

# CONNECTING COMMUNITIES

---

A Guide to Integrating Land Use and Transportation



Akron Metropolitan Area Transportation Study  
September 2010

"To generate exuberant diversity in a city's streets and districts four conditions are indispensable:

1. The district, and indeed as many of its internal parts as possible, must serve more than one primary function; preferably more than two...
2. Most blocks must be short; that is, streets and opportunities to turn corners must be frequent.
3. The district must mingle buildings that vary in age and condition, including a good proportion of old ones so that they vary in the economic yield they must produce. This mingling must be fairly close-grained.
4. There must be a sufficiently dense concentration of people, for whatever purposes they may be there..."

— Jane Jacobs (The Death and Life of Great American Cities)

# Acknowledgements

## Project Team

Akron Metropolitan Area  
Transportation Study (AMATS)

Jason Segedy - Director  
Curtis Baker  
Nate Brugler  
Seth Bush  
Andrew Gucciardo  
Phyllis Jividen  
Krista Linderud  
Heather Davis Reidl

## Working Group

The Project Team would like to thank all of the Working Group members for their input and guidance.

Amy Akins - Economist, City of Akron  
Heather Bowden - ODOT Bike and Pedestrian Planner, ODOT Central Office  
Al Brubaker - Summit County Engineer, Summit County  
Nick Campanelli - Zoning Administrator, Springfield Township  
John Ciolkevich - Council President, Village of Richfield  
Clinton Cooper - GIS Specialist, METRO RTA  
Christine Craycroft - Executive Director, Portage Park District  
Jerry Egan - Consultant, City of Akron - former  
Fred Guerra - Planning Director, City of Cuyahoga Falls  
Joe Hadley - Executive Director, NEFCO  
Frank Hairston - Communications Director, PARTA  
Juana Hostin - Program Coordinator, ODOT Central Office  
Helen Humphrys - Trustee, Copley Twp  
Claudia James - GIS Specialist/Planner, Portage County Regional Planning Commission  
Nick Lautzenheiser - GIS Tech. Applications Administrator, Summit County  
Chrissy Lingenfelter - Planner, City of Green  
Gary Locke - Planning Director, City of Kent  
Mike Lyons - Mayor, Village of Richfield  
John Moore - Director of Planning and Urban Development, City of Akron  
Jack Noble - Planning and Programs Administrator, ODOT District 4  
Catondra Noye - Planning Director, METRO RTA  
Joe Paradise - Director of Engineering, Summit County  
Todd Peetz - Director, Portage County Regional Planning Commission  
Jeff Pritchard - Planning Director, City of Streetsboro  
Gene Roberts - Service Director, City of Kent  
Bud Schafer - MPO Liaison, ODOT District 4  
Thomas Sheridan - City Engineer, City of Hudson  
Bryan Smith - Director of Planning, PARTA  
Joe Stefan - Assistant Planning Director, City of Barberton  
Doug Wagener - Director of Mobility Management, PARTA  
Dave White - Municipal Engineer, Norton/Summit County Engineer's Office  
David Whited - Chief of Planning and Development, Metro Parks, Serving Summit County  
Wayne Wiethe - Director of Planning and Development, City of Green

# Table of Contents

<b>EXECUTIVE SUMMARY</b> .....	2
<b>INTRODUCTION</b> .....	3
Purpose .....	3
Goals and Objectives .....	3
Role of AMATS .....	3
How to use this guide .....	3
Background .....	4
Land Use Transportation Connection .....	4
What's Next .....	4
The Region .....	5
<b>ANALYSIS</b> .....	6
Public Transportation .....	7
Sidewalk Inventory .....	10
Parking Inventory .....	11
Inter-Modal Connectivity .....	12
Gap Analysis .....	13
Environmental Characteristics .....	14
Wastewater .....	15
Land Use Inventory .....	16
Zoning Inventory .....	17
Parcel Sizes .....	18
Planning Areas .....	19
<b>RECOMMENDATIONS AND STRATEGIES</b> .....	22
Recommendation 1—Pedestrian Improvements .....	23
Recommendation 2—Bicycle Improvements .....	25
Recommendation 3—Public Transportation Improvements ..	27
Recommendation 4—Complete Streets .....	28
Recommendation 5—Land Use .....	29
Recommendation 6—Environmental Planning.....	31
Recommendation 7—Regional Coordination .....	32
Recommendation 8—Planning Grant .....	33
<b>APPENDIX</b> .....	34
Best Practices .....	35
Travel Time Analysis .....	40
Building permit data .....	43
Planning areas handout .....	44

# EXECUTIVE SUMMARY

Since the early 1950s, land use trends and transportation investment policies have been in a holding pattern. Communities throughout the United States have long utilized a suburban land use model, consisting primarily of disjointed and low-density residential and commercial developments. This pattern has been embraced by the majority of marketers, developers, consumers, and political leaders as highly-desirable. And in many ways it has been.

It does, however, come at a cost. Its biggest design flaw is that it virtually guarantees that cars have to be used for every trip. It also necessitates that these trips be long and numerous. Both of these things result in a society that is auto-dependent, and by extension, oil dependent. It also results in a built environment that is designed to accommodate cars rather than people. This means an environment that is unfriendly and uninviting to the few remaining pedestrians, cyclists, and transit passengers. As a motorist, this type of development seems normal. On foot, however, trying to navigate this environment of 30-foot high signs, buildings set back hundreds of feet from the curb, acres of asphalt devoted to parking, and endless webs of streets terminating in cul-de-sacs, one recognizes how unusual our post-modern suburban lifestyle really is.

We have built a transportation system to accommodate this land use pattern. Our network of interstate highways, multi-lane arterials, and large parking facilities has in many ways done an admirable job of making this type of development possible. However, as we enter the second decade of the 21<sup>st</sup> century, it is becoming apparent that it is time to reassess the way we have designed our urban areas for the past 60 years. Many people today are finding themselves in a situation where they have to drive long distances whether they want to or not.

So, what should we do? It is unrealistic and impractical to pretend that we can simply wave a magic wand and immediately recreate the high-density, mixed-use, transit and pedestrian-friendly environment of the pre-automobile age. We can, however, begin to give serious thought to a new way of doing things; of creating a built environment where walking,

biking, and using public transportation again become a viable option for the majority of our residents; where roads are designed to accommodate a variety of modes of transportation; and where public buildings and residential spaces retain their utility, but regain a sense of dignity and an appealing design aesthetic. There are radically different ways, for example, to design and build the same 200 housing units and 300,000 square feet of retail space.

And this is what *Connecting Communities* is all about: encouraging incremental, small-scale, and practical modifications to the way that our transportation system and our built environment interact with one another. It is our hope that by following the recommendations contained in this document, communities throughout our region will become better, more interconnected places to live.

## Recommendations

The recommendations in this guide are intended to be used by AMATS and other agencies as a framework for increasing transportation alternatives and supporting land use patterns through targeted investments. The recommendations of *Connecting Communities* are:

1. Improve **pedestrian** planning and facilities through targeted investments.
2. Improve **bicycle** planning and facilities through targeted investments.
3. Enhance **public transportation** systems to meet the needs of current users and be attractive to new users.
4. Incorporate **complete streets** principles into land use and transportation decisions.
5. Implement **land use** policies that improve community cohesion and reduce urban sprawl.
6. Integrate **environmental** planning into land use and transportation planning.
7. Improve **inter-agency coordination** on regional planning.
8. Create a **planning grant** program to implement *Connecting Communities*.

"This new highway program will affect our entire economic and social structure. The appearance of the new arteries and their adjacent areas will leave a permanent imprint on our communities and people. They will constitute the framework within which we must live."  
- Robert Moses, *Harper's Magazine*, 1956

"The right to have access to every building in the city by private motorcar in an age when everyone possesses such a vehicle is actually the right to destroy the city."  
- Lewis Mumford, *The Highway and the City*, New American Library, 1964, p. 23

"In the Interstate Highway System we have done nothing less than express our vision of ourselves .... Ultimately, the Interstate have become a physical expression of the part of the American character that desires to resolve our destiny in this seemingly limitless land."  
- Tom Lewis, *Divided Highways*, 1997

"In the suburbs you have backyard decks; in towns you have porches on the street."  
- Andres Duany

"To understand America, you must understand highways. In this past half century, these masochistic marvels have—along with telephones, television and jet planes—reshaped American culture."  
- Robert Samuelson, *The Washington Post*, June 25, 1986

"The establishment by government of great public grounds for the free enjoyment of the people . . . is thus justified and enforced as a public duty."  
- Frederick Law Olmsted, *Yosemite and the Mariposa Grove: A Preliminary Report*, 1865

# INTRODUCTION

## Purpose

The purpose of *Connecting Communities – A Guide to Integrating Land Use and Transportation* is to promote a region that balances environmental, social and economic concerns by improving coordination between land use and transportation. The guide utilizes a regional planning process to explore strategies to increase transportation choices and accessibility, help communities make collaborative, informed decisions to coordinate development, reduce environmental impacts, and improve connectivity.

The intent of *Connecting Communities* is to create more vibrant, livable communities through coordinating resources, partners, and stakeholders to integrate transportation and land use planning decisions in the region. It looks at how transportation funding, project selection, and planning can better complement land uses to encourage investment in established neighborhoods and where there is existing infrastructure. The guide also identifies local land use policy changes that support many transportation choices and conserve natural resources.

This guide analyzes the existing transportation systems and land use patterns in order to increase the integration between them. It will also help target Federal and local investments.

## Goals and Objectives

*Connecting Communities* is based on five main goals which guide the analysis, recommendations, and strategies. The goals are listed below:

1. Increase transportation choices and improve accessibility for all users.
2. Work collaboratively with regional partners to coordinate development in the region.
3. Improve regional connectivity and reduce environmental impacts.

4. Promote regional cooperation and help communities identify and build on strengths.
5. Aid communities to better understand and utilize various infrastructure funding sources.

## Role of AMATS

As a metropolitan planning organization (MPO), AMATS is responsible for planning and implementing regional transportation projects in Summit and Portage counties and Chippewa Township in Wayne County. The region's long range plan, *Transportation Outlook*, makes preserving the existing system the highest priority. It also emphasizes the need for improving bicycle and pedestrian infrastructure and increasing integration between land use and transportation. *Connecting Communities* is AMATS first step in coordinating the region's transportation planning with land use planning.

## How to use this guide

*Connecting Communities* develops a framework and implementation strategy by building on the region's assets. This guide identifies opportunities through the accumulation of regional data and the identification of goals and strategies which support a more effective transportation system and encourage livable communities.

This guide is a tool for AMATS, local communities, and other organizations as planning decisions are made concerning the region's future. Future planning and policy should be aligned with the recommendations and strategies within this report.

## Livability Principles

In June 2009, as part of the Partnership for Sustainable Communities, the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Transportation (DOT) and the U.S. Environmental Protection Agency (EPA) announced a partnership to create affordable, sustainable communities through focusing on better access to affordable housing, increasing transportation options and lowering transportation costs while protecting the environment.

The Partnership for Sustainable Communities established six livability principles that will act as a foundation for interagency coordination:

1. **Provide more transportation choices.**
2. **Promote equitable, affordable housing.**
3. **Enhance economic competitiveness.**
4. **Support existing communities.**
5. **Coordinate policies and leverage investment.**
6. **Value communities and neighborhoods.**

# Background

Land use and transportation planning have traditionally been disconnected. Transportation planning has focused on keeping up with congestion, while land use planning has focused on growth. These patterns continue to strain the region’s transportation system and local budgets. To ensure the vitality of the region, it is necessary to better integrate land use and transportation and plan for future growth.

## Land Use—Transportation Connection

It is critical to consider land use when planning for transportation investments and vice versa because of the significant impact they have on one another. Transportation investments since the 1950s have focused on building a roadway network that moves people and goods as efficiently as possible. These investments provided the necessary accessibility for people and business to move outward from the urban core, creating new communities, subdivisions, shopping, employment centers, and other amenities. Conversely, as more land is developed, more transportation investments are needed. Roads that were designed to handle farm houses and country stores have been upgraded to mitigate congestion, increase safety, and provide access to office parks and big-box retail.

As suburbanization transformed dense cities into large metropolitan areas, it also changed how people travel, live, work, interact, and play. Where traditional neighborhoods are mixed-use, higher density and pedestrian accessible, suburban areas are auto-oriented, low-density developments with plenty of parking and separated land uses. This type of development, often called sprawl, places a tremendous amount of strain on the transportation system. It is difficult to serve with transit and other infrastructure, consumes valuable agricultural land and natural habitats, and increases stormwater runoff as well as other adverse environmental impacts.

For example, from 2000 to 2005, 25 square miles of vacant land was developed for residential use in the AMATS area, while the region gained only 6,000 new residents. The majority of this

growth was low-density residential development in suburban and exurban communities. According to *Transportation Outlook*, increased suburbanization puts pressure on communities to expand the transportation system that is already in dire need of preservation.

Between now and 2030, over 1.9 billion dollars will be needed just to maintain the roads and bridges in the AMATS area. Much of the highway system is aging and in disrepair. While there is pressure to expand the transportation system in suburban and exurban areas, the most pressing need is preservation. While both preservation and expansion are important, it will be impossible for AMATS to meet both needs adequately.

**Suburbanization puts pressure on communities to expand the transportation system that is already in dire need of preservation.**

**- Transportation Outlook (2009)**

## What’s Next

Continuing suburbanization unchecked is fiscally, socially, and environmentally unsustainable. It is necessary for the region to maintain a safe and efficient transportation system, promote healthy, livable communities, and preserve economic competitiveness. For this to be effective, land use and development must be coordinated with the region’s vast transportation network.

The following section analyzes the existing systems and patterns to look for missing links and opportunities, followed by recommendations on how to connect and capitalize on them.



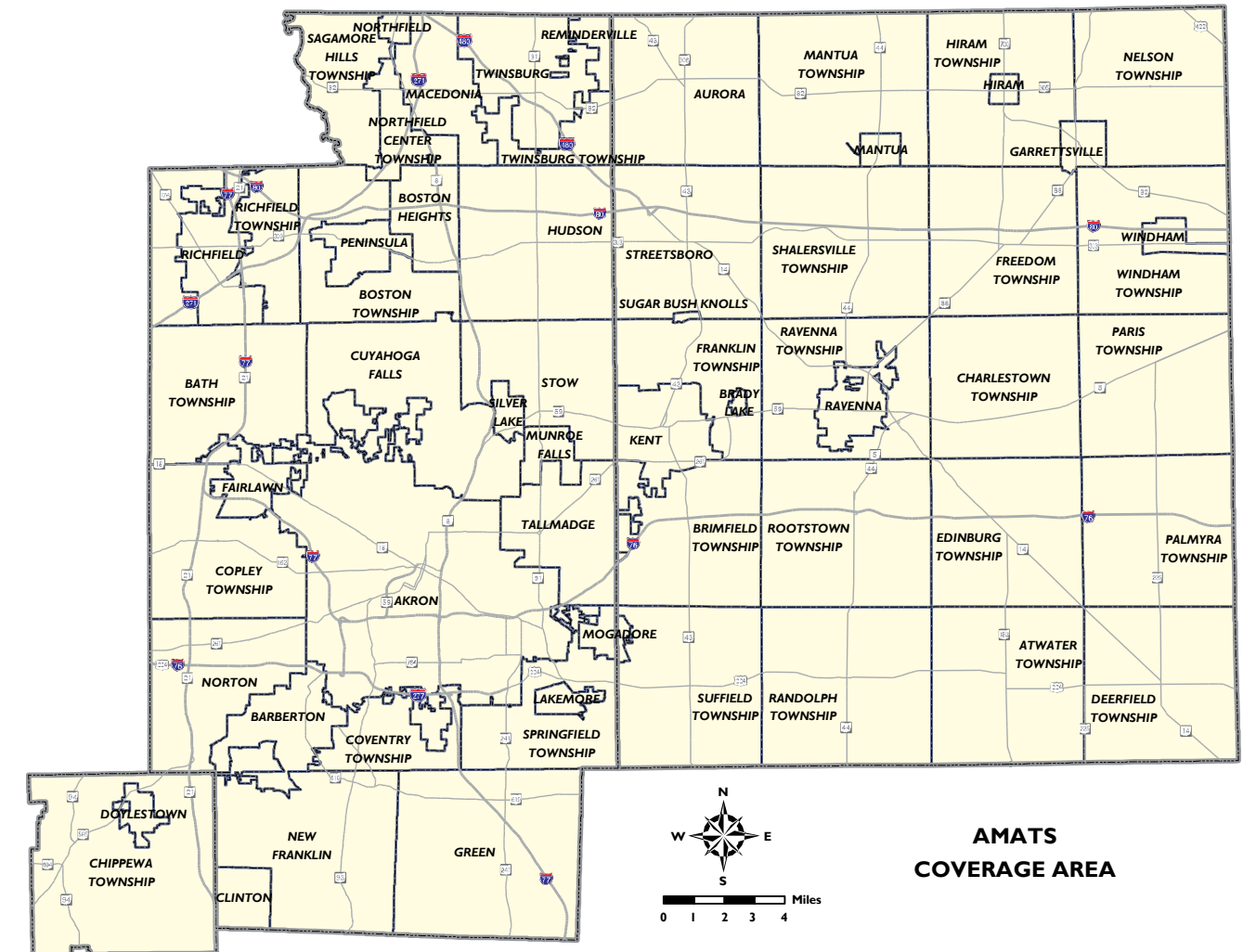
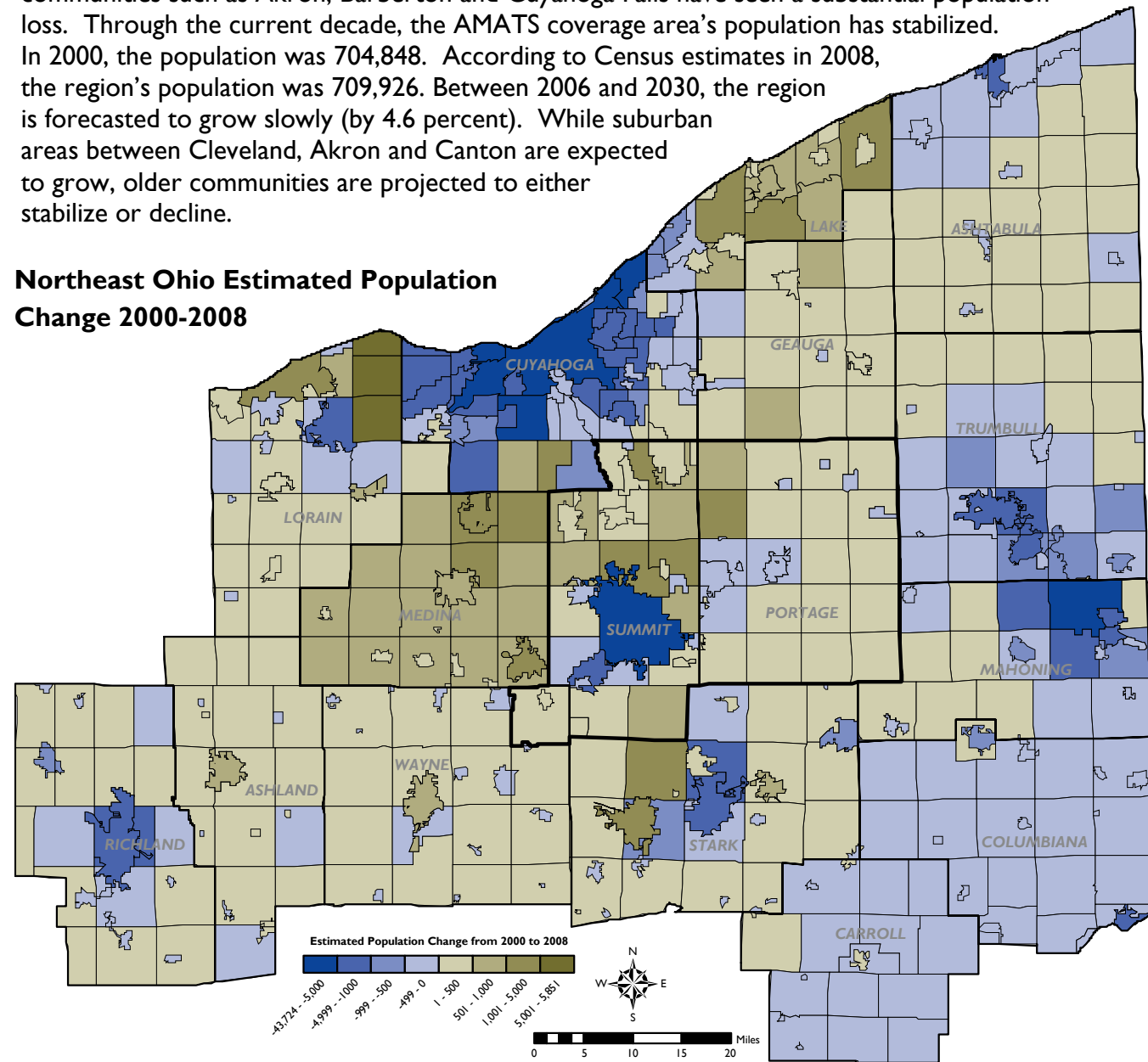
**T**ransportation needs vary by different types of development.

# The Region

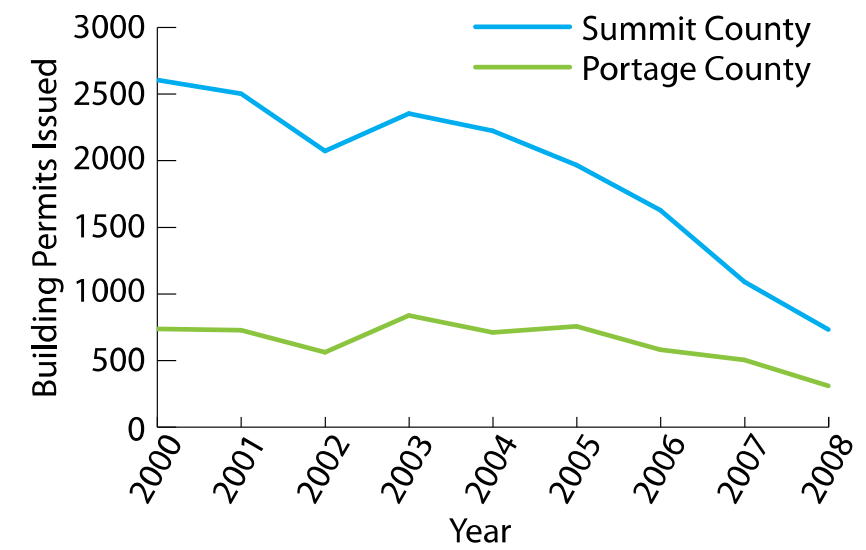
The Akron Metropolitan Area Transportation Study (AMATS) is a Metropolitan Planning Organization (MPO) responsible for transportation planning in the Akron metropolitan area. The Akron metropolitan area includes Summit and Portage counties and Chippewa Township in Wayne County. Currently, the region is made up of 17 cities, 16 villages, and 28 townships, with over 700,000 people residing in the area.

