2016-2040 Columbus Area Metropolitan Transportation Plan

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Mid-Ohio Regional
Planning Commission

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Glossary of Acronyms

ACAMS – Automated Critical Asset Management System
ADA – Americans with Disabilities Act
ADT – average daily traffic
APC – automatic passenger counter
ATIS – advance traveler information system
AVL – automated vehicle locator
BR – Bridge Replacement and Rehabilitation
BRT – bus rapid transit
CAC – MORPC Citizen Advisory Committee
CAFR – comprehensive annual financial report
CEAO – County Engineers Association of Ohio
CEPAC – Chemical Emergency Preparedness Advisory Council
CFR – Code of Federal Regulations
CHSP – Comprehensive Highway Safety Plan
CIP – capital improvement program C
IR – capital improvement report
CMAQ – Congestion Mitigation/Air Quality
CMP – congestion management process
CNG – compressed natural gas
COTA – Central Ohio Transit Authority
COTF – Clean Ohio Trails Fund
CRAA – Columbus Regional Airport Authority
CSA – combined statistical area
CTSS – Columbus Traffic Signal System
DATA – Delaware Area Transit Agency
DHS – United States Department of Homeland Security
EMA – emergency management agency
EPA – Environmental Protection Agency
FCEM&HS – Franklin County Emergency Management & Homeland Security
FAA - Federal Aviation Administration
FFY – federal fiscal year
FHWA – Federal Highway Administration
FMS – freeway management system
TA – Federal Transit Administration
FY – fiscal year
GASB – General Accounting Standards Board
GIS – geographic information system
GRH – Guaranteed Ride Home
HOV – high-occupancy vehicle
HSIP – Highway Safety Improvement Program
ISTEA – Intermodal Surface Transportation Efficiency Act
ITS – intelligent transportation system
JARC – Job Access and Reverse Commute
LAB – League of American Bicyclists L
BRS – location-based response system
LCATS – Licking County Area Transportation Study
LCT - Licking County Transit
LEPC – local emergency planning committee
LOS – level of service
LPTS – Lancaster Public Transit System
LTIP – Local Transportation Improvement Program
M&O – management and operations
MORPC – Mid-Ohio Regional Planning Commission
MPO – metropolitan planning organization
MSA – metropolitan statistical area
MTP – metropolitan transportation plan
NHS – National Highway System
NHTSA – National Highway Traffic Safety Administration
NPIAS - National Plan of Integrated Airport Systems
NS – Norfolk Southern
OARC – Ohio Association of Regional Councils
ODNR – Ohio Department of Natural Resources
ODOD – Ohio Department of Development
ODOT – Ohio Department of Transportation
ODPS – Ohio Department of Public Safety
OPWC – Ohio Public Works Commission
ORC – Ohio Revised Code
ORDC – Ohio Rail Development Commission
OSR – Office of Strategic Research
OSU – The Ohio State University
P3 – public-private partnership
PART – Pickaway Area Rural Transit
PBIC – Pedestrian and Bicycle Information Center
PCR – pavement condition rating PM – particulate matter
PWP – Planning Work Program
QOS – quality of service

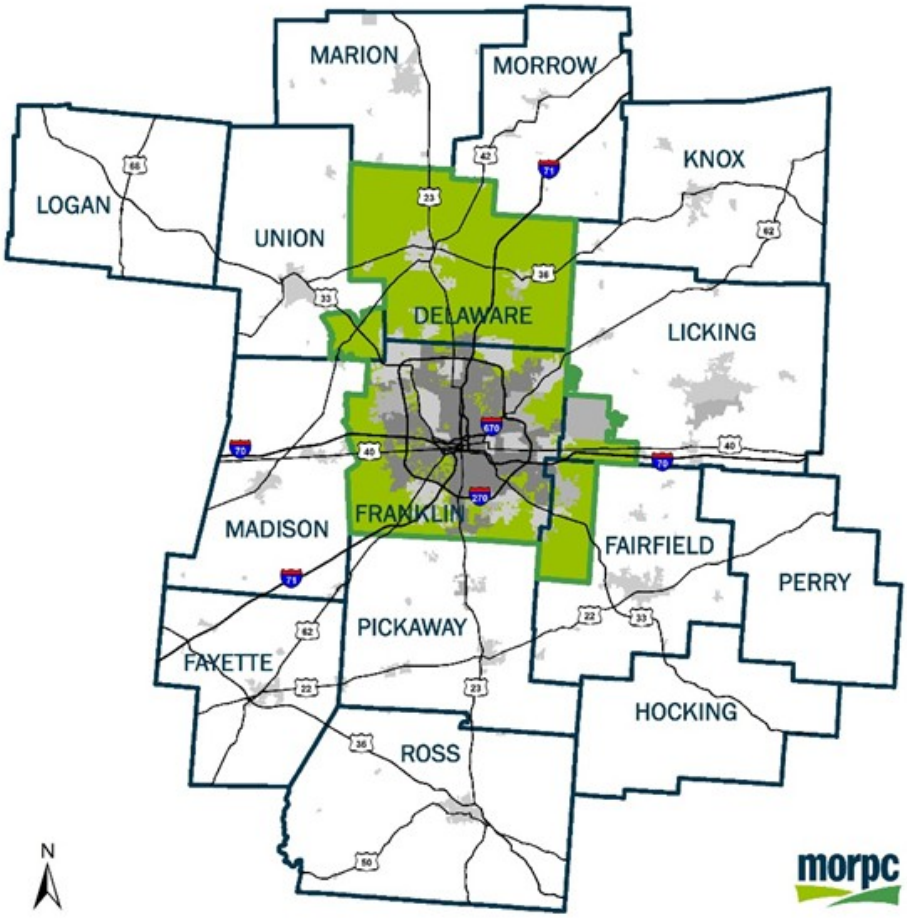
Executive Summary

A safe, reliable, efficient, and accessible transportation system is essential to the economy and quality of life for those who visit, live, and work in the Central Ohio region. The *2016-2040 Metropolitan Transportation Plan* (MTP) establishes a set of regional transportation goals and objectives, and recommends strategies—including projects— that will maintain, manage, and develop Central Ohio's transportation system through 2040. Progress in meeting the plan's objectives will be monitored and reported on annually.

Planning for the MTP is continuous, comprehensive, and cooperative. As the fastest growing region in the state of Ohio, changing demographics and market trends require ongoing identification and analyses of new demands on the transportation system. The MTP is comprehensive in that it addresses all surface travel options including the automobile, transit, bicycles, pedestrians, and freight movements. It also recognizes that the quality of the transportation system impacts, and is impacted by development patterns, economic conditions, and environmental policies. Finally, the MTP is cooperative with respect to the local communities, agencies, and stakeholders that have worked together to develop the plan and who must work together moving forward to successfully reach the outcomes proposed by the plan.

PLANNING AREA

Many different agencies and local governments conduct studies on and complete improvements to the transportation system. However, MORPC is the principal public agency conducting regional transportation studies for the Central Ohio area because it serves as the designated Metropolitan Planning Organization (MPO) for the Columbus Urbanized Area. It covers Franklin County, Delaware County, and portions of Fairfield, Licking, and Union counties.



MORPC MPO Area

PLAN GOALS AND OBJECTIVES

The 2016-2040 Metropolitan Transportation Plan has been developed around a set of goals that give direction to making regionally based investments in the transportation system. Progress in achievement of these goals will be measured by objectives and targets. Two to four objectives have been identified for each goal. Objectives were chosen to measure certain aspects of each goal that can be impacted through transportation or the transportation system, and are based on data availability and measurability.

2016-2040 Columbus Area Metropolitan Transportation Plan

Goal	Objectives
Reduce per capita energy consumption and promote alternative fuel resources to increase affordability and resilience of regional energy supplies	Reduce the percentage of commuters driving alone, and increase the percentage of commuters riding transit, bicycle, or walking
	Reduce vehicle miles traveled (VMT) per capita
	Increase the percentage of vehicles using alternative fuels

Goal	Objectives
Protect **natural resources** and mitigate infrastructure vulnerabilities to maintain a healthy ecosystem and community	Reduce emissions from mobile sources to continuously meet EPA air quality standards for each criteria pollutant
	Decrease the locations of freeway and expressway facilities that are at risk for flooding

Goal	Objectives
Position Central Ohio to attract and retain economic opportunity to prosper as a region and compete globally	Increase the average number of jobs reachable within 20 minutes via automobile and within 40 minutes via transit
	Minimize the percentage of total vehicle miles traveled under congested conditions
	Minimize the amount of extra, or buffer, travel time necessary when planning expected trip travel time.

Goal	Objectives
Create **sustainable neighborhoods** to improve residents' quality of life	Encourage and support MORPC member communities to adopt complete streets policies or policies that contain those elements
	Target infrastructure development to serve a higher number of people and jobs and increase sidewalk coverage of arterials and collectors
	Target transit and bikeway infrastructure development to serve a higher number of people

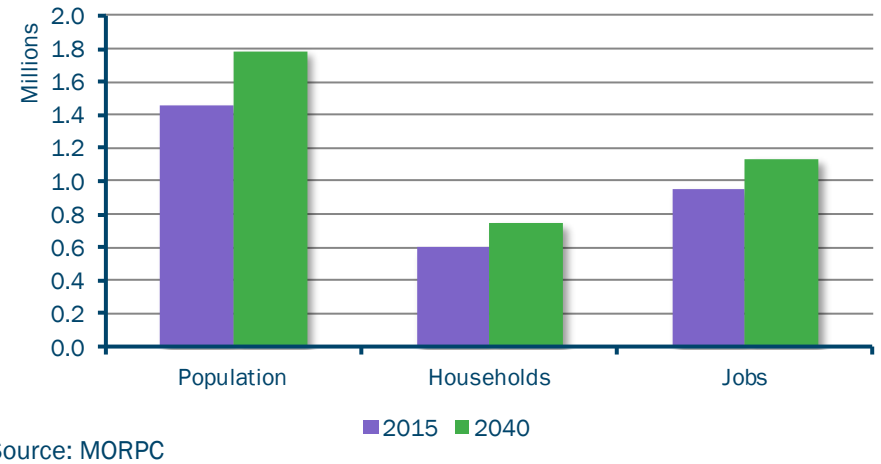
Goal	Objectives
Increase regional **collaboration** and employ innovative transportation solutions to maximize the return on public expenditures	Increase the percentage of funding from non-public sources on transportation projects on functionally classified Principal Arterials and above
	Increase the number of projects utilizing innovative initiatives on functionally classified Principal Arterials and above
	Increase the percentage of functionally classified Principal Arterials and above facilities employing coordinated Intelligent Transportation System (ITS) technologies
	Increase the number of transit vehicles and facilities with surveillance capabilities and increase the miles of functionally classified Principal Arterials and above with video surveillance

Goal	Objectives
Use public investments to benefit the **health, safety, and welfare** of people	Minimize the difference in trip travel time for disadvantaged populations relative to the regional trip travel time
	Maintain infrastructure in a state of good repair by minimizing the percentage of bridges with poor General Appraisals, minimizing pavement miles in unacceptable conditions, maintaining transit fleet of a useful life, and incorporating bike facilities
	Reduce the number of fatalities and serious injuries from crashes

THE REGION IN 2040

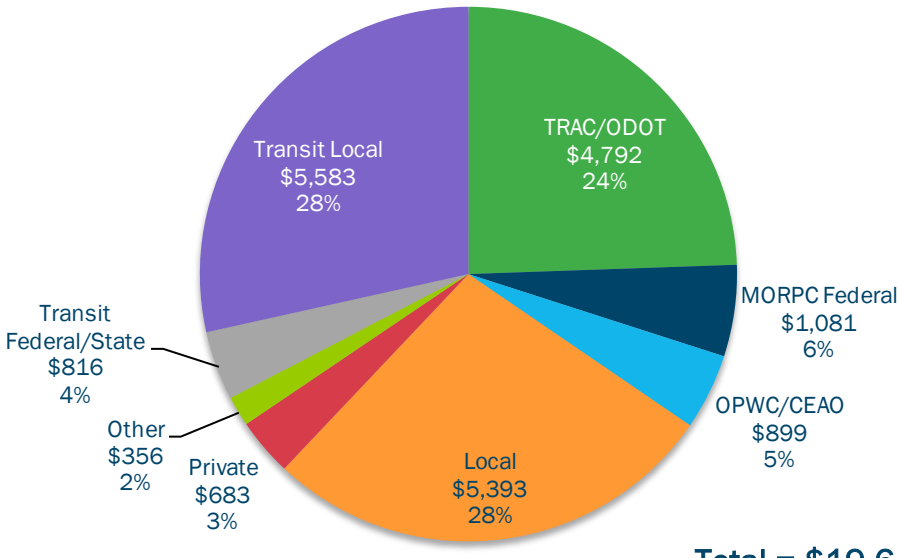
The process of developing the MTP requires assumptions and analyses of how many people will live and work in the MPO in 2040, and where and how they will travel, so that the demands of the transportation system can be anticipated. Because the plan must be fiscally balanced, forecasts of available funding for maintaining and expanding the transportation system were also developed. The strategies and projects identified in this plan stay within the forecasted revenues. This plan was developed with the assumption that similar funding will be available to the area as what has been made available in the past.

Population, Households and Jobs in the MPO: 2015 and 2040



Source: MORPC

Revenues Expected by 2040 by Source (in millions)



Total = $19.6 billion

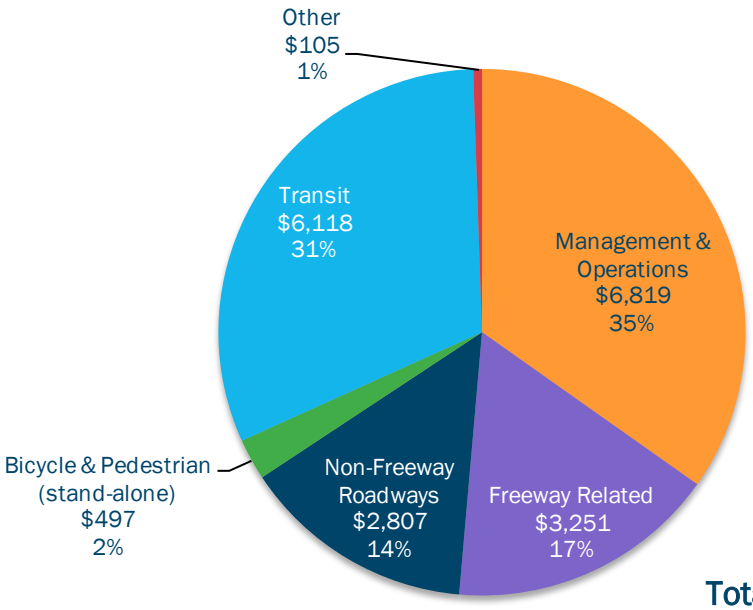
STRATEGIES & PROJECTS

The MTP identifies 30 strategies, listed on the following page, to be worked on by regional planning partners to advance the established goals. Some strategies and projects encompass the ongoing operation, maintenance, and preservation of the existing transportation system. This includes, in general, the operation and expansion of transit service. Several strategies relate to expanding the transportation system through projects. These include projects that add roadway capacity, expand the transit system, or provide more bike and pedestrian facilities. The specific projects included in the MTP are mapped on a following page. The MTP includes projects that:

- Add approximately 102 lane miles of freeways
- Modify 16 freeway interchanges
- Build 4 new freeway interchanges
- 79 new arterial or collector roadway segments, totaling 82 miles
- Lane additions on 42 segments of roadway, totaling 66 miles
- Minor widening/safety improvements on 65 segments of roadway, totaling 96 miles
- 234 miles of off-road multi-use paths
- 42 miles of bike lanes or wide shoulders
- 9 miles of new sidewalks
- 11% increase in fixed route transit service hours
- 19 high capacity transit corridors identified for further study

The full MTP document, including a project listing with descriptions and project map can be found at www.morpc.org/mtp2040.

Funding Uses (in millions)



Total = $19.6 billion

Strategy
Collaborate to reduce the need for vehicle travel through development regulations.
Create travel demand management (TDM) partnerships among the facilitators and providers of alternative modes of transportation, community leaders, and institutions that make up high-density trip-generating districts.
Improve marketing of regional travel demand management (TDM) programs to increase use of transit, ride-share, bicycling, and walking.
Create plans and partnerships to attract investment in alternative fuel vehicles and infrastructure.
Alleviate existing or anticipated congestion.
Improve employee and customer access to businesses through infrastructure and outreach.
Improve fixed-route and demand-response transit service.
Improve connections and coordination among transit system operators and other modes of transportation.
Support efforts to introduce fixed-guideway transit service.
Collect information on and analyze freight activity to identify developing trends, and work to disseminate that information among partners and peers.
Forge public/private partnerships to provide resources to maintain and expand key linkages among air, rail and roadway transportation modes.
Make transportation decisions that positively impact freight movements and maximize the effectiveness of the region's integrated freight transportation system.
Make neighborhoods walkable, bikeable, and accessible by transit through both infrastructure and non-infrastructure projects and programs.
Increase the quantity and quality of data on bicycle and pedestrian travel behavior.
Expand bicycle and pedestrian networks through the implementation of complete streets and multi-use path connections.
Collect, develop, maintain, and share data and information to improve local decision-making.
Multi-jurisdictional dialogue to improve opportunities for collaboration.
Collaborate on a selection process that advances short-term project priorities through the Transportation Improvement Program (TIP).
Promote and strengthen security and emergency preparedness efforts.
Improve traffic and transit operations by increasing efficiency through investment in advanced technology .
Establish consistent data collection procedures and standard rating systems concerning roadway condition.
Preserve and maintain the existing transportation system.
Broaden the transportation system managed in a coordinated manner.
Develop a regional multi-modal traveler information system.
Develop a transportation system to serve all demographic population groups.
Ensure the accuracy, availability, and timeliness of crash data and information.
Reduce the occurrence of severe crashes and address high-crash locations.
Support and advance initiatives that address high-risk drivers and behaviors.
Improve human services transportation and coordination with public transit.

2016-2040 Columbus Area Metropolitan Transportation Plan

Project Location Map

New Interchange

Interchange Upgrade

Intersection Improvement

Access Management

Bike/Pedestrian

Convert to Freeway

Management and Operations

Lane Management

Major Widening

Minor Widening

New Roadway

Transit

Corridor under study for high capacity transit

\# Project ID Number
See Project Listing

Railroad

Water

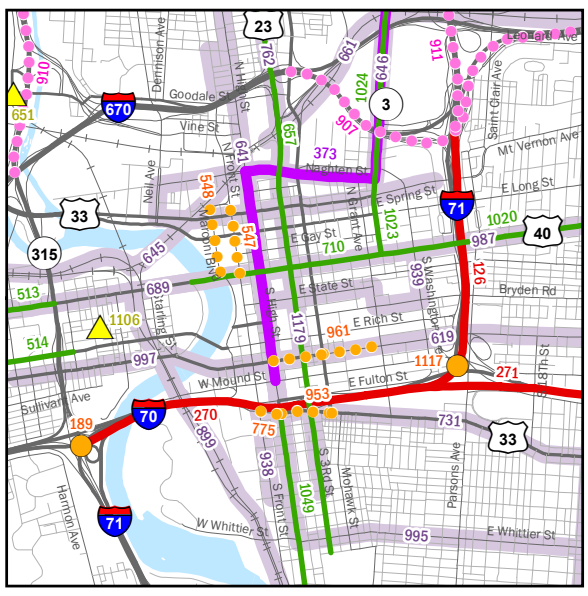
Transportation Planning Area

County Boundary

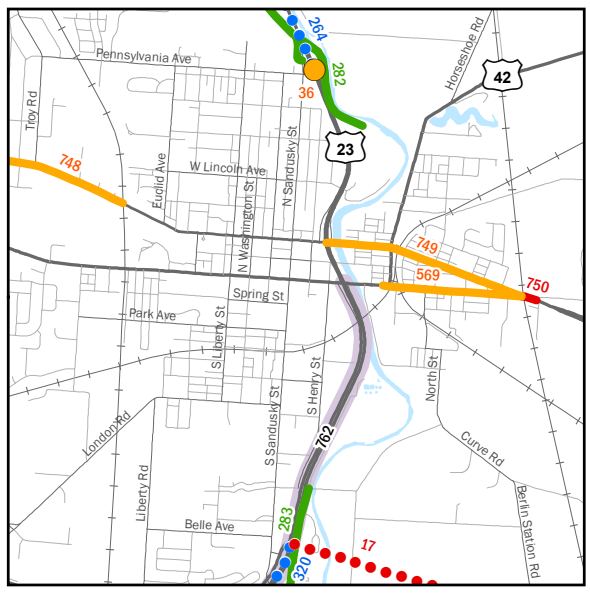
N

0 2 4
Miles

Downtown Columbus



Downtown Delaware



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The information shown on this map is compiled from various sources made available to us which we believe to be reliable.
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PLAN IMPLEMENTATION & MONITORING

Involvement from communities within the MPO was important in the development of this plan, and it is through their actions, and those of other regional planning partners, that implementation will occur. MORPC will work with the state and local governments and regional planning partners to execute the strategies identified.

While it is estimated that the projects identified in this MTP will be financially feasible by the year 2040, specific funding has not yet been allocated to most of the projects. When ODOT, COTA, DATABus, or local governments decide to secure and commit funding for the design and construction of a project, the project is then added to the Transportation Improvement Program (TIP), and programmed for construction. Many local governments also maintain their own Capital Improvements Program (CIP), which identifies projects within the local jurisdiction with committed funding.

To measure success of the MTP, MORPC publishes an annual report card that identifies if the region is on track for reaching the established targets for each of the objectives. This is done by comparing current data to the benchmarks and targets, to assess if the region is moving in the right direction, and on track to meet the short– and long-term targets.

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Chapter 1:
Plan Purpose and Development

The 2016-2040 Metropolitan Transportation Plan (MTP) documents the transportation planning process of the Mid-Ohio Regional Planning Commission (MORPC) and its partners. It includes recommended strategies, including projects, that will maintain, manage, and improve Central Ohio's transportation system through 2040. Planning for the MTP is continuous, comprehensive and cooperative. The next update is scheduled for 2020.

Planning for a transportation system that includes roadways, transit, bicycle facilities, pedestrian facilities, rail, and air must reflect federal and local priorities. Just as important, it must also consider any negative impacts on our communities, the environment and air quality.

The plan was developed with guidance from a set of regional goals established to advance the quality of life for residents in Central Ohio.

1.1 Introduction

The *2016-2040 Columbus Area Metropolitan Transportation Plan* (MTP) for the Columbus region:

- Documents the ongoing transportation planning process carried out by the Mid-Ohio Regional Planning Commission and its partners, and
- Identifies strategies and projects to maintain and improve the transportation system between 2016 and 2040.

The MTP, in its publication and adoption, replaces the 2012-*2035 Metropolitan Transportation Plan* in fulfillment of the requirements of a long -range transportation plan as laid out in federal legislation.

Many different agencies and local governments conduct studies on and complete improvements to the transportation system. However, MORPC is the principal public agency conducting regional transportation studies for the Central Ohio area because it serves as the designated Metropolitan Planning Organization (MPO) for the Columbus Urbanized Area. It covers Franklin County, Delaware County, and portions of Fairfield, Licking, and Union counties as shown in Figure 1.1.

