 with missing or damaged tie plates.

Bridge 428 is a single span, open deck, thru girder over the Tuscarawas River at MP 31.2. The bridge ties are in substandard condition and need to be replaced.



Segment 8: Triplett Blvd. MP 35.48 to Kelly Ave. MP 36.93

Segment 8 consists of 3 at-grade crossings, including Kelly Avenue. The segment requires sections of 33% and 50% tie replacement. The section of track from Triplett Boulevard to Archwood Avenue is contaminated with slag and requires a complete ballast replacement (Photo 30) as previously described in Segment 4. The section of track from Archwood Avenue to Kelly Avenue requires ballast for surfacing and minor shoulder repair (Photos 31 & 32). The entire segment requires approximately 1600 tons of ballast for surfacing and to reestablish the typical section. There is approximately 3300 track feet with vegetation growth in the ballast section.

Segment 9: Kelly Ave. MP 36.93 to Arlington St. 38.84

Segment 9 consists of 6 at-grade crossings. The segment requires sections of 33% and 10% tie replacement. Because of miscellaneous crib and shoulder repairs the entire segment requires approximately 1000 tons of ballast for surfacing and to reestablish the typical section.

The cables for the active warning devices at the Hazel Street at-grade crossing are worn and should be replaced and buried within a conduit.

The only remaining jointed section of rail on the Line is approximately between MP's 38 and 40. This section of jointed rail should be replaced with continuous welded rail (CWR).

Segment 10: Arlington St. 38.84 to Howard St. 40.30

Segment 10 requires sections of 10%, 33% and 50% tie replacement. The section of track from MP 38.96 to MP 39.92 is contaminated ballast that requires a complete ballast replacement (Photo 35 & 36) as described in Segment 4. The entire segment of track requires approximately 2300 tons of ballast for surfacing and to reestablish the typical section. There is approximately 30 track feet with vegetation growth in the ballast section.

The frog in the turnout at MP 39.5 is cracked. Considering the turnout is no longer in service the turnout can be removed rather than repaired for a siding that is not used. The components of the turnout which can be reused should be retained by METRO for future use. Similar to Segment 9, the CWR program should extend to MP 40 to eliminate the remaining jointed rail on the Line. The rail in the curve from MP 38.85 to MP 38.92 is curve worn and requires replacing. This work can be performed concurrent with the installation of CWR.



Recommendations

The entire Line merits a line and surface in addition to the particular deficiencies identified in each segment. Due to the nature of track structure and the requirements as prescribed by the FRA, any deficiency in the existing track structure would downgrade the track from Class 2 to Class 1. Given the current traffic on the Line and the existing quality of the track structure it is BA’s recommendation that the track structure be upgraded to Class 4 track. The benefit of upgrading the track from Class 2 to Class 4 is that the Line will require less maintenance over the next five (5) years and the state of Ohio will classify the track as being in a state of good repair. Given typical track degradation Class 2 track status will be maintained.

It is recommended that the track structure deficiencies listed in the analysis including line and surface, placing additional ballast, tie replacement, replacement of missing and damaged tie plates, curve patch, CWR, replacement of switch rail, re-cabling of warning devices, replacement of bridge ties, removal of turnout and vegetation control be performed as part of the rail rehabilitation contract. The recommended quantities and associated estimate is provided in the following section.

Estimate

The estimate of the necessary items, quantities, and costs for rehabilitating the Line to Class 4 track is intended to provide METRO with the necessary information to support obtaining adequate funds for this effort.

Quantities												
Segment	Track Miles	Line & Surface (TF)	# Ties	Tons Ballast	Rail (LF)	# Tie Plates	Turnout Removal	Vegetation (TF)	CWR (TF)	Re-Cable Active Warning Devices (EA)	Replace Bridge Ties (LS)	Replace Switch Point
1	1.06	5597	1767	1560		20		1800		2		1
2	1.29	6811	129	1700				2600		1		
3	2.86	15101	3703	3780				4500				
4*	3.46	18269	2960	2220				2100				
5	0.69	3643	909	370				600				
6	1.71	9029	1426	1760				0				
7	8.27	43666	11988	6070		50		8800			1	
8	1.45	7656	1743	1640				3300				
9	1.91	10085	1228	1010	125			0	4435	1		
10	1.46	7709	1682	2210	460		1	30	6125			
Total	24.16	127565	27535	22320	585	70	1	23730	10560	4		1