Suburbanization in the region began rapidly in the 1950's and has continued, as shown on the Northeast Ohio Estimated Population Change 2000-2008 map below. Simultaneously, older communities such as Akron, Barberton and Cuyahoga Falls have seen a substantial population loss. Through the current decade, the AMATS coverage area's population has stabilized. In 2000, the population was 704,848. According to Census estimates in 2008, the region's population was 709,926. Between 2006 and 2030, the region is forecasted to grow slowly (by 4.6 percent). While suburban areas between Cleveland, Akron and Canton are expected to grow, older communities are projected to either stabilize or decline.

**Northeast Ohio Estimated Population Change 2000-2008**



Building permits are another indicator of regional growth. From 2000 to 2008 both Summit and Portage County saw a significant decrease in issuing building permits, as shown in the chart to the right. A breakdown of building unit permits by community is on page 43 of the appendix.

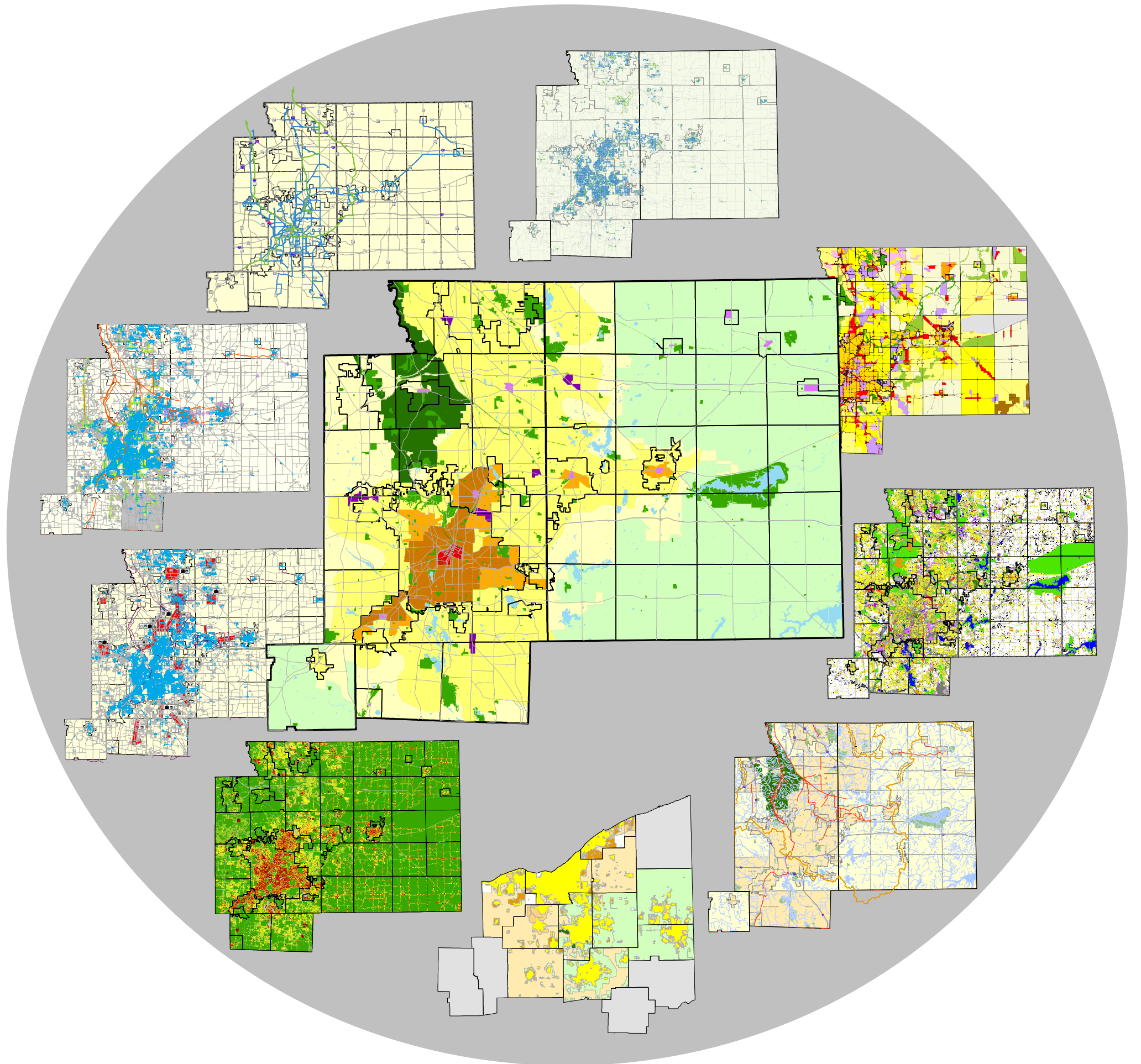


# ANALYSIS

Transportation provides a way to get people and goods from point A to point B. If point A and B move further apart, it takes more resources to get them there and increases the demand for infrastructure. Communities have responded by building more roads, water and sewer lines, and other infrastructure to keep up. Also, as more land is developed, commute times increase, open space and farmland decrease, and stormwater and pollution issues escalate.

In order to better understand the impacts of these trends in the region, various data was collected and analyzed. This section examines existing infrastructure and land use patterns. It also analyzes the data to identify missing links and opportunities to improve integration between land use and transportation. The inventories and analysis are listed below.

<b>Public Transportation</b> .....	7
<b>Sidewalk Inventory</b> .....	10
<b>Parking Inventory</b> .....	11
<b>Inter-Modal Connectivity</b> .....	12
<b>Gap Analysis</b> .....	13
<b>Environmental Characteristics</b> .....	14
<b>Wastewater</b> .....	15
<b>Land Use Inventory</b> .....	16
<b>Zoning Inventory</b> .....	17
<b>Parcel Sizes</b> .....	18
<b>Planning Areas</b> .....	19





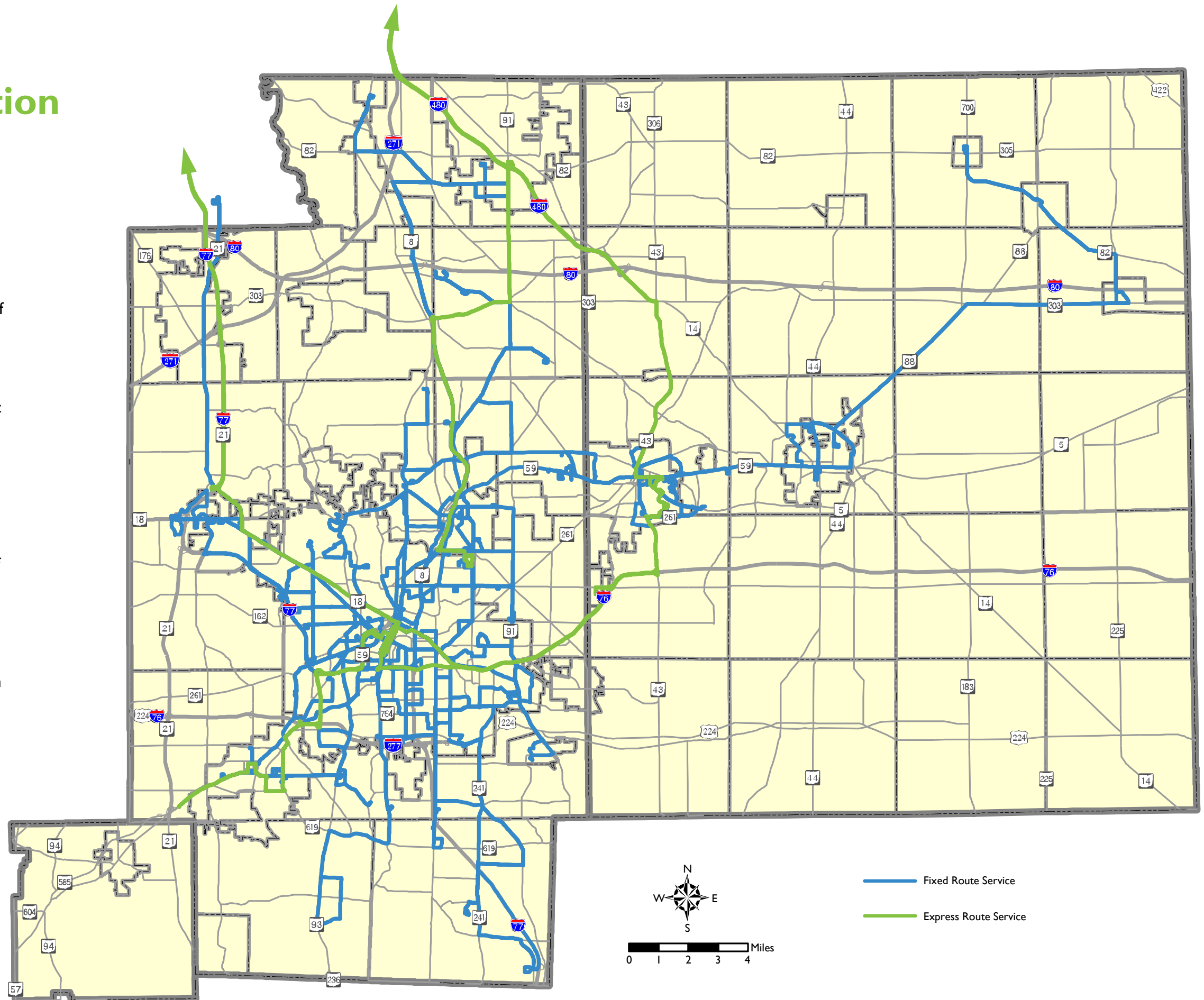
# Public Transportation

Public transportation is a vital part of the transportation system. It provides access and mobility to employment, education, and shopping. It also provides an alternative mode of transportation. It is important to examine transit route coverage and route frequency in order to increase transit ridership.

This map shows the route coverage of the public transportation system in the region. The blue lines are fixed routes and the green lines are express routes. The express routes continue out of the region into Cleveland and Cuyahoga County. On-demand door-to-door service is also available, but not shown.

As evidenced by this map, transit serves much of the city of Akron, as well as branching out into Kent, Ravenna, Barberton, and Cuyahoga Falls. However, many routes do not come at frequent intervals. Additionally, there are stops reaching out to Twinsburg, Northfield, Garrettsville, and Richfield. While there are some routes between county lines, public transportation is funded through the county sales tax, deterring transit authorities to travel beyond their region.

Route information is provided by the Portage Area Regional Transportation Authority (PARTA) and METRO. METRO serves Summit County and PARTA serves Portage County.



# METRO RTA Level of Service (LOS)

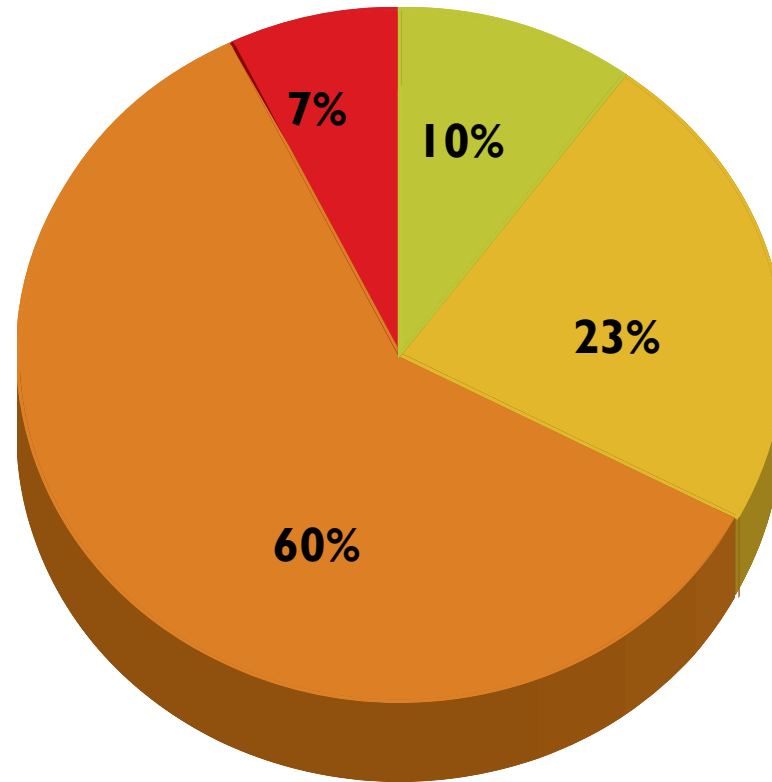
When analyzing the level of service provided by a bus transit system, the primary consideration is the average headway, or time between bus arrivals at a particular location. Most bus systems (including METRO's) do not maintain a consistent headway throughout the day, but rather provide more frequent service during certain busy periods and reduced service when demand is lower.

For this METRO analysis, five different time periods were selected, based on predominant travel patterns observed in the Akron area. Using the published timetable for each of METRO's standard line service routes, inbound trips were separated into one of five standard time periods, and the average time between buses was calculated. This average time was compared to the bus level of service table (provided by the Transportation Research Board) and a level of service grade applied accordingly.

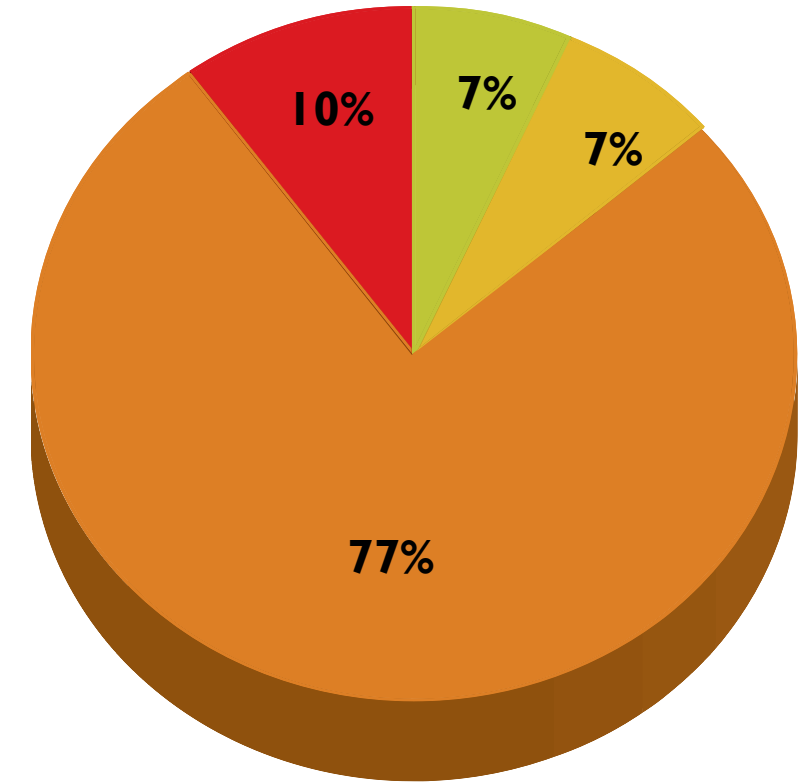
The analysis shows that the METRO bus system never provides a level of service greater than "C", but even at that level, service is attractive to some choice riders or riders who have access to other transportation options. Morning and evening rush hours provide fairly frequent service. However, evening service has received an "F" on almost every route, leaving a large amount of room for improvement.

Time periods have been selected for purposes of comparison, and may not necessarily reflect the highest service level for either transit agency.

**Morning Rush**  
6:00am—8:00am



**Evening Rush**  
4:00pm—6:00pm



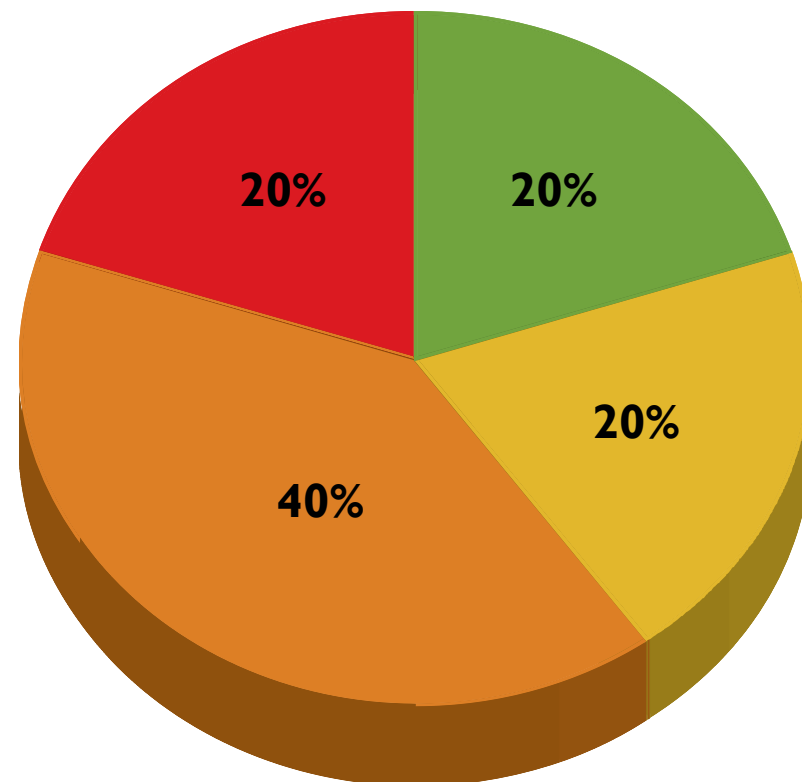
Transit LOS Key:			
LOS	Headway (min)	Veh/Hr	Comments
A	< 10	> 6	Passengers don't need schedules
B	10 - 14	5 - 6	Frequent service, passengers consult schedules
C	15 - 20	3 - 4	Maximum desirable time to wait if bus missed
D	21 - 30	2	Service unattractive to choice riders
E	31 - 60	1	Service available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

Source: Transportation Research Board

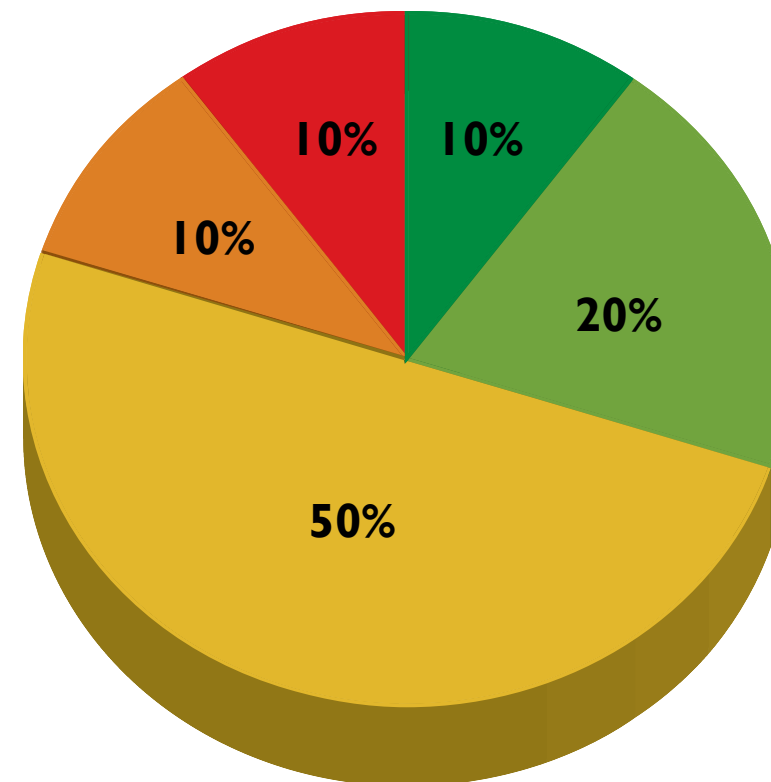


# PARTA RTA Level of Service (LOS)

**Morning Rush**  
6:00am—8:00am



**Evening Rush**  
4:00pm—6:00pm



When analyzing the level of service provided by a bus transit system, the primary consideration is the average headway, or time between bus arrivals at a particular location. Most bus systems (including PARTA's) do not maintain a consistent headway throughout the day, but rather provide more frequent service during certain busy periods and reduced service when demand is lower.

For this analysis, five different time periods were selected, based on predominant travel patterns observed in the AMATS planning area. Using the published timetable for each of PARTA's full service routes, inbound trips were separated into one of the five standard time periods, and the average time between buses was calculated. This average time was compared to the bus level of service table (provided by the Transportation Research Board) and a level of service grade applied accordingly.

PARTA bus service falls under two classifications: county service (serving most of Portage County) and campus service (serving the Kent State University main campus). There are wide disparities between the two classifications. County service never achieves a rating higher than "D", indicating that it has little chance of attracting choice ridership or riders who have access to other transportation options. Evening county service is very limited. In contrast, the campus bus service provides an extremely high level of service. Long wait times are the exception to the rule, as buses typically arrive frequently throughout the day. PARTA's campus service remains high during the evening and late-night hours, uncommon among transit providers.

The majority of PARTA buses serve the Kent State University campus, and provide frequent service throughout the day. Time periods have been selected for purposes of comparison, and may not necessarily reflect the highest service level for either transit agency.