MORPC is the principal public agency conducting regional transportation studies for the Central Ohio area

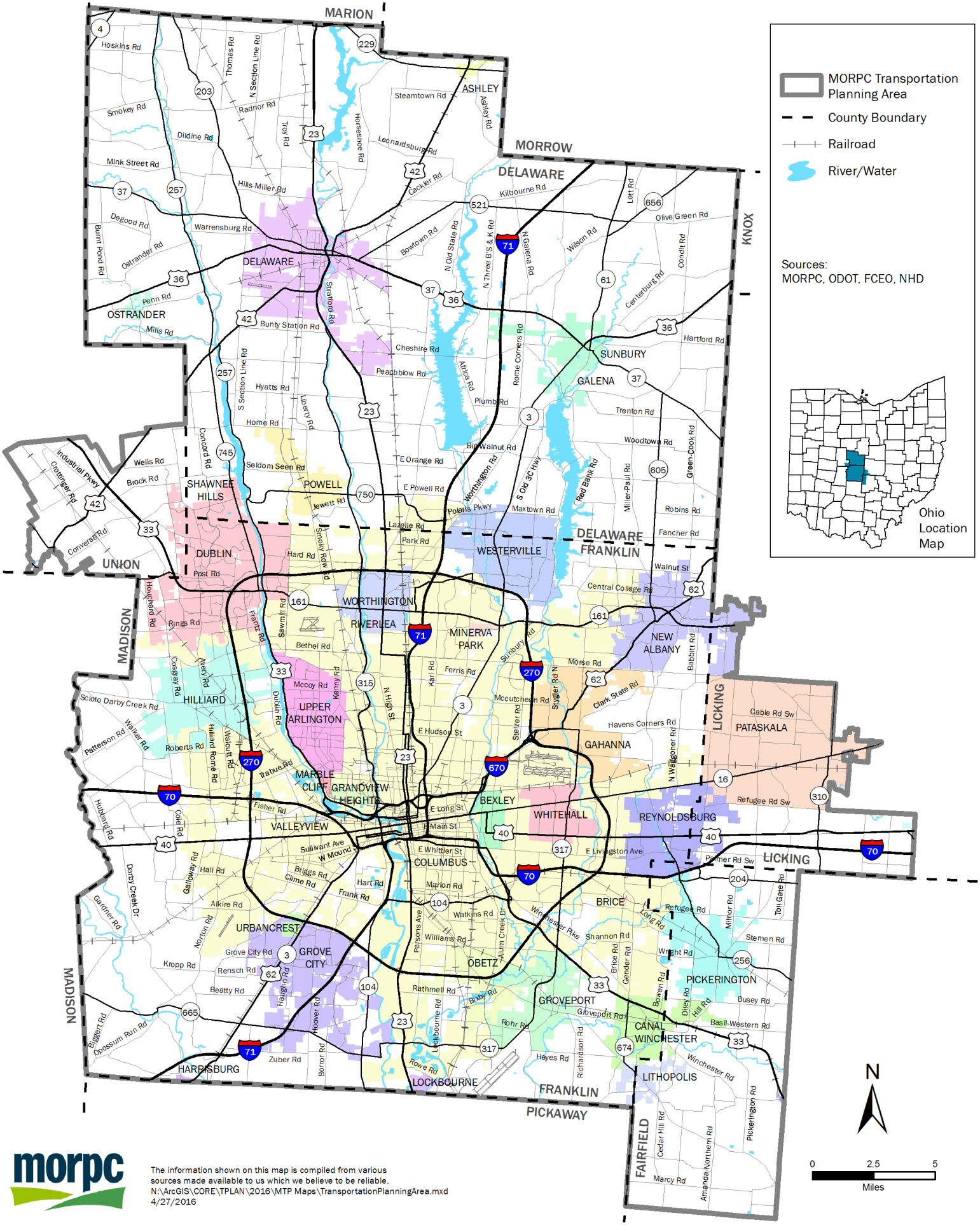
WHAT IS AN MPO?

Federal law establishes a Metropolitan Planning Organization (MPO) in all regions with an urbanized area having a population of 50,000 or more. The MPO carries out the "3-C" transportation planning process. The "3-Cs" describe the process, which must be continuing, cooperative and comprehensive. Because an MPO must foster cooperation among various agencies and local jurisdictions, decision-making is typically governed by a policy committee made up of local elected and appointed officials. In addition to the director and staff who provide information and guidance to the policy committee, most MPOs have a technical advisory committee and a citizen advisory committee.

Titles 23 and 49 of the Code of Federal Regulations guide the work of an MPO. Periodic surface transportation reauthorization acts by the US Congress are reflected in this Code. These acts also authorize the funding levels for the surface transportation programs over the life of the act.

Since the previous MTP was adopted in 2012, two different reauthorization acts have been passed by Congress. Moving Ahead for Progress in the 21st Century, or MAP-21, was enacted in 2012. The Fixing America's Surface Transportation (FAST) Act was signed into law in 2015 and is the current federal transportation legislation under which an MPO operates.

Other federal legislation and action guides the work of an MPO, such as the Clean Air Act Amendments of 1990. Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), and the National Environmental Protection Act of 1969.



The information shown on this map is compiled from various sources made available to us which we believe to be reliable.
N:\ArcGIS\CORE\TPLAN\2016\MTP Maps\TransportationPlanningArea.mxd
4/27/2016

FIGURE 1.1
Transportation Planning Area

WHAT IS A METROPOLITAN TRANSPORTATION PLAN?

The MPO must produce a metropolitan transportation plan (MTP) every four years that looks at least 20 years into the future. It provides the basis for how federal transportation funding is spent to improve highways, transit, freight, bikeways, and pedestrian facilities. The four-year cycle allows the MTP to account for continually changing conditions. The process is continuous so that the MTP strategies and projects reflect these current conditions.

The MPO must also maintain the transportation improvement program (TIP). It is a short-term program that operates in tandem with the MTP. When an implementing agency—local jurisdiction or the Ohio Department of Transportation (ODOT)—begins pursuing and developing a project on the MTP, it can request that it appear on the TIP. Projects on the TIP typically have funding committed for at least one phase.

1.2 Planning Process & Public Involvement

MORPC brings together local governments from Central Ohio as part of its ongoing transportation planning process. It also coordinates with ODOT and the Licking County Area Transportation Study (LCATS), MORPC's sister agency that functions as the MPO for the balance of Licking County. Independently and cooperatively, all of these entities collect data and identify transportation needs. MORPC then prioritizes and coordinates strategies and projects to meet transportation needs between now and 2040 through the following process:

- Identify regional goals
- Set measurable objectives to track progress in advancing the goals
- Monitor and forecast development, population, and employment growth, and changes to the transportation system
- Forecast travel demand
- Identify needs across the multimodal transportation system, including system management, system expansion, and the management of travel demand
- Consider strategies to be implemented and projects to be completed that will advance the transportation goals for the region as well as accomplish key factors as laid out in federal legislation
- Forecast the amount of transportation funding estimated to be available through 2040
- Identify strategies and projects to be included, considering the objectives, public input, and forecast of expected funding
- Measure the aggregate impact of the strategies and projects on the environment, air quality, and social equity
- Solicit and incorporate public review and comment throughout the entire process
- Monitor performance of strategies and projects through established objectives

Strategies and projects that emerge from this process are implemented through:

- The Transportation Improvement Program (TIP), a shorter-range funding program in which all projects must be derived from the MTP
- Actions identified in MORPC's Unified Planning Work Program (UPWP or PWP)
- Actions of other agencies and local governments in the MPO planning area.

Figure 1.2 is a graphic representation of this process.

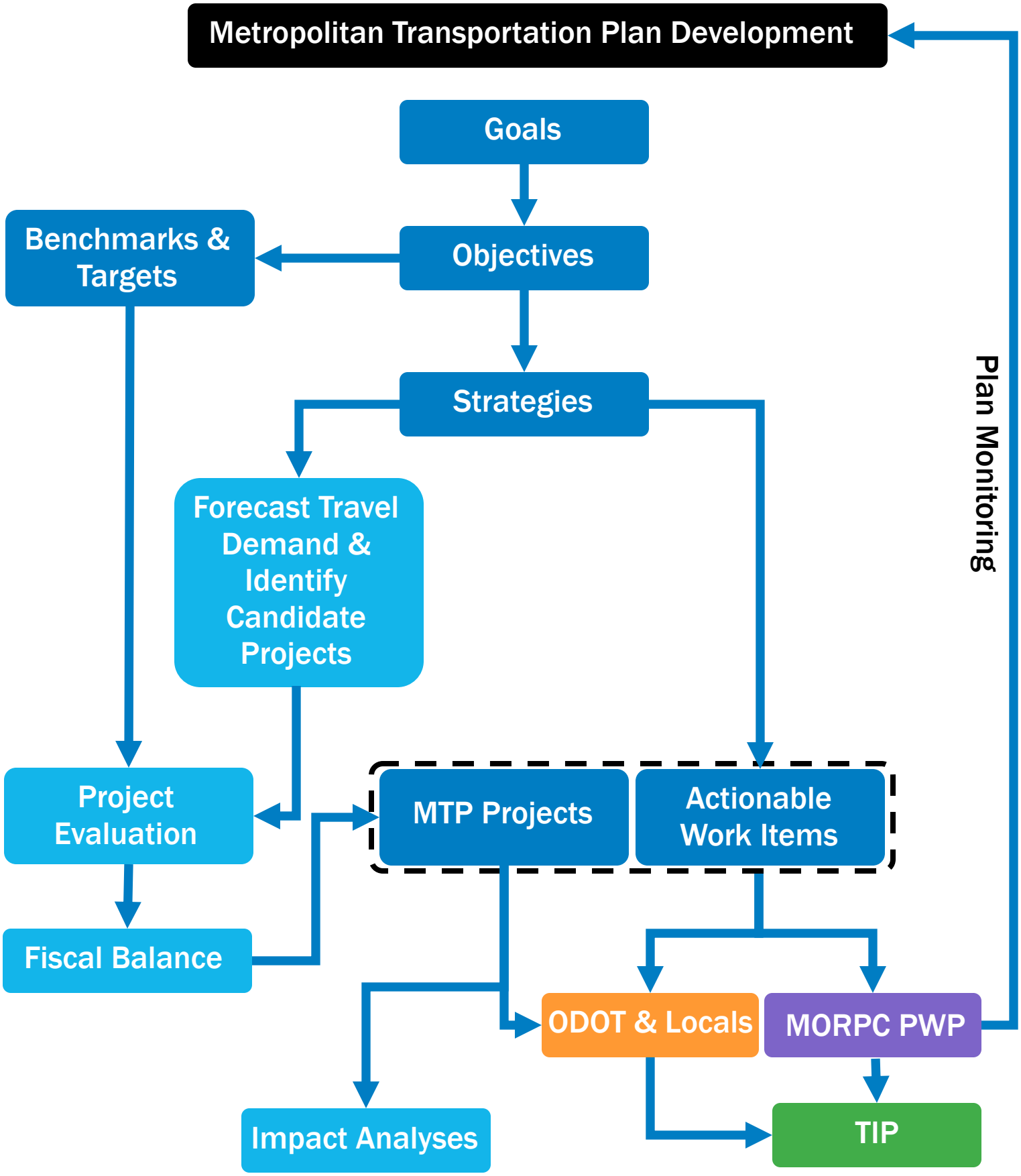


FIGURE 1.2
MTP Development

PUBLIC INVOLVEMENT

Throughout the plan development process, public feedback was sought continuously through a variety of methods and incorporated into the plan. MORPC's Transportation Policy Committee, Transportation Advisory Committee, and Community Advisory Committee were each presented with information and status updates on planning activities on a monthly basis throughout the duration of plan development. These committees also endorsed, through the adoption of resolutions, each major milestone of the plan, including the adoption of the regional transportation goals, objectives, land use variables, project evaluation criteria, and this final MTP, which includes the strategies and projects.

Summary information on each of these milestones was also published in ten volumes of an MTP Newsletter. The newsletters were distributed at various meetings and events, and also published on the MORPC website. Press releases were also issued for the completion of major plan milestones.

MORPC's website played a key role in disseminating information regarding the MTP. Summary information on each milestone, as well as technical details developed at each stage, were published on the page dedicated to the Metropolitan Transportation Plan. The webpage also allowed users to send emails directly to MORPC staff and sign up to receive periodic email updates.

Over 300 project suggestions were made through the webmap, and over 500 comments were submitted.

The webpage also contained a link to one of the more significant public outreach efforts—the interactive webmap. The interactive webmap allowed any user to make specific project suggestions by drawing directly on the map. The project suggestion could then be added to the list of candidate projects being considered for inclusion in the plan. The interactive webmap also allowed any user to submit comments on any candidate project on the map. Over 300 project suggestions were made through the webmap, and over 500 comments were submitted throughout the process.

Updates were also reported on social media platforms and in MORPC's electronic newsletter, Esource, which is sent out biweekly to regional stakeholders and community members.

Additionally, to solicit further feedback, MORPC staff visited approximately 50 local jurisdictions, community groups, and neighborhood and civic associations to present the MTP to local community members.

Appendix F includes more detailed information on the public involvement process, comments received, and how they impacted the plan.

PLAN COORDINATION

MORPC takes great effort to develop a regional MTP that is consistent with local transportation and development needs. Local land use and comprehensive plans, thoroughfare plans, and capital improvements programs are reviewed and incorporated into the planning process from the beginning.

As MORPC began the new metropolitan planning cycle and development of this Metropolitan Transportation Plan, a unique opportunity for regional coordination

and collaboration presented itself when the City of Columbus, the largest city in the transportation planning area, and the Central Ohio Transit Authority (COTA) were both embarking on long-range transportation planning efforts simultaneously with MORPC. Each of the plans offers unique regional significance, but differs in scope and purpose. The city's plan, ConnectColumbus, is focused on developing a multimodal thoroughfare plan and setting a framework for alternative means of travel. COTA's NextGen plan provides a vision of the future of public transportation and transit investment options to support the changing demographics and travel preferences of our region.

The concurrent planning efforts presented an ideal opportunity for collaboration and coordination among each planning agency. Extra efforts were made to have regional consistency in the following areas:

- Data collection and analyses
- Public and stakeholder outreach
- Project timelines

In addition to these two major regional plans, numerous other regional planning activities were consulted and considered during the development of this MTP:

Local Plans

- Comprehensive Economic Development Study, Columbus2020
- Local Comprehensive and Land Use Plans, Local Planning Agencies
- Local Capital Improvement Programs, Local Planning Agencies

Regional Plans:

- insight2050, MORPC
- Balanced Growth Plan, MORPC
- Sustaining Scioto, MORPC
- Transportation Demand Management Plan, MORPC
- Regional Energy Action Plan, MORPC
- Transit System Redesign, COTA
- Human Services Transportation Coordination Plans
- Long-Range Transit Plan, DATABus
- Delaware Preservation, Metro Parks
- Jobs Expansion & Transportation Taskforce, regional partners
- Chicago-Columbus Rail, regional partners

State Plans

- Access Ohio, ODOT's statewide transportation plan
- Transit Needs Study, ODOT
- Active Traffic Demand Management Study, ODOT
- State Highway Safety Plan, ODOT
- Climate Study, ODOT
- Transportation Asset Management Plan, ODOT

1.3 Regional Goals

The 2016-2040 Metropolitan Transportation Plan has been developed around a set of goals that give direction to making regionally based investments in the transportation system. The six regional transportation goals were adopted in December 2014. These goals have been updated from the 2012-2035 Transportation Plan goals to reflect recent regional planning.

The content of the goals was checked against federal and state initiatives to ensure goals were in alignment with federal and state goals (see Table 1.1).

Progress in achievement of these goals will be measured by objectives and targets as described in the following section. The six goals are listed below.

- Reduce per capita **energy** consumption and promote alternative fuel resources to increase affordability and resilience of regional energy supplies
- Protect **natural resources** and mitigate infrastructure vulnerabilities to maintain a healthy ecosystem and community
- Position Central Ohio to attract and retain **economic opportunity** to prosper as a region and compete globally
- Create **sustainable neighborhoods** to improve residents' quality of life
- Increase regional **collaboration** and employ innovative transportation solutions to maximize the return on public expenditures
- Use public investments to benefit the **health, safety, and welfare** of people

Federally Required Planning Factors

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency
- Increase the safety of the transportation system for motorized and non-motorized users
- Increase the security of the transportation system for motorized and non-motorized users
- Increase the accessibility and mobility of people and for freight
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight
- Promote efficient system management and operation
- Emphasize the preservation of the existing transportation system

TABLE 1.1

Relationship of MTP Goals to Federal and State Transportation Planning Goals

Metropolitan Transportation Plan Goals		Energy	Natural Resources	Economic Opportunity	Sustainable Neighborhoods	Regional Collaboration	Health, Safety, & Welfare
National Goals	Access Ohio Goal Areas						
SAFETY - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads	Safety						✓
INFRASTRUCTURE CONDITION - To maintain the highway infrastructure asset system in a state of good repair	Preservation						✓
CONGESTION REDUCTION—To achieve a significant reduction in congestion on the National Highway System	Accessibility/ Connectivity, Mobility/ Efficiency	✓		✓			
SYSTEM RELIABILITY - To improve the efficiency of the surface transportation system	Accessibility/ Connectivity, Mobility/ Efficiency			✓	✓		
FREIGHT MOVEMENT AND ECONOMIC VITALITY - To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development	Economic Development			✓			
ENVIRONMENTAL SUSTAINABILITY - To enhance the performance of the transportation system while protecting and enhancing the natural environment	Stewardship	✓	✓				
REDUCED PROJECT DELIVERY DELAYS - To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.	Accessibility/ Connectivity, Mobility/ Efficiency					✓	

MODES & USERS

The MTP sets out to identify multi-modal improvements in the transportation system. This includes roadway, transit, bicycle, pedestrian, and freight components. Complete Streets are roadways designed to safely accommodate all users, including, but not limited to motorists, cyclists, pedestrians, transit and school bus riders, delivery and service personnel, freight haulers, and emergency responders. "All users" includes people of all ages and abilities.

MORPC is leading the effort to implement Complete Streets concepts and policies in Central Ohio. In April 2010, MORPC adopted a Complete Streets Policy that requires all projects seeking MORPC-attributable federal funds to accommodate all users. Additionally, MORPC is encouraging its member agencies to adopt complete streets policies that would cover projects utilizing non-MORPC funds. MORPC has created a Complete Streets Toolkit, which is available online, and will monitor the adoption of Complete Streets policies by its member agencies through an adopted Performance Measure of this Metropolitan Transportation Plan.

The specific projects included in the MTP are meant to depict the concept envisioned for the facility by the horizon year of 2040. The implementation of the concept may be a single project or a series of projects implemented over time that leads to the overall facility concept. For example, a specific project that widens a four-mile road from two lanes to four lanes with complete street facilities may be implemented as a combination of shorter segment widening projects, intersection improvements and/or addition of sidewalk and bike facility projects.

Non-freeway projects will generally also incorporate infrastructure to accommodate all users, where appropriate, consistent with the Complete Streets concept. Stand-alone bicycle and pedestrian projects, as well as transit projects are also identified in the MTP.

1.4 Plan Objectives & Targets

The progress of achieving each of the plan's goals will be measured by several objectives. Two to four objectives have been identified for each goal. Objectives were chosen to measure certain aspects of each goal that can be impacted through transportation or the transportation system, and are based on data availability and measurability. For each objective, the existing condition, or benchmark, is documented and used to establish a short- and long-term target (years 2020 and 2040). The region's progress toward reaching these targets will be reported on annually. The objectives and targets related to each goal are shown in Table 1.2, and discussed in detail in Chapter 9.

For each objective, the existing condition, or benchmark, is documented and used to establish a short- and long-term target

TABLE 1.2

Objectives & Targets

Energy

OBJECTIVE: Reduce the percentage of commuters driving alone, and increase the percentage of commuters riding transit, bicycle, or walking

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Reducing single-occupancy auto commutes and increasing commuters using alternative transportation modes will reduce per capita fuel and energy consumption.	**82%** of commuters drive alone **5%** of commuters ride transit, bicycle, or walk **2009-2013 American Community Survey*	**80%** of commuters drive alone **6%** of commuters ride transit, bicycle, or walk	**75%** of commuters drive alone **10%** of commuters ride transit, bicycle, or walk

OBJECTIVE: Reduce vehicle miles traveled (VMT) per capita

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Reducing vehicle miles traveled per person for any trip purpose will reduce per capita fuel and energy consumption.	**9,700** vmt per capita **2013 ODOT VMT on functionally classified Collectors and above, 2013 MORPC land use*	**9,200** vmt per capita (5% reduction)	**6,800** vmt per capita (30% reduction)

OBJECTIVE: Increase the percentage of vehicles using alternative fuels

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Increased use of alternative fuel vehicles is a direct measurement of alternative fuel usage.	**XX%** of registered vehicles use alternative fuels** ***Data and methodology under development*	**XX%** of registered vehicles use alternative fuels**	**XX%** of registered vehicles use alternative fuels**

Economic Opportunity

OBJECTIVE: Increase the average number of jobs reachable within 20 minutes via automobile and within 40 minutes via transit

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Access to jobs within reasonable travel time is important for the vitality of a region's economy.	On average, **332,000** jobs reachable within 20 minutes via automobile On average, **32,000** jobs reachable within 40 minutes via transit **2014 Travel Demand Model*	On average, **350,000** (5% increase) jobs reachable within 20 minutes via automobile On average, **35,000** (10% increase) jobs reachable within 40 minutes via transit	On average, **365,000** (10% increase) jobs reachable within 20 minutes via automobile On average, **38,500** (20% increase) jobs reachable within 40 minutes via transit

OBJECTIVE: Minimize the percentage of total vehicle miles traveled under congested conditions

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Efficient mobility of people and freight is an important element of a vibrant economy.	Total vehicle miles traveled under congested conditions: Daily: **3.1%** Peak Periods **6.9%** **2014 Travel Demand Model on functionally classified Collectors and above*	Total vehicle miles traveled under congested conditions: Daily: **<5%** Peak Periods **<10%**	Total vehicle miles traveled under congested conditions: Daily: **<5%** Peak Periods **<10%**

OBJECTIVE: Minimize the amount of extra, or buffer, travel time necessary when planning expected trip travel time.