*Includes siding



Cost Estimate				
Item	Quantity	Unit	Unit Cost	Item Cost
Ties	27535	EA	\$77	\$2,120,200
Line & Surface	127565	TF	\$1.50	\$191,400
Ballast	22320	TONS	\$46	\$1,026,800
Rail (curve patch)*	585	LF	\$27	\$15,800
Tie Plates	70	EA	\$10	\$700
Turnout Removal**	1	EA	\$12,000	\$12,000
Vegetation (23730 TF)	1	LS	\$8,000	\$8,000
Welded Rail MP 38 - 40				
Dismantle Existing Bolted Rail	10560	TF	\$4	\$42,300
Rail Cropping	550	EA	\$7	\$3,900
Furnish New Rail	1650	LF	\$27	\$44,600
Field Welds	600	EA	\$220	\$132,000
Installation of CWR Strings	10560	TF	\$12	\$126,800
Rail Anchors	6670	EA	\$3	\$20,100
Re-Cable Active Warning Devices	4	EA	\$25,000	\$100,000
Replace Bridge Ties	1	LS	\$10,000	\$10,000
Replace Switch Point	1	EA	\$2,000	\$2,000
Contingency			10%	\$385,660
Rail Rehabilitation Estimate				\$4,242,260

*Furnish rail for curve patch, dismantle and install included with CWR

**METRO to retain materials for future use

The Line travels through three congressional districts. The Line from the south end to Mount Pleasant Road, approximately 8.6 miles lies within the 16th Congressional District. This segment represents 35% of METRO’s trackage and approximately \$1,356,000 of repair costs. The 17th Congressional District covers approximately 14.9 miles of track from Mount Pleasant Road to State Road 8. This segment represents approximately 62% of the Line and \$2,612,000 of repair costs. Only a small portion of the track, approximately 0.8 miles lies within the 13th Congressional District. This segment is the section of track from State Road 8 to the northern end of the Line. This represents only 3% of METRO’s trackage and approximately \$274,000 of repair costs.

Future Programs for Consideration

There are also a number of potential rehabilitation items that are not considered track maintenance but should be considered as separate contracts to be bid. They are as follows:

- A streambed stabilization program should be considered for future program work as there are multiple instances of waterway encroachment. Segment 5 of the Line from MP 24.81 to MP 25.50 is encroached upon by a running stream with streambed erosion that is beginning to erode the track structure (Photo 14). Segment 7 just north of Pressler Road at approximately



MP 30.9 the track section is influenced by the encroaching waterway (Photo 37). Both of these situations may require the design of a gabion wall or a rip-rap lined stream embankment. This is the biggest threat, beyond the recommended rehabilitation items, facing the railroad track structure today. It should be listed as the next priority for future work.

- A culvert record and rehabilitation program should be considered for future program work as there are many instances of defective culverts that are causing or will cause drainage problems on the right-of-way (Photo 38). Some of these culverts may require the installation of headwalls to prevent the loss of the ballast section.
- A trespassing program should be considered for future program work as there is an existing problem with four-wheelers driving within the right-of-way that is causing the ballast sections to deteriorate at an accelerated rate. Currently barriers have been placed within the right-of-way (Photo 39) in an attempt to discourage driving along the ballast. However, the barriers have not worked and have resulted in the four-wheelers driving up on the ties and fouling the track. This trespassing clearly creates liability and maintenance issues for METRO.
- Crossing surfaces should be evaluated for surface replacement in the following locations: 12th Street (Photo 30), 38th Street, Applegrove Street, Raber Street, Pressler Road (north), Archwood Avenue and Kelly Avenue. In these locations there are instances of bouncing rail from vehicular traffic, degrading wood or rubber, chipped and cracked asphalt and other issues. The Public Utilities Commission of Ohio (PUCO) and the Ohio Rail Development Commission (ORDC) should be consulted regarding the at-grade crossings. Their recommendation for **crossing surface and warning device upgrades** should be implemented.
- A run-around at the Northside station is recommended for future consideration. This siding would allow for a greater efficiency of traffic and improved operations. The siding would be approximately 1,200 feet and require two number 10 turnouts. For estimating purposes each turnout is approximately \$45,000 and new complete track section is \$250 per track foot which generates a minimum estimated cost of \$390,000. Because of the length of the siding required it may have to be located at approximately MP 39 and not at the station. It appears that a siding of only 600 feet could be constructed at the station. The length and location would require further evaluation during preliminary design.