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

Source: Transportation Research Board

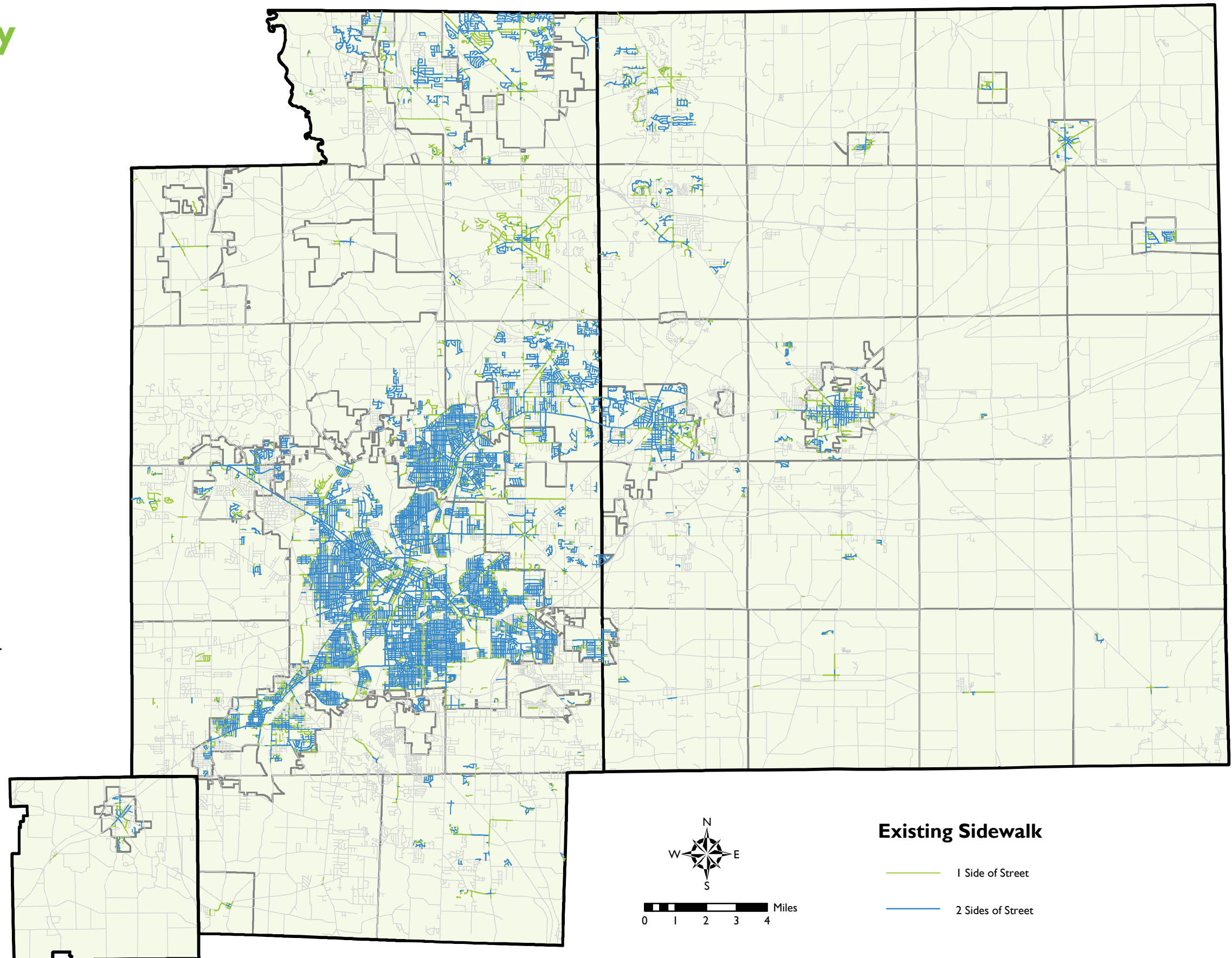


# Sidewalk Inventory

Sidewalks are a key component to a balanced transportation system. They provide connectivity in neighborhoods and to transit stops, recreation, shopping, and employment. They also promote walking as an alternative to driving for short distances. Pedestrian facilities include not only sidewalks, but also crosswalks, wheelchair ramps, and bus stops.

The sidewalk inventory shows where there are existing sidewalks and gaps in coverage. Sidewalk coverage is the highest in higher density areas such as Akron, Barberton, Cuyahoga Falls, Kent and Ravenna. Sidewalk coverage in suburban and rural areas is sparse.

While pedestrian facilities should be improved, it is important to provide pedestrian facilities where the need exists. Medium to high density neighborhoods with connections to transit, shopping, employment and schools should be well served to provide safe and convenient access. Low density areas are less pedestrian-oriented and sidewalks are most beneficial in major activity centers and near transit stops.



# Parking Inventory

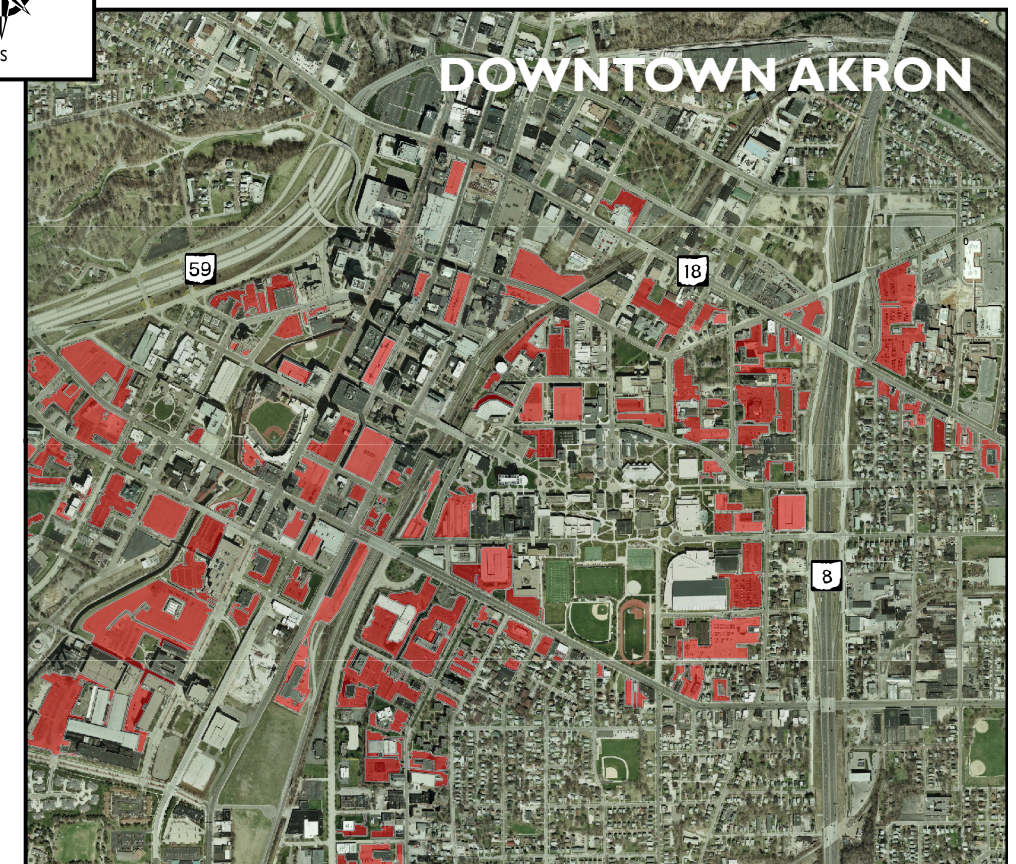
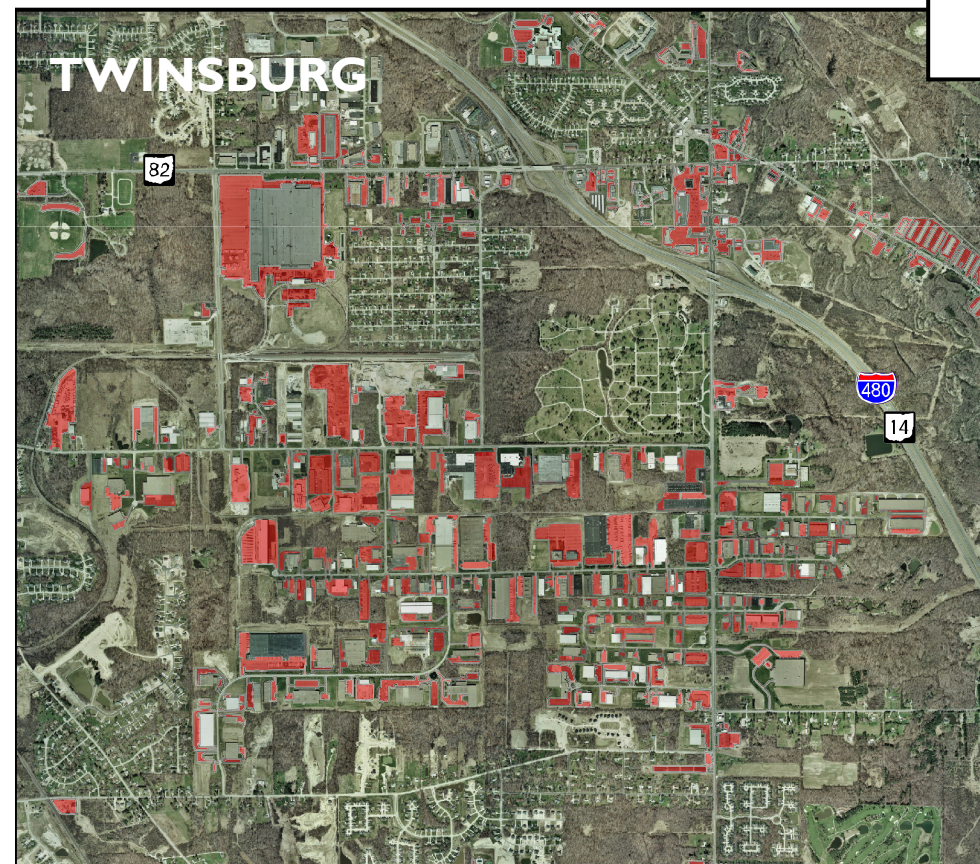
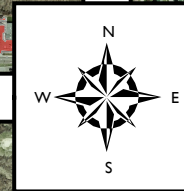
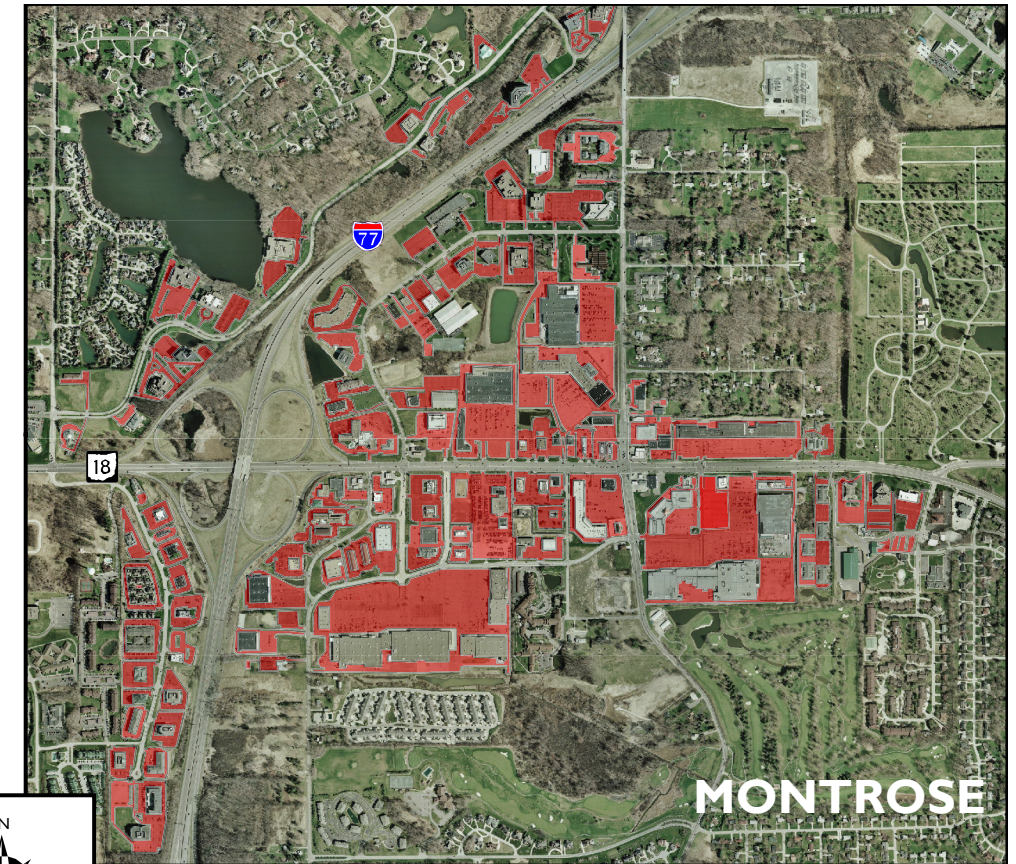
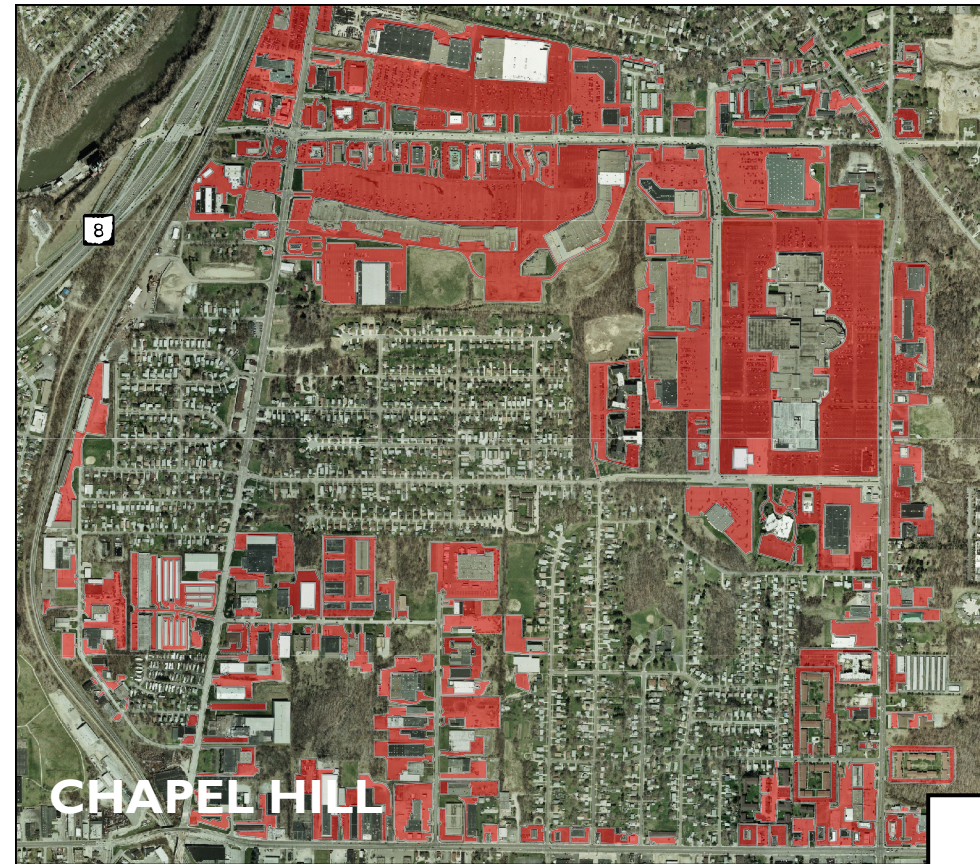
While parking lots provide access to businesses and shopping, they consume large amounts of land, are auto-dominated, and increase stormwater runoff. Access in and out of parking lots and internal circulation has a significant impact on traffic safety and congestion.

The parking inventory is a site specific analysis of area parking lots. Inventories focus on major regional employment and retail centers, including downtown Akron, Chapel Hill, Montrose, and Twinsburg.

As shown on the adjacent maps, parking covers large amounts of land in these areas. Big-box stores, malls and outparcels are surrounded and separated by parking lots. Outparcels are parcels separated from commercial development, such as chain restaurants surrounding a mall. These buildings are spread out with few sidewalks or paths between stores.

The Twinsburg industrial area also shows a lot of parking, although each building has its own separate lot and access. These patterns are automobile-oriented making it difficult to serve with transit and discourages walking.

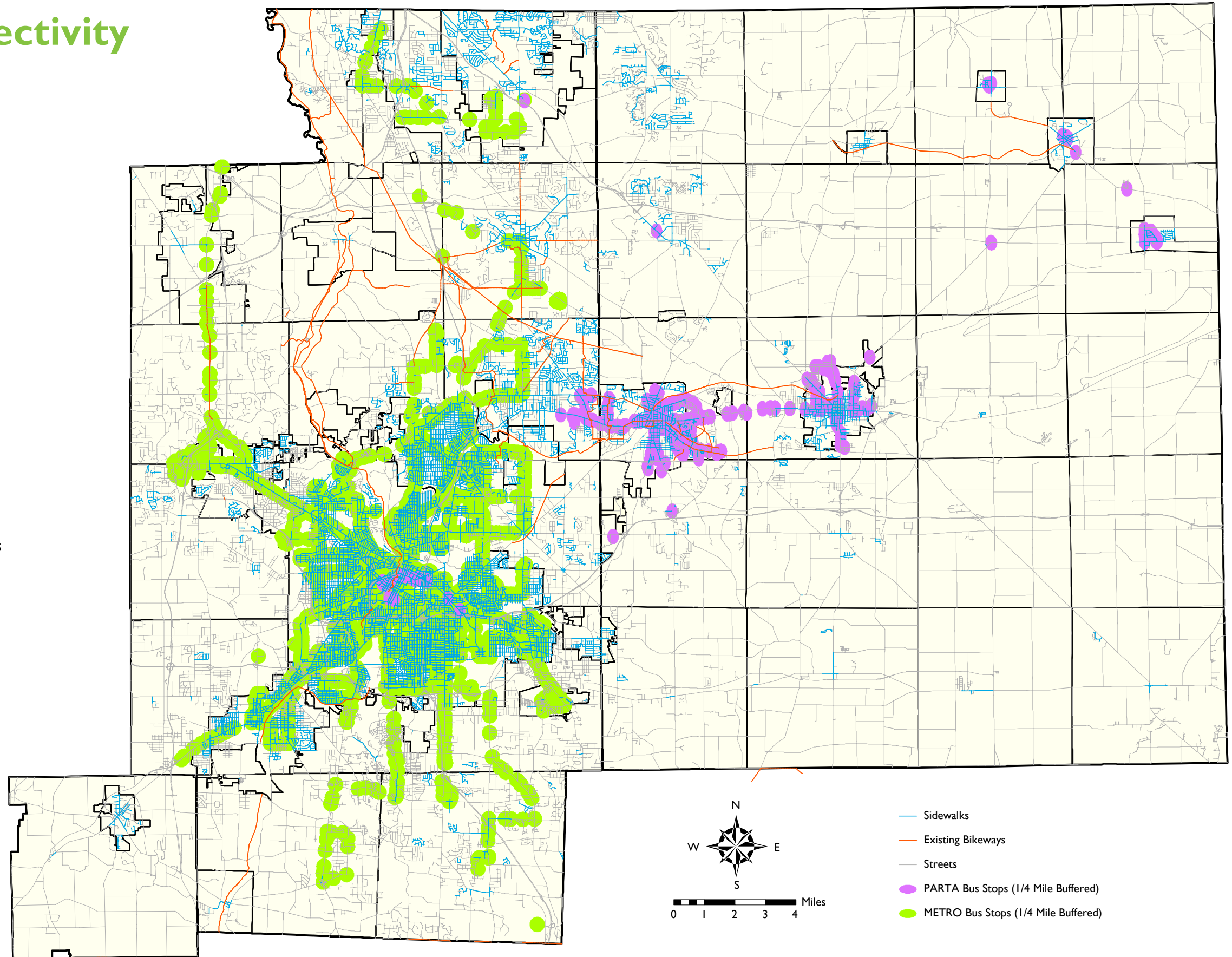
The amount of parking spaces and parking lot design is regulated through parking standards in community zoning codes. These requirements are typically based on outdated parking standards that prioritize automobile traffic and are in need of updating.



# Inter-Modal Connectivity

The Inter-Modal Connectivity map demonstrates the gaps between the public transportation system, sidewalks, and bikeways. These connections are a critical part of the region's transportation system because they act as a network to provide access to housing, employment, retail, and education. They increase transportation accessibility by enabling people to link various modes and provide viable alternatives to driving.

The map shows where there are transit routes without sidewalks. Many of these locations are in suburban areas where a transit rider must walk alongside traffic to get to their destination. This makes it dangerous for people getting on and off transit. The map also shows the missing links between bicycle facilities and transit. Placing bicycle routes and facilities near transit stops would enable bicyclists to go further by combining modes.