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Freight carriers, commuters and businesses need reliable and consistent travel times to ensure the on-time delivery of goods and most efficient use of their time.	AM Peak Region-wide Uncertainty Index: **1.31** PM Peak Region-wide Uncertainty Index: **1.35** **Calculated from Oct 2013-Sept 2014 INRIX data, arterials and above*	Region-wide Uncertainty Index: **1.3**	Region-wide Uncertainty Index: **1.25**

TABLE 1.2

Objectives & Targets (continued)

Natural Resources

OBJECTIVE: Reduce emissions from mobile sources to continuously meet EPA air quality standards for each criteria pollutant

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Clean air an essential natural resource and is a key indicator of a healthy community.	Ozone Non-Attainment PM2.5 Attainment	Ozone Attainment PM2.5 Attainment	Ozone Attainment PM2.5 Attainment

OBJECTIVE: Decrease the locations of freeway and expressway facilities that are at risk for flooding

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Flooding prohibits safe travel and is a result of vulnerabilities during extreme weather events.	**3** freeway/expressway locations at risk for flooding **2014 ODOT Communication*	**3** freeway/expressway locations at risk for flooding	**2** freeway/expressway locations at risk for flooding

Collaboration

OBJECTIVE: Increase the percentage of funding from non-public sources on transportation projects on functionally classified Principal Arterials and above

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Creative funding partnerships are a result of regional collaboration and seeking out innovative solutions.	**1%** of funding is from non-public sources on transportation projects** **projects completed 2010-2014*	**5%** of funding from non-public sources on transportation projects**	**20%** of funding from non-public sources on transportation projects**

OBJECTIVE: Increase the number of projects utilizing innovative initiatives on functionally classified Principal Arterials and above

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Encourage initiatives that advance innovation and partnership to deliver and build projects efficiently.	**1%** of projects utilized innovative initiatives** **projects completed with Every Day Counts initiatives utilized for projects 2010-2014*	**4%** of projects utilized innovative initiatives**	**8%** of projects utilized innovative initiatives**

OBJECTIVE: Increase the percentage of functionally classified Principal Arterials and above facilities employing coordinated Intelligent Transportation System (ITS) technologies

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
ITS provides for maximization of capacity on existing facilities and real-time response to incidents and security issues.	**20%** of mileage utilizes coordinated ITS technologies	**30%** of mileage utilizes coordinated ITS technologies	**90%** of mileage utilizes coordinated ITS technologies

OBJECTIVE: Increase the number of transit vehicles and facilities with surveillance capabilities and increase the miles of functionally classified Principal Arterials and above with video surveillance

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Surveillance capabilities allow for real-time response to incidents and security issues.	**79%** of transit vehicles and facilities with surveillance capabilities **18%** of functionally classified arterials and above are under video surveillance **2014 COTA, DATABus and ODOT Inventories*	**90%** transit vehicles and facilities with surveillance capabilities **25%** of functionally classified Arterials and above under video surveillance	**100%** transit vehicles and facilities with surveillance capabilities **90%** of functionally classified Arterials and above under video surveillance

TABLE 1.2

Objectives & Targets (continued)

Sustainable Neighborhoods

OBJECTIVE: Encourage and support MORPC member communities to adopt complete streets policies or policies that contain those elements

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Complete streets allow for transportation choices, which enhance quality of life	**14%** of MORPC member communities have adopted complete streets policies or policies that contain those elements	**45%** of MORPC member communities have adopted complete streets policies or policies that contain those elements	**100%** of MORPC member communities have adopted complete streets policies or policies that contain those elements.

OBJECTIVE: Target infrastructure development to serve a higher number of people and jobs and increase sidewalk coverage of arterials and collectors

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Activity density along major facilities and pedestrian access among the activity provides a more livable environment	**4.3** people + jobs per acre are within 3/4 mile of arterials **36%** of arterials and collectors have sidewalks** **2015 MORPC Land Use Data, Sidewalk Inventory*	**5** people + jobs per acre are within 3/4 mile of arterials **40%** of arterials and collectors that have sidewalks**	**6** people + jobs per acre are within 3/4 mile of arterials **85%** of arterials and collectors have sidewalks

OBJECTIVE: Target transit and bikeway infrastructure development to serve a higher number of people

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Sustainable neighborhoods have access to multiple transportation modes.	**70%** of population live within 3/4 mile of a transit stop **71%** of population live within 3/4 mile of a bikeway **2015 MORPC Land Use Data*	**72%** of population live within 3/4 mile of a transit stop **72%** of population live within 3/4 mile of a bikeway	**80%** of population live within 3/4 mile of a transit stop **80%** of population live within 3/4 mile of a bikeway

Health, Safety, & Welfare

OBJECTIVE: Minimize the difference in trip travel time for disadvantaged populations relative to the regional trip travel time

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
The transportation system should equally serve all of the region's population.	Average trip travel time for disadvantaged populations is **5%** less than the regional average trip travel time **2014 Travel Demand Model*	Average trip travel time for disadvantaged populations within **5%** of regional average trip travel time	Average trip travel time for disadvantaged populations within **5%** of regional average trip travel time

OBJECTIVE: Maintain infrastructure in a state of good repair by minimizing the percentage of bridges with poor General Appraisals, minimizing pavement miles in unacceptable conditions, maintaining transit fleet of a useful life, and incorporating bike facilities

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Maintenance and enhancement of existing infrastructure ensures the maximum lifespan and safe use of public investments	**95%** of bridges with GA rating of 5 or better, **5%** of pavement miles in unacceptable conditions, **6%** of transit fleet older than useful life **580** miles of bikeways **2013 ODOT, 2014 COTA, DATABus, 2015 MORPC Inventories*	**95%** of bridges with GA rating of 5 or better, No more than **5%** of pavement miles in unacceptable conditions, **0%** of transit fleet older than useful life **630** miles of bikeways	**98%** of bridges with GA rating of 5 or better, No more than **5%** of pavement miles in unacceptable conditions, **0%** of transit fleet older than useful life **830** miles of bikeways

OBJECTIVE: Reduce the number of fatalities and serious injuries from crashes

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Crash reduction is a direct measurement of safety.	**0.69** fatalities per 100 million VMT **6.4** serious injuries per 100 million VMT Number of fatalities: **96** Number of serious injuries: **896** Number of non-motorized fatal and serious injuries: **138** **average number of crashes occurring 2010-2014*	**0.63** fatalities per 100 million VMT **5.83** serious injuries per 100 million VMT **10%** reduction in fatalities and serious injuries **10%** reduction in non-motorized fatalities and serious injuries	**0.42** fatalities per 100 million VMT **3.91** serious injuries per 100 million VMT **39%** reduction in fatalities and serious injuries **39%** reduction in non-motorized fatalities and serious injuries

1.5 Strategies

Objectives were developed to measure progress in achieving each goal. Strategies, on the other hand, are the plan of action for moving the region forward. Many of the strategies apply to more than one of the goals. These strategies are meant to be executed through collaborative efforts among MORPC and other regional planning partners.

The strategies will be introduced throughout the MTP document. As they are introduced, the related goals will be identified. Details about each of the strategies and projects can be found in the following chapters with a summary of the strategies in Chapter 8.

1.6 Document Organization

The 2016-2040 Metropolitan Transportation Plan document is divided into the following nine chapters:

EXECUTIVE SUMMARY
The Executive Summary provides a concise overview of the information contained in the entire document. While the document includes many important details, the Executive Summary includes only the most relevant and significant information.

CHAPTER 1
Chapter 1 provides general overview information on the Metropolitan Planning Organization and what the Metropolitan Transportation Plan is and how it was developed. It also discusses the regional transportation goals, upon which the plan is based, as well as the objectives and targets that will be used to track progress in achievement of the goals. The strategies for achieving the goals are also introduced in Chapter 1.

CHAPTER 2
Chapter 2 summarizes population and economic trends and forecasts for the region. The way in which the region grows plays a key role in shaping the needs of the transportation system. Knowing who the users of the system are, and where they will be traveling lays the groundwork for identifying future transportation needs. This chapter describes the data and analyses used to develop these assumptions.

CHAPTER 3
Chapter 3 summarizes the existing multimodal transportation system, including roadway, transit, bikeway, pedestrian, and freight and intermodal facilities.

CHAPTER 4
Chapter 4 describes the various efforts underway to manage the transportation system, such as preservation and maintenance, intelligent transportation systems, and transportation safety and security.

CHAPTER 5
Chapter 5 describes current regional efforts to manage traffic demand by advancing alternatives to using one's personal vehicle to make a trip alone.

CHAPTER 6
Chapter 6 describes the strategies and projects associated with the expansion of the transportation system, including roadway, transit, bikeway, pedestrian, and freight and intermodal systems.

CHAPTER 7
Chapter 7 describes the process used to select strategies and narrow the 1,000 project candidates down to a financially feasible list of projects.

CHAPTER 8
Chapter 8 lists the strategies identified and describes specific ways to execute each strategy. Maps of the projects included in the MTP, and a list of the included projects with descriptions, cost estimates, and estimated construction timeframe can also be found here. This chapter includes summaries of how the included strategies and projects impact the region's air quality and transportation-disadvantaged populations.

CHAPTER 9
Chapter 9 describes how the MTP will be implemented through the work of MORPC and our regional and local planning partners. It also lists the performance measures, benchmarks, and targets, and details how progress toward reaching the targets is monitored and reported.

TECHNICAL APPENDICES
Each of the seven technical appendices contains detailed technical data, analyses methodologies, and/or further information that is included in the body of this document, about the title subject.

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Chapter 2: Regional Trends

All residents and businesses rely on the transportation system every day to meet basic personal and business needs such as transporting goods, getting to work, shopping for food, going to the doctor, or socializing. How the area develops in the future will impact the demands placed on the transportation system.

To anticipate future transportation needs in Central Ohio, it is essential to anticipate demands on the transportation system. Development patterns, as well as demographic and socioeconomic characteristics, affect the way people travel and impact transportation needs. Age can affect personal mobility, economic conditions can affect accessibility due to affordability, and culture can affect choice of travel due to language barriers or other cultural characteristics. Providing a complete transportation system that accommodates travel needs of all users is a core purpose of this MTP.

Development patterns directly impact the transportation system both in terms of accessibility and capacity. The way land develops, including densities, proximity to transit, and accessibility to roadways, is just as important as the type and location of development that occurs.

Predicting regional trends that include characteristics of the people in the MPO planning area, as well as the amount of development, provides decision makers with information to make investment choices that meet the objectives of this MTP.

2.1 Transportation and Development Patterns

Just as land uses and economic systems provide the origin and destinations of travel patterns, the transportation system provides the means for connecting them. Transportation systems support the outwardly facing economy of the region, as well as serving internally focused mobility needs of residents and commerce. Central Ohio is part of the once powerful Great Lakes region. With approximately 15 percent of the nation's population, the Great Lakes region accounts for 22 percent of the nation's industrial workers. Though dependence on global activities is influencing the economic vitality of the Great Lakes region, the geographic assets of Central Ohio are still true.

The Columbus MPO is home to 1.4 million people and 950,000 jobs. It is also positioned as a fulcrum for distributing goods to the Eastern United States and Midwest. Its physical infrastructure is expansive and augments its close proximity to large markets (goods leaving Columbus can reach approximately 47 percent of the U.S. population within a day). Moreover, the Columbus economy is a national center for insurance and finance. Also home to The Ohio State University, research facilities, healthcare, and other technology giants, the area is gaining attention as a center for innovation.

MEASURABLE OBJECTIVE

The MTP targets a 10% increase in jobs reachable within 20 minutes via automobile, and a 20% increase in jobs reachable within 40 minutes via transit

2.2 Projections

Predicting where new housing and employment growth occurs, with regard to both density and proximity, are useful in defining what types of transportation services will be necessary to support both quality of life and economic stability.

The MPO region is expected to increase from 1.45 million people in 2015, to 1.78 million in 2040. This is based on county-wide population projections provided by the Ohio Development Services Agency. This increase of an additional 333,000 people (23 percent) will require growing the housing stock from 600,000 to 750,000 units (26 percent increase) and the job market from 955,000 to 1.14 million (19 percent increase).

While the total population growth was predetermined from projections provided by the state, the number and locations of new households and jobs were prepared by MORPC. By fitting local land use plans with anticipated development trends that include changing market demands for housing styles and re-integration of land use types, new population and job growth was distributed in the MPO region.

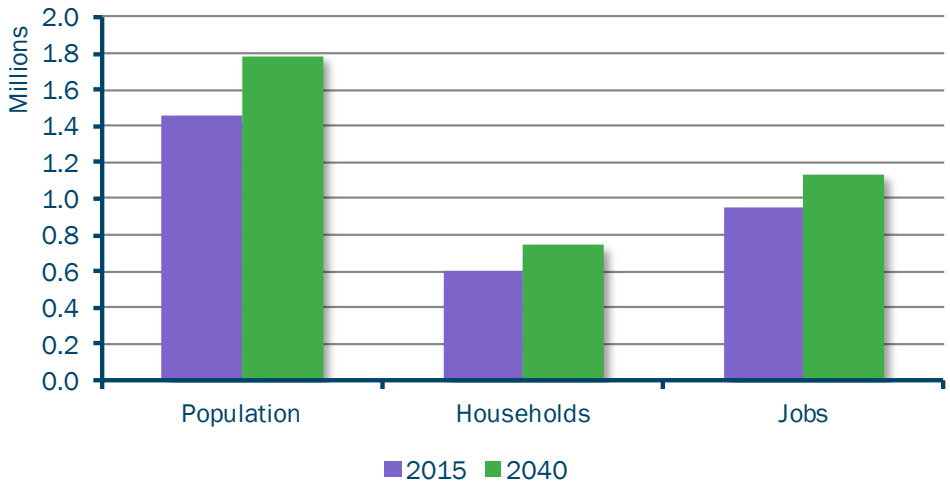


FIGURE 2.1

Population, Households and Jobs in the MPO, 2015 and 2040
Source: MORPC

The number of people over the age of 65 is expected to double over the next few decades.

IMPACT FROM CHANGING MARKET DEMANDS AND DEMOGRAPHICS ON DEVELOPMENT TRENDS

In 2014, MORPC initiated a multi-phased program called insight2050. It is a community-wide effort to involve residents, businesses and government to proactively plan for population growth and development. The purpose is to energize local communities to take actions, preparing them for future conditions by recognizing the need to modify development patterns based on changing demographics. Nearly two-thirds of the anticipated population increase will come from natural growth – more people being born than dying. The number of people over the age of 65 is expected to double over the next few decades as our average life expectancy continues to lengthen. The other third of the expected growth is dependent upon Central Ohio continuing to attract new residents. Housing choices and changing mobility needs will play an increasingly prominent role in the future as dictated by evolving market demands. Maintaining a competitive advantage by attracting and retaining a skilled and reliable workforce as well as accommodating demands from an aging population is directly related to the success of the transportation system.

The decisions that each community makes today will impact its quality of life and economic vitality for years to come. A healthy economy that attracts increased capital investment, provides jobs for residents, is supported by exceptional local services and desirable residential communities requires long-ranging planning with public-private partnerships and trust among cities and residents.
The first phase of insight2050 relied on the RapidFire modeling platform developed by project consultants Calthorpe Associates to produce a range of metrics, including land consumption, infrastructure costs, air pollution, household expenses, and public health and safety costs across four scenarios. While land use patterns reflect many separate local decision-making processes, the metrics generated by the RapidFire model provided critical insights to public and private decision makers about the impacts of key policies on transportation, fiscal, and environmental systems.

Reconnecting disjoined and economically challenged neighborhoods is also an ongoing theme. The reconstruction of the I-70/I-71 innerbelt that rings the downtown, referred to as Columbus Crossroads began in 2011 and will continue for at least the next decade. This project will result in the closure of some freeway ramps and modifications to surface streets and have long-term impact on the downtown.

Part of the design calls for reinforced bridges to support "caps" that can bear buildings to reconnect the downtown, similar to the cap over I-670 on High Street, which greatly benefited the Short North neighborhood, completed in 2004. These "caps" are intended to reinvigorate neighborhoods such as the King -Lincoln District, which became isolated after the interstate was built 40 years ago. The recent construction of the Main Street and the Town Street bridges over the Scioto River is another example of how infrastructure is being used to create linkages between communities as well as carry traffic.

Recognizing that the demographics of the area are changing, communities are also beginning to look at ways to provide transportation infrastructure to support a broader set of travel options to accommodate market trends. Communities are making use of public rights-of-way in the context of the development they abut to allow for all modes of travel. For example, The City of Columbus has established incentive programs to continue to spur growth in the downtown, and retro-fitting many of the downtown streets to support two-way traffic rather than their current one-way function as a means to create a neighborhood ambience. The City of Dublin is using land development incentives and strategies to implement the Bridge Street Corridor Plan. This plan calls for increasing intensity and mixture of development along the city's main thoroughfare. It complements the development with sidewalks and bikeways to bring human-scaled elements to the broad auto-oriented roadway to support safe access to jobs, services and entertainment by a choice of modes.

The theme of sustainability, with energy and environmental stewardship, are also impacting the development climate. Mixed-use developments, reinvented main streets, sidewalks and bikeways are being embraced as a way to attract residents and employers, and also to enable a reduction in auto travel. Air quality, water quality, access to fresh food, and general public health are all directly related to the transportation system and land development patterns.

For example, some communities such as Westerville and Columbus have developed overlay zoning districts to encourage sustainable development. Other communities like New Albany, Worthington, Bexley and Gahanna are incorporating LEED certification into their zoning codes and city buildings. Grandview Heights is redeveloping an abandoned warehouse site on the near northwest into the mixed—use Grandview Yards development that will link the residential, retail, entertainment and office spaces of the site to major employer sites such as the OSU campus and downtown.

Using research from insight2050 and community-based land use plans, MORPC distributed new development through intermediate steps to small geographic units called Traffic Analysis Zones (TAZs) for consumption by the travel demand

model. Whereas the travel demand model is used to predict future traffic volumes and transit ridership, MORPC uses another model to allocate future development based on local use plans. Using the future development capacities as dictated by potential future land uses in local land use plans, MORPC used an allocation model to distribute new population and employment.

The allocation of development was dependent on growth control totals MORPC developed for each community. These were shared with local communities for approval, and were used in the model to ensure each community received an opportunity for growth. Furthermore, job growth was disaggregated into commercial (office, retail goods, retail services), industrial, and public/institutional segments as these are required by the travel demand model. The details of the projection process are included in Appendix A.

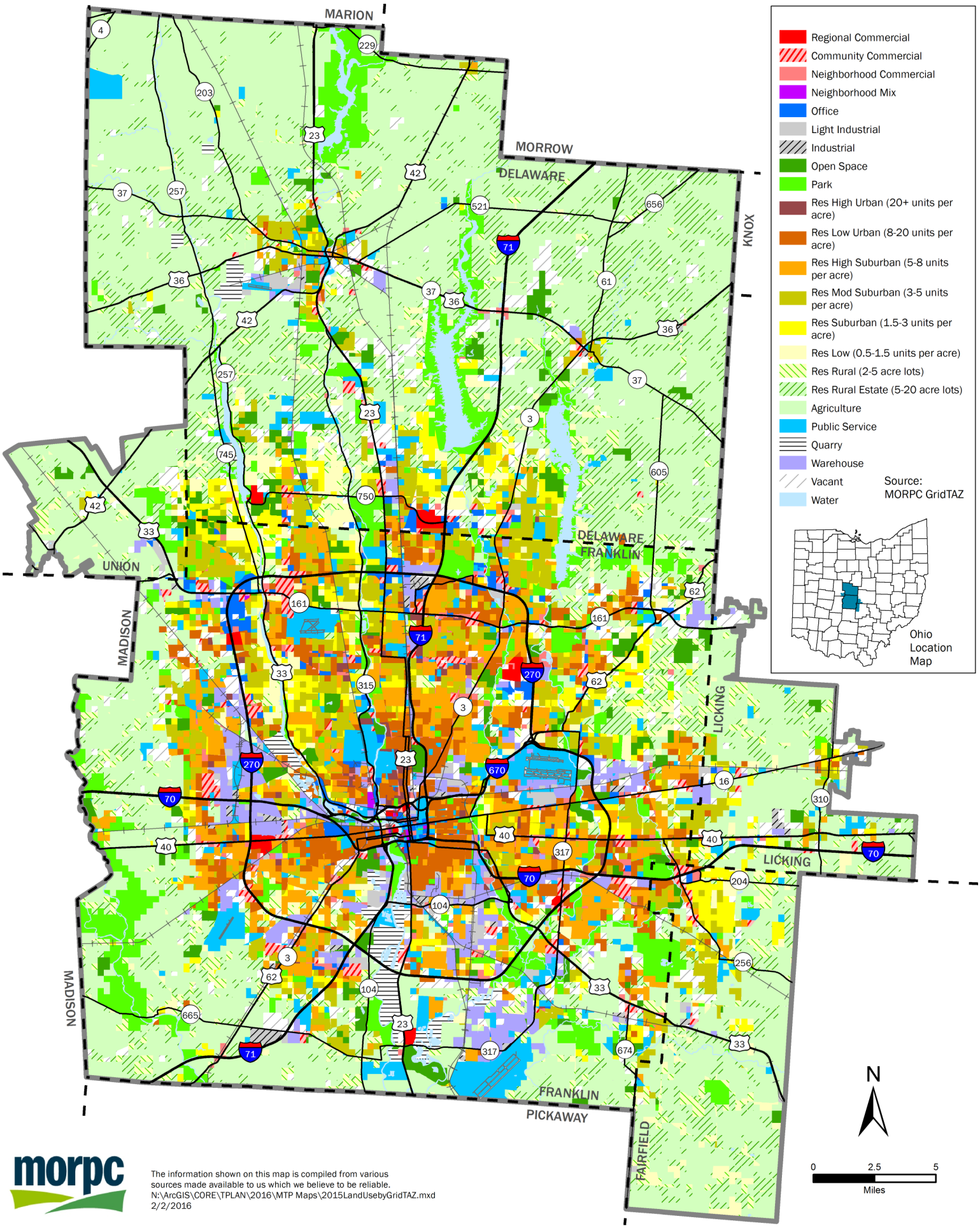
Distributing the new growth took several factors into effect regarding emerging development trends such as increased densification, recognizing increased demand for mixed land uses and identifying infill opportunities. However, plans for specific developments, or "Hot Spots," were also included in the allocation modeling activity. MORPC tracks development plans throughout the MPO region, and the projections include development in areas that might seem counter-intuitive to some of the philosophy invoked through insight2050. For example, a new commercial area is expected at the US 36/I-71 interchange in northern Delaware County. The assumptions used for distributed development to areas such as this used the "Hot Spots" approach as an override. The basic assumptions used in assigning attractiveness of areas for development include:

High Attraction Factors

- Density of future development – areas identified in local land use plans that are intended to have high-density development
- Proximity to existing development – to promote infill development whenever possible
- Access to infrastructure – areas with uninhibited and close proximity to roadways, transit, and areas currently or expected to be served by public sanitary sewer and water
- Economic development incentives - areas communities have identified as being marketed for economic development through creation of economic tools such as joint economic development areas, tax incentives, or community reinvestment areas
- Known development "Hot Spots" – using MORPC's file of proposed major developments

Low Attraction Factors

- Density future development – areas identified in local land use plans that are intended to have low-density development
- Agriculture – development was directed away from agricultural properties
- Environmentally sensitive – lands in floodplains, wetlands, or exhibiting other unique environmentally sensitive features



The information shown on this map is compiled from various sources made available to us which we believe to be reliable.
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FIGURE 2.2
Existing Land Use, 2015