An existing storm pipe outlets directly on to the track structure from an adjacent property northwest of the Dressler Street crossing. This is causing the contamination of the track structure and erosion of the ballast. This issue is currently being investigated and remediation being discussed. However, it should be noted that this area should be continuously monitored to ensure the repair is satisfactory and the situation is resolved.



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Appendix A - 49 CFR Part 213

Appendix B - Plans

Please note attached plans have been scaled down for this report and may not be to scale.

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Appendix C – Inspection Reports

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Appendix D – Inspection Photos

Photos



Photo 1: Curve (looking south)



Photo 3: Track Section (looking north)



Photo 2: Buried Ties (looking north)



Photo 4: Malone Parkway Overpass (looking north)



Photo 5: MP 20 (looking north)



Photo 8: N of Whipple St. (looking south)



Photo 6: MP 21 (looking south)



Photo 9: MP 22 (looking south)



Photo 7: Track Section (looking south)



Photo 10: Bridge 423 (looking north)





Photo 11: Track Section (looking south)



Photo 14: Track Section (looking south)



Photo 12: MP 24 (looking south)



Photo 15: Track Section (looking south)



Photo 13: Track Section (looking north)



Photo 16: Culverts (looking northwest)





Photo 17: Track Section (looking north)



Photo 20: MP 28 Heckman Road (looking north)



Photo 18: Track Section (looking north)



Photo 21: Track Section (looking south)



Photo 19: Track Section (looking south)



Photo 22: Track Section (looking north)





Photo 23: Track Section (looking north)



Photo 26: Track Section (looking south)



Photo 24: Bridge 427 (looking north)



Photo 27: MP 33



Photo 25: MP 30 (looking south)



Photo 28: Track Section (looking north)





Photo 29: Slag (looking north)



Photo 32: Track Section (looking north)



Photo 30: Slag (looking south)



Photo 33: Track Section (looking north)



Photo 31: Track Section (looking south)



Photo 34: MP 39 (looking north)





Photo 35: Track Section (looking south)



Photo 38: Culvert



Photo 36: Track Section (looking north)



Photo 39: Typical Barrier



Photo 37: Stream Bank Issues (looking south)



Photo 40: 12th Street Crossing (looking north)



Appendix B:

Akron Secondary Reactivation Program

our people and our passion in every project



METRO Regional Transit Authority Akron Secondary Reactivation Program Report



PO #211080-000 / December 2010

By:



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Scope

The METRO Regional Transit Authority (METRO) has tasked Bergmann Associates (BA) to evaluate and report on the existing conditions of the METRO owned Akron Secondary Line (Line) and recommend appropriate rehabilitation work necessary to reactivate the line. This effort is a subtask to the Sandyville Line rehabilitation project which is undertaken as a Task Assignment under BA's existing general engineering contract.

Executive Summary

The Akron Secondary, which was formerly a Conrail line, was purchased by METRO to preserve the rail right-of-way for future freight and passenger services. The Line connects Akron and Hudson and resides entirely within the 14th Congressional District of Ohio. It is currently inactive and has been for almost 20 years. However, recent potential development prospects in Hudson and Stow, Ohio brings about the likelihood that this line will be reactivated in the near future. Current projections indicate that the Hudson Industrial Complex will receive approximately 20 cars per week from Norfolk Southern (NS) with a new switch to be installed in the vicinity of Milepost 2.5. This new service will bring much needed revenue to METRO and is a vital source of new jobs in a state currently ranked 41st in the nation in unemployment with a present rate of 10% unemployment according to the Bureau of Labor Statistics.

However, there is a significant amount of work which is required to reactivate this Line. This report outlines the general scope of construction work required to bring the Line into a state of good repair and an estimate of the related program costs. The Line will clearly need to be cleared of vegetation which has overgrown the track structure since the track was last maintained. Once the Line is cleared the track structure will be rehabilitated to Class 2 track standards.

In addition, recommendations are being made for a full bridge inspection and rating to determine the level of rehabilitation required for the structure carrying METRO over Powers Creek. A cursory review of the bridge was performed but a full inspection is required under the new FRA regulations. There is also a pipe culvert which is prone to overtopping and has the potential to damage the track structure if it is not addressed prior to the Line being activated. Although these items have yet to be fully designed a conceptual program cost estimate has been developed and is included within this report.