# Gap Analysis

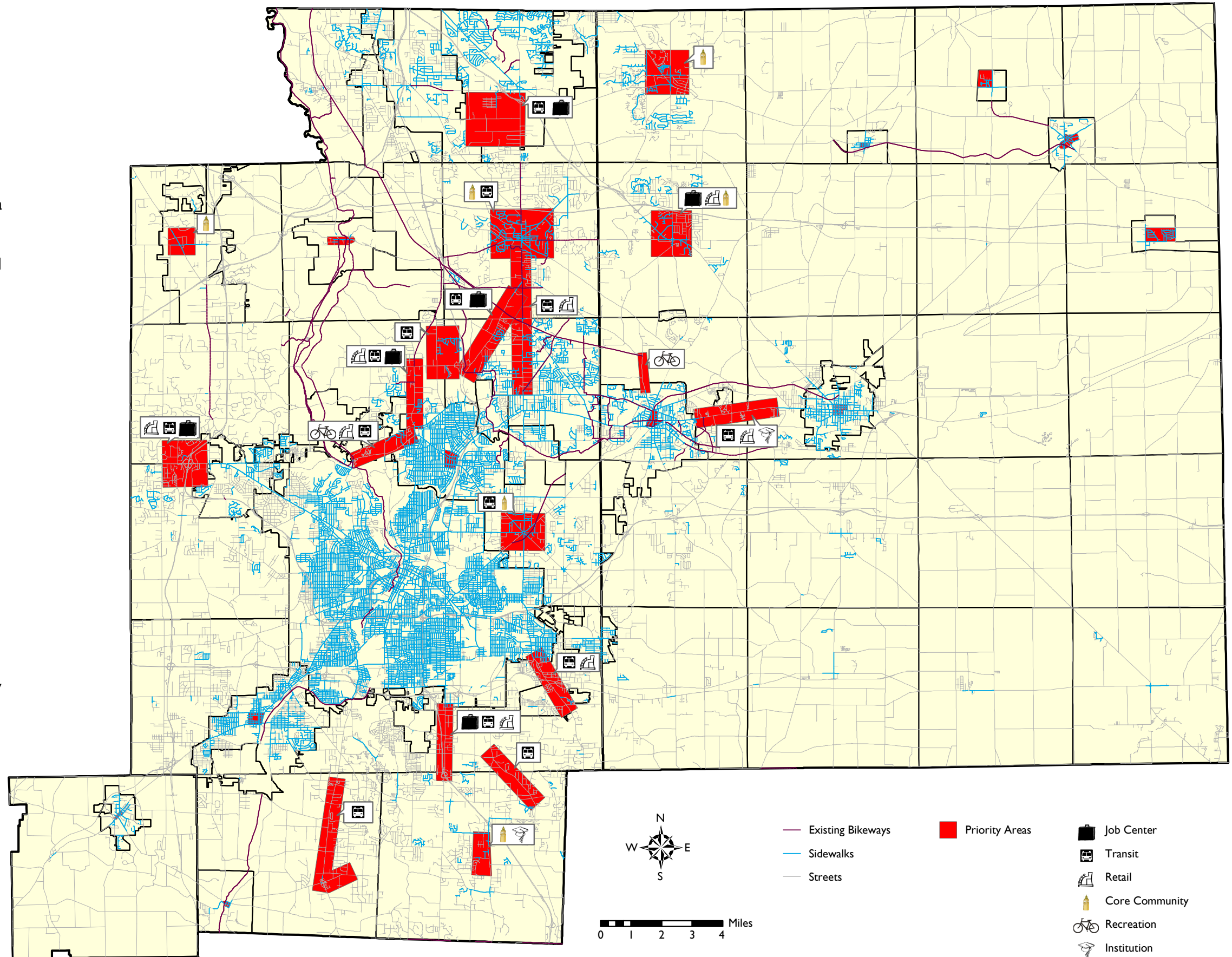
Creating a multi-modal network between transit, pedestrian, and bicycle infrastructure is a critical part of the transportation system. Since most transit trips include a pedestrian trip at one or both ends, it is important to create good walking conditions near transit routes. It also encourages walking and bicycling to neighborhood shops and businesses.

The Gap Analysis combines the sidewalks, bikeways, and transit routes. The areas shown are not exclusive, but highlight the major priority areas for non-automobile investment in the region.

Priority areas were determined based on their accessibility to six factors:

1. Job centers
2. Transit routes
3. Retail
4. Core communities
5. Recreation
6. Institutions

As shown in red, the priority areas are primarily in suburban and exurban areas, like the City of Green and Franklin Township. These areas were largely developed as automobile-oriented communities and many are missing links in transit, bicycle, and pedestrian infrastructure. Many are centered along transit routes without sidewalks near job and retail centers, while others are focused on community centers.

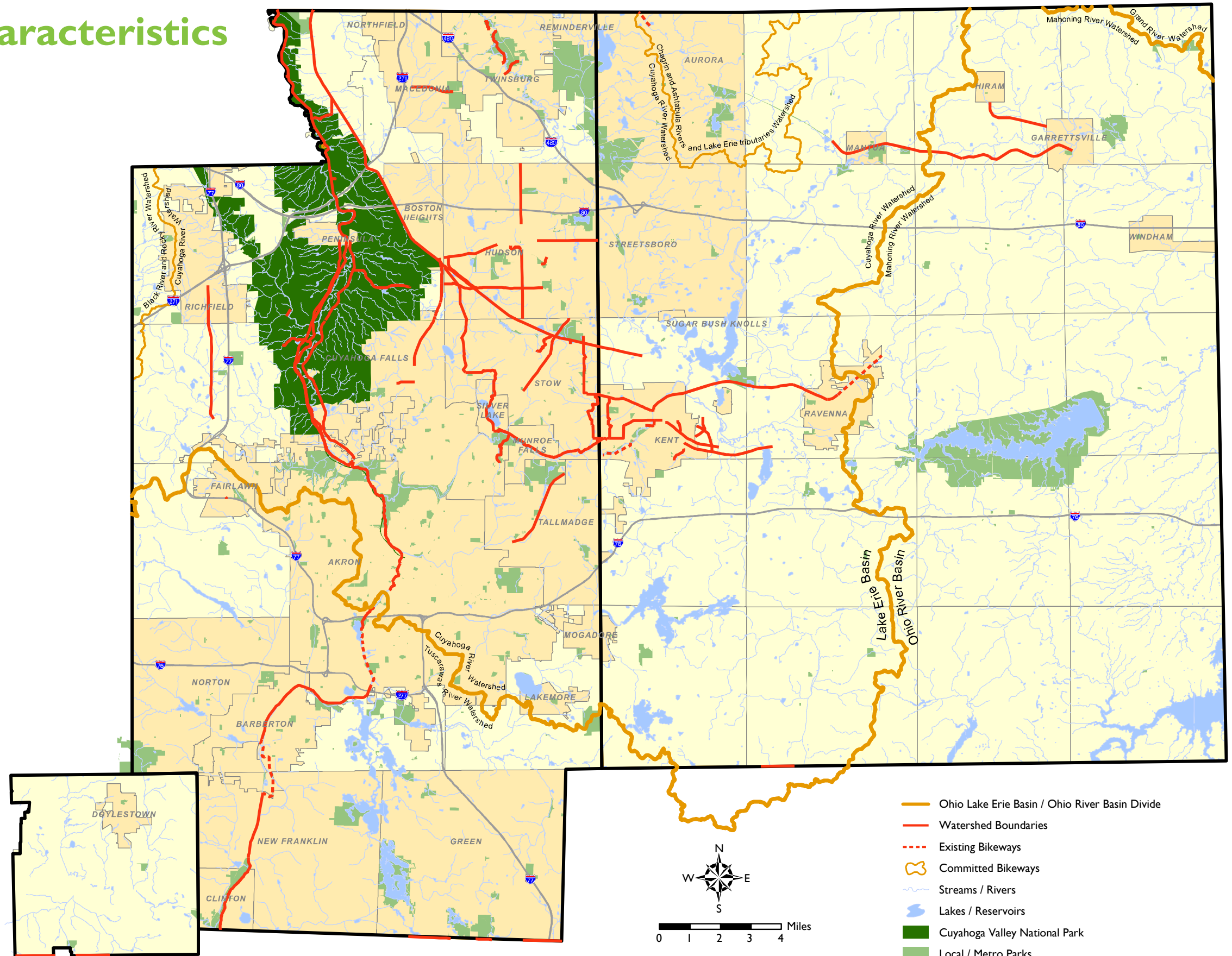


# Environmental Characteristics

The region's environmental characteristics are created by a network of parks, open space, woodlands, waterways, and watersheds. They play a vital role in stormwater management, air quality, natural habitats, and open space preservation. They also provide recreational opportunities for the community and attract people from outside the region. Impact analysis and environmental mitigation are a necessary part of transportation planning and development projects to avoid adverse impacts on the region's natural environment, such as soil erosion, stormwater runoff, noise and air pollution, and damage to natural features.

The adjacent map is a compilation of key environmental layers, including the region's bikeways, parks, watersheds, stream corridors, and waterways. It shows environmental characteristics on a regional scale to help identify and avoid potential environmental conflicts.

The region's park system includes the Cuyahoga Valley National Park, in addition to many other state and local parks. Many of these are connected by regional multi-purpose trails, such as the Ohio and Erie Canal Towpath Trail. The region's water is divided between the Lake Erie Basin and the Ohio River Basin and then into specific watersheds. While some of the waterways are open to canoeing and kayaking, additional connections are being discussed.



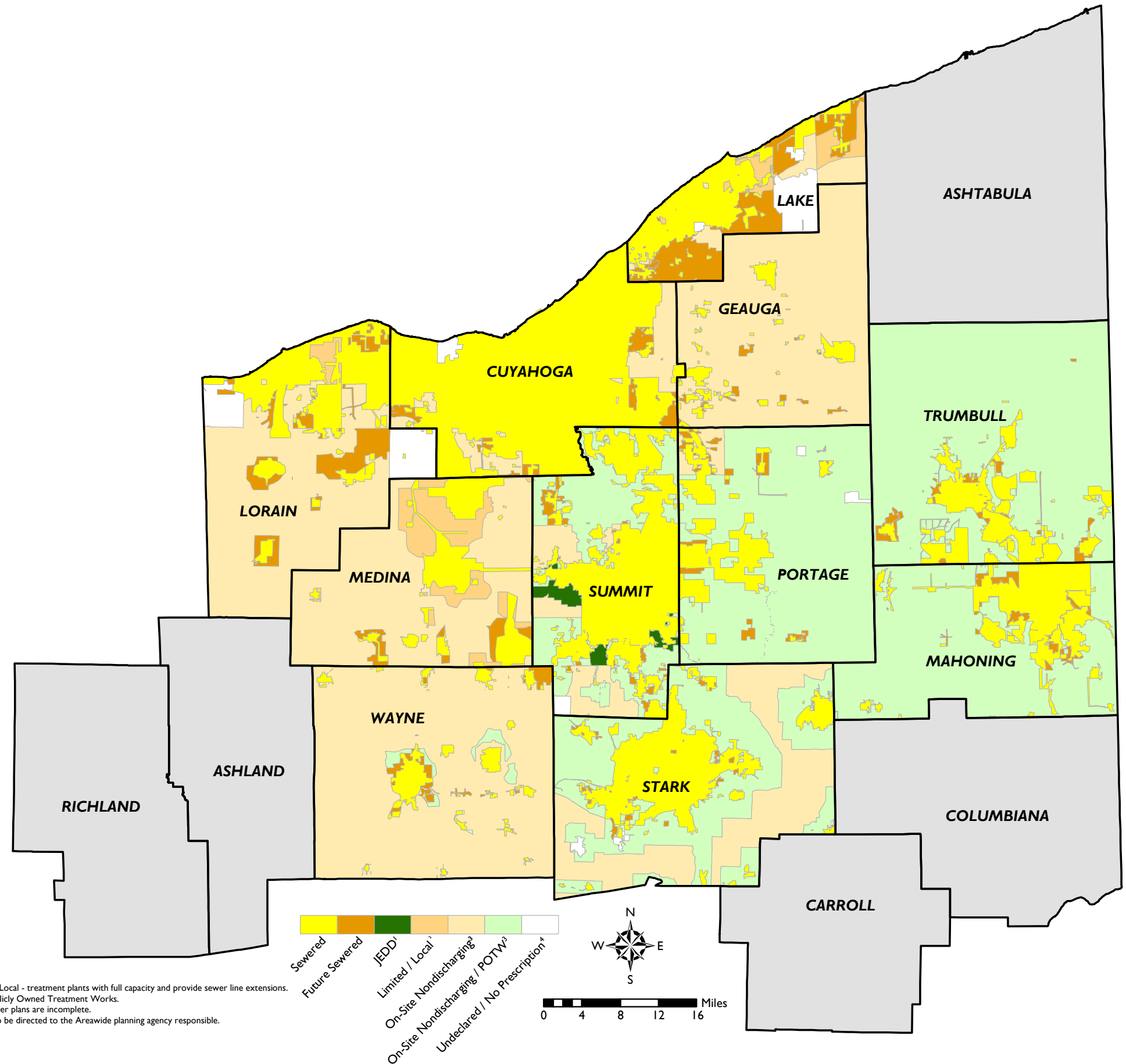


# Wastewater

The way communities are planned and developed directly affects utilities, especially wastewater systems. Effective growth management is an important consideration, as the need for water and wastewater management is becoming increasingly difficult to finance, build, and maintain. Planning for future wastewater treatment needs is based in part on the size and extent of population growth; hence, new treatment facilities continue to be proposed to meet growth demands.

The map represents seven general categories for wastewater planning areas in the Northeast Ohio region. The majority of the AMATS area is sewered, on-site nondischarging, or is served by a publicly-owned treatment works (POTW). Except in Aurora and Green, most future sewered locations are in exurban and rural areas of the townships.

Wastewater plans coordinate water quality management in metropolitan areas pursuant to section 208 of the Clean Water Act. The *Northeast Ohio 2005 Wastewater Prescriptions* map is a compilation of data from each area-wide planning agency that maintains a single "208 Plan" covering the counties within its jurisdiction.

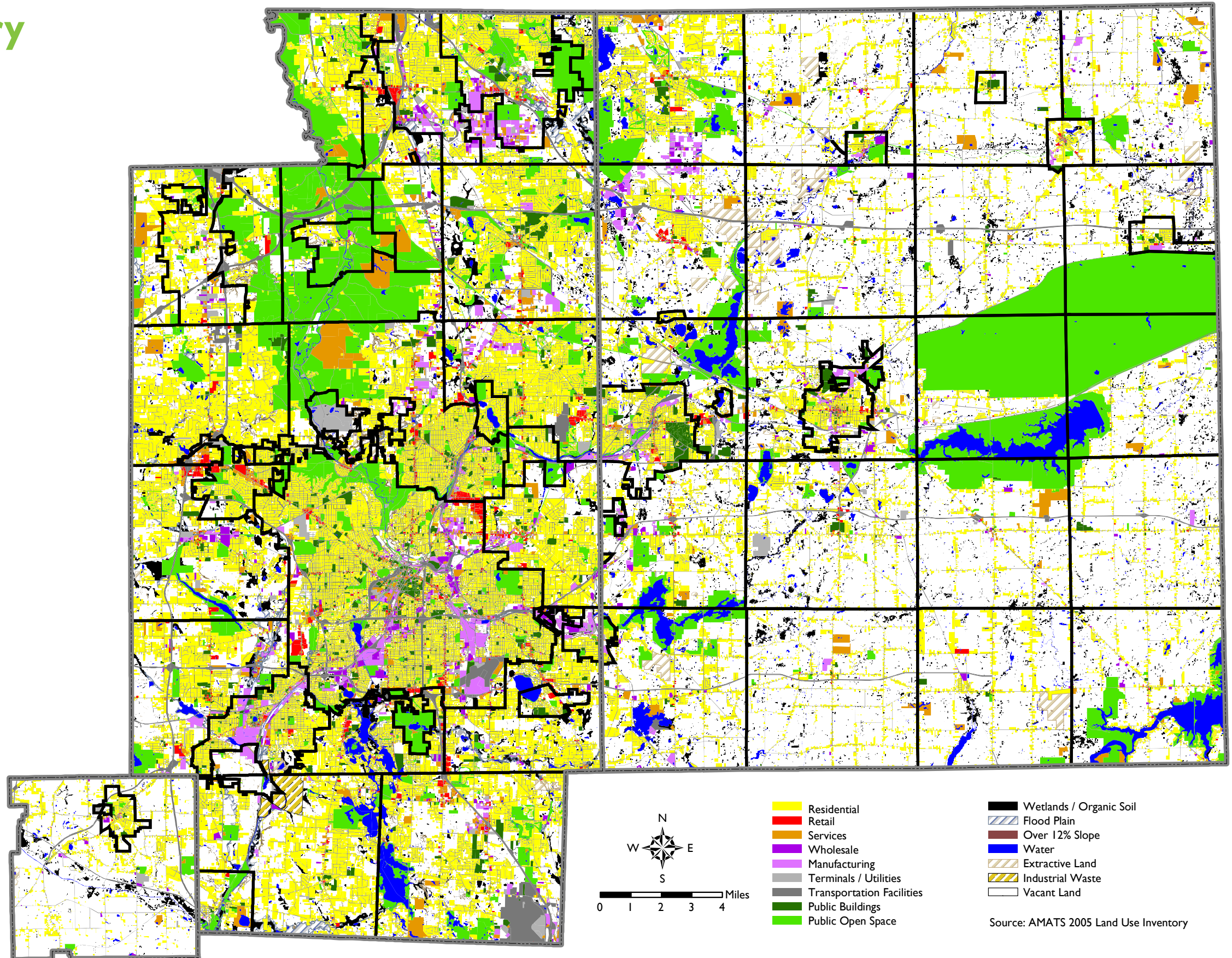


1 : JEDD - Joint Economic Development. Districts that are mostly served with sanitary sewer.  
 2 : Limited - treatment plants with adequate capacity to serve a limited jurisdiction and provide sewer line extensions. Local - treatment plants with full capacity and provide sewer line extensions.  
 3 : On-Site Nondischarging - sewage treatment system that includes on-lot discharge such as septic tanks. POTW - Publicly Owned Treatment Works.  
 4 : Undeclared or No Prescription - areas where a mix of sanitary sewers and on-site systems exist, mostly because sewer plans are incomplete.  
 NOTE: This map is intended for general representation only. Inquiries for specific details regarding prescriptions are to be directed to the Area-wide planning agency responsible.  
 SOURCE: NEFCO 2005 208 Plan Update (incl. Amendments), NOACA 2000 208 Plan, Eastgate 2005 208 Plan Update  
 DATE: January 2010

# Land Use Inventory

Understanding land use trends is an important part of transportation planning. Land use trends identify where and how land in the region has been developed. This development has major impacts on transportation infrastructure by generating new demand for housing, roadway improvements, additional roadway capacity, and transit service.

The Land Use Inventory examines the area's land use patterns between 2000 and 2005. During this time the region continued to sprawl rapidly. While the population remained stagnant (less than one percent growth), new residential development consumed over 16,000 acres of land. This development was primarily in suburban and exurban areas, especially in central and southern Summit County and northwestern Portage County.

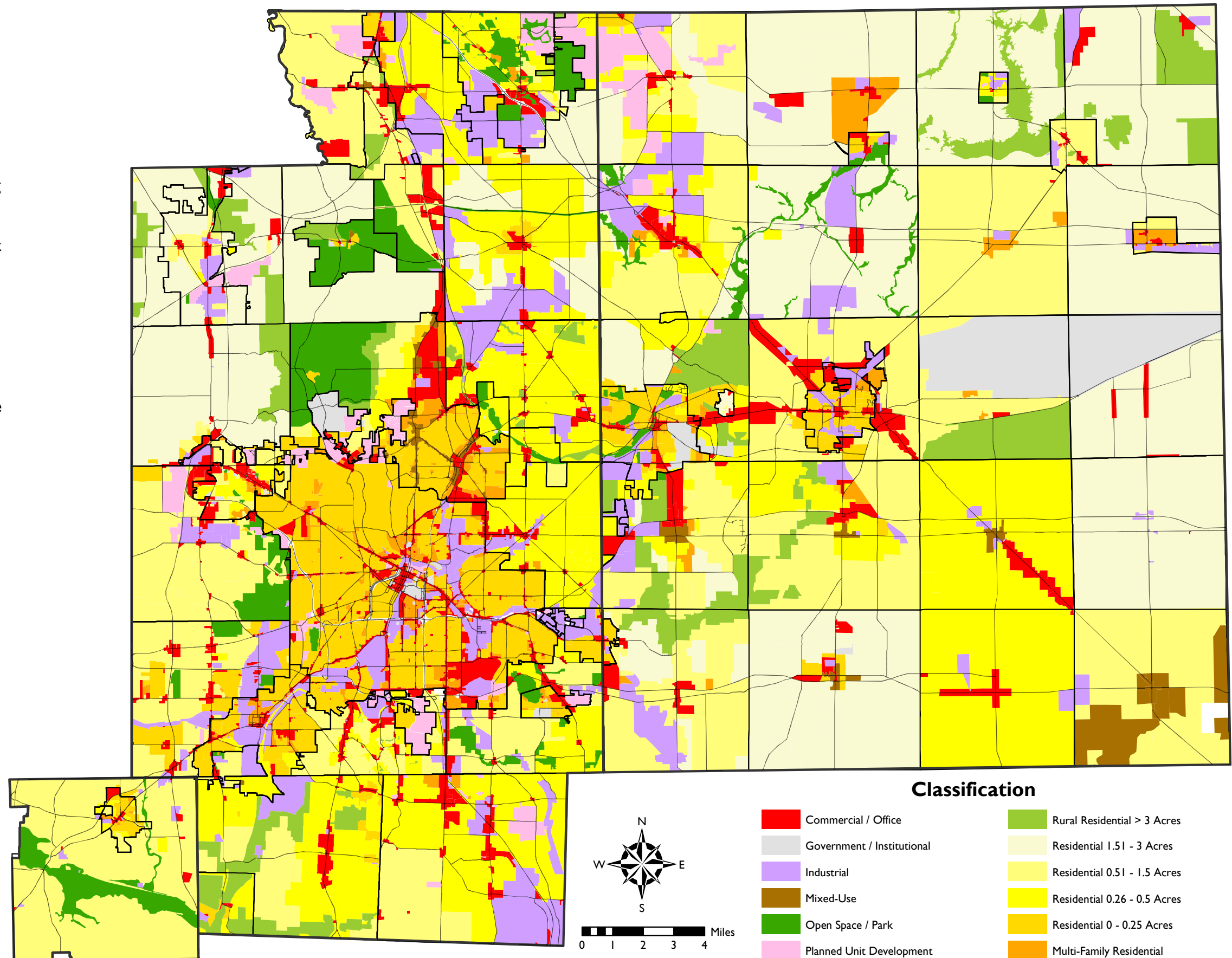


# Zoning Inventory

Zoning is a powerful regulatory land use planning tool used by local governments. It typically separates uses, such as residential, business, and industry, but can also be based on physical layout and design. Zoning regulates what type of activities are permitted and where, including density, lot size, building height, and requirements for parking and landscaping.

It is critical to understand how the region is zoned because it controls where development can go and at what intensity. The majority of the region's current zoning encourages sprawl by zoning large amounts as low-density residential and discouraging mixed-use, transit-oriented development. Approximately 80 percent of the region is zoned residential; of which 61 percent has a minimum lot size of half an acre. Only 3.5 percent is zoned for open space and 1 percent is zoned mixed-use. This demonstrates how the region could develop in the future if unchanged.