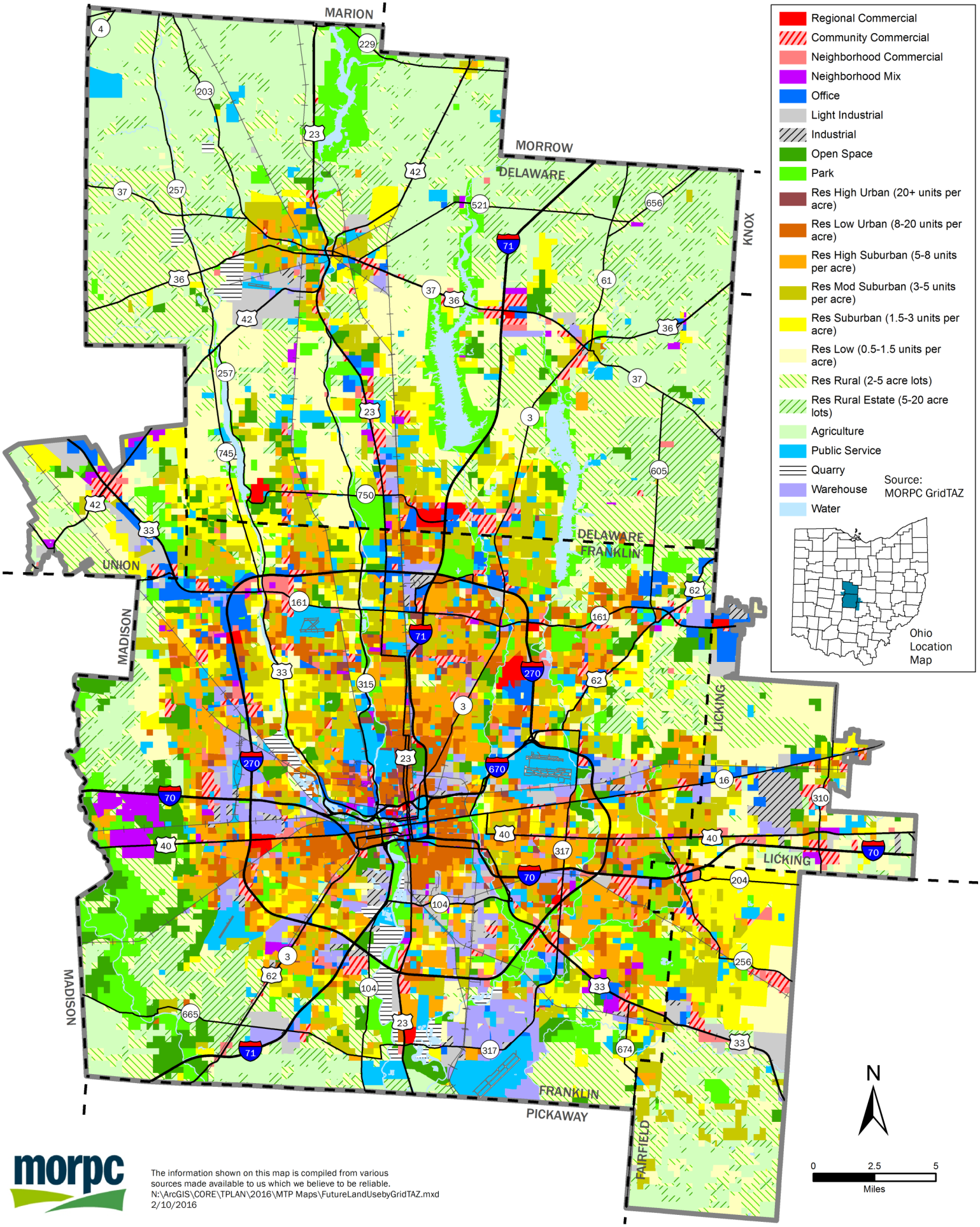

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FIGURE 2.3

Future Land Use, 2040

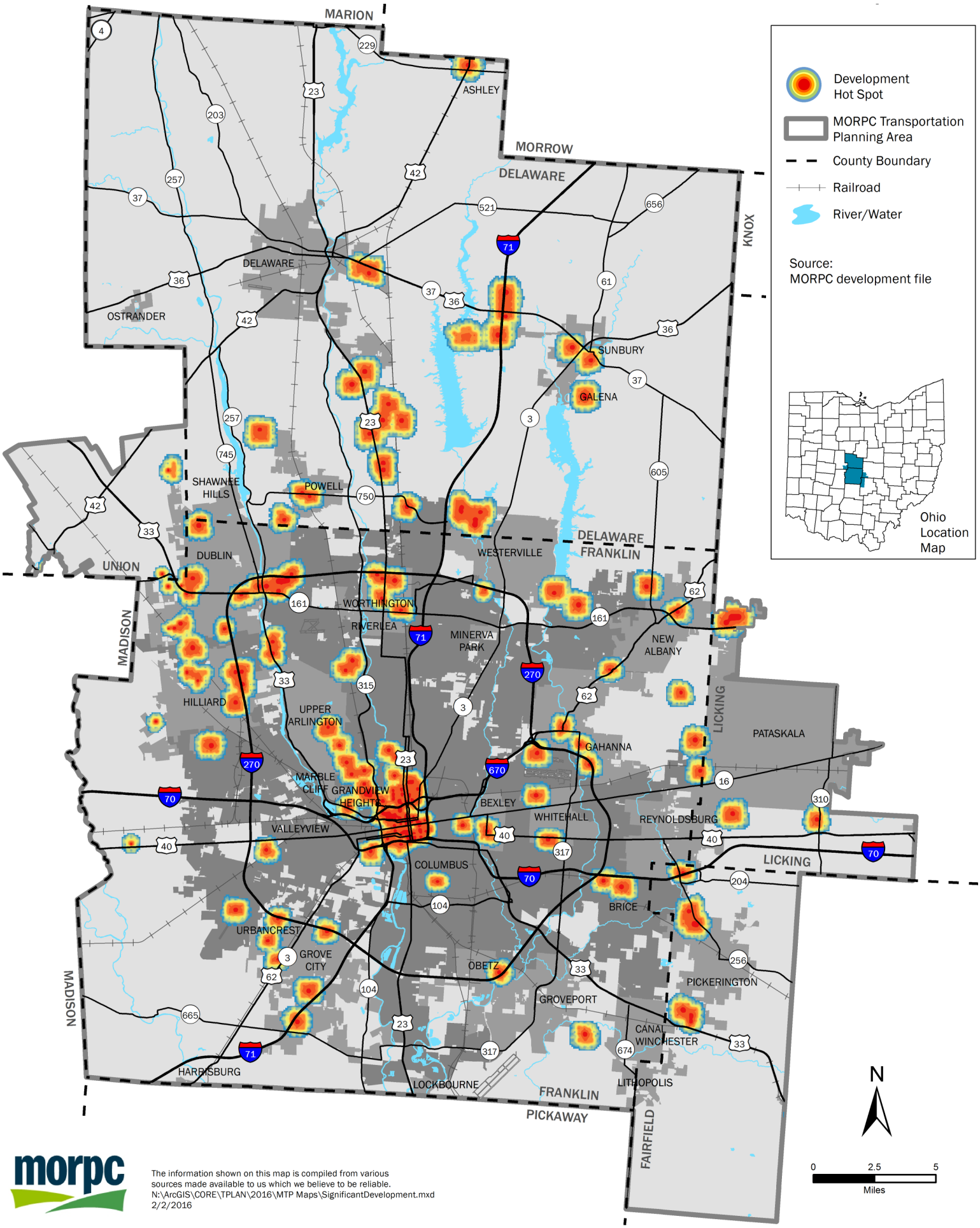

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FIGURE 2.4
Development Hot Spots

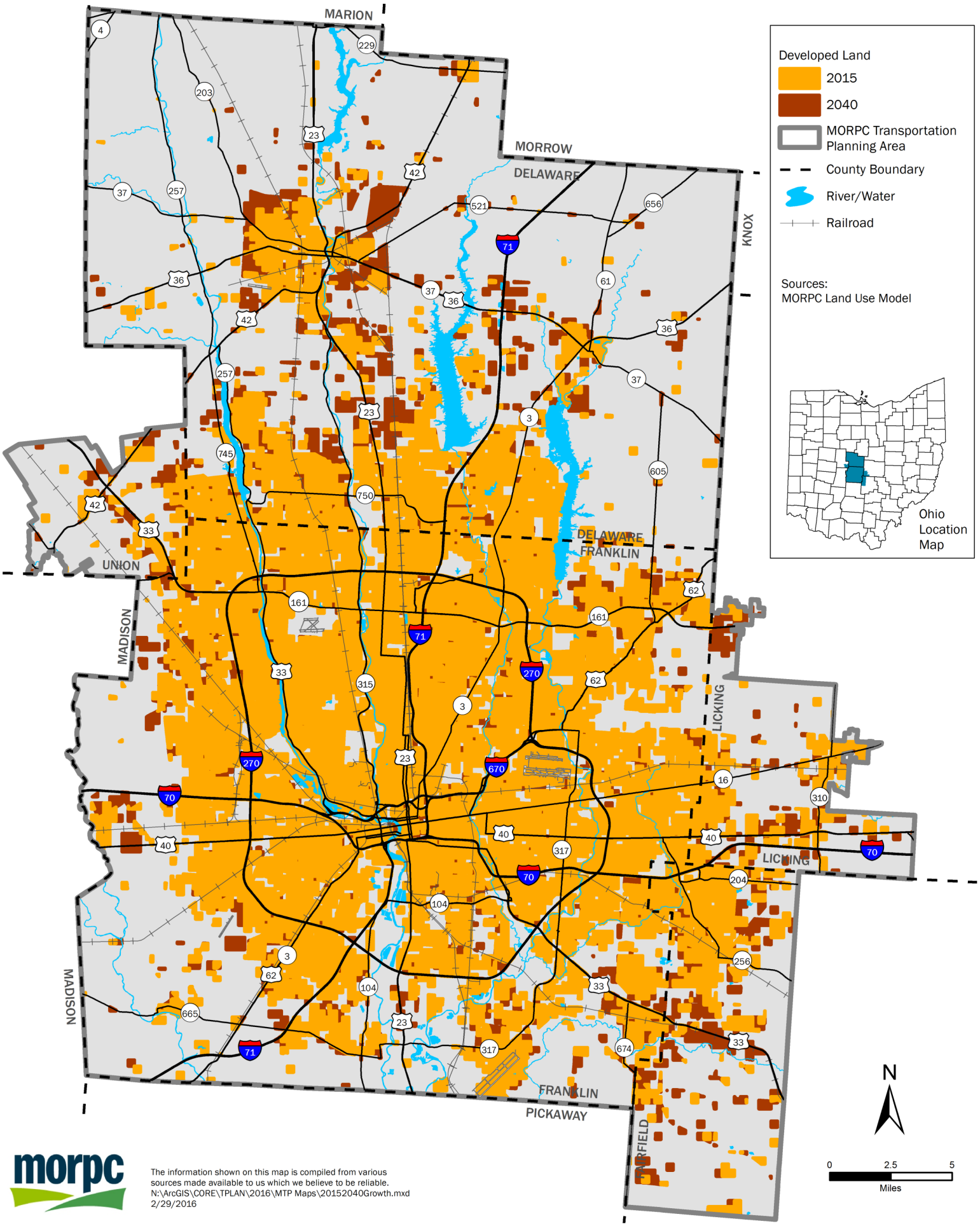

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FIGURE 2.5
2015-2040 Forecasted Land Consumption

As a result, the future growth was absorbed into much of the current urban area footprint. While the projections assume approximately 120 square miles of undeveloped land consumed around the fringe, this is radically more compact than previous projections that included over 270 additional square miles consumed.

The development landscape for 2040 includes denser development. Overall, densities for all categories of residential development are projected to increase. In addition, the breakdown of new housing by density includes over half of the new housing being constructed at a density of 5 units or more per acre. The location of where new housing and new employment opportunities are is displayed on Figures 2.8, 2.9, and 2.10.

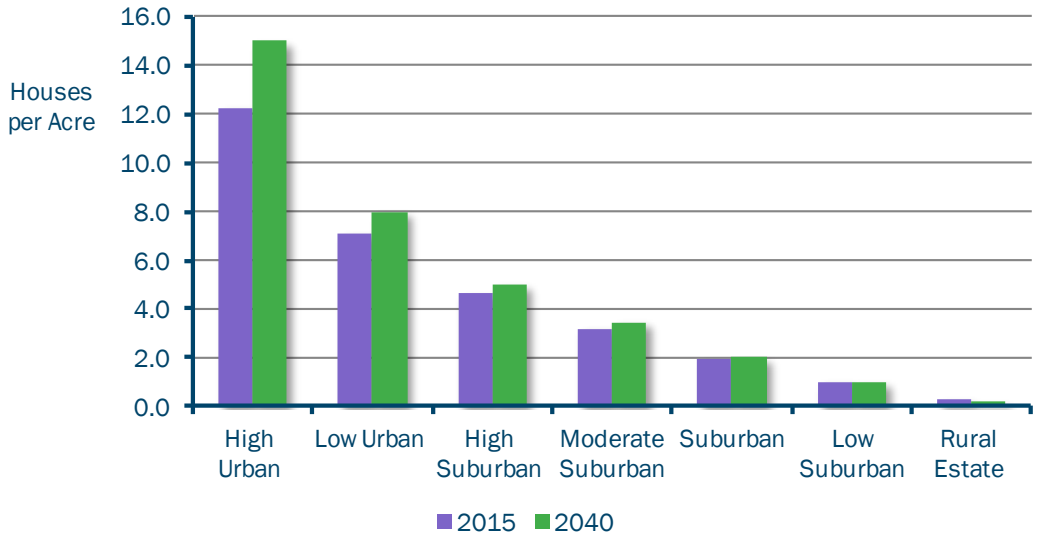

FIGURE 2.6

Residential Projections: Changes in Densities of Housing Units per Acre
Source: MORPC

FIGURE 2.7

Percentage of New Housing Projected between 2015 and 2040 by Density
Source: MORPC

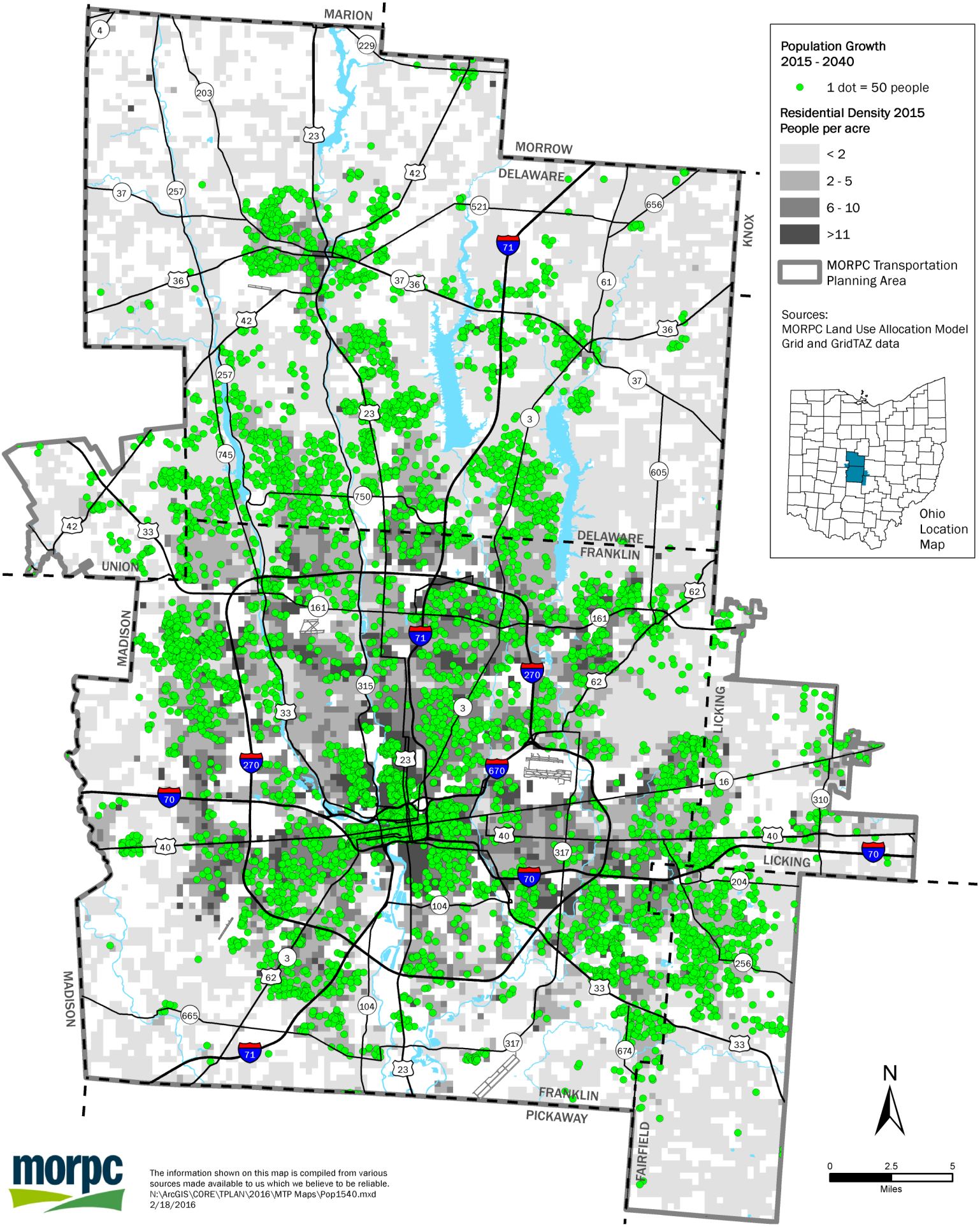

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FIGURE 2.8

Households by Residential Acre Density, 2015-2040

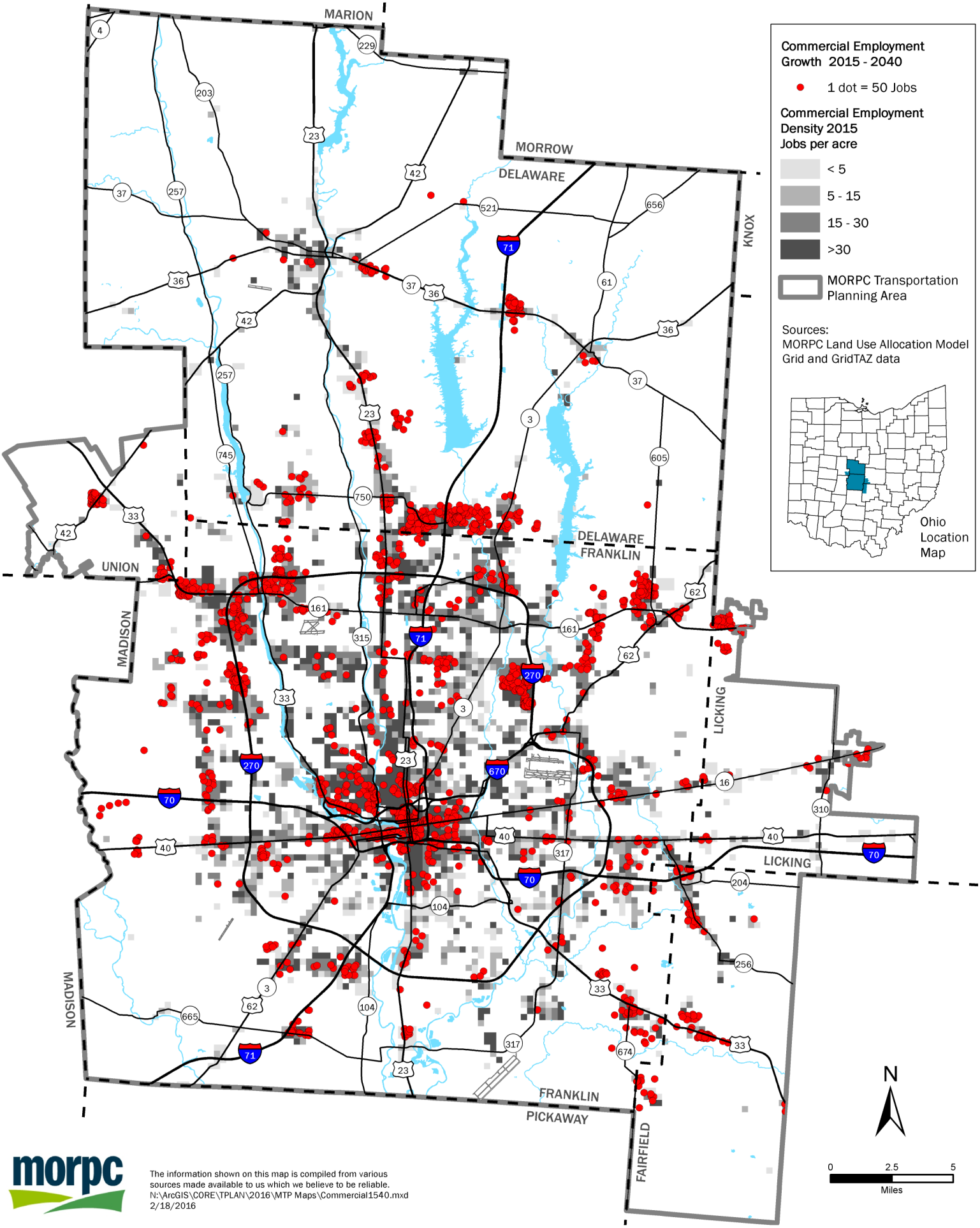

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FIGURE 2.9
Commercial/Office Employment Density, 2015-2040

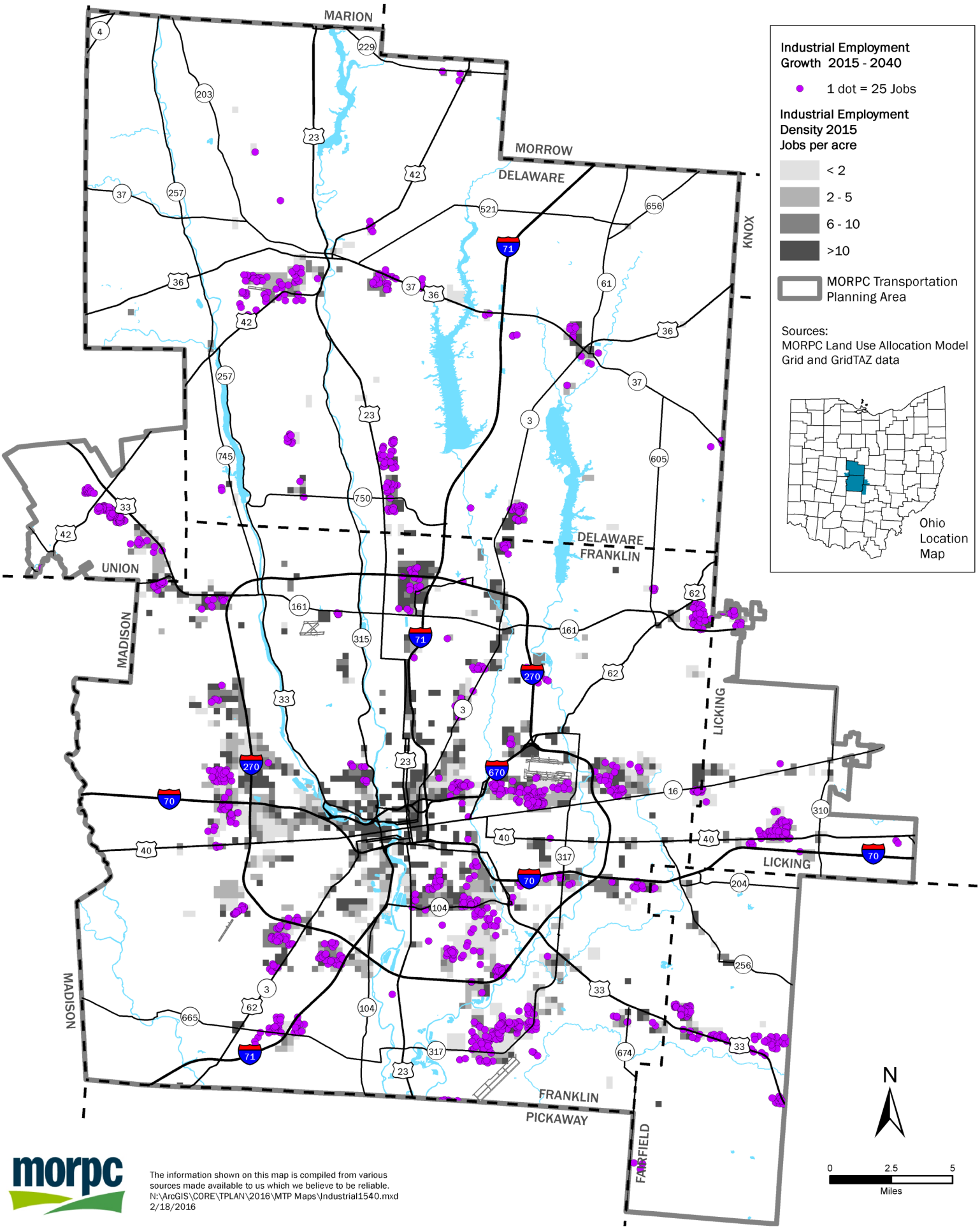

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FIGURE 2.10

Industrial Employment Density, 2015-2040

2.3 Socio-Economic Conditions that Impact Future Growth

Socio-economic data, information about demographics and economic conditions, reveal characteristics about the users of the transportation system. Demographics include statistics about people with regard to age, culture, race, finances, travel habits and housing characteristics. Some populations have historically been disproportionately impacted by changes made to the transportation system. As such, all proposed projects are evaluated in the context of Environmental Justice.