This project is absolutely necessary to maintain the viability of METRO as an owner of railroad right-of-way and is a first step to the development of an industrial complex which will bring much needed jobs to the area.



Existing Ownership

History

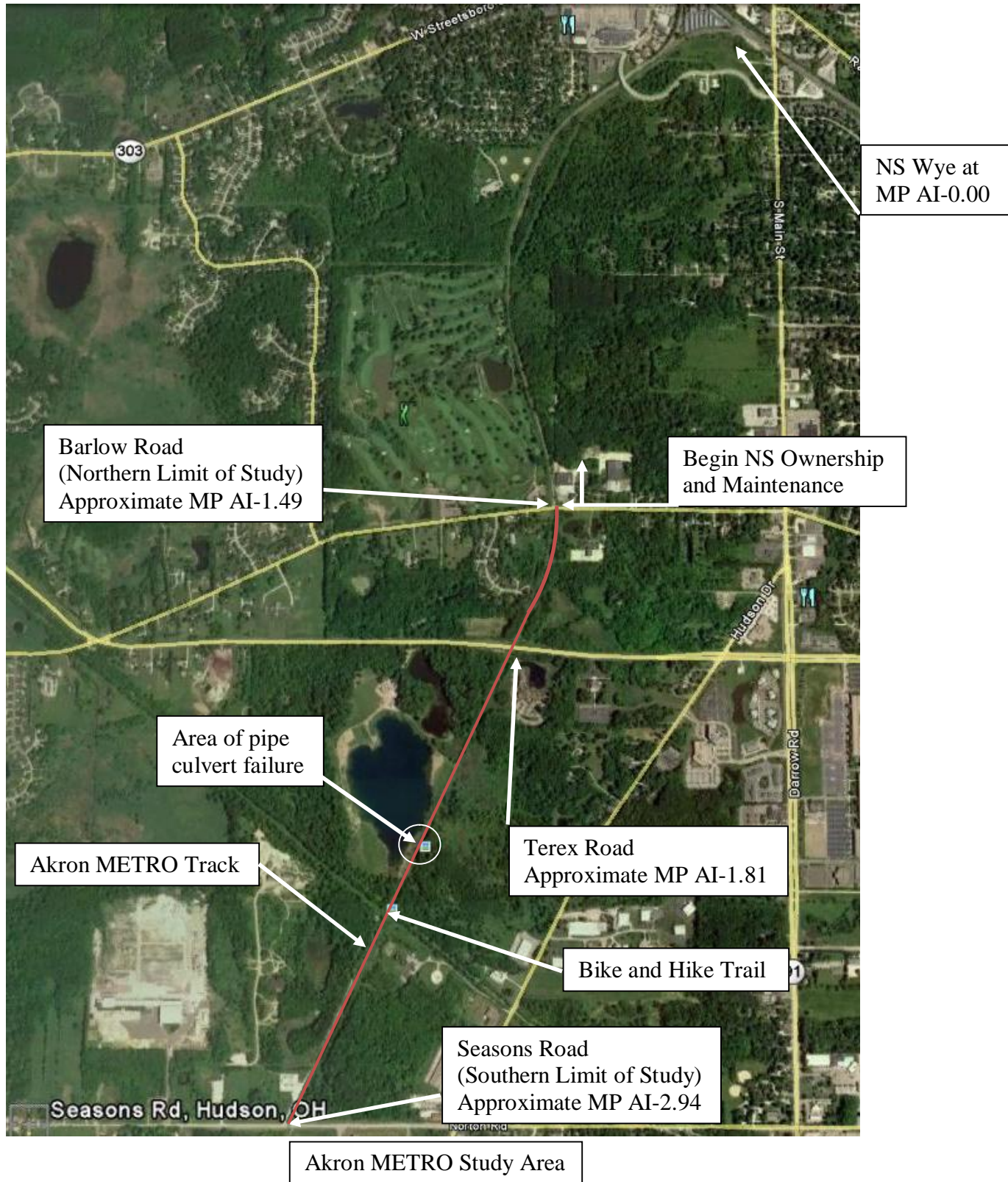
METRO purchased and currently owns three rail lines, totaling 51 miles in length. The purpose of the purchase was to preserve the railroad right-of-way for possible future Canton to Cleveland commuter rail service as well as maintain existing freight service along the line. The Sandyville Line, formerly the B&O Valley Line (approximately 24 miles of track) between Akron and Canton, was purchased in May 2000 from CSX. The Akron Secondary, an inactive line between Hudson and Akron, was formerly a Conrail Line which currently connects to NS in Hudson, Ohio and CSXT in Akron, OH.