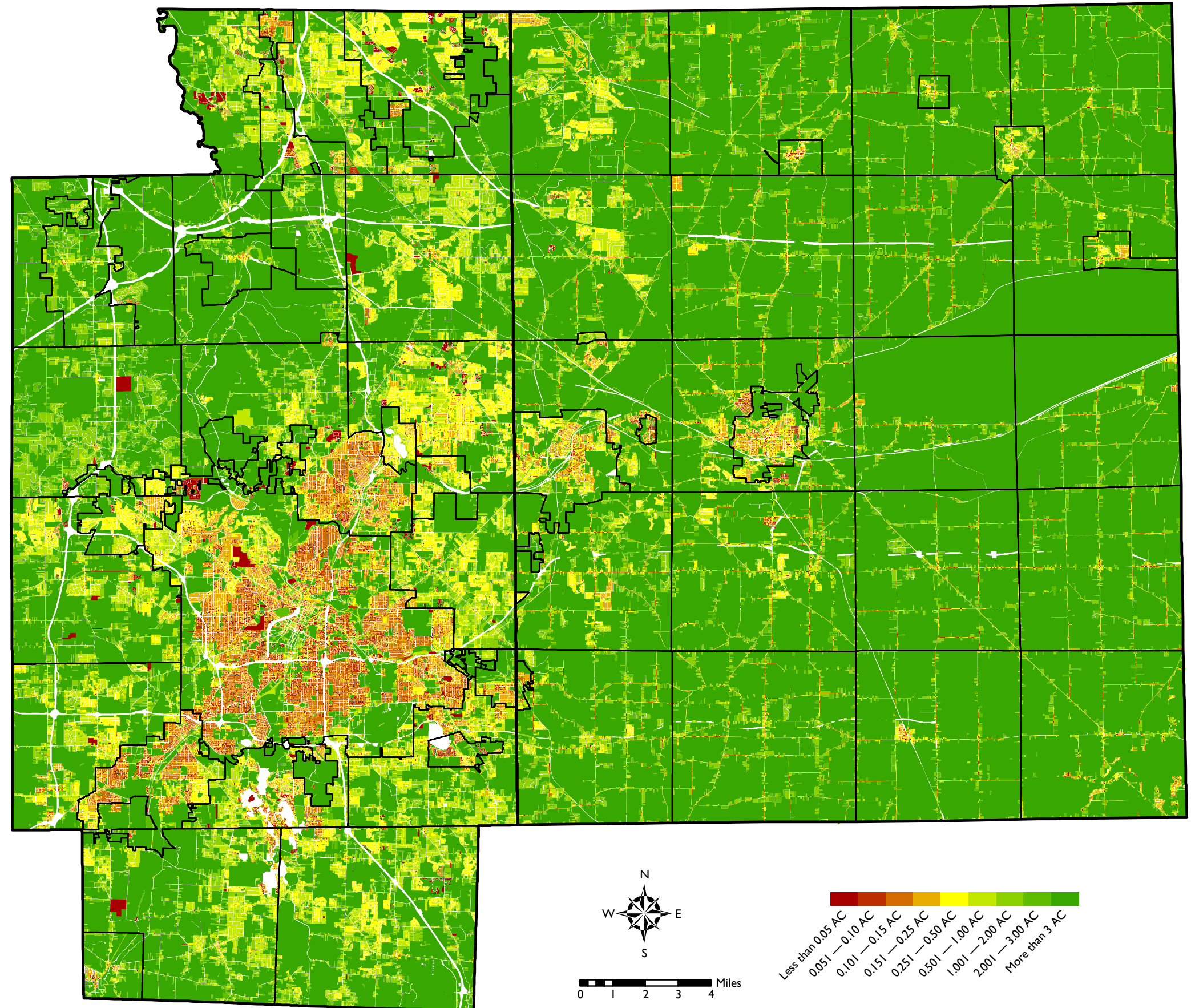
The Zoning Inventory was created by compiling community zoning codes into generalized categories.



# Parcel Sizes

A parcel size analysis was completed to evaluate the distribution and patterns of land use types across different parcel sizes. The map was color coded to show the various densities of the region's land use development patterns. It also acts as a framework for understanding the association between various land use behaviors, neighborhood interactions, and landscape patterns.

Older cities such as Akron, Barberton, and Cuyahoga Falls are generally more dense with smaller parcel sizes as shown in reds and oranges. The map illustrates how parcel sizes generally increase, while density decreases outward from the urban core. While downtown Akron is the most dense area of the region, it contains a lot of large parcels for office and university buildings making sections appear green on the map.



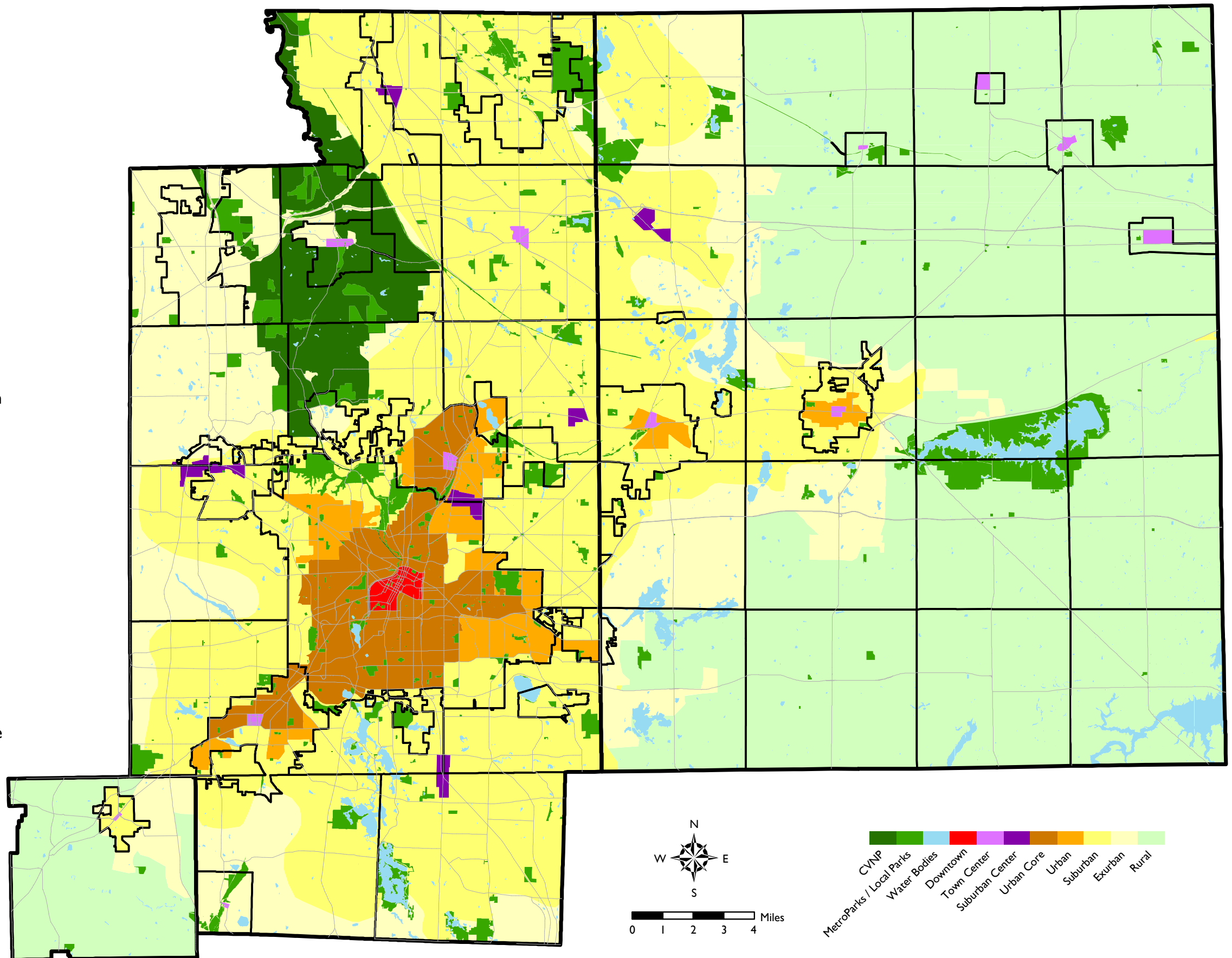
# Planning Areas

The planning areas show the general urban form of the region; urban form is the physical layout and design of an area. It is important to understand the urban form because different areas are more conducive to different types of infrastructure and development. With limited funding it is important for AMATS and local governments to target their resources to maximize investments.

For example, there are many types of pedestrian investments, such as sidewalks, street lighting, benches, and cross walks. While sidewalks are common in dense, urban areas, they should be targeted in low-density areas, especially near schools, parks, shopping areas, or other community priority areas.

As shown on the map, downtown Akron is the core of the region. It is the transportation hub, has the highest density, and has a high concentration of employment and other institutions. It is surrounded by dense, walkable neighborhoods that gradually transition to more suburban and rural areas. There are also other regional hubs. Suburban centers, shown in dark purple, are major business and retail areas, while town centers, shown in light purple, are smaller community centers.

The planning areas were developed by analyzing many factors, including parcel size, street patterns, and land use.



# Planning Areas

## DOWNTOWN

The Downtown area is the hub of the regional transportation system. It supports high levels of public transportation and pedestrian activity. It is the central business district with dense, tall buildings and a mix of office, residential, government, and cultural uses.



## SUBURBAN CENTER

Suburban Centers are major business and retail hubs. They consist of a mix of shopping centers, big-box stores, and office parks. Usually these areas are auto-dependent and do not support transit and pedestrian activity.



## TOWN CENTER

Town Centers are smaller hubs for business, retail, residential, and government uses predominantly along main streets. These centers are pedestrian-friendly, transit-accessible, and can consist of both business and office space.



## URBAN CORE

Urban Core areas consist of a grid block street pattern with high pedestrian activity and easy access to transit. It is a dense mix of single- and multi-family housing with businesses located along main streets and corner stores.



## URBAN

Urban areas are mature, developed neighborhoods adjacent to the urban core area. They have both grid and curving street patterns with moderate levels of transit accessibility and pedestrian activity. They are predominantly single-family with retail along main streets and in small shopping centers.



## SUBURBAN

Suburban areas (suburbs) are predominantly single-family housing units with retail and business located in shopping centers and office parks. Residential streets are predominantly curved and terminate in cul-de-sacs. Suburbs are auto-dependent with limited transit and pedestrian activity.



## EXURBAN

Exurban areas (exurbs) are predominantly low-density and single-family, with residential housing typically along country roads or detached subdivisions surrounded by agricultural and park land. They are auto-dependent, without sidewalks, and transit is limited to individual door-to-door service.



## RURAL

Rural areas consist of large tracts of agricultural, park or vacant land. Housing is predominantly along country roads and is very low-density and auto-dependent. There are no sidewalks and transit is limited to individual door-to-door service.



## RECOMMENDATIONS

*Connecting Communities* is a guide to integrate land use and transportation planning, decision making, and investments in the Akron metropolitan area. It is intended to be used by AMATS and other public and private agencies as a framework for targeting investments and regional cooperation. While some of the recommendations are specific to AMATS, many are aimed at local communities and organizations. Without their collaboration and commitment, *Connecting Communities* will not have as great of an impact.

The recommendations of this plan were developed from an analysis of the transportation system, land use patterns, and the built environment, as shown in the analysis section. They build on the analysis to fill in the missing links, identify priority needs and areas, and highlight opportunities to integrate land use and transportation.

This section is organized using recommendations, strategies, and best practices. The recommendations of *Connecting Communities* are listed in the adjacent box.

Each recommendation is followed by supportive strategies to be implemented to achieve the recommendation. Best practices are also provided to demonstrate innovative approaches that other communities have taken and can be used as a model in the region.

- 
- 1. Improve pedestrian planning and facilities through targeted investments.**
  - 2. Improve bicycle planning and facilities through targeted investments.**
  - 3. Enhance public transportation systems to meet the needs of current users and be attractive to new users.**
  - 4. Incorporate complete streets principles into land use and transportation decisions.**
  - 5. Implement land use policies that improve community cohesion and reduce urban sprawl.**
  - 6. Integrate environmental planning into land use and transportation planning.**
  - 7. Improve inter-agency coordination on regional planning.**
  - 8. Create a planning grant program to implement *Connecting Communities*.**



# Recommendation I

## Improve pedestrian planning and facilities through targeted investments.

- Strategy: I.A Coordinate pedestrian investments with AMATS planning areas.
- Strategy: I.B Prioritize pedestrian investments along transit routes.
- Strategy: I.C Create a regional pedestrian plan.
- Strategy: I.D Coordinate pedestrian investments with community plans and zoning.

While some parts of the region have adequate sidewalk coverage, others have piecemeal connections or no sidewalks at all. Pedestrian infrastructure promotes livable communities by increasing pedestrian safety, providing an alternative to driving, and encouraging community interaction and exercise. Pedestrian areas should be targeted where the land use is most conducive, such as higher density, mixed-use areas. Investments in pedestrian infrastructure include sidewalks, crosswalks, curb ramps, signs, street lighting, and benches. The Sidewalk Inventory (p. 10) was a major input into the following recommendations.

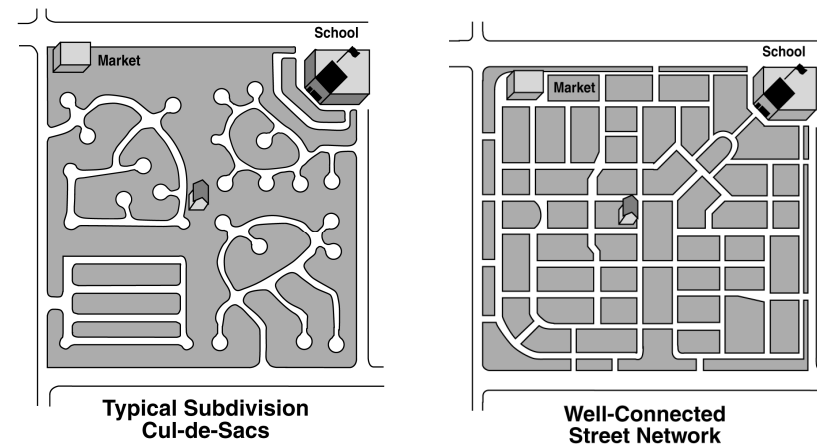
### Strategy: I.A Coordinate pedestrian investments with AMATS planning areas.

Pedestrian investments should be coordinated with AMATS planning areas (p. 19) to target and maximize investments. Planning areas with higher densities and high activity, such as downtown Akron, town and suburban centers, and major commercial and business corridors, should be prioritized. This will encourage walking as a viable means of transportation in areas where there are already people walking and destinations to walk to. Low-density, auto-dependent areas, such as

exurban and rural areas, are not conducive to sidewalks. Pedestrian investments in these areas should be targeted in priority areas (p. 13) or in community plans and may include alternatives to sidewalks, such as multi-use paths and wide shoulders. Examples of various types of pedestrian investments are on page 35 in the appendix.

### Strategy: I.B Prioritize pedestrian investments along transit routes.

Every transit trip involves walking at either both or one end of the trip. In many areas there is a disconnect between transit stops and residences, retail, and business causing safety hazards and discouraging transit ridership. This is shown on the Inter-Modal Connectivity Map (p. 12) where many transit routes are not accompanied by sidewalks. From this, priority pedestrian investments areas were highlighted (p. 13). AMATS, the regional transit authorities, and local communities should prioritize pedestrian investments along transit routes to increase safety and accessibility between transit stops and passengers' final destinations.



Source: Neighborhood Street Design Guidelines - An Oregon Guide for Reducing Street Widths, 2000.

**S**treet connectivity directly impacts the ability to walk or bike. Creating a network of streets, sidewalks, and bikeways reduces travel distances, increases route options and allows for the use of more local roads. The above diagrams show how different types of street patterns affect connectivity.

*Creating a walkable community starts with the very nature of the built environment: having destinations close to each other; siting schools, parks, and public spaces appropriately; allowing mixed-use developments; have sufficient densities to support transit; creating commercial districts that people can access by foot and wheelchair; and so on.*

**- PEDSAFE - FHWA**

## Safe Routes to Schools

Safe Routes to Schools provides funding for projects that make it easier and safe for children to walk or bike to school. Two different types of projects can be awarded; infrastructure and non-infrastructure, such as education or encouragement programs. The purpose of the project is to encourage children to walk or bike in order to improve traffic congestion, air quality around the school, and implement a healthy lifestyle at an early age.



More information at: [www.saferoutesinfo.org](http://www.saferoutesinfo.org)

## First and Main - Hudson, Ohio

First and Main is a mixed-use, open-air shopping center located in Hudson, Ohio. Created to enhance the traditional town center and provide greater opportunities to residents, it includes a village green, grocery store, a new Library, townhomes, and a variety of local and chain retail. It creates a small village atmosphere with traditional architecture, sidewalks, tree-lined streets, and street lights. It encompasses eight city blocks along Main Street and consists of restored buildings and new development. Parking is located on-street, in garages, and in surface lots behind the buildings.

More information at:  
[www.firstandmainhudson.com](http://www.firstandmainhudson.com)



### Strategy: I.C Create a regional pedestrian plan.

Connecting Communities analysis has discovered a number of major missing links in the region's pedestrian system. AMATS will build upon the Sidewalk Inventory (p. 10) and *Transportation Outlook*, the AMATS long-range plan, to create a regional pedestrian plan. The plan should create a framework for building and prioritizing investments and help establish a regional vision for a pedestrian network. It should also improve linkages between neighborhoods and the transit and park systems.

### Strategy: I.D Coordinate pedestrian investments with community plans and zoning.

Pedestrian investments should be planned for and incorporated into community comprehensive plans and zoning codes. This will establish a vision and plan for incorporating local pedestrian networks and encouraging the inclusion of pedestrian facilities. Communities should create focused plans, such as neighborhood or corridor plans, and work with developers early on site plans. They should also coordinate regional pedestrian planning. This will help guide pedestrian investments at the local level to create site specific plans and increase regional connectivity.

*While mixed-use developments with sufficient density to support transit and neighborhood commercial businesses can make walking a viable option for residents, single-use, low-density residential land-use patterns discourage walking.*

*- PEDSAFE - FHWA*

### Ravenna Town Center

- ✓ Building up to sidewalk
- ✓ Separated sidewalk
- ✓ Street lights
- ✓ Benches
- ✓ Trash receptacles
- ✓ Landscaping



## Recommendation 2

### Improve bicycle planning and facilities through targeted investments.

- Strategy: 2.A Coordinate bicycle investments with AMATS planning areas.
- Strategy: 2.B Prioritize bicycle investments along transit routes.
- Strategy: 2.C Create a regional bicycle plan.
- Strategy: 2.D Coordinate bicycle investments with community plans and zoning.

Bicycling facilities play an important role in the transportation system. They provide recreational opportunities and an alternative to automobile transportation. Bike facilities, including trails, bike lanes, wide shoulders, bike racks, pavement markings, and signs, provide a safe environment for people to bike and encourage biking for commuting, enjoyment, and exercise. They are popular community amenities and also increase tourism along regional trails.

Bicycle amenities are used by many different people and can be used for recreational and commuter riding. Bicycle facilities should consider all levels and types of riders. More experienced riders may have little difficulty riding alongside traffic, while others are looking for a leisurely ride on a separated land or path.

# BIKE

### Strategy: 2.A Coordinate bicycle investments with AMATS planning areas.

Bicycle investments should be coordinated with AMATS Planning Areas (p. 19) to target and maximize investments. For bicycling to be a viable alternative to automobile transportation, infrastructure must be prioritized in planning areas with higher densities and activity centers which include downtown Akron, town and suburban centers, urban core, and urban planning areas. On-street facilities such as bicycle lanes and shared lane markings in these areas will promote biking. Suburban, exurban, and rural areas that are low-density and auto-oriented should target investments and coordinate with local community goals and plans to make areas more bicycle friendly.

### Strategy: 2.B Prioritize bicycle investments along transit routes.

Transit stops may be located further from residential, employment, shopping, or recreational areas than is comfortable to walk. Connecting bicycle facilities to public transportation routes increases mobility by allowing all users to combine modes. Bicycle facilities along transit routes encourage biking and increase safety. The Inter-Modal Connectivity map (p. 12) shows the missing links between bicycle and transit routes, while the Gap Analysis map (p. 13) highlights priority areas. AMATS, the regional transit authorities, and local communities should prioritize bicycle investments to and along transit routes and at final destinations.



**B**ike racks on buses and at destinations provide access and storage to encourage bicycling.

### Rails-to-Trails

Rails-to-Trails is a nonprofit organization based in Washington, D.C.. Their mission is to create a nationwide network of trails from former rail lines and connecting corridors to build healthier places for healthier people. Since 1986, this organization has been working to create a large network of trails across the country. The idea is that with more trails, Americans will live a healthier life through a healthier environment and the connections made because of the trails. Currently, there are more than 19,000 miles of rail-trail (a multi-purpose public path created out of abandoned railroad corridors) in the US.



More information at:  
[www.railstotrails.org](http://www.railstotrails.org)

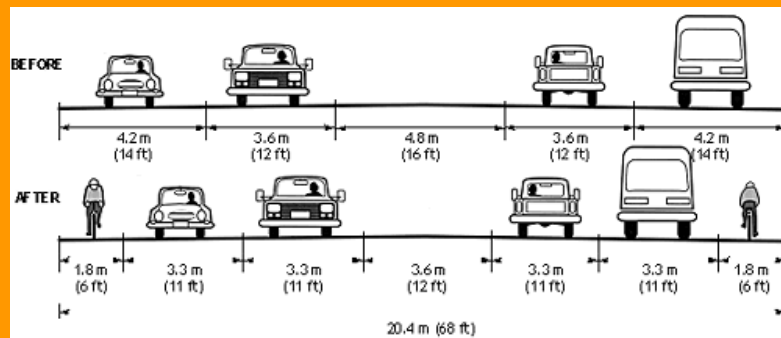
## Road Retrofits

Bicycle lanes provide cyclists with dedicated travel lanes within the street space. When roads are reconstructed or built, they should safely incorporate bicycle lanes where appropriate. The following diagrams are examples of street retrofits from Oregon and do not necessarily reflect the design criteria of Ohio. For example, under certain circumstances in Ohio, lane width can be reduced even further to include multi-modal.