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

Chapter 8 and Appendix D includes details about how modifications to the transportation system included in the MTP were measured against particular populations such as minorities, seniors, disabled and those in poverty to assure Environmental Justice for all people in the MPO area.

Economic information includes statistics regarding employment, types of businesses and labor force.

AGE

Central Ohio has historically been relatively young, owing in part to the presence of The Ohio State University. The Columbus MSA has a median age of 35 years, whereas the national average is over 37 years, and the Great Lakes region is over 38 years. However, like the rest of the nation, Central Ohio is aging and will face extraordinary challenges in the future as the baby boomers leave the workforce and move into retirement. Between 2010 and 2014, the segment of the population over 65 grew by 14 percent. In the next decades, the swell of baby boomers now in their 50's and 60's will start moving out of the workforce. As a result, the region will be competing with other markets to attract young people to fill labor demands in order for businesses to continue to thrive.

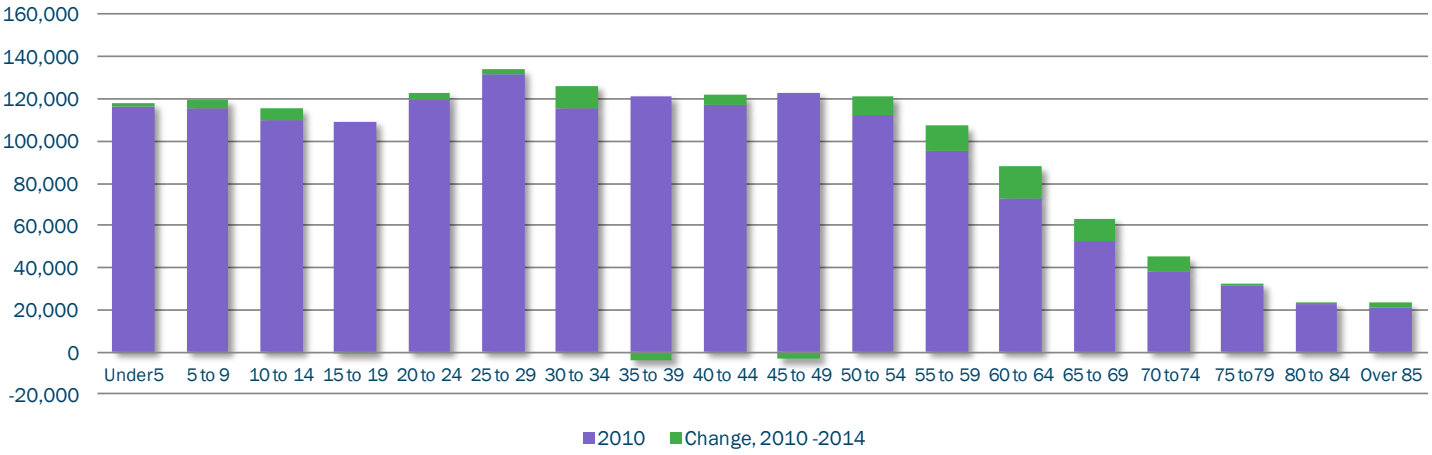

FIGURE 2.11

Change in Population by Age Cohort in the MPO, 2010-2014
Source: 5 Yr ACS 2014, Table B01002

RACIAL DIVERSITY

Central Ohio is predominantly white, although Central Ohio has a higher percentage of Black/African-Americans than the nation, the Great Lakes region, and Ohio. Central Ohio also has a relatively high Asian population when compared to the Great Lakes region and Ohio. While the share of Hispanic/Latino population is comparable to Ohio, it's small when compared to the nation and the Great Lakes Region.

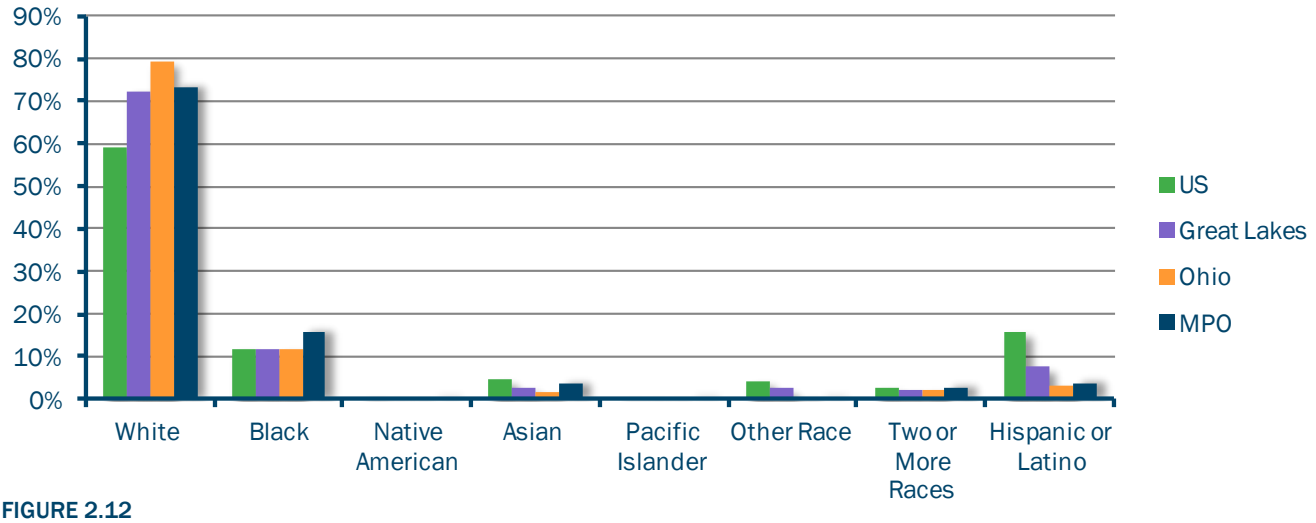

FIGURE 2.12

Percent of 2014 Population by Race: US, Great Lakes, Ohio, MPO
Source: 5 Yr ACS 2014, Table B03002

The MPO area is still gaining in diversity. The percentage of people who are white decreased from 75 percent in 2010 to 73 percent in 2014. Increases in minorities represented 60 percent of population change in population over the past five years. Of the nearly 50,000 additional people of minority added to the MPO area in the past 5 years, nearly one-third were Black/African-American, and another quarter were multi-racial. Asians accounted for 18 percent and Hispanic/Latino growth represented 22 percent.

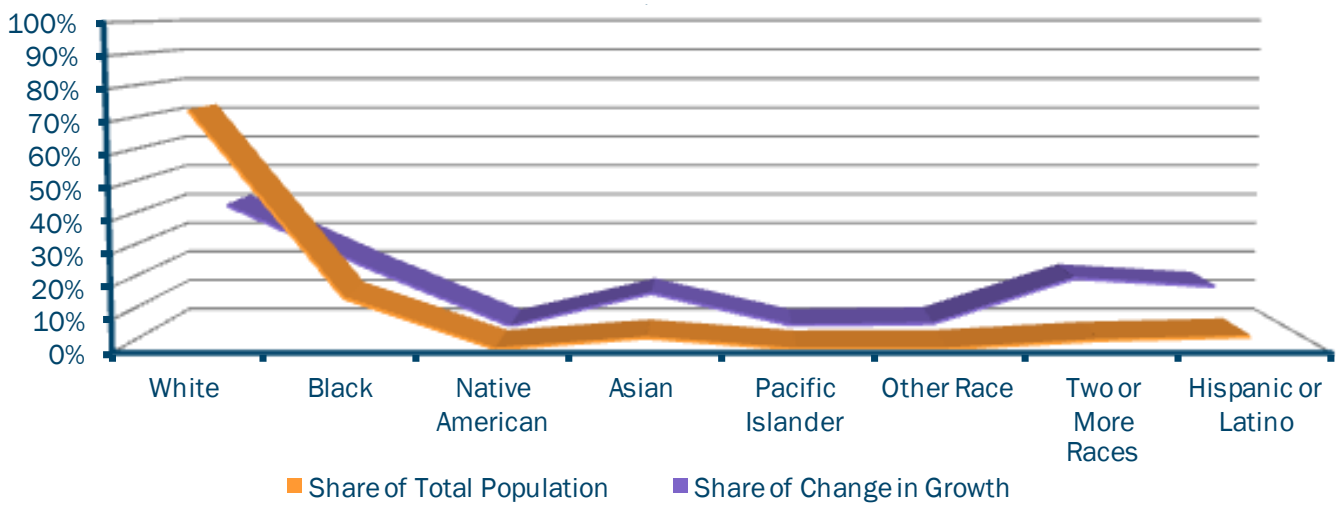

FIGURE 2.13

Percent of Total Population by Race Compared to Share of Increase in the MPO, 2010-2014
Source: 5 Yr ACS 2014, Table B03002

INTERNATIONAL DIVERSITY

Approximately 130,000 people currently living in the MPO came from a different country, representing 8 percent of the total population. Over the past five years, one out of every five new people added to the region is from international migration. The majority of international growth was from Asia (primarily India and Iraq), and Africa (primarily from countries in Eastern Africa). Migration from Europe, Oceana and the Americas was basically stagnant. Of particular note is the lack of migration from Central America, which increased by nearly 11,000 people since 2010. The minimal amount of migration from this region implies that the Hispanic/Latino population is now an established part of the Central Ohio community, and with an anchored foothold, is now increasing through natural growth.

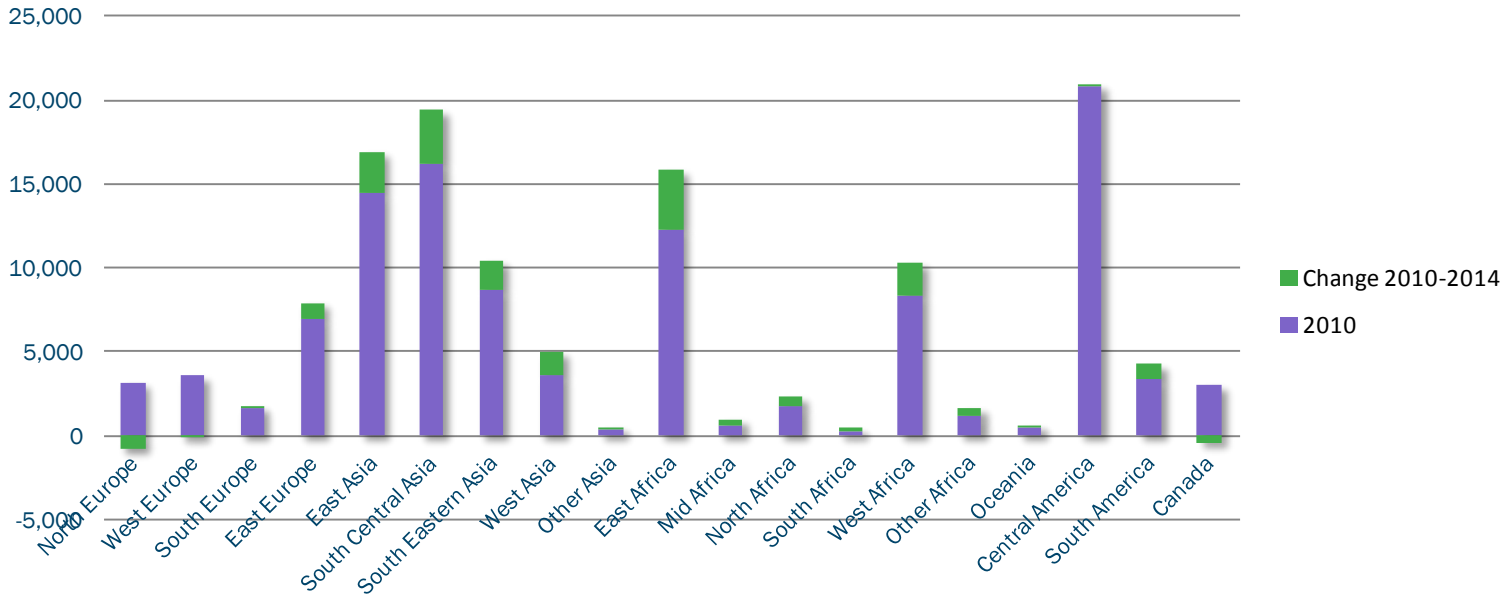

FIGURE 2.14

Population Moving to the MPO from Other Parts of the World, 2010-2014
Source: 5 Yr ACS, 2014, Table B05006

ENGLISH PROFICIENCY

Nearly 10 percent of the population in the MPO speaks a language other than English. Forty percent (60,000 people) do not speak English very well. Slightly more than one-third of those who don't speak English are Spanish-speaking. Unfortunately, the data available on languages are very general, and it is difficult to evaluate specifically what other languages are most prevalent. The US Census releases data on language proficiency in broad categories, including Spanish, Indo-European (which includes Europe, Russia, and the northern part of the Indian subcontinent), Asian and a general category of "Other." Many of these regions include several languages with unique dialects that require grass roots research to ascertain what language is spoken. This may especially be true for reaching residents in migrant communities from Asia and Africa.

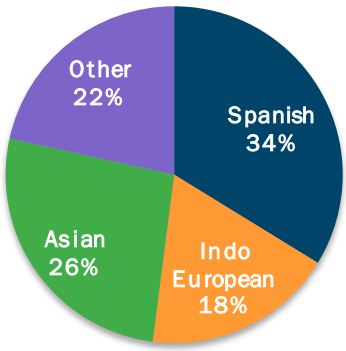

FIGURE 2.15

Share of Population by Language from Which English is Not Spoken "Very Well"
Source: ACS, 2014, Table S1601

HOUSEHOLD INCOME

The mean household income in the MPO hovers at just over $76,000, slightly higher than the nation, and significantly higher than the Great Lakes Region and Ohio averages. The mean household income rose by 7 percent between 2010 and 2014, compared to 6 percent or less in the other areas. Per capita income of the MPO area is also higher than the average.

This better-than-average wage characteristic of the MPO area holds true for minority populations as well when compared to the larger geographies. However, incomes dissected by race tell a different story. After eliminating whites, minorities have an income representing 65 to 75 percent of the mean for the total population. As the population continues to diversify, the impact of lower wages on the total area runs the risk of eroding economic competitiveness.

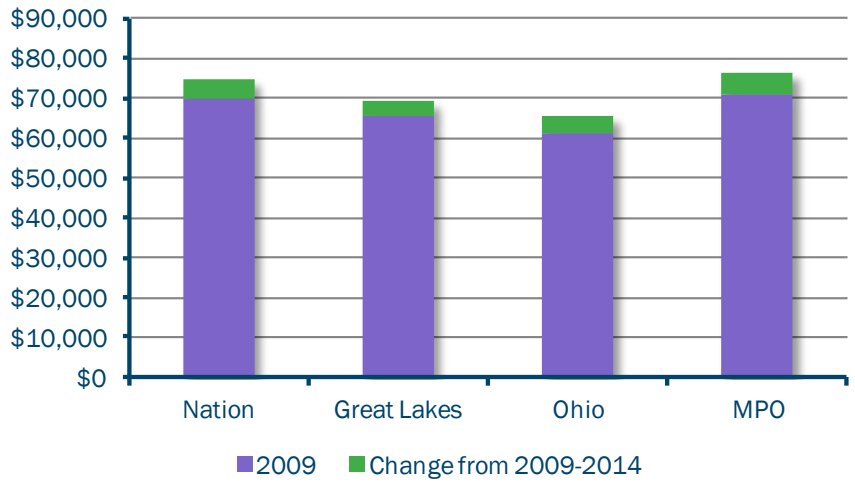

FIGURE 2.16

Mean Household Income, 2009-2014, US, Great Lakes, Ohio, MPO
Source: 5 Yr ACS,2014, Table S1902

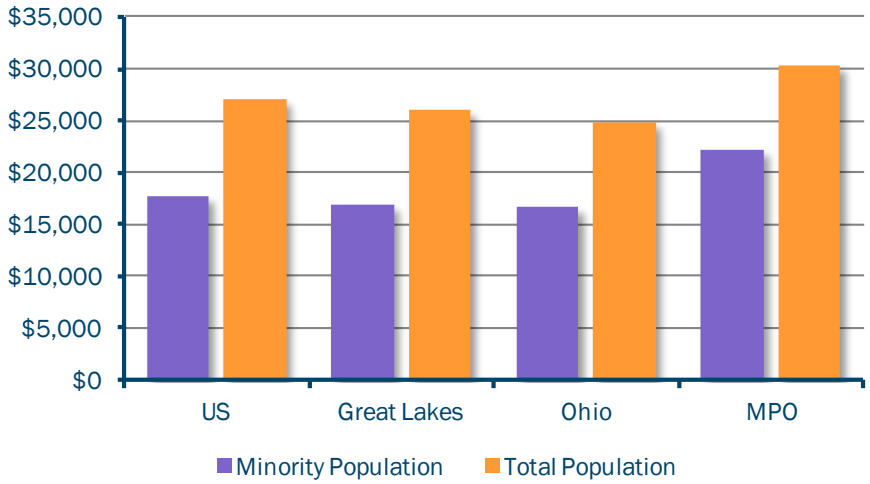

FIGURE 2.17

Per Capita Income for Minority Populations Compared to Total Population*
Source: 5 Yr ACS, 2014, Table S1902

*Minority does not include Native Americans or Pacific Islanders as data for these segments were not statistically reliable for the MPO

POVERTY

At 15 percent, the poverty rate in the MPO is lower than that of the nation, the Great Lakes and Ohio. However, census data show that the poverty rate actually increased over the past five years, even while the mean income rose. The poverty rate is significantly higher for minorities, and, contrary to per capita income, the poverty rate of minorities in the MPO is higher than that in the nation or the Great Lakes region.

In 2014, over half of the 250,000 people in the MPO living in poverty were minorities, even though they represent less than 28 percent of the total population. The Black/African-American population bears the highest burden with a poverty rate of 32 percent - twice the regional average. Clearly not everyone has benefitted from the economic recovery.

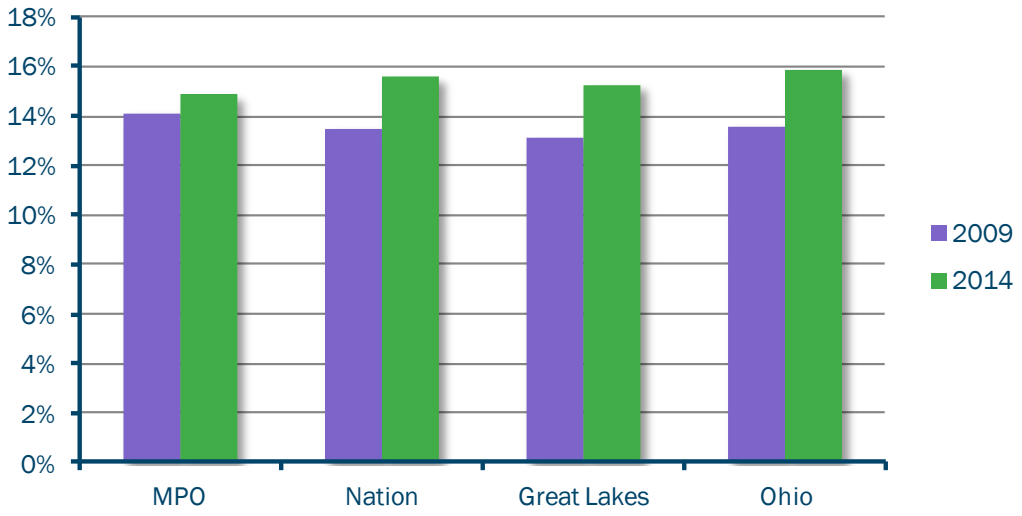

FIGURE 2.18

Percent of People in Poverty: 2010-2014
Source: 5 Yr ACS, 2014, Table S1701

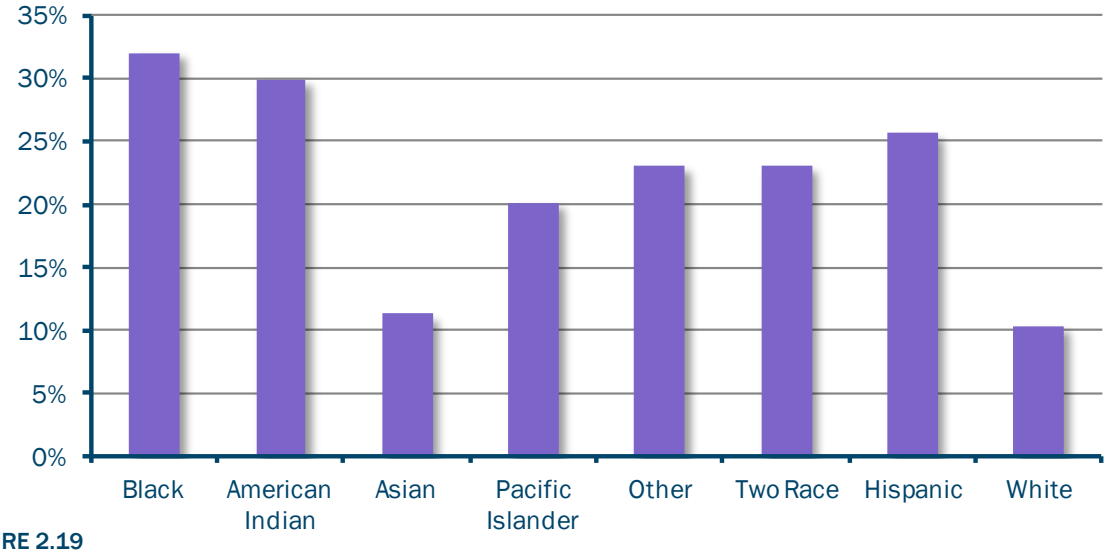

FIGURE 2.19

Percent of Population in Poverty by Race, 2014
Source: 5 Yr ACS, 2014, Table S1701

HOUSING

The MPO has historically had a higher renter rate than the nation, the Great Lakes Region and Ohio, due in part to the presence of a significant number of colleges and universities in the area. However, over the past five years, the distribution of apartments and multi-family dwellings has dissipated into non-"campus" neighborhoods. Since 2010, over half of the new 23,500 housing units constructed have been multi-family. Nearly 10 percent of these new units were built in the Columbus central business district, recreating a residential neighborhood that had been missing for decades. Moreover, with the economic recovery, the vacancy rate has decreased to 10 percent, lower than that experienced in the nation, the Great Lakes Region or the state. Since 2010, nearly 7,500 previously vacant housing units have been reoccupied.