Track

The Line which BA has been tasked to evaluate begins at the northern end at Milepost AI-1.49, Barlow Road (DOT# 503 572 S) in Hudson, OH. Norfolk Southern (NS) owns and maintains from Barlow Road north where there is a wye with the NS main track at milepost AI-0.00. The southern end of our evaluation is at approximately MP AI-2.94, Seasons Road. Seasons Road is the dividing line between Hudson and Stow, OH. The road was recently extended and there is currently no DOT number listed for the crossing. Although our study ends at Seasons Road the Line continues south where METRO's ownership terminates at Eastwood Avenue (AI-11.32) in Akron, OH

The Line is single track 132 pound jointed rail. There are no switches, two overhead bridges (one highway and one carrying a hiking trail) and two at-grade crossings in this section of track as shown in the following map.





Rail Traffic

This line has been inactive since the early 1990's. NS currently maintains the approximately one mile of track which they own between METRO and the NS wye. They currently use this section of track to store cars. The traffic is expected to increase significantly over the next few years as multiple businesses which will require rail service are projected to open along the line.

The first to open will be the Hudson Industrial complex which will house Patriot Energy. This will require a spur of almost $\frac{3}{4}$ of a mile plus a 1600 foot run around track within their complex to hold up to 20 cars. It is anticipated that NS will deliver approximately 20 cars per week with the switching done by the owner.

Track Assessment

Methodology

The track was inspected over the course of four hours with two Bergmann Associates employees and one METRO employee walking the line. The inspection included only the visual examination of the track structure with emphasis on the ballast section, crossties, rails, and other track materials (OTM's). Notes were taken regarding existing drainage conditions including ditches and culverts, vegetation concerns and cursory bridge inventory.

Analysis

This analysis of the Line included a summary of the results of the inspection conducted by Bergmann Associates. It is anticipated that the Line will be classified as Class 2 track which allows a maximum operating speed of 25 MPH for freight trains. The following is BA's estimation of the deficiencies identified.

As can be seen in the photos attached to this report, the track is heavily covered with thick brush as it has been inactive for almost 20 years. The rail appears to be in good condition with the exception of some curve wear just south of Barlow Road. The rail in this section appears to have already been transposed. The majority of the ties which are visible appear to be defective. This is to be expected given the typical life of a tie and the fact that no maintenance has been done on the line since the early 1990's.

There is an undergrade bridge which carries the Line over Powers Creek. A full inspection of the structure was performed as part of this inspection. However, this structure has no walkway or safety



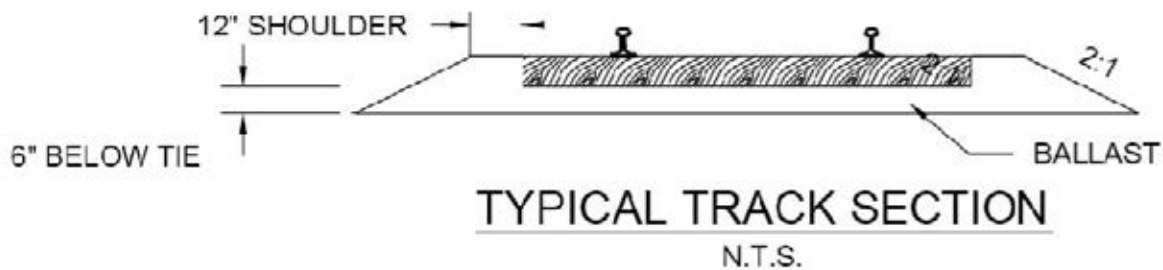
features, is missing mortar on the abutments and exhibited a potential scour problem at the end of the wingwalls on the north abutment.

New residential development has taken place along the line just south of Barlow Road. There are a few houses with backyards which abut the railroad right-of-way.

There is a culvert beneath the tracks which carries a creek crossing at approximately Milepost 2.2. This area has been prone to overtopping and has required several track repairs in the past. The culvert consists of multiple corrugated metal pipes (CMP) with a partial sheet pile headwall on the western face. Currently the track has been pulled in this area and the materials have been stockpiled. The underground fiber optic cable was pulled during the last repair and is currently resting on the ground. This site is also complicated by the presence of an overhead utility and an underground waterline in close proximity to the track.