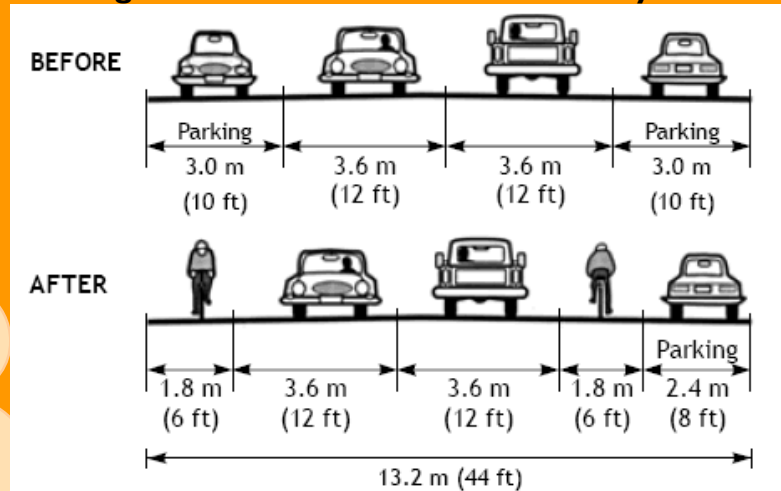
More information at:

[www.tfhrc.gov/safety/pedbike/pubs/05085/chapt15.htm](http://www.tfhrc.gov/safety/pedbike/pubs/05085/chapt15.htm)

### Retrofitting bike lanes by reducing travel lane widths.



### Parking removed on one side of a two-way street.



### Strategy: 2.C Create a regional bicycle plan.

AMATS will build upon the bicycle recommendations in their long range plan to create a regional bicycle plan. The plan will help create a regional framework for targeting investment and establishing a regional vision for a bicycle network. The plan will examine how to improve linkages between neighboring communities and the park and transit systems. The plan will also examine the hierarchy of regional trails to create a complete trail system with local connections. A uniform bicycle signage scheme will also be established.

### Strategy: 2.D Coordinate bicycle investments with community plans and zoning.

Community comprehensive plans and zoning codes should incorporate bicycle planning and requirements. This will establish a vision and plan for local bicycle networks and regulate bicycle facilities. Local communities should also coordinate with regional bicycle planning. This will ensure local and regional bicycle connections and investments have a maximum impact and are regionally connected.



Dedicated bicycle lanes increase safety and awareness and encourage new cyclists.



Recreational trails provide a great regional amenity.

## Recommendation 3

Enhance public transportation systems to meet the needs of current users and be attractive to new users.

Strategy: 3.A Promote Transit-Oriented Development (TOD).

Strategy: 3.B Improve coordination between Regional Transit Authorities (RTAs).

Strategy: 3:C Increase choice ridership.

Public transportation is a critical part of the transportation system. It provides access to employment, schools, shopping, and residential neighborhoods. It also provides alternate modes of transportation and helps reduce congestion and pollution. Increasing transit usage and transit as a viable option is an important element of creating a balanced transportation network.

As population and employment centers continue to expand in suburban and exurban areas, transit service must provide new service while maintaining the existing level of service in established areas. This becomes costly and makes the system less effective. It is also important to enhance infrastructure which supports transit such as roadways, parking lots, and sidewalks and educating communities on the benefits of transit.

# RIDE

### Strategy: 3.A Promote Transit-Oriented Development (TOD).

Public transportation is most effective in areas of high residential and employment density. It is particularly efficient in areas which these and other land uses are combined. All comprehensive and zoning plans should allow for mixed-use, high-density development within a quarter-mile radius of major transportation nodes. This will foster a symbiotic relationship between the transit system and the development that surrounds it.

### Strategy: 3.B Improve coordination between Regional Transit Authorities (RTAs).

Current development and transportation patterns allow for people to live in one city, work many miles away in another, and perhaps enjoy an evening out in yet another place. Transportation issues seldom occur within the boundaries of any one jurisdiction, and major decisions in one location can greatly affect the transportation patterns in areas far away. Public transportation is funded through the county sales tax, deterring transit authorities to travel beyond their region.

Regional transportation planning agencies, transit authorities, and local governments should work together on plans and policies that benefit the entire region.

### Strategy: 3:C Increase choice ridership.

Encouraging choice ridership, or those who have access to personal automobiles, is a vital step towards taking full advantage of the public transportation system. To appeal to choice riders, transit must exceed the automobile in terms of cost and convenience. Local transit authorities should invest in equipment and services to achieve this task. Among these investments could be increasing express service, implementing Bus Rapid Transit (BRT) along key corridors, using Global Positioning System (GPS) based technologies to provide real-time locational data, and providing frequent, around the clock service with minimum wait times throughout the day. It is also important to take a look at transit route coverage and frequency in order to increase transit as an option and increase ridership.

### Euclid Corridor Transportation Project

The Euclid Corridor Transportation Project, the HealthLine, is a Bus Rapid Transit (BRT) system to improve transit service and support increased development along the Euclid Corridor in Cleveland, Ohio. The HealthLine links major employers, hotels, and venues in downtown Cleveland to hospitals, colleges, and cultural institutions in the University Circle area to a large transfer hub in East Cleveland in just 12 minutes. It provides residents and visitors easy access and has spurred streetscape improvements and economic development. Over 4.3 billion dollars has been invested along the route, including house and retail center rehabilitation, new construction, and major hospital and university expansions.

The HealthLine runs 6.8 miles down Euclid Avenue with boarding stations in the median and along the curb. It utilizes exclusive bus lanes, pedestrian zone enhancements (new sidewalks, shelters, lighting and street trees), priority traffic signaling, and hybrid buses.

More information at:  
[www.rtahealthline.com/healthline-what-is.asp](http://www.rtahealthline.com/healthline-what-is.asp)



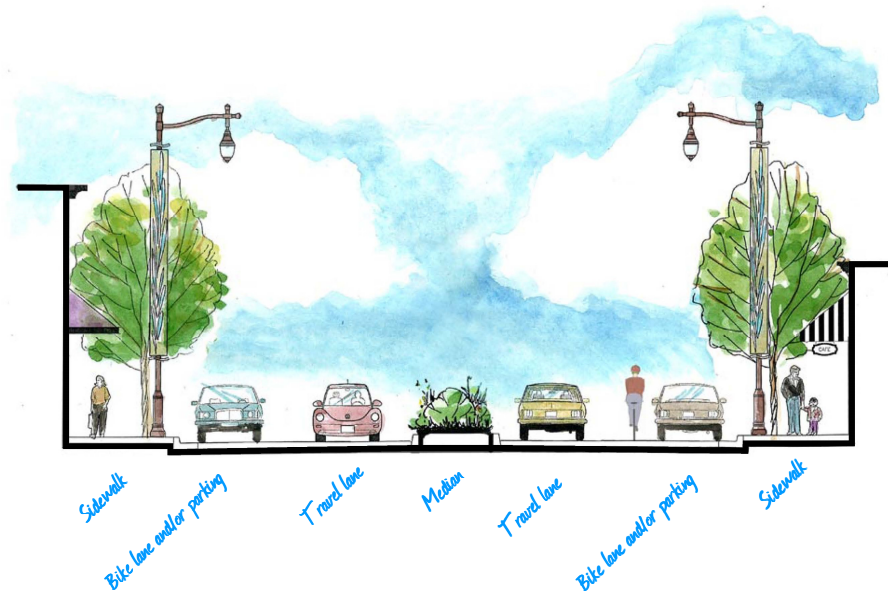
# Recommendation 4

## Incorporate complete streets principles into land use and transportation decisions.

Strategy: 4.A AMATS will create a complete streets policy.

Strategy: 4.B Local communities should adopt complete streets policies.

Sample complete street cross section from the City of Duvall, Washington.



Complete streets are designed and operated to ensure safe access for all users including pedestrians, bicyclists, transit riders, and motorists. Complete streets utilize the road and right-of-way to create a safe and comfortable environment for all, encouraging walking and bicycling for commuting and recreation. Complete streets look different depending on the area and type of street. A complete street in an urban area may have sidewalks and bike lanes, while a rural complete street may have wide shoulders and share-the-road signs or sharrows. Elements of a complete street will vary depending on the neighborhood type and area, but may include sidewalks, bike lanes or wide shoulders, median islands, crosswalks, bus lanes and bicycle and pedestrian signals.

### Strategy: 4.A AMATS will create a complete streets policy.

AMATS will create a complete streets policy to ensure that all federal funded transportation projects in the region are designed to accommodate all users and modes. Complete streets policies should be coordinated with AMATS planning areas (p. 19). The planning areas show the existing urban form of the region and will help guide what type of complete street elements would best accommodate that area.

### Strategy: 4.B Local communities should adopt complete streets policies.

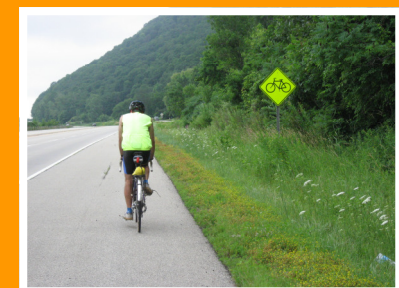
Local communities in the AMATS area should adopt a complete streets policy to ensure that all users and modes are accommodated at the local level. This would allow each community to determine and implement what type of complete streets policy fits their neighborhoods and complements regional complete streets goals. Communities should also create neighborhoods and retail centers that complement complete streets.

## Elements of Complete Streets

While each complete street differs from the type and use of a street, common elements of a complete street may include:

- Sidewalks
- Street trees
- Street lighting
- Benches
- Trash receptacles
- Bus lanes
- Bicycle lanes
- Wide shoulders
- Transit stop shelters
- Median islands
- Pedestrian signals
- Curb extensions
- Curb ramps

More information at:  
[www.completestreets.org](http://www.completestreets.org)



# COMPLETE

## Recommendation 5

### Implement land use policies that improve community cohesion and reduce urban sprawl.

Strategy: 5.A Local communities should adopt land use principles that reduce urban sprawl.

Strategy: 5.B AMATS will establish a land use vision for the region.

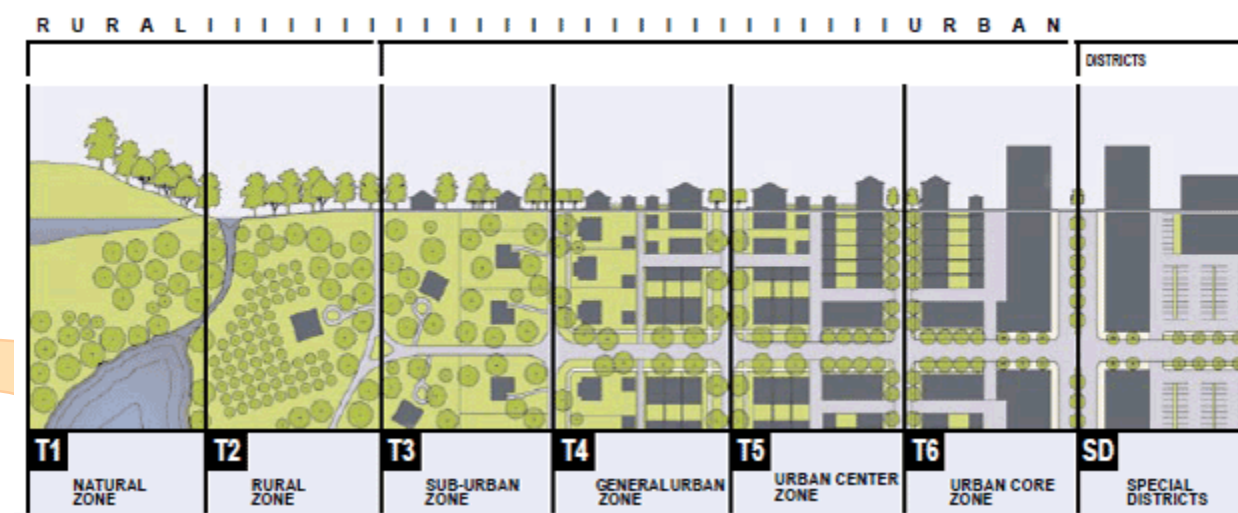
Without supporting land use patterns and densities, transportation and other infrastructure investments will continue to be overburdened. New subdivisions and commercial centers are auto-oriented making them difficult to serve with public transportation while usually requiring new infrastructure. Supporting the existing infrastructure with policies, incentives, and regulations by making it a more mixed-use and multi-modal design will assist AMATS, as well as the local communities, in maximizing limited resources.

### Strategy: 5.A Local communities should adopt land use principles that reduce urban sprawl.

Community comprehensive plans and zoning codes should adopt land use principles that reduce urban sprawl. These could include encouraging transit-oriented development, complete streets policies, and protection of environmentally sensitive areas. Local communities should have up-to-date comprehensive plans and zoning codes that establish development goals and provide the ground work for future projects.

### Strategy: 5.B AMATS will establish a land use vision for the region.

AMATS will create a land use vision that encourages efficient land use patterns and development with existing transportation infrastructure. The vision should also target various transportation investments based on the AMATS planning areas (p. 19) and community plans. This will help to maximize AMATS investments and encourage local land use that supports an efficient transportation system. Policies and urban design approaches such as smart growth, traditional neighborhood development, and transit-oriented development, promote mixed-use buildings and neighborhoods. This, in turn, creates transit, bicycle, and pedestrian friendly communities where infill, grayfield, and brownfield redevelopment should be encouraged.



Source: Duany Plater-Zyberk & Company

The Transect is the basis for the Smart-Code, a model transect-based development code by Duany Plater-Zyberk & Co. The Transect is a model for planning and zoning. It categorizes elements of the built environment into seven zones from rural to urban. Each zone has model codes and examples, such as building height and density.

For more information:  
[www.smartcodecentral.org](http://www.smartcodecentral.org)  
[www.dpz.com/index.htm](http://www.dpz.com/index.htm)

### Smart Growth Principles

According to the U.S. Environmental Protection Agency (EPA), smart growth “covers a range of development and conservation strategies that help protect our natural environment and make our communities more attractive, economically stronger, and more socially diverse.” The EPA recognizes ten basic smart growth principles developed by the Smart Growth Network. They are:

1. Mix land uses
2. Take advantage of compact building design
3. Create a range of housing opportunities and choices
4. Create walkable neighborhoods
5. Foster distinctive, attractive communities with a strong sense of place
6. Preserve open space, farmland, natural beauty, and critical environmental areas
7. Strengthen and direct development towards existing communities
8. Provide a variety of transportation choices
9. Make development decisions predictable, fair, and cost effective
10. Encourage community and stakeholder collaboration in development decisions

More information at:  
[www.smartgrowth.org](http://www.smartgrowth.org)  
[www.epa.gov/smartgrowth](http://www.epa.gov/smartgrowth)



## City of Kent Downtown Redevelopment

The City of Kent along with Kent State University, PARTA, and private developers have joined to revitalize downtown Kent and provide a better connection to the University. The first steps include the newly opened Acorn Alley, as well as the Kent Central Gateway and the Kent Esplanade. Future plans include a new hotel with a restaurant and conference center, as well as new shopping and office space. After the redevelopment is complete, the City of Kent will become a more vibrant, transit-oriented, livable city.

### Kent Esplanade

The final leg of the connection between downtown Kent and Kent State University is the Kent Esplanade. The Esplanade will provide a complete walkway for pedestrians to be able to safely access the Kent campus and campus neighborhoods as well as walk or bike to the transit center or shop at Acorn Alley downtown. The Esplanade will directly connect Erie Street from the east of Haymaker Parkway to Erie Street and the transit center on the west. Safety measures such as crosswalks, signage and traffic calming will be used.

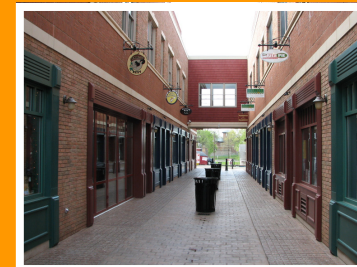
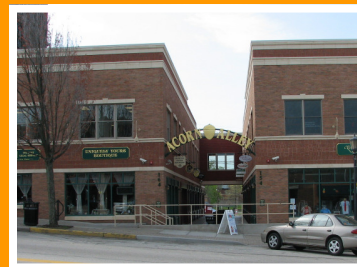
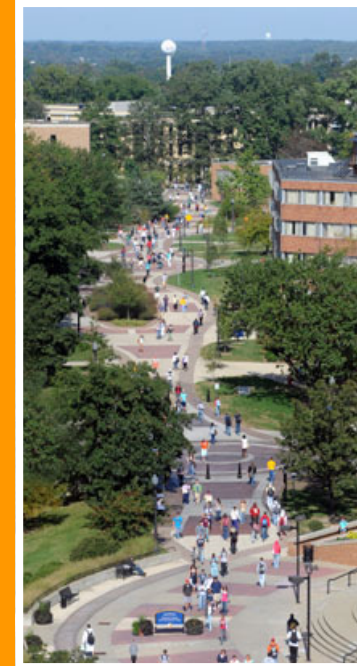
### Acorn Alley

A renovation of four vacant buildings near Main Street in Kent created a revitalized alley full of shops, businesses, and restaurants. Some student-run businesses and organizations also moved into the alley, creating a draw for many university students as well as locals. This privately-funded project was the catalyst for other investment and renovation in Kent.

### Kent Central Gateway

This multi-modal transportation center promises to more efficiently connect Kent with Akron and Cleveland. It is considered multi-modal for its parking garage as well as the bike racks and bus bays. To encourage bicycling, planning was included for bike lockers and locker rooms as well as improvements to Haymaker Parkway to make it safer for pedestrians and bicyclists. Built with solar panels and geothermal heating, the center will be located at the corner of East Main Street, South Depeyster Street and Haymaker Parkway and will connect the downtown area with the university as well as provide an entrance to the Portage Hike and Bike Trail. The center will also include space for office, retail, and restaurants. Recently, federal stimulus funds were awarded to the project that will help ensure its completion and success.

More information at:  
[www.kentcentralgateway.com](http://www.kentcentralgateway.com)



## Highland Square—Akron, Ohio

- ✓ ADA curb ramp
- ✓ Buildings up to sidewalk
- ✓ Trash receptacles
- ✓ Crosswalk
- ✓ Street trees/landscaping
- ✓ Outdoor seating
- ✓ Pedestrian bulb-out
- ✓ On-street parking





## Recommendation 6

### Integrate environmental planning into land use and transportation planning.

Strategy: 6.A Coordinate the 208 water quality management plans with local and regional plans.

Strategy: 6.B Encourage smaller parking lots.

Strategy: 6.C Promote stormwater management and erosion control throughout the region.

Land use and transportation planning projects may have many negative impacts on the environment, including increased stormwater runoff, as well as pollution and degradation of wetlands, streams, and natural habitats. Local and regional agencies should increase the integration of environmental planning into land use and transportation design to minimize adverse environmental impacts.

#### Strategy: 6.A Coordinate the 208 water quality management plans with local and regional plans.

208 plans, developed by the Northeast Ohio Four County Regional Planning and Development Organization (NEFCO) for the AMATS area, show where there are current wastewater facilities, their capacity, and proposed future facilities. Access to water and sewer has a major impact on the location of housing, retail, and industry. Subdivisions and large business need water and sewer, while existing infrastructure is aging and in need of major repairs. 208 plans should be coordinated with local plans and AMATS planning areas to prioritize maintaining the existing system first and ensure capacity.

#### Strategy: 6.B Encourage smaller parking lots.

Parking lots create a large amount of impermeable surfaces and stormwater runoff. Many parking codes are outdated and apply primarily to big-box and strip retail. While a pharmacy parking lot in a suburban plaza may have parking in the front,

the same pharmacy in a town center should encourage parking behind the store. Parking lot requirements should be reduced to reflect different areas needs and reduce the amount of impervious surface when possible.

#### Strategy: 6.C Promote stormwater management and erosion control throughout the region.

Stormwater management and erosion control reduce and improve the quality of runoff into streams and rivers and reduce impacts from flooding. They also can reduce community costs and help protect the health and safety of the region. Communities should adopt stormwater management and erosion control measures for development and transportation projects.



The former 327-acre Richfield Coliseum arena site, located at Interstate 271 and State Route 303 in northern Summit County, closed in 1994. The Trust for Public Land acquired the property, demolished the vacant arena, and transferred the property to the Cuyahoga Valley National Park. Today, a grassland and wildflower meadow has replaced acres of asphalt parking. Most recently, the National Park Service is looking at possible trail connections from the site to Furnace Run Metro Park, which lies to the west.

### Ohio Balanced Growth Program

The Ohio Balanced Growth Program is a program with an incentive based strategy to protect and restore Ohio's watersheds to assure long-term economic competitiveness, ecological health, and quality of life. The recommendations focus on reducing urban sprawl, protecting natural resources, and encouraging redevelopment in urban areas.

More information at:

[www.balancedgrowth.ohio.gov](http://www.balancedgrowth.ohio.gov)

### Chagrin River Watershed Partners

The Chagrin River Watershed Partners is an organization that provides technical assistance on stormwater management and natural resources protection to its Member communities. Its mission is to strive to preserve and enhance the scenic and environmental quality of the ecosystem of the Chagrin River and its watershed in a manner that assures a sustainable future for people, plants, and animals.

More information at:

[www.crwp.org](http://www.crwp.org)

### Summit County Health District

The Summit County Health District's mission is to protect and promote the health of the entire community through programs and activities designed to address safety, health, and well-being of the people who live in Summit County. The health district's environmental division has begun to develop a strategic plan for action in defining local public health roles in environmental sustainability, water quality issues, and community design.

More information at:

[www.schd.org](http://www.schd.org)

## Recommendation 7

### Improve inter-agency coordination on regional planning.

- Strategy: 7.A AMATS will work with other agencies to leverage funds.
- Strategy: 7.B Improve Northeast Ohio planning agencies coordination.
- Strategy: 7.C Create a database of regional information.

Land use, transportation, and environmental planning span multiple communities. Decisions are made by many different agencies and organizations at all levels, from individual neighborhoods to the regional and federal level. With all the agencies and organizations involved in various stages of the planning and development process, coordination can be difficult, yet is essential in creating a balanced, livable, and economically viable region.