New multi-family housing units have resulted in an increase in density of many communities. While "high-rise" apartment buildings are few and reserved primarily for downtown Columbus or neighborhoods immediately adjacent to it, three-four story residential structures are beginning to sprout in many suburban communities. Commercial businesses, such as restaurants and personal service establishments are beginning to locate near these new residential developments. Several communities are modernizing their zoning regulations to include form-based development. This trend is expected to continue as the markets for smaller, maintenance-free housing continues to build along with demands for amenities that are within walking distance of home. The lessons from Phase 1 of insight2050 are taking hold, and through continued outreach and research, some neighborhoods are taking on a new look.

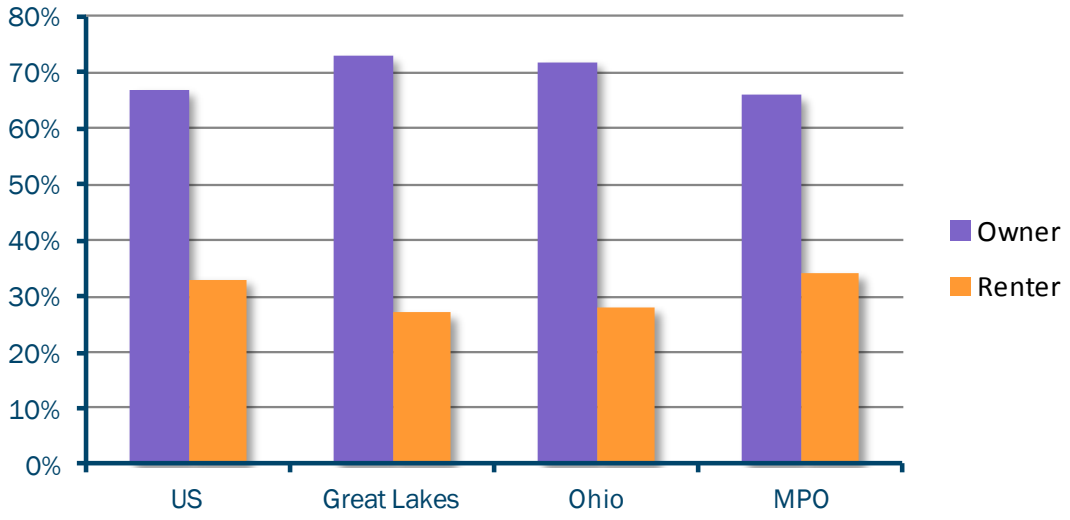

FIGURE 2.20

Percentages of Owner and Renter Occupied Housing Units, 2014
Source: 5 Yr ACS, 2014, Table B08137

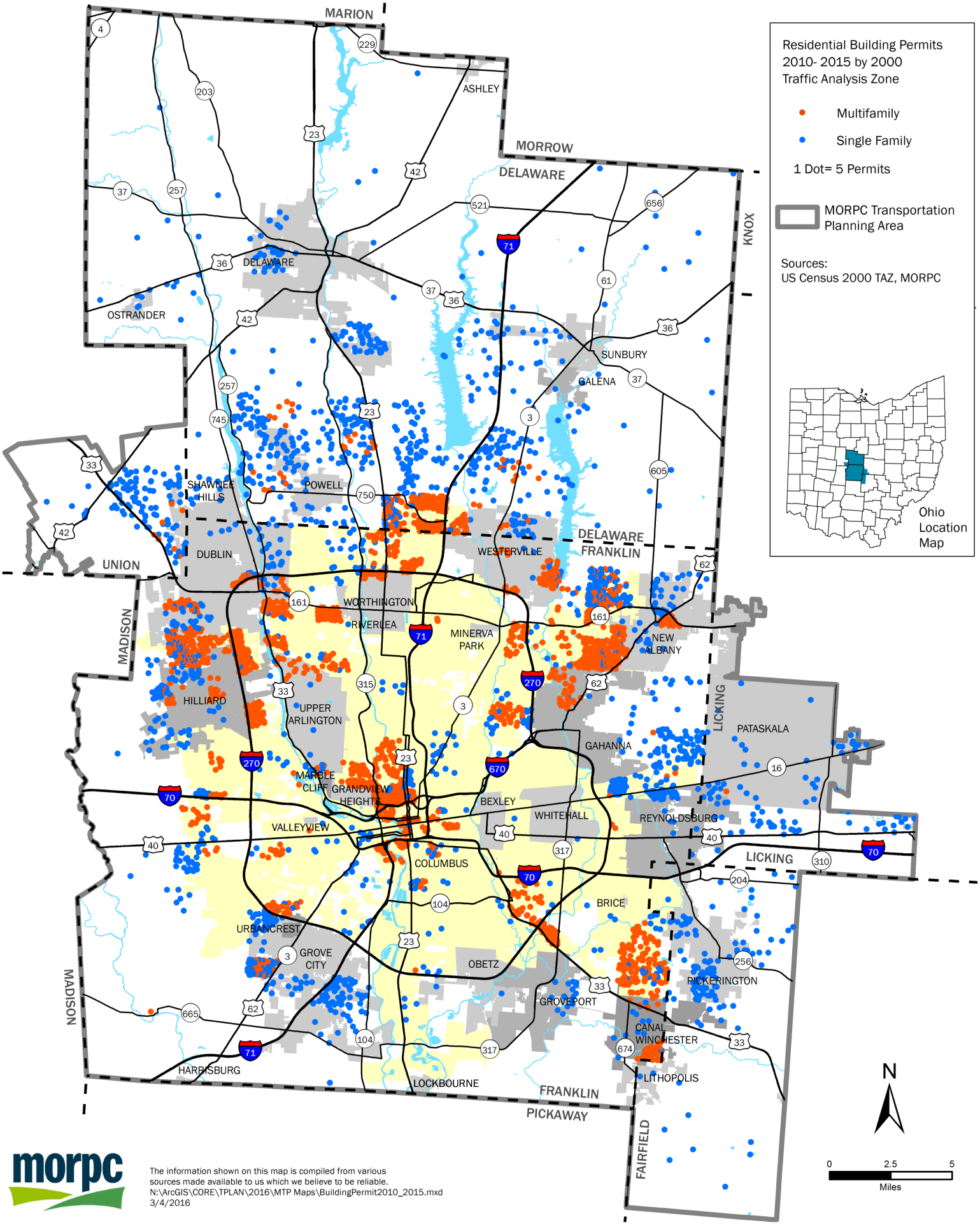

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FIGURE 2.21

Single Family and Multifamily Housing units built between 2010-2014

TRAVEL MODE

Nearly 83 percent of commuters in the MPO area travel by automobile, truck or van, and of these, approximately 7.6 percent participate in a carpool. This is a lower percentage than the nation and the Great Lakes, and a slight decline in the share reported in 2010. Conversely, the MPO has a higher percentage of its workers working from home now than ever before, and this style of work is on the rise.

When evaluating the travel habits of drivers who do not drive alone or work at home, the MPO area and the state are comparable at 13 percent, but substantially lower than the Great Lakes region or the nation. Carpooling is used more frequently as an alternative to driving alone than any other mode by commuters in the MPO and Ohio. The percentage of transit riders is nearly half of what is experienced in the nation and the Great Lakes region. There is a growing market demand for improving transit access and including its proximity in development decisions. Encouraging development to occur in ways and places where transit services can be optimized to include better access, faster and more frequent service is one way to increase transit ridership and reduce congestion.

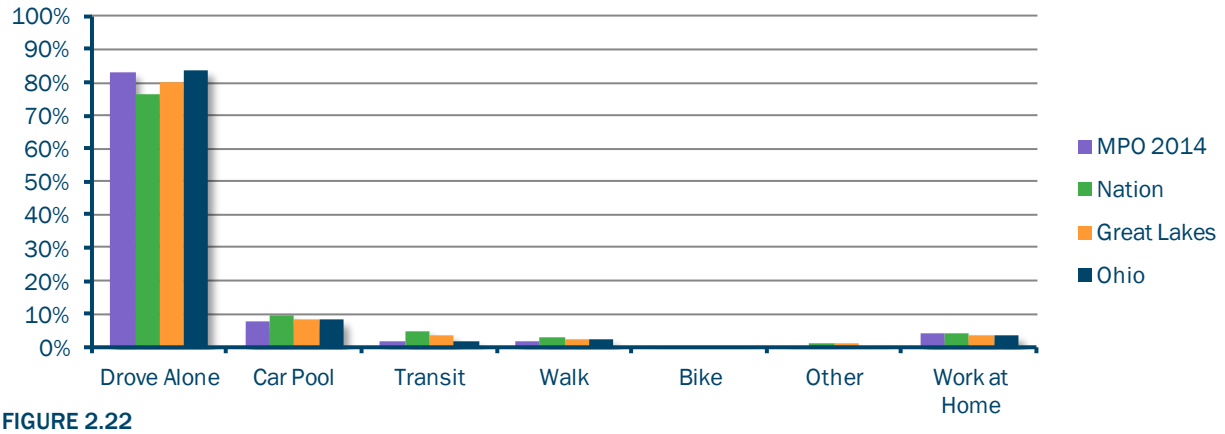


FIGURE 2.22

Mode of Travel All Commuters, 2014
Source: 5 Yr ACS, 2014, Table S0801

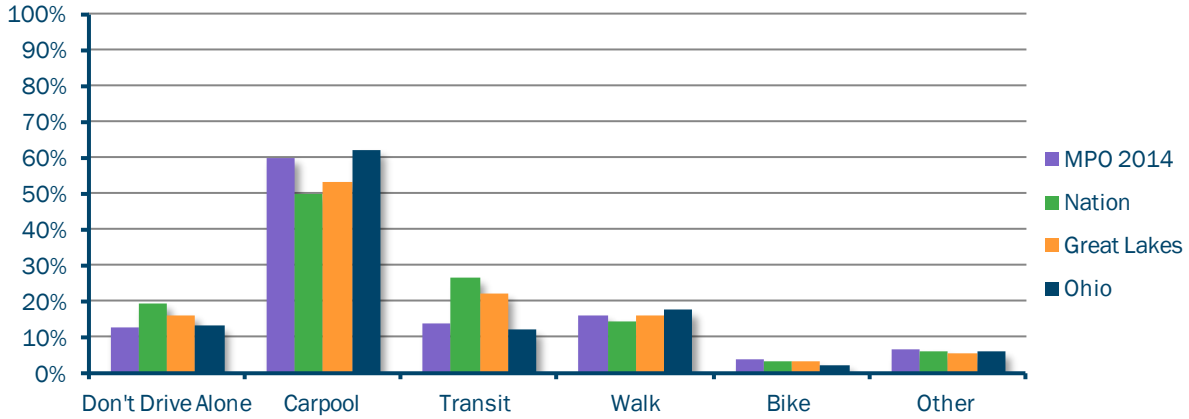


FIGURE 2.23

Mode of Travel for Commuters Not Driving Alone or Working At Home, 2014
Source: 5 Yr ACS, 2014, Table S0801

EDUCATION LEVELS

The population is well-educated. Comparable to the nation, the Great Lakes and the state, approximately 90 percent of the people in the MPO who are over 18 have a High School diploma. What sets the region apart is the higher percentage of people with college degrees. The area has numerous large universities and renowned medical research facilities.

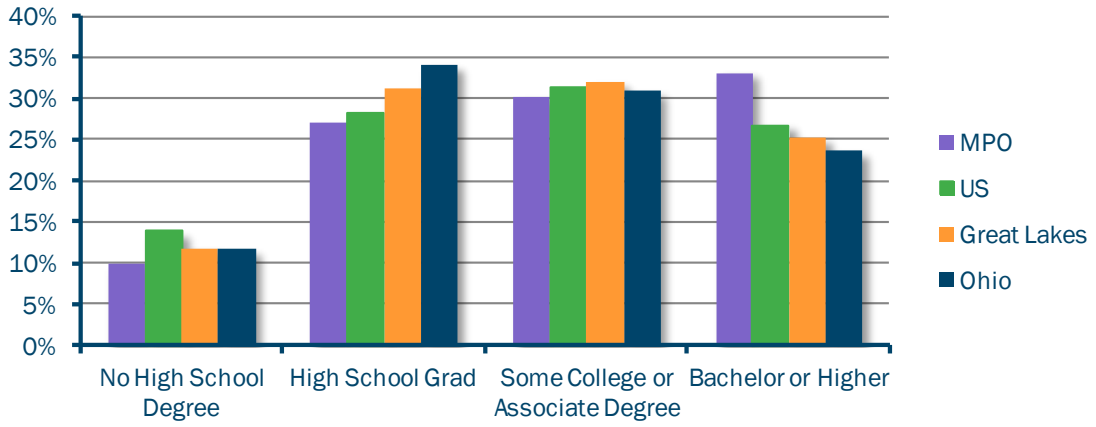


FIGURE 2.24

2014 Education Levels in the MPO, Population Over 18
Source: 5 Yr ACS, 2014, Table S1501

LABOR AND UNEMPLOYMENT

A skilled workforce and adequate infrastructure are two key aspects of securing and maintaining economic vitality. Compared to the nation, the Great Lakes region and Ohio, Central Ohio has a young labor force. Nearly half of the workers in the MPO are between the ages of 25 and 44. This supports potential for meeting future labor needs as long as these young workers choose to stay in the Central Ohio area.

One factor that supports desirability for workers to stay is a low unemployment rate and the breadth of job opportunities. Central Ohio has historically enjoyed a lower unemployment rate than other parts of the country, owing in part to the diversity of the economy. However, there is inequity in the unemployment rates among the racial segments of the population. Black or African-American workers are experiencing twice the unemployment rate when compared to the region as a whole, even though this population represents over 20 percent of the total labor force.

Companies in the logistics and temporary services industries have expressed that they are experiencing challenges finding adequate amounts of skilled labor. If unattended, the mismatch of labor supply and demand is an issue that could have negative impact on the attraction of the region to future business development. Logistic companies have expressed that one reason they are experiencing difficulties in filling positions lies with barriers workers have in making the commute to jobs. Many of these companies are far from the neighborhoods where available workers live, and either the cost of travel or the availability of vehicles is a hindrance. Meanwhile, the development patterns of logistics parks often don't align with traditional transit service. As a consequence, buses can't get workers to job sites, and workers are stymied from making the trip either due to limited finances or lack of a car. Development patterns may influence transportation options. Realizing there is a need to consider options for mass transit services during development stages could have positive results for both employers and employees.

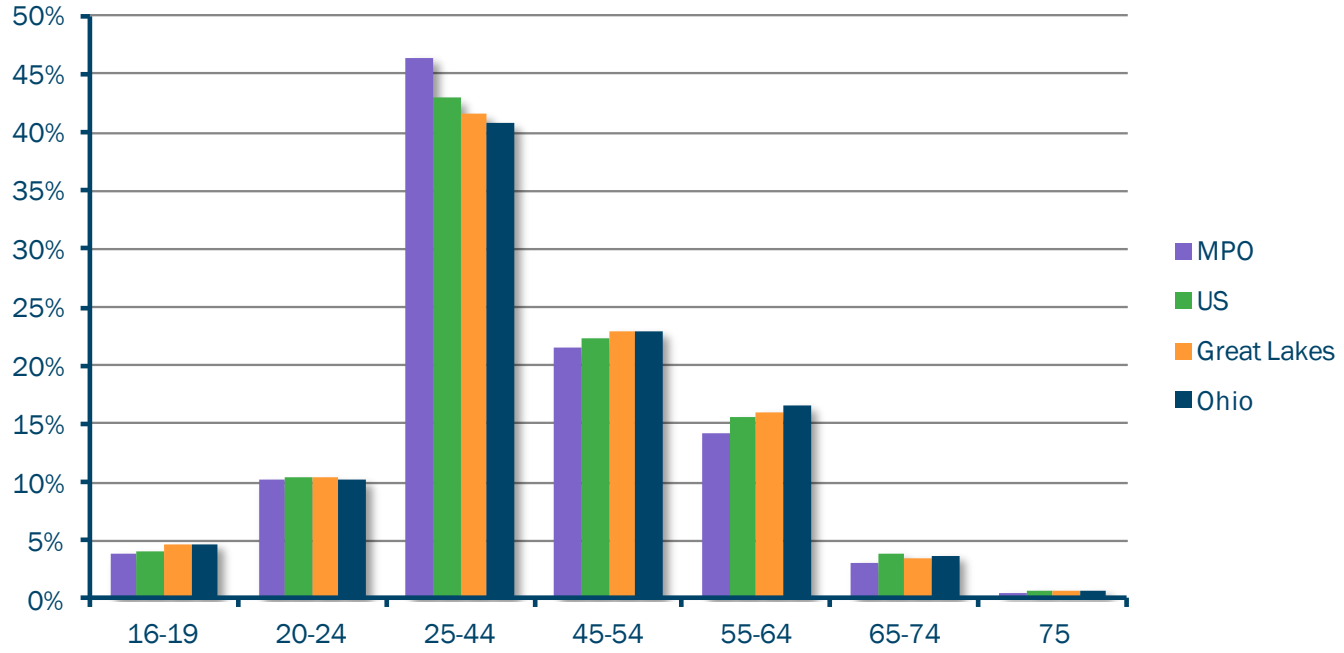


FIGURE 2.25
Labor Force by Age, 2014
Source: 5 Yr ACS, 2014, Table S2301

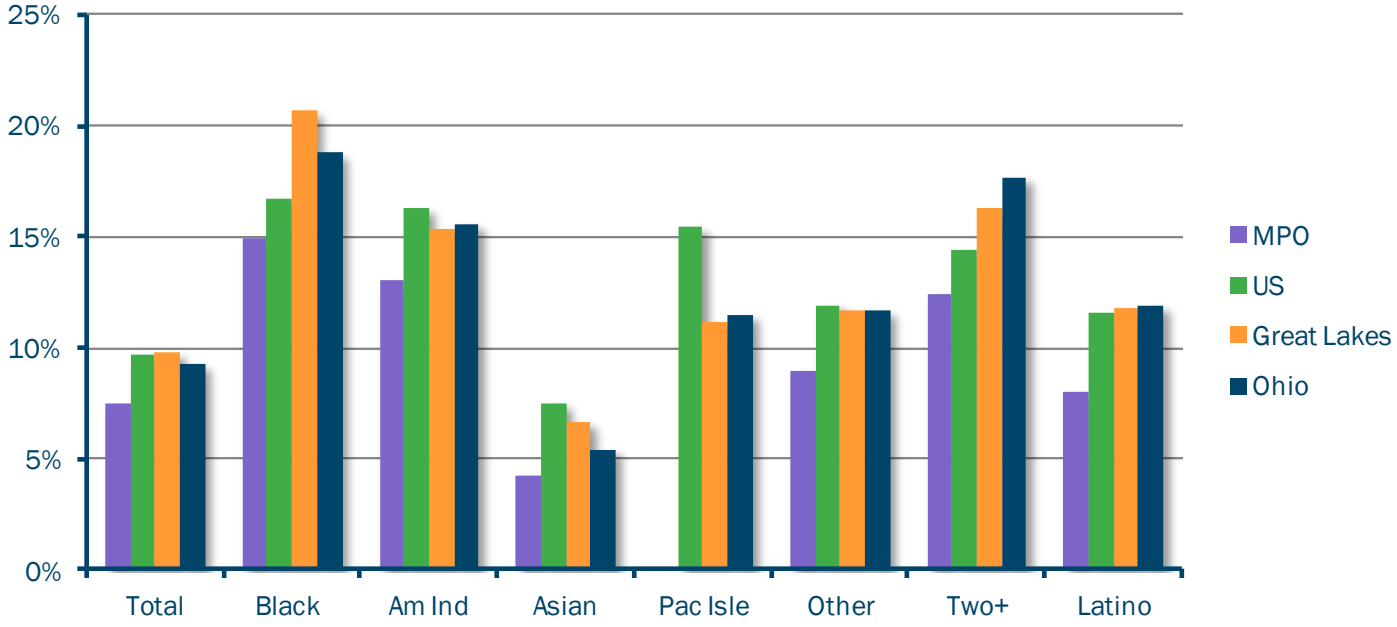


FIGURE 2.26
Unemployment Rate by Race, 2014
Source: 5 Yr ACS, 2014, Table S2301

INDUSTRY SECTORS

The industrial sector that sets the MPO area apart from the nation, Great Lakes region and the rest of Ohio is the dominance of the banking and insurance industries. Over 8 percent of the employment is concentrated in this industry compared to only 5 percent in the nation. In addition, only 9 percent of employment in Central Ohio is dedicated to manufacturing compared to 16 percent in the Great Lakes region and 15 percent in Ohio. The diversity of the Central Ohio economy has helped the region to maintain its historically low unemployment rates.

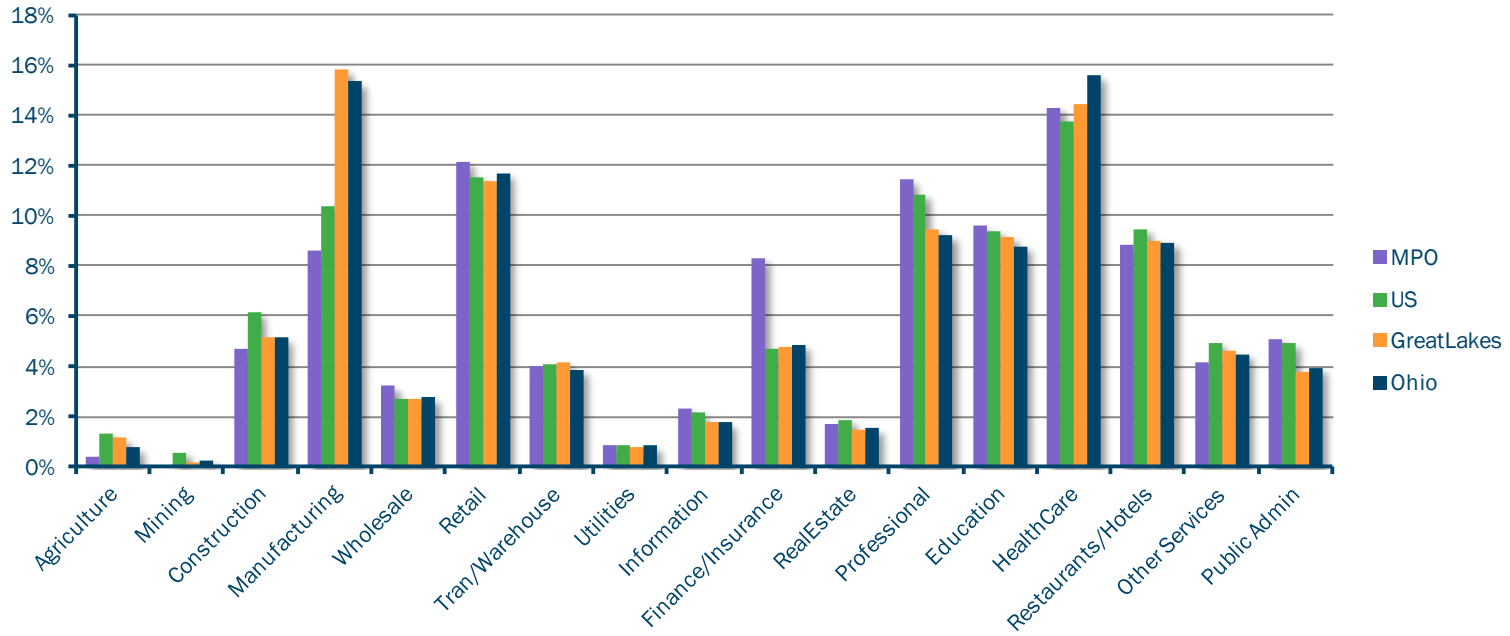


FIGURE 2.27

Employment by Industrial Sector, 2014
Source: 5 Yr ACS, 2014, Table S2403

2.4 Natural Landscape

The landscape of Central Ohio is defined by its waterways and fertile soil. The area is relatively flat except where ripples from the Allegheny Mountains wrinkle the land in the southeast and easternmost edges of the region.