Recommendations

In order for the Line to be reactivated it will first be necessary to clear all brush and deforest a 25 foot wide path along the tracks. Once the area is clear it is recommended that a thorough track inspection take place to verify that the existing rail is still serviceable. Based on the inspection and the amount of rail that was visible at the time it is recommended that the rail that is currently in place be kept except in sections of curve wear. Approximately 468 feet (twelve 39 foot lengths of rail) will be required for the curve patch. It is anticipated that 75% of the ties will need to be replaced to reactivate the line and then a formal tie replacement program can be instituted for the remaining ties over the course of the next five to ten years. The entire line will need to be lined and surfaced and it is expected that an average of approximately 0.15 tons of ballast/foot of track will be required to restore a typical track section as per the AREMA Manual for Railway Engineering Chapter 1 Part 2. As shown below, a shoulder width of not less than 12 inches is recommended.



- 8'-6" X 7" X 9" TIES

A full hands-on in depth inspection and bridge load rating must be performed on the undergrade bridge over Powers Creek. This rating will be needed to accurately verify the structural adequacy



and capacity of the bridge and to identify needed bridge repairs. In addition, current FRA bridge inspection criteria require bridges to be inspected and rated on a yearly basis. The bridge abutments will most likely need to be repointed and the wingwalls may need to be underpinned with grout bags. The timbers will also need to be replaced. If it is determined that the bridge needs to be replaced it is expected that the costs would be similar to those for Bridge #430 (approximately \$650,000). However, we assumed the bridge would need repairs similar to Bridge #428 (approximately \$325,000).

The pipe culvert mentioned above requires a full hydraulic study to determine the required capacity at this location. It is anticipated that additional CMP's will be required as well as concrete headwalls. Because beavers are an issue in this area and culvert maintenance is difficult and costly, trash racks or other measures to prevent the culverts from getting clogged must be considered. Careful coordination with existing utilities will be needed at this location. Utility relocation should be at the expense of the utility but the language in the existing utility agreements must be verified.

Although nothing is required to separate the track from the new houses along the line, it is recommended that a security fence be installed along the property line to prevent trespassing on the rail right-of-way. The fence line should run along the western right-of-way line approximately 500 feet. Planting indigenous shrubs along the fence line could help to reduce the noise that residents would be exposed to.

The Public Utilities Commission of Ohio (PUCO) and the Ohio Rail Development Commission (ORDC) should be consulted regarding the Barlow Road at-grade crossing. Their recommendation for crossing surface and warning device upgrades should be implemented prior to the Line being reactivated. However, the scope of work, and extent of improvements at this location cannot be determined at this time and is therefore not included in the estimate.

Estimate

The estimate of the necessary items, quantities, and costs for rehabilitating the Line as described in the recommendations above is provided to METRO for budgetary and funding purposes. This estimate should be supplemented by a detailed inspection and preliminary design of the structure discussed as well as a hydraulic evaluation and design for the culverts.



Material Quantities				
Track Mile	# Ties	Tons Ballast	Rail (LF)	Fencing (ft)
1.45	9331	1150	468	500

Cost Estimate				
Item	Quantity	Unit	Unit Cost	Item Cost
Vegetation Clearing	1	LS	\$54,000	\$54,000
Ties	9331	EA	\$77	\$718,487
Ballast	1150	TONS	\$46	\$52,900
Line and Surface	7656	LF	\$1.50	\$11,484
Rail - Curve Patch	468	LF	\$25	\$11,700
Culvert Repair	1	LS	\$85,000	\$85,000
Bridge Repair	1	LS	\$325,000	\$325,000
Fence	500	LF	\$50	\$25,000
Rail Rehabilitation Estimate Subtotal				\$1,283,571
10% Contingency				\$128,357
Rail Rehabilitation Estimate Total				\$1,411,928

Given the scope of the work it is anticipated that the design fee including the survey, bridge inspection and repair design, hydraulic evaluation and culvert design and permitting is approximately \$150,000.



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Appendix 1 - Photos



Photo 1: Seasons Road at-grade crossing surface (looking north)



Photo 2: Typical section near new housing (looking northwest)



Photo 3: Typical section



Photo 4: Structure over Powers Creek



Photo 5: Structure over Powers Creek (northwest wingwall)



Photo 6: Barlow Road crossing surface (looking south)