#### Strategy: 7.A AMATS will work with other agencies to leverage funds.

Many large transportation projects are beyond the funding capability of AMATS alone. AMATS will work with other agencies to advocate for large-scale projects and leverage funds. This will improve the region's competitiveness to receive funding for large projects, such as the Central Interchange project.

#### Strategy: 7.B Improve Northeast Ohio planning agencies coordination.

Northeast Ohio planning agencies, like the Metropolitan Planning Organizations (MPOs) and the Northeast Ohio Four County Regional Planning and Development Organization (NEFCO), should meet regularly to discuss regional planning and development. This will provide an opportunity to collaborate on land use planning in Northeast Ohio.

#### Strategy: 7.C Create a database of regional information.

Having access to quality, reliable information is essential to making informed decisions. While valuable data is available about the region, many communities and organizations do not know what information exists or how to access it. Local communities, agencies, and other organizations should create a regional database to provide easy access to information and improve coordination. This will promote regional cooperation, planning, and better informed decisions. Individually, each community or agency should create 'cheat sheets' to enable other organizations to quickly find their goals and plans.

### Indiana Land Use Consortium



The Indiana Land Use Consortium is made up of individuals from various backgrounds in Indiana with a common interest in land-use planning. Some members include builders, realtors, universities, government, and agricultural groups. Their mission is to "serve as a catalyst for education and a forum for discussion to foster responsible land use decisions and practices in Indiana." The Consortium offers principles to guide the community in making the best land-use decisions. Following are a few of the principles:

- Protect natural areas, such as wetlands, wildlife habitats, lakes, woodlands, and open spaces.
- Land use decisions must be approached in a holistic manner that considers its many consequences and interactions.
- Preserve and enhance unique urban, suburban, and rural communities.
- Encourage cooperation and coordination among nearby units of government and local schools.
- Promote efficient land use development patterns and densities.
- Encourage neighborhood designs that support a range of lifestyle choices.

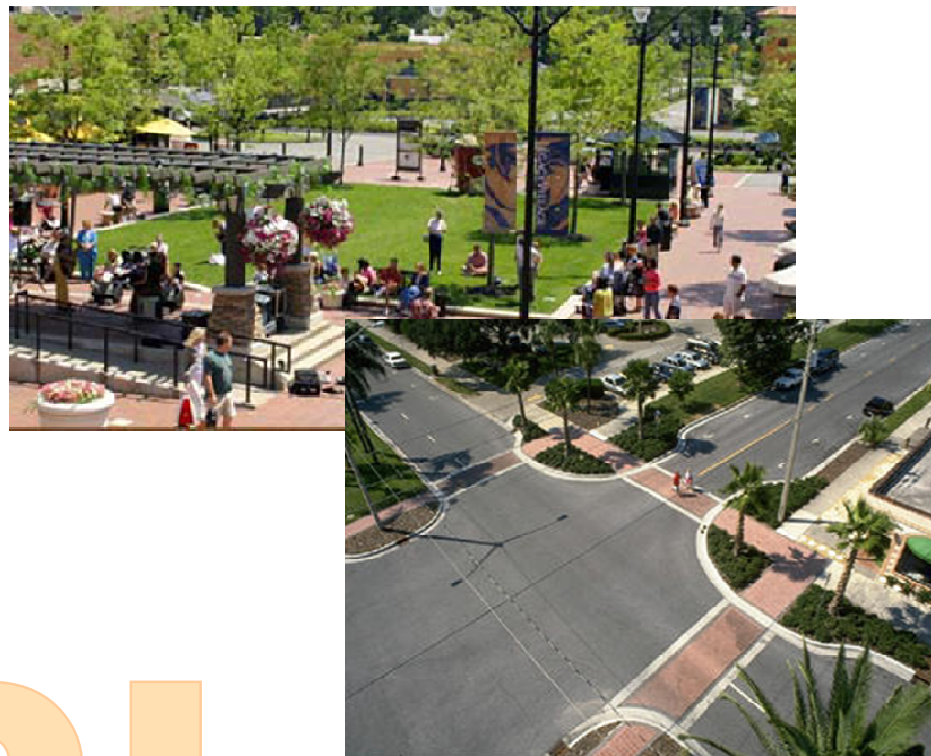
For more information:  
[www.indianalanduse.org](http://www.indianalanduse.org)

# COORDINATE

## Recommendation 8

Create a planning grant program to implement *Connecting Communities*.

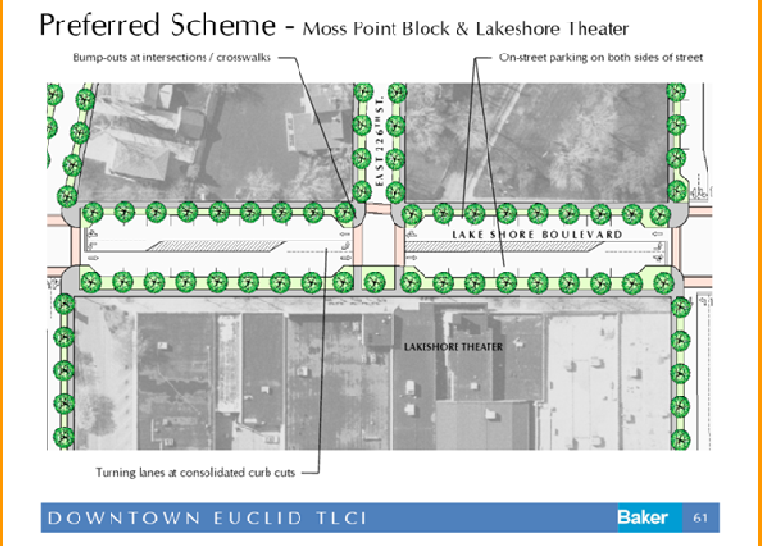
AMATS should create a grant program to encourage communities to implement *Connecting Communities*. The program should be designed to assist communities in doing small-scale transportation planning, such as complete streets plans, bicycle and pedestrian plans, corridor plans, and transit-oriented development (TOD). A consultant hired through the grant will analyze a particular area and provide recommendations. These recommendations will lead to the identification of projects eligible for future AMATS project funding.



### Transportation for Livable Communities Initiative

As part of their Transportation for Livable Communities Initiative, Northeast Ohio Areawide Coordinating Agency (NOACA), the Cleveland-area metropolitan planning organization, established a planning grant program whereby eligible communities and public agencies receive funding for transportation improvements that make communities more livable. Such activities include the development of land use or transportation plans, streetscape plans, and bicycle and pedestrian plans that include safety and security planning. The maximum grant is \$75,000. This program has been in place for a few years with significant results. Examples of some of NOACA's Planning Grant Projects include the Cedar-Fairmount Transportation and Streetscape Plan and the Painesville Transit Hub.

More information at:  
[www.noaca.org/tlci.html](http://www.noaca.org/tlci.html)



# PLAN

# APPENDIX

<b>A. Best Practices</b> .....	35
Bicycle and Pedestrian .....	35
Stormwater Management .....	38
Land Use and Development .....	39
<b>B. Travel Time Analysis</b> .....	40
<b>C. Building Unit Permits</b> .....	43
<b>D. Planning Areas Handout</b> .....	44

# Bike and Pedestrian

## PEDESTRIAN REFUGE

- Median refuge islands to provide a refuge area for crossing pedestrians.
- Provides safe crossing on busy streets.



Complete Streets: A comprehensive policy approach to livable streets  
[http://www.ampo.org/assets/84\\_mccanncompletestretesampo.ppt](http://www.ampo.org/assets/84_mccanncompletestretesampo.ppt)

## HIGH VISIBILITY CROSSINGS

- Marked crosswalks serve to highlight the right-of-way where motorists can expect pedestrians to cross and designate a stopping or yielding location.



City of Dublin  
<http://www.dublin.oh.us/engineering/trafficcalming/raisedcrosswalk.php>

## FORWARD STOP BAR

- A second stop bar for cyclists placed closer to the centerline of the cross street than the first stop bar.
- Typically used with crossing treatment to encourage cyclists to take full advantage of crossing design.



NASA Glenn: Bike Best Practices  
<http://www.labreform.org/blundres/b9.html>

## PAVEMENT MARKINGS

- Shared roadway pavement markings, or “sharrows”, are markings used to indicate a shared lane environment for bicycles and automobiles.
- Intent of markings is to make these streets recognizable to all users as bicycle priority streets.



City of Akron Bike Plan  
<http://www.uakron.edu/aux/parking/docs/SharedLane10Tips.pdf>

## SAFE WALKING

- Provide children and adults with opportunities to walk, bike and play in a safe environment.
- Complete streets policy considers the needs of children and adults every time a transportation investment decision is made.



City of Kettering  
[http://www.ketteringoh.org/newweb/departments/engineering/safety\\_routes.php](http://www.ketteringoh.org/newweb/departments/engineering/safety_routes.php)

# Bike and Pedestrian

## PINCH POINTS

- Residential traffic calming treatment that narrows the travel lane for motorists by installing curb extensions or islands to create a narrow channel.
- This design slows automotive traffic while retaining priority movement for bicycles.



City of Kent: Traffic Calming Policy

<http://www.kentohio.org/citydep/comdev/PDF/calming.pdf>

## ROAD DIETS

- Urban roadway in which the number of lanes is reduced, and the freed space converted to parking, bike lanes, landscaping, walkways, or medians.



Linden Area Traffic Management Plan and Community Management

[http://pubserv.ci.columbus.oh.us/transportation/Document\\_Library/LATMP/LATMPCityShowcaseForWeb.pdf](http://pubserv.ci.columbus.oh.us/transportation/Document_Library/LATMP/LATMPCityShowcaseForWeb.pdf)

## PEDESTRIAN POCKETS

- Public spaces and pedestrian “pockets” adjacent to the main pedestrian travel way, that provides a place to rest and interact.



Pedestrian Friendly Environments

<http://www.urbanophile.com/2007/05/22/great-pedestrian-environments>

## PLANTING BUFFERS

- Landscaping and street trees that provide shelter and shade without obstructing sight distances and help to soften the surrounding buildings and hard surfaces.



City of Dublin

<http://www.dublin.oh.us/engineering/tarahill/index.php>

## STREET LIGHTING

- Street lighting designed to pedestrian scale
- Shorter light poles with attractive fixtures that are effective in illuminating the pedestrian travel way but not obtrusive or harsh.



City of Chesterland: Town Planning

[http://www.chestertwp.net/TRUSTEES/.../2007-11-11\\_Town%20presentation\\_email.ppt](http://www.chestertwp.net/TRUSTEES/.../2007-11-11_Town%20presentation_email.ppt)

# Bike and Pedestrian

## TRAFFIC CALMING

- Implementation of speed humps, curb extensions, pedestrian refuges, roundabouts, and/or textured crosswalks to slow traffic and increase pedestrian safety.



City of Dublin

<http://www.dublin.oh.us/engineering/trafficcalming>

## BIKE LANES

- Marked space along length of roadway for exclusive use of cyclists.
- Bike lanes create separation between cyclists and automobiles.



City of Cleveland

<http://planning.city.cleveland.oh.us/bike/euclid.html>

## BIKE STATION

- Building or structure designed for secure bicycle parking, which sometimes includes showers or lockers.
- Promotes bicycling and convenience for bike commuters.



Cleveland Bikes

<http://www.clevelandbikes.org/pages/bikestation.htm>

## BICYCLE EDUCATION AND SAFETY

- Implementation of a pedestrian and bicycle safety education program.
- Effective signage not only heightens drivers' awareness of cyclists, it can offer bikers navigational information, and serve as an enticement in convincing people to take up cycling.



Ohio Bicycle Federation

<http://www.ohiobike.org/resources.htm>

## CROSSWALK WARNING LIGHTS

- Devices are mounted in the street pavement adjacent to the outside of the crosswalk markings, with the flashers positioned so as to be seen by oncoming traffic.



City of Montgomery

<http://www.ci.montgomery.oh.us/news/crosswalk.htm>

# Stormwater Management

---

## PERMEABLE PAVEMENT

- Alternative to asphalt or concrete that allows stormwater to drain through the porous surface to a stone reservoir underneath.
- Appearance is often similar to asphalt or concrete and incorporates void spaces that allow for storage and infiltration.



Porous Asphalt Parking Lot - Sand Run Metro Parks: Akron, OH

<http://flexiblepavements.org/documents/OTECporousasphaltpresentation.pdf>

## RIPARIAN BUFFERS

- An area around a shoreline, wetland, or stream where development is restricted or prohibited.
- It can provide stormwater management and act as a right of way during floods, sustaining the integrity of stream ecosystem and habits.



Ohio Lake Erie Buffer Office

[http://www.oh.nrcs.usda.gov/programs/Lake\\_Erie\\_Buffer/riparian.html](http://www.oh.nrcs.usda.gov/programs/Lake_Erie_Buffer/riparian.html)

## RAIN GARDEN

- A bio-retention cell or rain garden is a depressed area with porous backfill under a vegetated surface.
- Provides groundwater recharge, pollutant removal, and runoff detention.



Central Ohio Rain Garden Initiative

<http://www.centralohioraingardens.org>

## STORMWATER PLANTER

- Small landscaped stormwater treatment devices that can be placed above or below ground and can be designed as infiltration or filtering practices.
- Types of stormwater planters include contained planters, infiltration planters, tree box filters, and flow-through planters.



City of Columbus Town Street

<http://614columbus.com/magazine/10-01-2009/town-street-version-20>

## VEGETATED ROOF

- Reduces runoff volume and frequency and improves runoff water quality, a green roof can reduce the effects of atmospheric pollution, reduce energy costs, and create an attractive environment.
- Reduce costs of replacement and maintenance due to longer life cycles compared to traditional roofs.



City of Cincinnati

<http://www.cincinnati-oh.gov/cmgr/pages/-38098->



# Land Use and Development

## LIVABLE COMMUNITIES

- Well planned and designed where housing, schools and parks are within easy walking distance of user-friendly transit and link residents to job opportunities and social services.
- Built on a human scale providing public places and civic amenities.



Cedar and Fairmont Transportation and Streetscape Plan: Cleveland Heights

[http://www.clevelandheights.com/upload/newsletter/CF\\_Street\\_Plan.pdf](http://www.clevelandheights.com/upload/newsletter/CF_Street_Plan.pdf)

## TRANSIT ORIENTED DEVELOPMENT (TOD)

- Compact, mixed-use development within walking distance of public transportation.
- Creates access to transportation and housing choices by increasing location efficiency and allowing people to walk, bike, and take transit for their daily trips.



Transit Oriented Development

[http://www.urbandesignassociates.com/pdfs/MarketingBooks/Web\\_TransitDev\\_print.pdf](http://www.urbandesignassociates.com/pdfs/MarketingBooks/Web_TransitDev_print.pdf)

## MIXED USE DEVELOPMENT

- Increase intensity of land uses.
- Increase diversity of land uses.
- Integrate segregated uses.



Broad and High Streets Mixed-Use Development

[http://www.smbhinc.com/our\\_work/commercial/index.php?ID=38](http://www.smbhinc.com/our_work/commercial/index.php?ID=38)

## GREYFIELD DEVELOPMENT

- Makes use of existing public facilities and infrastructure, reducing local costs to support new development.
- Encourages creation of vibrant, walkable community and neighborhood centers.

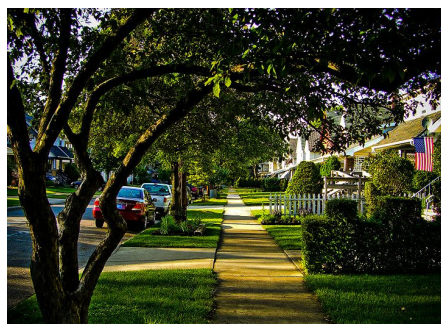


Brownfield & Greyfield Redevelopment Analysis, Middletown, Ohio

[http://www.resurgencegroupplc.com/case\\_studies/middletownAnalysis.shtml](http://www.resurgencegroupplc.com/case_studies/middletownAnalysis.shtml)

## PEDESTRIAN-FRIENDLY PLANNING

- Place a high priority on short- and long-term planning methods and policy-making that incorporate and support non-motorized transportation.
- Planning so that pedestrians, bicyclists, and motorists alike can travel safely along interconnected streets.



City of Lakewood, OH

<http://onelakewood.com/blog/2009/09/walkable-communities-have-better.html>

# Travel Time Analysis

A Travel Time Analysis was completed to demonstrate travel times in Northeast Ohio. Travel times between neighborhoods, businesses, shopping, and industry have a significant impact on where people and businesses locate. This affects transportation and land use patterns.

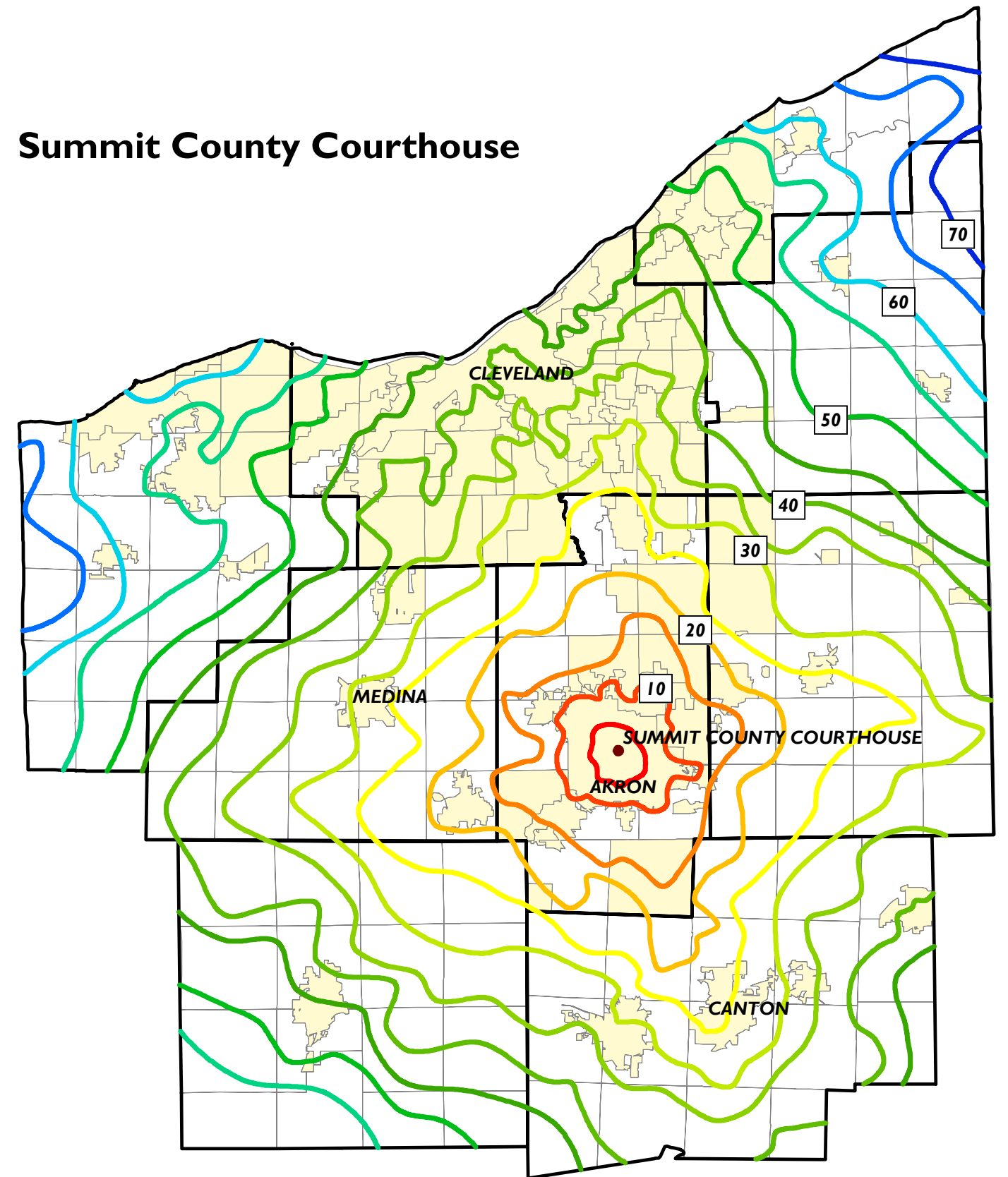
The following maps demonstrate travel times from various destinations throughout the Akron metropolitan area. The selected destinations are:

- Summit County Courthouse
- Akron-Canton Airport
- City of Ravenna
- Village of Richfield
- City of Twinsburg - Industrial Area

The selected destinations are shown in dark red with travel time contour lines going outward in five minute increments. As illustrated by the adjacent map, most of Summit County can reach the Summit County Courthouse in downtown Akron within 15 to 20 minutes and within 30 to 40 minutes from Portage County.