PRIME FARMLAND

Most of the undisturbed soil in Central Ohio is rated as prime farmland by the U.S. Department of Agriculture. Agriculture currently represents approximately 39 percent of the land in the planning area. There is a growing propensity to retain agricultural lands both at the state and local levels. Many communities are starting to include policies in their land use plans to encourage continuance of agricultural uses as it both adds to the economic bottom line, and reduces the costs of providing services to developments located at points distant from where the services originate.

MEASURABLE OBJECTIVE

The MTP sets a target of having only 2 freeway/ expressway locations at risk for flooding

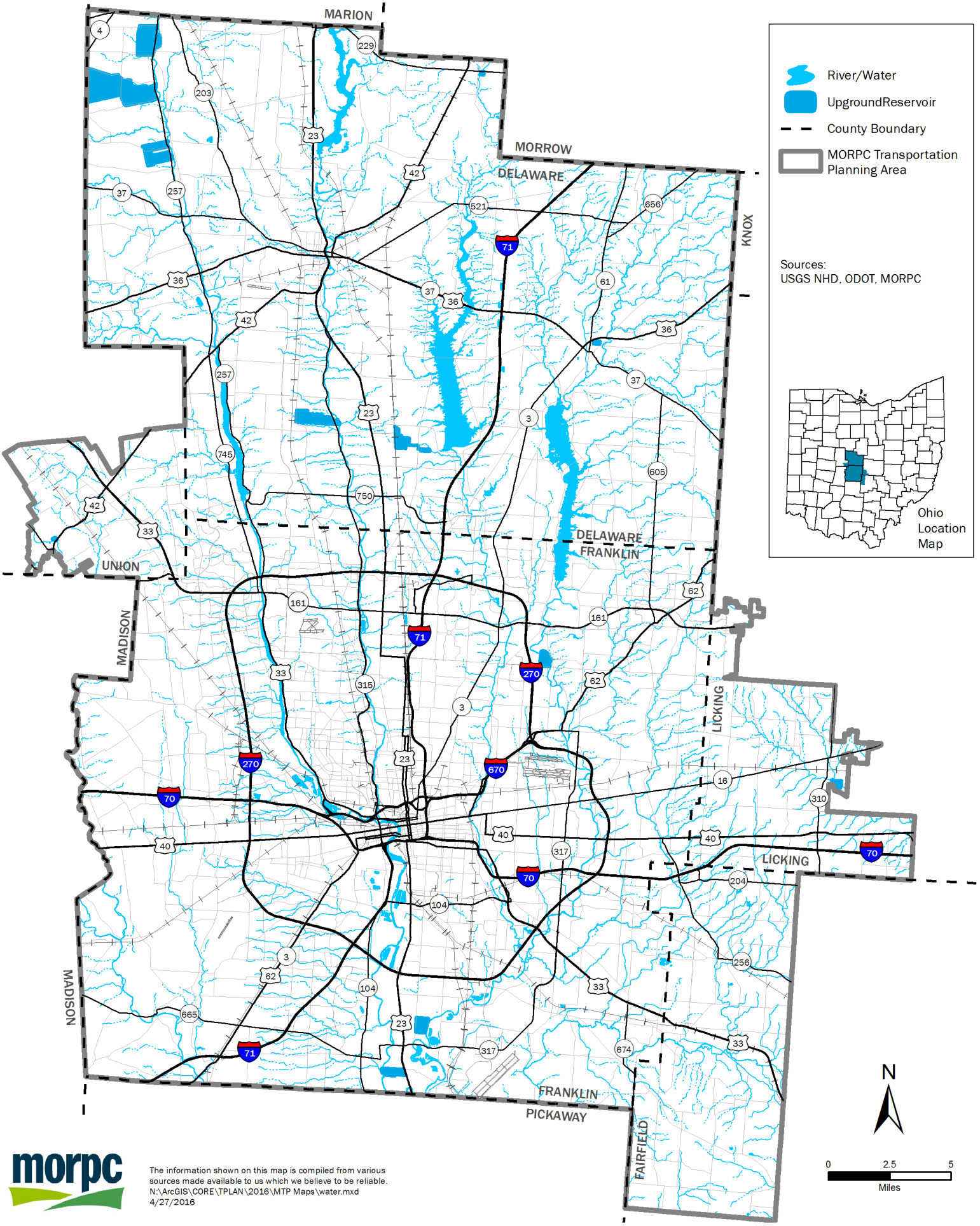
WETLANDS AND FLOODPLAINS

Wetlands are located throughout the region because the water table is relatively high and the soils tend toward wet. Development pressure in this case comes from agriculture as much as urbanization, because much of the soil in the region is considered prime farmland when drained. Wetlands are important for species diversity and water quality. They function as filters, collectors of storm water, and purifiers of high-nutrient agricultural runoff. They are also habitats of many waterfowl. While wetlands are regulated, there is often a wide difference between the quality of a natural wetland pond and the abundance of species it supports and man-made wetlands formed through mitigation regulations.

Floodplains are generally adjacent to the rivers and streams; however, the deeper banks along streams in the northern parts of the area are generally narrow compared to the flat lowland topography downstream where the floodplains are broad. While discouraged, development in floodplains is possible. The watersheds and major streams generally lie in a north-south alignment. Efforts to preserve their banks as regional greenways are working to create a unique identity for Central Ohio. There is also a growing understanding that healthy stream banks can serve the community as natural buffers for flood control, reduce costs associated with purifying water from storm water run-off, protect habitat corridors, and provide aesthetic value. The waterways are also becoming corridors for recreation.

BIO-DIVERSITY

Bio-diversity is the abundance and density of different species found in a given location. It is a measure of environmental health because various plants and animals are adapted to, and depend on each other for habitat, food sources, and natural population control. The removal of one species, regardless of how insignificant it may seem, can cascade through the ecosystem. The Big and Little Darby Creeks that divide Franklin and Madison counties carry both State and



The information shown on this map is compiled from various sources made available to us which we believe to be reliable.
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FIGURE 2.28
Water Features

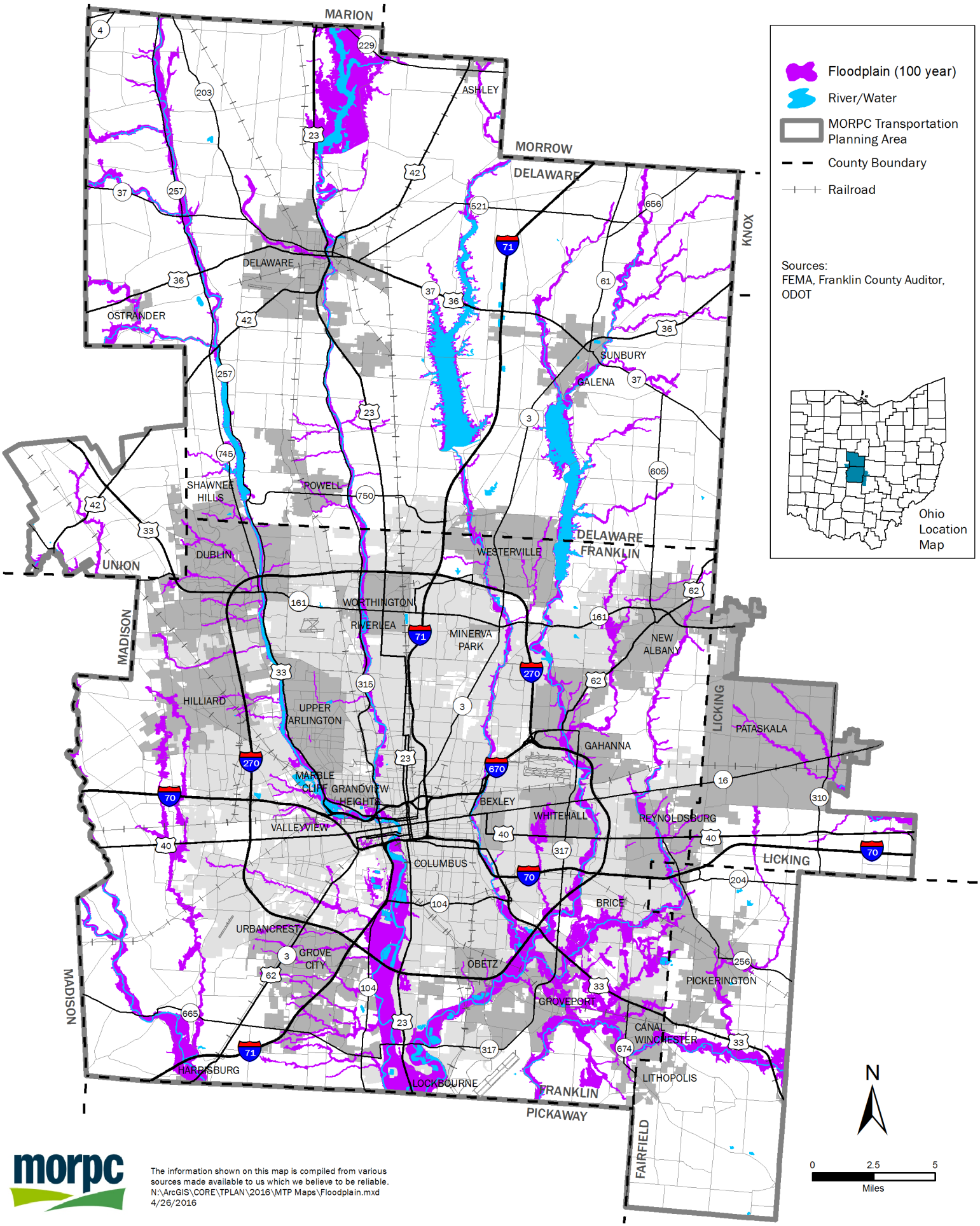

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FIGURE 2.29
Floodplains

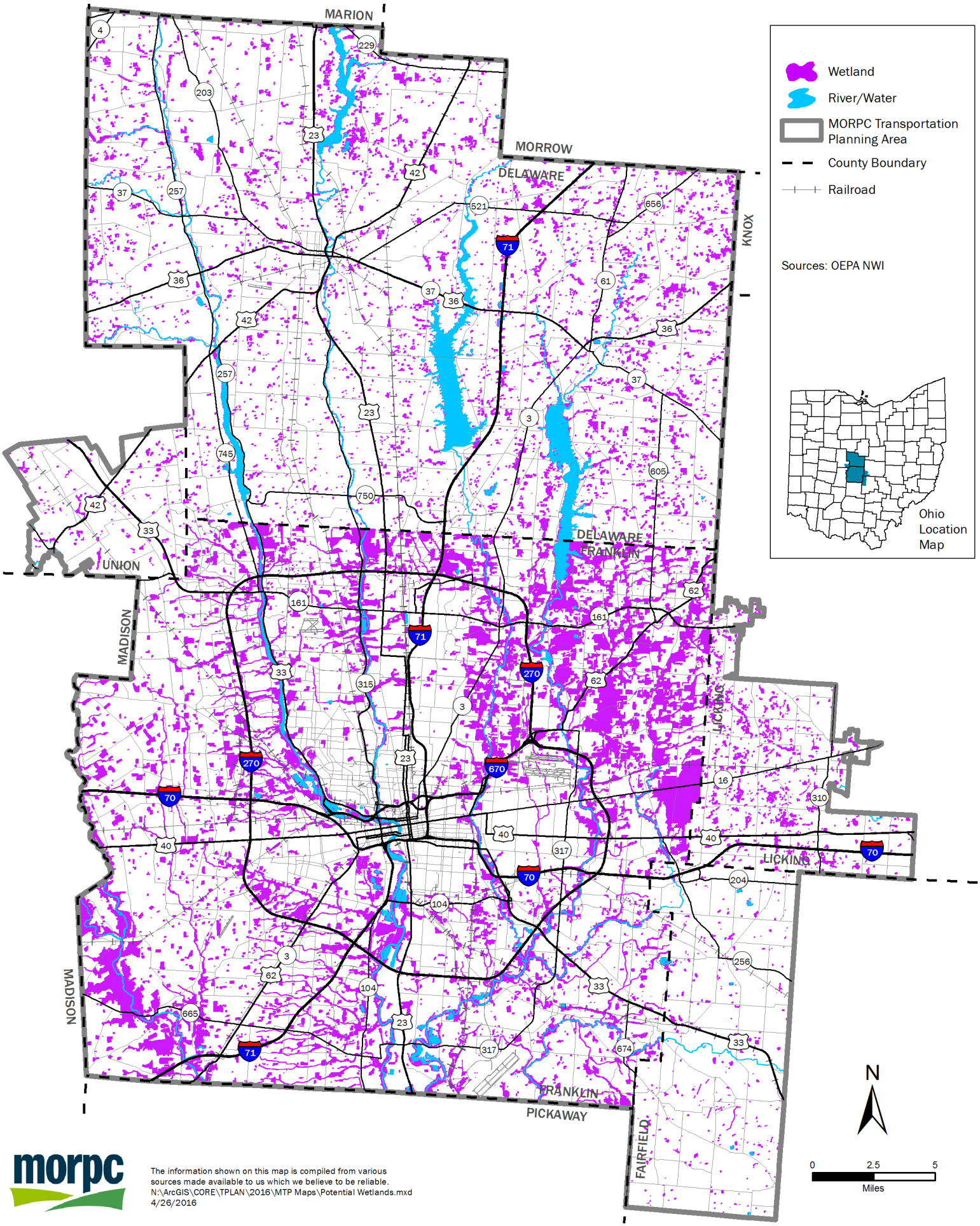

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FIGURE 2.30
Potential Wetlands

National scenic river designations due to the extent of their bio-diversity. This watershed has over 80 types of fish, including populations of 5 endangered species, such as a federally listed fish called the Scioto Madtom. Plans are in place on a multi-jurisdictional level to protect the Darby watershed.

HISTORIC PRESERVATION

Central Ohio has a rich history of prehistoric and historic habitation. Before European settlement, the indigenous people also farmed and hunted on the fertile land. Evidence of their habitation is apparent in mound structures that sprinkle the landscape. Most noticeably, these structures are preserved along the waterways in Licking County, Delaware County and Pickaway County. In addition, there are many noteworthy historic sites from early colonial settlements. Many communities are approximately 200 years old and they have preserved their historic heritage by registering a number of sites on the National Historic Register.

PARKLANDS AND GREEN SPACES

Green spaces are considered open land, and for the purposes of this plan, cemeteries, parks, and golf courses are included as green spaces. While any and all of these could be transformed from their present use, it happens infrequently. And, while not all of these uses are public domain, they do present a vista of open land, or green space for the residents of Central Ohio. Institutional public spaces around government or university campuses are also green spaces. For example, the campuses at The Ohio State University in Columbus, Ohio, Wesleyan in Delaware, Otterbein in Westerville, Capital in Bexley, and Dominican in northeast Columbus all grace those communities with an open space asset that should not be overlooked. Similarly, the Ohio Capitol grounds are a treasured green space in downtown Columbus.

Public parks are lands set aside for active recreational uses, as well as to preserve areas of environmental significance. Most communities maintain their own municipal park systems and regulate parkland dedication through their individual development processes. Community and neighborhood parklands are supplemented with the regional metropolitan park system and several state parks. There is no comprehensive regional park plan, but rather a collection of parks under various jurisdictions including local, county, and state parks.

Approximately 17,000 acres are preserved through the Franklin County Metro Park system. In addition, Preservation Parks District of Delaware County holds over 900 acres of preserved land.

The Franklin County Metropolitan Park system, colloquially known as the Metro Parks, includes 19 parks with more than 200 miles of trails. These regional parks have been developed through the years to accommodate recreational needs of the urbanized area population and establish green areas for natural habitats. Approximately 17,000 acres are preserved through the Franklin County Metro Park system. In addition, Preservation Parks District of Delaware County holds over 900 acres of preserved land. While much of their holdings are intended for conservation purposes, there are also trails and educational programs.

In a number of areas, the greenways that flank the banks of streams and rivers have been transferred to public holdings in concert with public water utilities. Dams on the Scioto and Olentangy rivers, and Alum Creek and Walnut Creek have created reservoirs that are used as recreation areas and public water sources. The City of Columbus maintains parklands along Hoover Reservoir cre-

ated from Walnut Creek in southeast Delaware County, the O'Shaughnessy Reservoir in southwest Delaware County, and Griggs Reservoir on the Scioto River in central Franklin County.

In addition, park districts are actively working with public utility partners such as the City of Columbus and the Delco water company to maintain protected public areas around new upground water reservoirs. Collaborative planning among other entities, such as the Franklin County Metroparks, Delaware City, and Preservation Parks is an example of coordination of capital investment and maintenance between partners.

2.5 Travel Patterns

This section covers regional trends in travel patterns through 2040, corresponding to the forecasted land use changes discussed in the previous section. Because distance divides where one lives, works, shops, and learns, daily life requires travel. One's travel behaviors depend upon:

- The locations of daily activities
- Socioeconomic status
- The transportation systems available

MEASURABLE OBJECTIVE

The MTP targets a 10% increase in jobs reachable within 20 minutes via automobile, and a 20% increase in jobs reachable within 40 minutes via transit

TRIP END DISTRIBUTIONS

Where one travels depends upon where one lives, works, shops, and eats. A variety of measures can be used to identify where people likely travel, such as population, households, and jobs. The only direct way to identify where people travel is to observe the trip itself.

MORPC's Travel Demand Model is currently the best tool to translate the forecasted changes in population, households, jobs, and floor area into the change in person trips for the MPO planning area. General inputs to the Travel Demand Model are land use information, broken down into small irregular geographic areas called "traffic analysis zones"(TAZs) and information about the transportation system.

The model was used to estimate the numbers of 2015 and 2040 person trips throughout the region. Every trip has two ends—origin and destination. The model-estimated trip ends (including both origins and destinations) were summed by TAZ across the region. To overcome the irregularity of TAZs, the TAZ trip end data were transferred to a quarter-mile by quarter-mile square grid system by using GIS. The results were then used to create a density map showing the distribution of trip ends throughout the region. As the maps in Figures 2.30 and 2.31 show, personal travel will continue expanding outside the I-270 outerbelt with the land use changes forecast. This will have an impact on average trip length.

AVERAGE TRIP LENGTHS

Trip length is a good indicator of travel patterns for a region. One's trip length varies based on the transportation system, the spatial structure of the urban area, and one's socioeconomic characteristics. Estimates of average trip lengths and travel time for the MPO planning area are based on the results of the Travel Demand Model. Table 2.1 shows the regional changes in average trip lengths from 2015-2040, for work trips and other trips, respectively. Average trip lengths for work increase only slightly from 2015 to 2040, and non-work trip lengths remain relatively consistent in 2015 and 2040. This is likely due to the more compact development expected to occur by 2040.

TABLE 2.1

Average Trip Lengths

	2015	2040
Work Trip Length (in miles)	10.29	10.33
Other Trip Length (in miles)	7.19	7.18

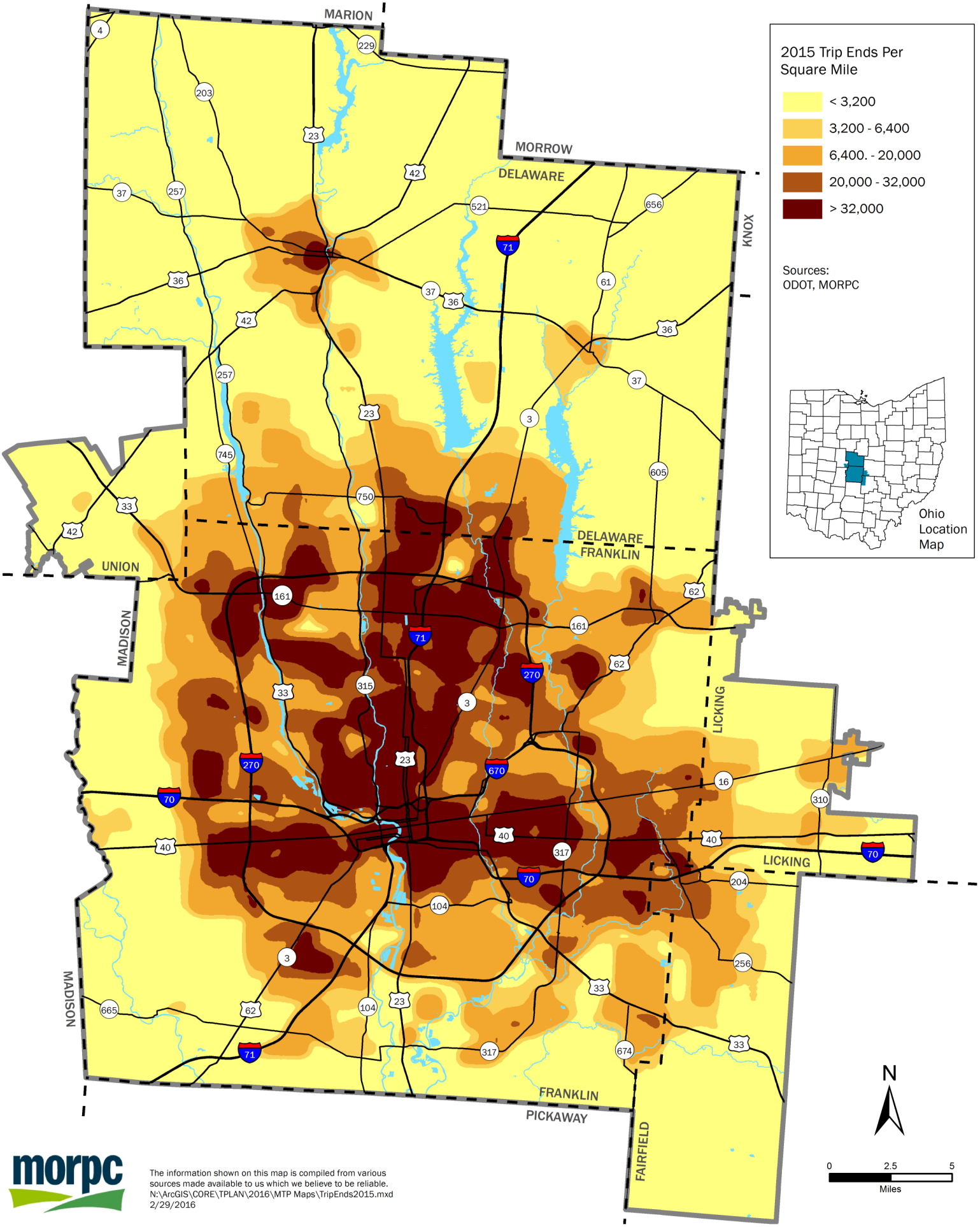

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FIGURE 2.31
Trip End Density, 2015