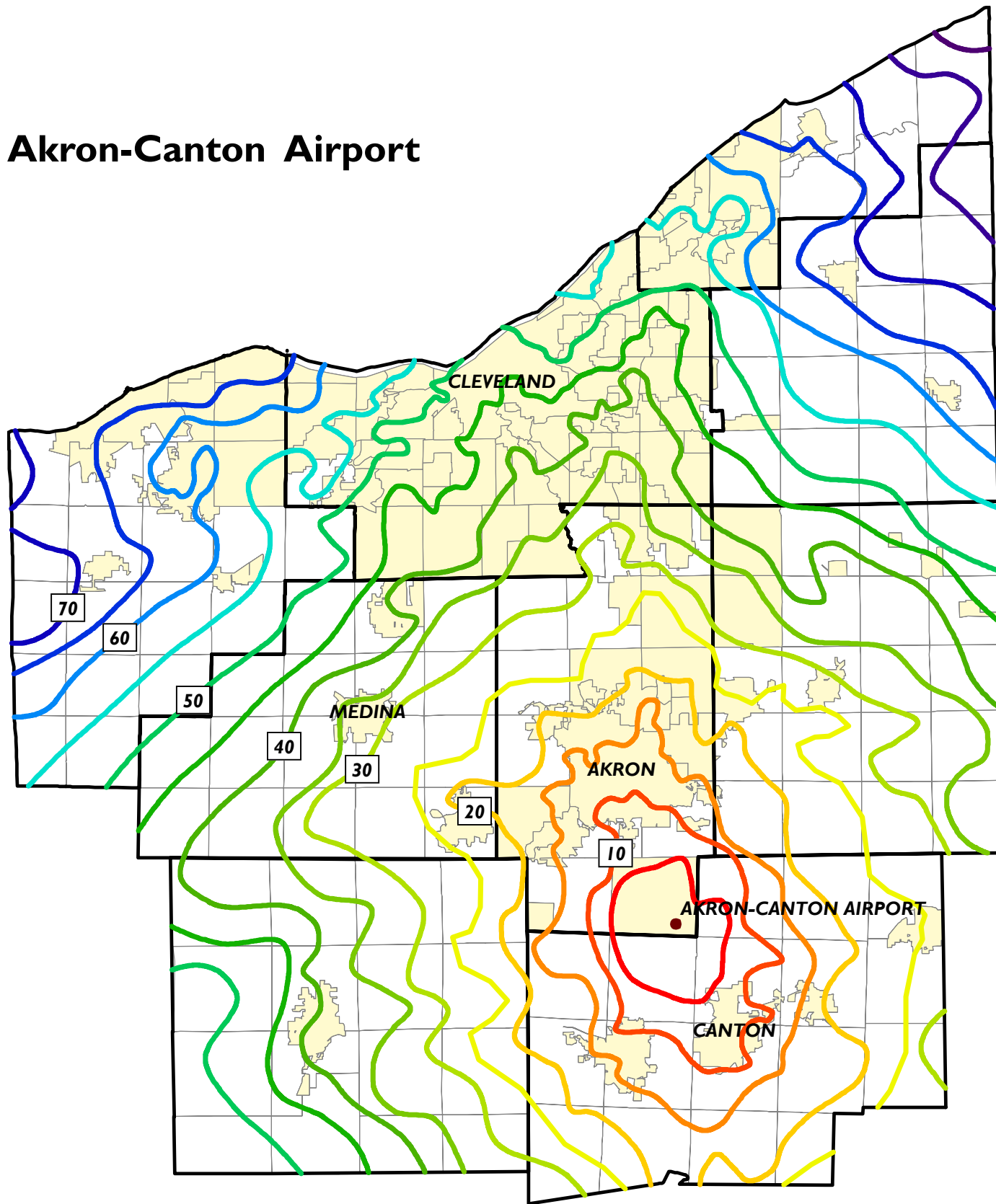
The maps are based on peak travel times.

## Summit County Courthouse

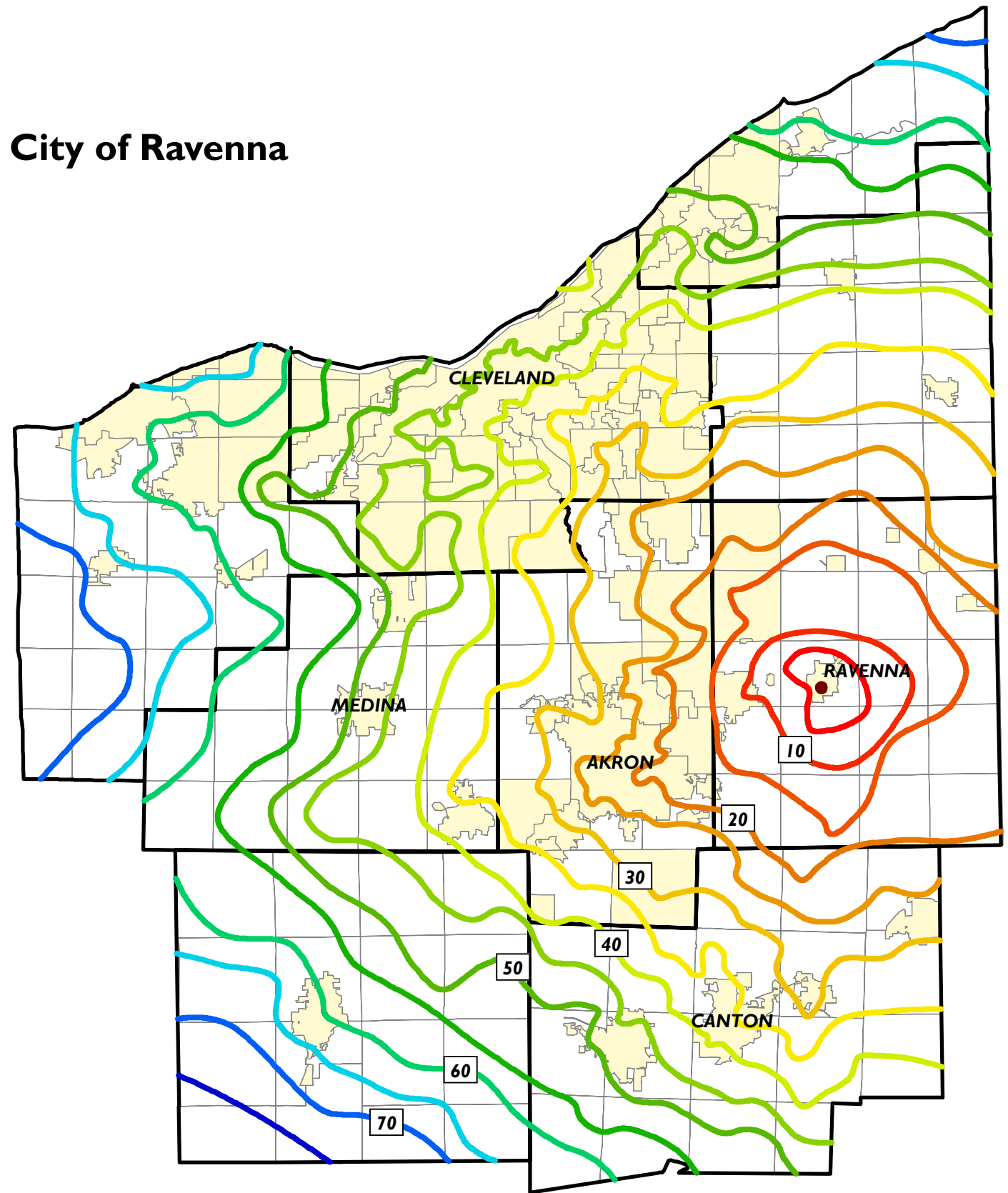


# Travel Time Analysis

## Akron-Canton Airport

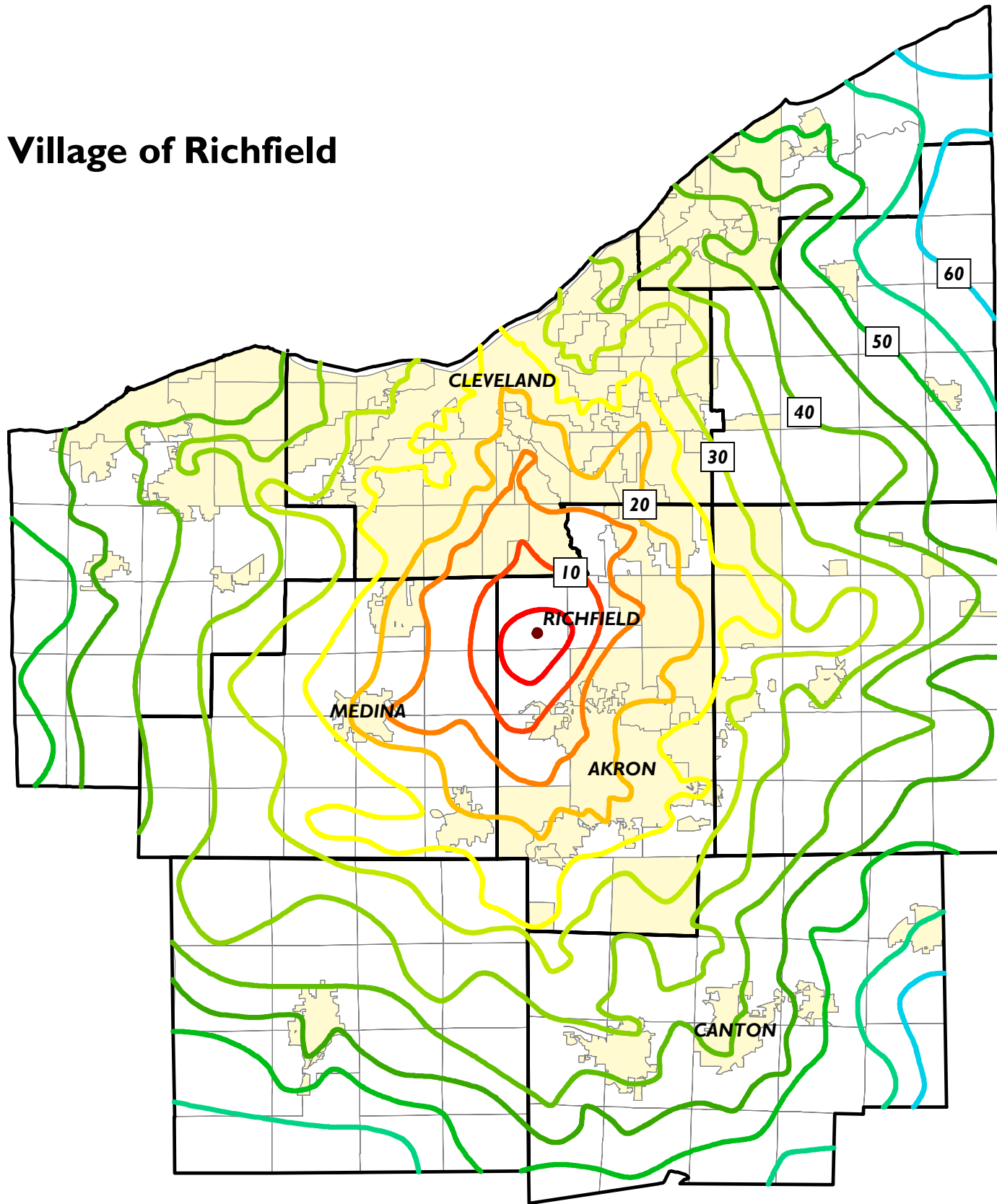


## City of Ravenna

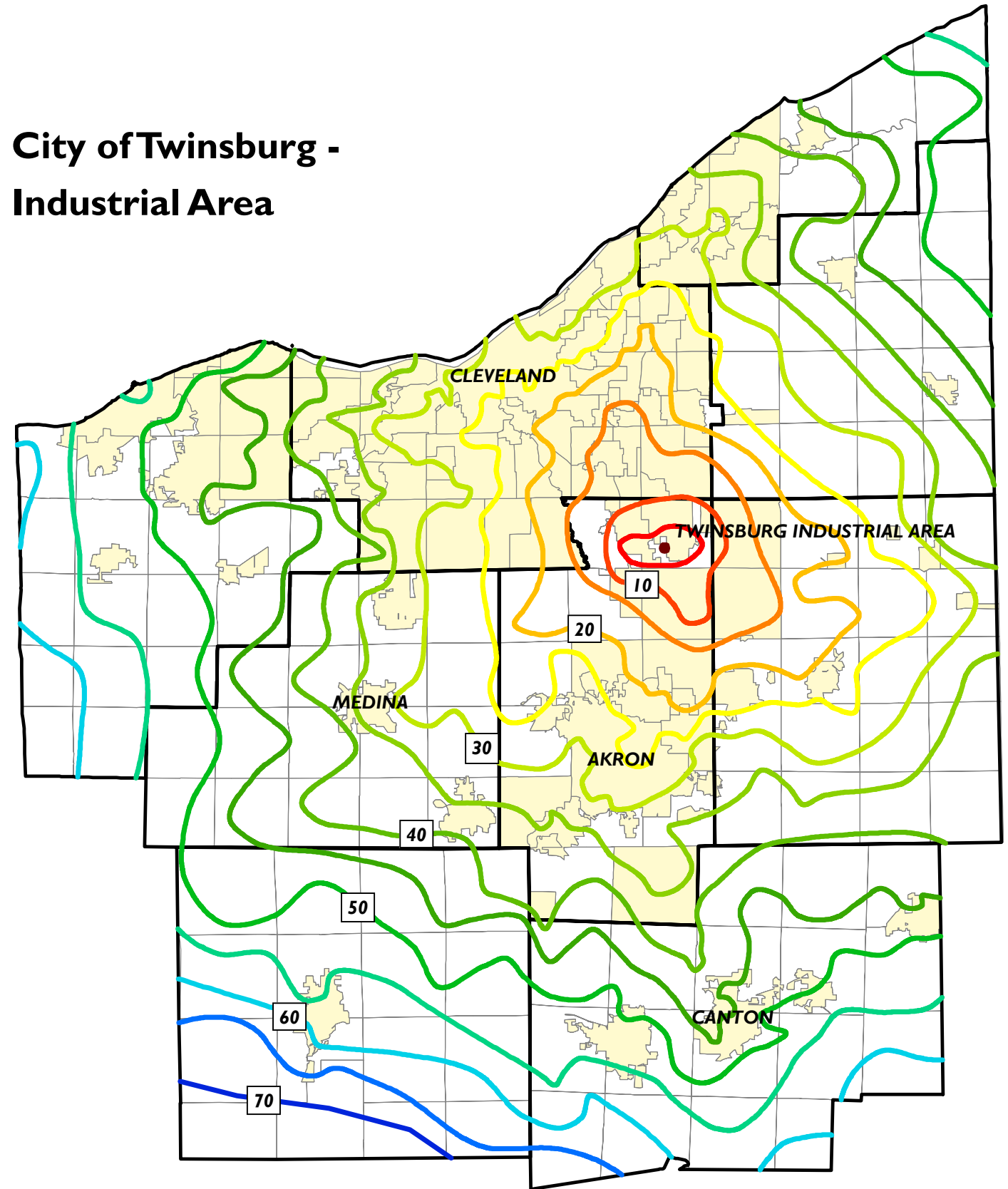


# Travel Time Analysis

## Village of Richfield



## City of Twinsburg - Industrial Area



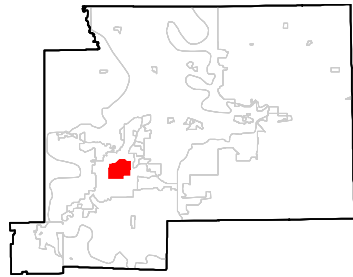
## Building Unit Permits 2000 - 2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Akron</b>	315	423	249	598	510	487	408	309	211
<b>Aurora</b>	194	144	88	98	59	114	83	25	18
<b>Barberton</b>	58	60	63	67	68	65	34	14	5
<b>Boston Heights</b>	1	2	3	12	10	10	7	5	4
<b>Cuyahoga Falls</b>	101	216	98	117	41	114	232	92	52
<b>Doylestown</b>	22	17	12	20	16	14	12	5	2
<b>Fairlawn</b>	18	37	11	19	18	9	1	0	0
<b>Kent</b>	51	40	68	51	77	79	67	53	28
<b>Lakemore</b>	0	0	0	32	61	54	51	22	10
<b>Macedonia</b>	86	185	125	152	109	77	48	39	58
<b>Mogadore</b>	3	5	3	7	8	7	7	4	0
<b>Munroe Falls</b>	11	21	22	28	12	3	1	1	0
<b>Northfield</b>	8	6	4	5	13	13	4	2	0
<b>Norton</b>	49	39	75	40	41	42	36	37	23
<b>Ravenna</b>	20	12	38	38	66	47	18	7	0
<b>Reminderville</b>	0	15	21	34	71	44	33	87	41
<b>Richfield</b>	2	4	5	8	4	4	4	1	0
<b>Stow</b>	637	243	334	223	204	112	61	43	38
<b>Streetsboro</b>	79	75	80	87	92	89	67	134	75
<b>Tallmadge</b>	144	188	131	92	176	54	60	55	53
<b>Twinsburg</b>	103	88	56	94	116	110	83	19	2
<b>Unincorporated (Portage)</b>	737	727	561	836	711	756	581	505	308
<b>Unincorporated (Summit)</b>	2605	2503	2073	2354	2223	1968	1628	1089	731
<b>Total</b>	5244	5050	4120	5012	4706	4272	3526	2548	1659

Source: U.S. Census Bureau—Building Permits

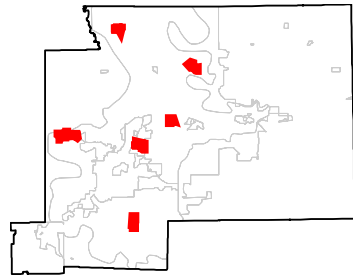
# AMATS Planning Areas

## Downtown



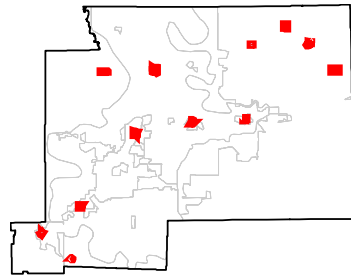
The Downtown area is the hub of the regional transportation system. It supports high levels of public transportation and pedestrian activity. It is the central business district with dense, tall buildings and a mix of office, residential, government, and cultural uses.

## Suburban Center



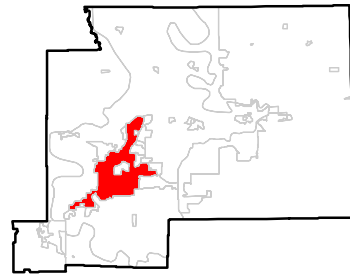
Suburban Centers are major business and retail hubs. They consist of a mix of shopping centers, big-box stores, and office parks. Usually these areas are auto-dependent and do not support transit and pedestrian activity.

## Town Center



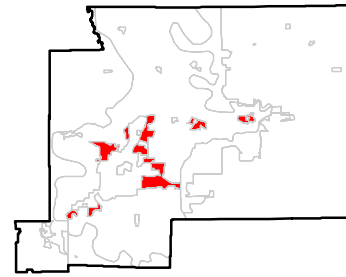
Town Centers are smaller hubs for business, retail, residential, and government uses, predominantly along main streets. These centers are pedestrian-friendly, transit-accessible, and can consist of both business and office space.

## Urban Core



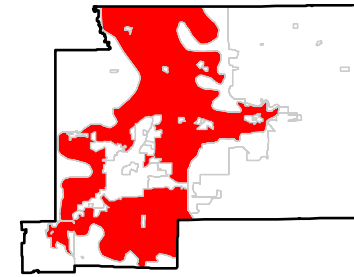
Urban Core areas consist of a grid block street pattern with high pedestrian activity and easy access to transit. It is a dense mix of single- and multi-family housing with businesses located along main streets and corner stores.

## Urban



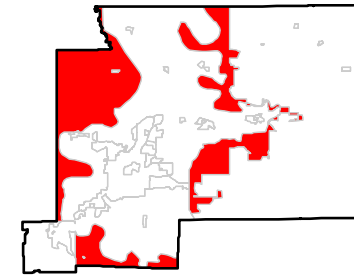
Urban areas are mature, developed neighborhoods adjacent to the urban core area. They have both grid and curving street patterns with moderate levels of transit accessibility and pedestrian activity. They are predominantly single-family with retail along main streets and in small shopping centers.

## Suburban



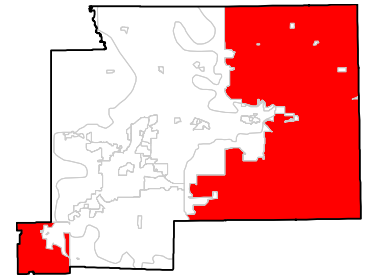
Suburban areas (suburbs) are predominantly single-family housing units with retail and business located in shopping centers and office parks. Residential streets are predominantly curved and terminate in cul-de-sacs. Suburbs are auto-dependent with limited transit and pedestrian activity.

## Exurban

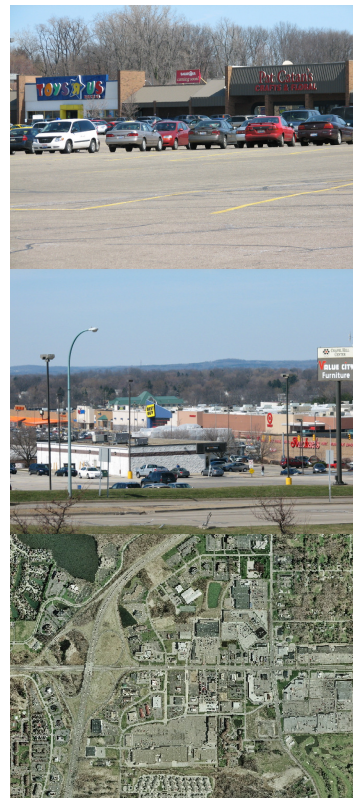
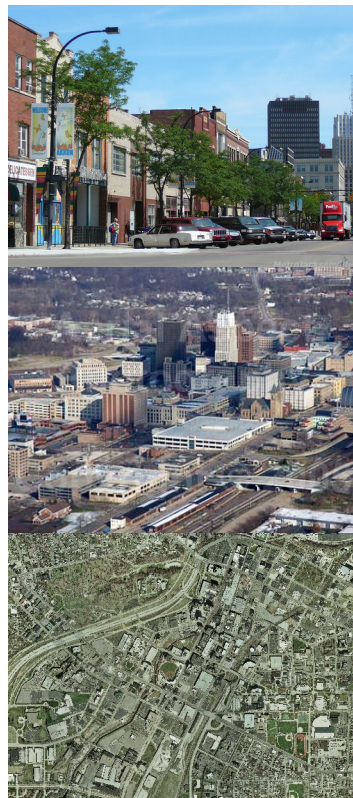


Exurban areas (exurbs) are predominantly low-density and single-family, with residential housing typically along country roads or detached subdivisions surrounded by agricultural and park land. They are auto-dependent, without sidewalks, and transit is limited to individual door to door service.

## Rural



Rural areas consist of large tracts of agricultural, park, or vacant land. Housing is predominantly along country roads and is very low-density and auto-dependent. There are no sidewalks and transit is limited to individual door to door service.



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



Akron Metropolitan Area Transportation Study  
806 CitiCenter • 146 S High Street  
Akron, Ohio 44308-1423  
Phone: (330) 375-2436 • Fax: (330) 375-2275  
Web Site: [www.amatsplanning.org](http://www.amatsplanning.org)