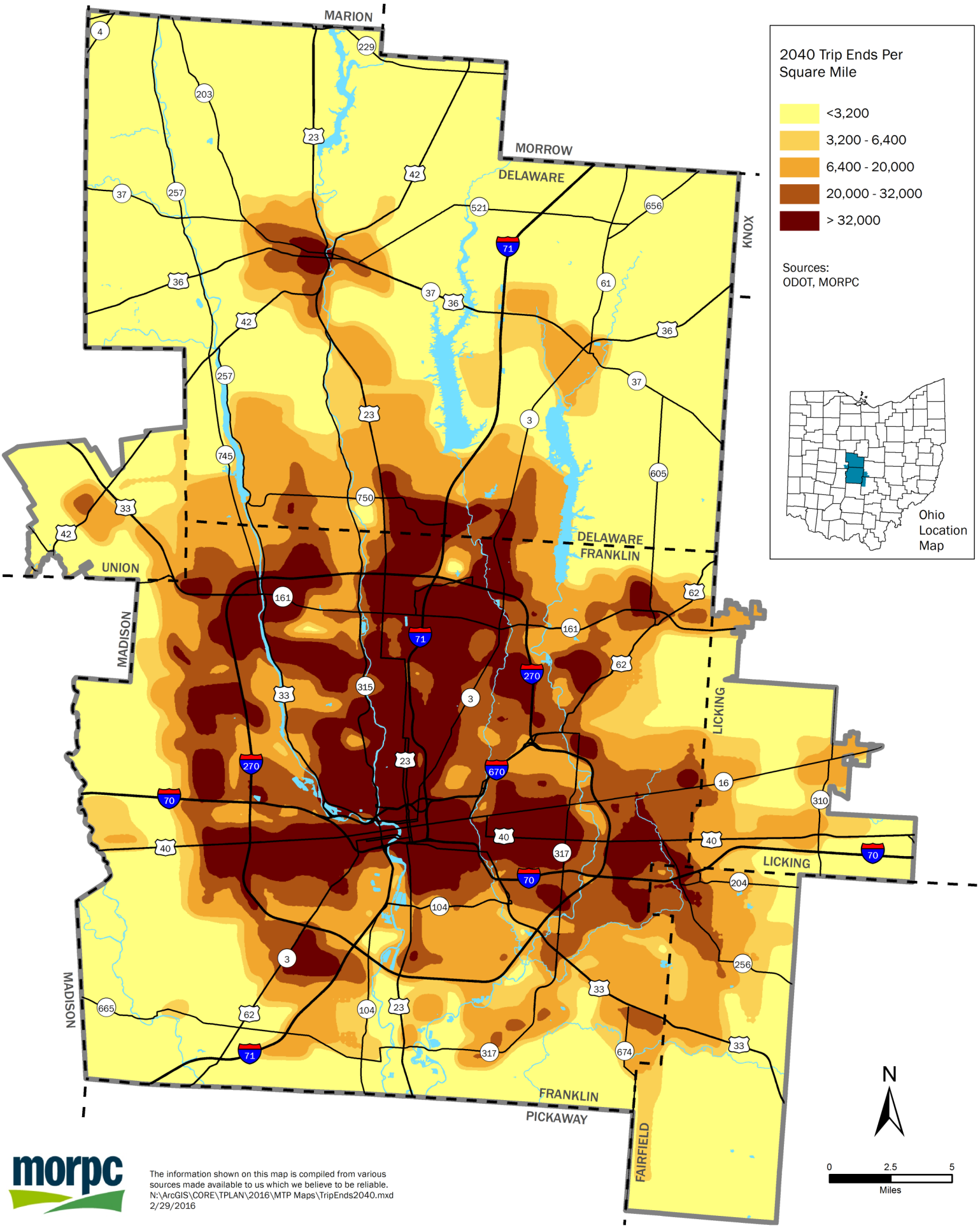

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FIGURE 2.32
Trip End Density, 2040

Table 2.2 shows the regional changes in average trip travel from 2015 to 2040, for work trips and other trips, respectively. From 2015 to 2040, average trip travel time will increase about 6 percent for work trips and about 3 percent for other trips. This assumes no roadway expansion or other transportation system improvements as described in the MTP, and that travel behavior remains the same as today.

TABLE 2.2

Average Trip Travel Time

	2015	2040
Work Trip Travel Time (in minutes)	16.64	17.68
Other Trip Travel Time (in minutes)	11.95	12.35

2.6 Growth & Development Strategies and Projects

Central Ohio is projected to continue to attract new residents and jobs. Changes to the market place include an aging population and the desire for multiple transportation options. Due to these changes, development will be increasingly concentrated with a mixture of uses.

The MTP does not reflect a regional land use plan. However, the way the region develops directly influences the plan's goals and objectives. Local land use decisions and site development design can affect access to transit and potential for walking or biking to destinations to reduce energy use and emissions of air contaminants. Transportation systems decisions can affect development decisions.

MEASURABLE OBJECTIVE

The MTP targets an activity density of 6 people + jobs per acre within 3/4 mile of arterials by 2040.

Development patterns can support economic opportunity by accommodating business needs for transportation capacity and reliability through access management policies. Recognizing how land use decisions affect the quality of place can help attract and retain workers. Seamless transitions between communities through coordinated development approaches allow the transportation system of roads, bikeways, and pedestrian ways to be continuous for regional connectivity. How development occurs concerning accessibility to all modes of the transportation system is based on public investment choices. What development occurs concerning market trends and demands is a driver of sustainable neighborhoods.

Because transportation and land use are connected, the MTP recommends the following strategies and projects:

1. **Collaborate to reduce the need for vehicle travel through development regulations.**

Strengthening the relationship between development patterns and the transportation system will increase travel options for consumers and commuters. The future population may have reduced mobility capacity due to aging, or cultural

characteristics that may affect people's ability or desire to drive. Many local communities administer their own land use regulations. Land use and land development patterns are controlled through zoning, subdivision and parking ordinances by local units of governments. Updating zoning codes to remove barriers to mixed-use development is one way to reduce short, non-vehicular trips. Devising subdivision regulations and site plan requirements to allow for increased densities, allowing for shared or reduced parking, and improving access to transit are other examples of how short auto trips can be reduced. In addition, by practicing access management principles and promoting complete streets policies, the safety of the transportation system will be improved.

2. Collect, develop, maintain, and share data and information to improve local decision-making.

MORPC continues to have one-on-one meetings with local communities to gather and share information about transportation, development and various regional topics. MORPC also maintains a series of interactive web maps displaying development plans and demographic data. In addition, progress toward reaching the targeted performance measures identified in the 2016-2040 MTP, as well as other indicators of how the transportation system is performing will be reported annually. Easy access to this information will allow communities to evaluate the effects of their infrastructure investments on the regional transportation system.

3. Multi-jurisdictional dialogue to improve opportunities for collaboration.

MORPC coordinates several area-wide summit meetings. The summits have been a valuable tool for keeping neighboring communities aware of transportation projects and schedules. Similar coordinated multijurisdictional efforts will be undertaken to increase collaboration of neighboring communities.

4. Implement best management practices for storm water runoff and implementation of green infrastructure.

Complete Streets Reviews

In 2010, MORPC adopted a Complete Streets Policy. The policy requires all transportation project sponsors using MORPC-attributable funding to accommodate all users along project roadway corridors. Staff reviews plans for projects receiving MORPC-attributable funds to ensure incorporation of Complete Streets elements where appropriate. The review includes consideration of storm water impacts of the proposed project.

Educational Opportunities

MORPC offers various educational opportunities throughout the year where local jurisdictions can learn about best management practices for storm water runoff and implementation of green infrastructure. These opportunities are in the form of webinars, forums such as the Green Pact and various working groups, and annual events such as the Summit on Sustainability.

Green Infrastructure Best Management Practices

Changes in our climate, development pressures, stormwater impacts to water quality, and interest in fiscal sustainability have resulted in communities being interested in learning about best practices for green infrastructure when retrofit-

ting and constructing transportation facilities. In order to assist Central Ohio communities with building an environmentally and fiscally sustainable transportation infrastructure network, MORPC is compiling information on best practices for green infrastructure for communities to reference when planning and designing transportation projects. The resource will include local examples of best practices so that its users can visit green infrastructure sites for hands-on learning and ease of communication with those projects' managers for information to help them implement similar best practices.

5. Create plans and partnerships to attract investment in alternative fuel vehicles and infrastructure

Compressed Natural Gas (CNG) Stations and Fleets

Many Central Ohio businesses and local governments have began converting their fleets to CNG vehicles, including the City of Columbus, City of Dublin, and the Central Ohio Transit Authority (COTA) In fact, COTA is in the midst of a 12-year transition to a complete CNG fleet. Diesel-powered coaches are being retired and replaced, and additional CNG coaches are being purchased. This will require remodeling for CNG upgrades at several COTA facilities along with a second CNG fueling station.

Central Ohio is home to eight CNG fueling stations.

Clean Fuels Ohio

Clean Fuels Ohio is a non-profit organization that improves air quality and health, reduces environmental pollution, and strengthens Ohio's economy by helping businesses, governments, non-profits and individuals transition to cleaner, domestic fuels and energy-saving vehicles. Clean Fuels Ohio provides fleet consultation services and a certification program, while educating government leaders, fleet organizations, fuel marketers, and the public.

Chapter 3:
The Transportation System

The transportation system's role is to accommodate the travel needs of the region. The entire transportation system, however, is made up of several components or sub-systems that should be seamlessly connected to provide fluid movement across the system. These include roadways, transit, bike-ways, pedestrian facilities, and the unique intermodal facilities that interface these surface modes with ground and air freight. These components each serve their own particular and equally important role in providing for mobility for all persons throughout the region.

This chapter describes these individual systems and intermodal connections that make up the entire surface transportation system.

3.1 Roadway System

The roadway system is the primary component of the transportation system in Central Ohio. Roadways are classified based on the role and function each roadway serves within the larger system. Interstates and Expressways have very limited access and carry a high volume of vehicles making regional trips. Arterials primarily provide mobility, but also provide access to abutting land uses, unlike interstates and expressways. Collectors carry lower volumes of traffic and provide more access points to local roads and destinations. Local roads generally are not intended for long distance travel. Their main function is to provide access to homes and businesses. For this reason, the information, projects, and strategies presented in the MTP focus on interstates, expressways, arterials, and collectors only, as they make up the most important roadways in the roadway network. Figure 3.1 shows the roadway system by functional class.

For the purposes of the MTP, focus is on roads classified as "collectors" or higher. As of 2015, this includes 5,560 lane miles of roadways in the MPO planning area. "Lane mile" refers to the length of each roadway (in miles), multiplied by the number of lanes in each roadway. That is, a mile of road with four lanes contributes four lane miles in the calculation. Figure 3.1 breaks down the 5,560 lane miles by roadway classification. "Centerline mile" refers to the length of the roadway without regard to the number of lanes.

The MTP focuses on the 5,560 lane miles of roadways classified as collector and above.

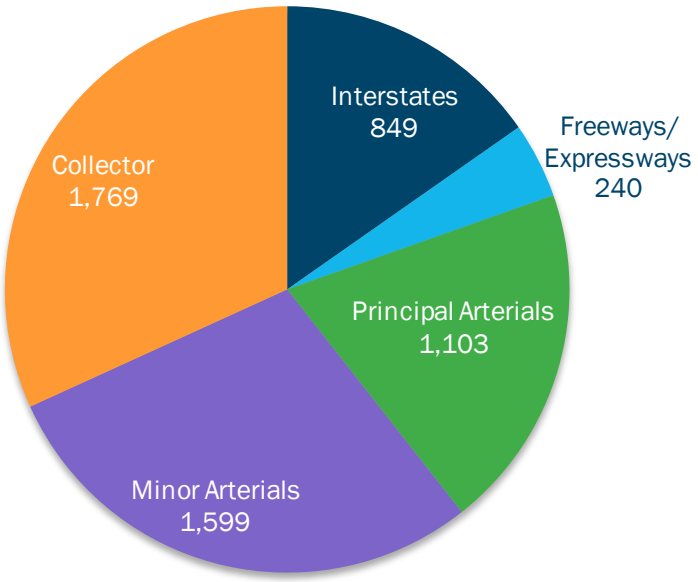

FIGURE 3.1
2015 Lane Miles by Facility Type

Where lane miles illustrates the extent of the roadway system, "vehicle miles traveled" (VMT) depicts the use of the roadway system. Mathematically, VMT is a combination of the distance traveled by all vehicles in a given area over a specific period, which is usually a day. VMT within the MPO planning area has shown an average annual growth of 0.6 percent since 2005. Figure 3.2 shows daily VMT by roadway classification type from 2005 to 2015. Although VMT declined in 2007 and 2008 due to high gas prices and the economic recession, VMT generally continued to rise after 2008.

There are a couple of aspects of the roadway system condition to consider. First is the physical condition—are the roadways and bridges in good repair? Section 4.1 discusses that aspect. Second, how does the roadway operate in terms of level of congestion? This section summarizes the various measures used to determine operational qualities of the system.

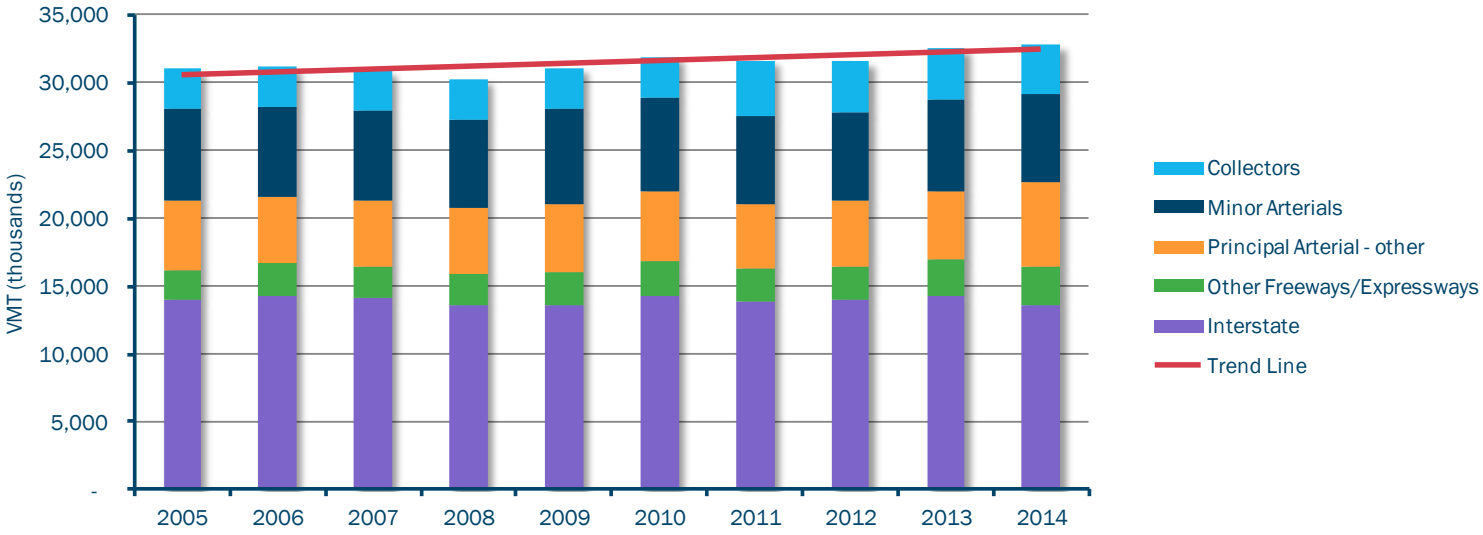

FIGURE 3.2

Daily VMT by Roadway Classification in the MPO, 2005 to 2014

MEASURABLE OBJECTIVE

The MTP sets a target that less than 5% of VMT should operate under congested conditions daily; less than 10% during peak periods.

While VMT depicts overall use of the roadway system, it alone cannot demonstrate where roadway capacity adversely affects traffic congestion. Growth and development of the region over the past several decades has lead to congestion on the roadway system in Central Ohio. Figure 3.3 shows average traffic conditions during peak periods on major roadways in the MPO planning area in 2015. Roadway segments in green (no congestion), yellow (moderate congestion), and red (severe congestion) portray how traffic puts stress on Central Ohio's roadway system. MORPC's Travel Demand Model helps estimate the levels of congestion shown.

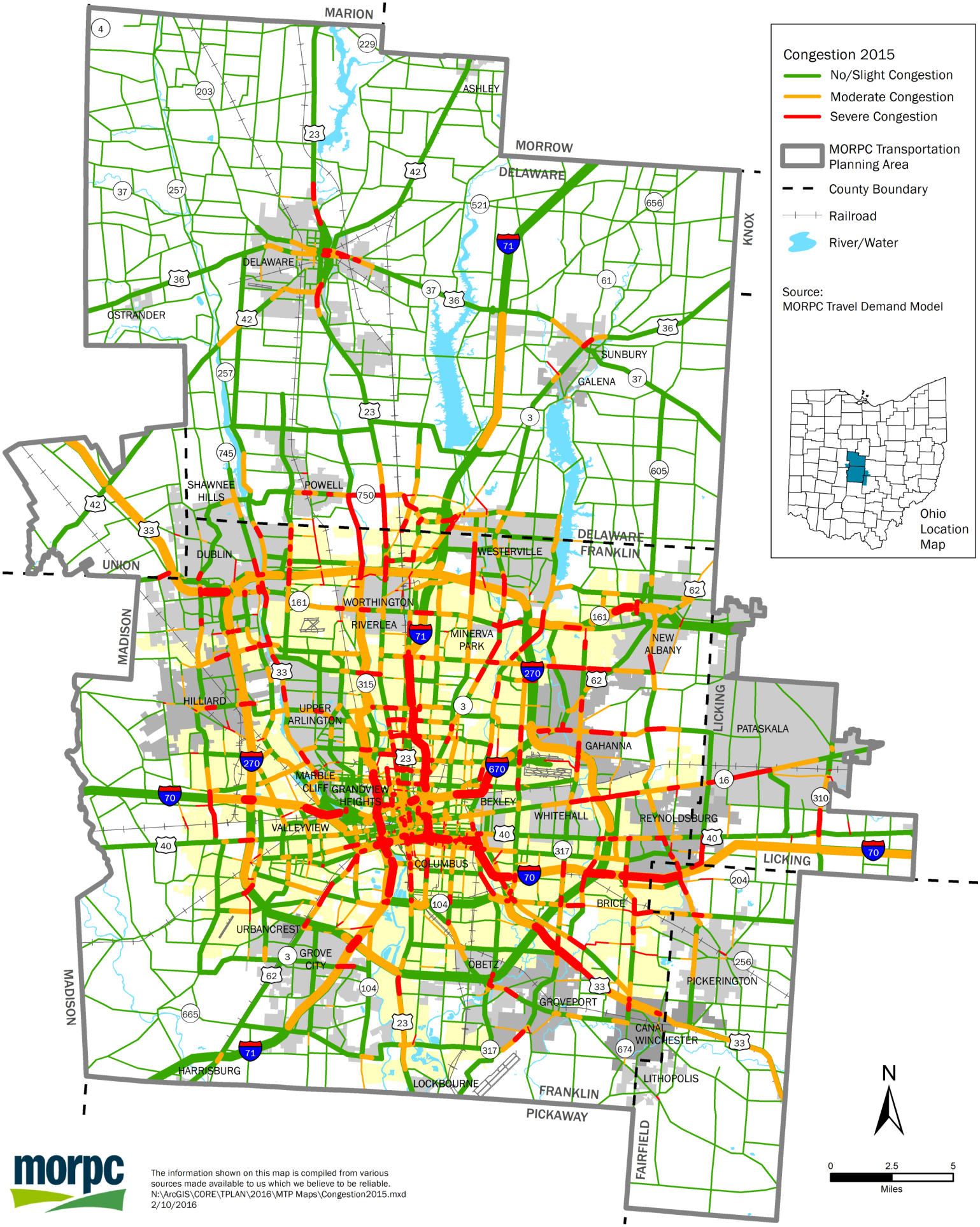

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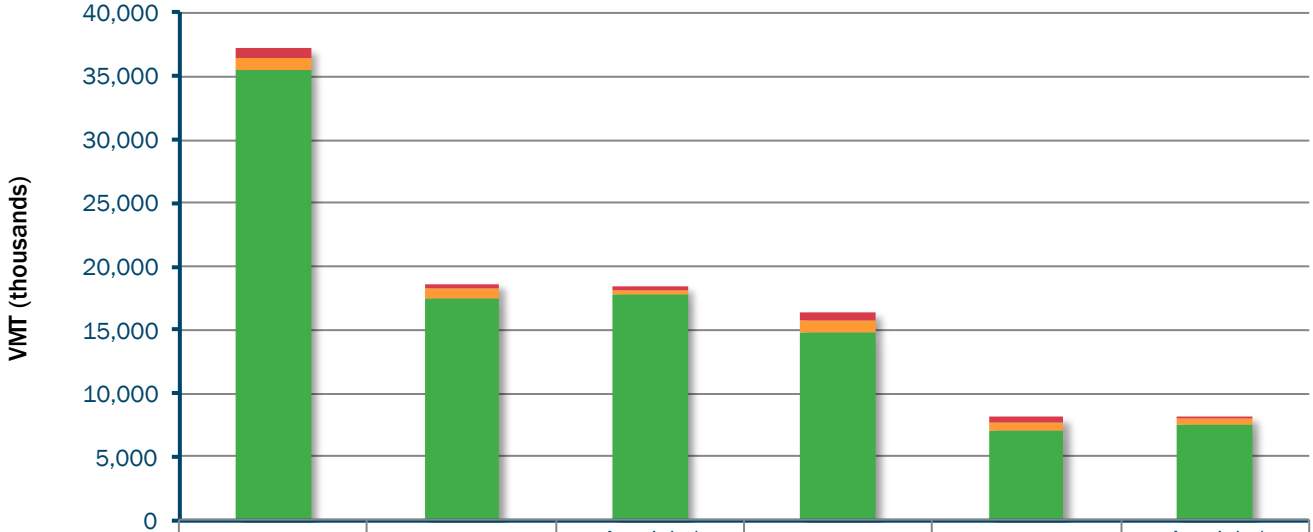
FIGURE 3.3
Level of Congestion, 2015



	Total (24hr)	Freeway (24hr)	Arterials/ Collectors (24hr)	Total (Peak)	Freeway (Peak)	Arterials/ Collectors (Peak)
Severe	711	442	269	643	394	248
Moderate	1,032	658	374	931	610	321
Uncongested	35,364	17,563	17,800	14,822	7,157	7,666

FIGURE 3.4

VMT by Congestion Level in MPO, 2015

Combining VMT and congestion provides insight into the impact of congestion on overall roadway travel. Figure 3.4 illustrates the amount of VMT at different levels of overall congestion. The tree bars on the left illustrate this during a 24-hour time period; the three bars on the right illustrate this during the combined AM and PM "peak periods" when system traffic is highest. Each 3-bar set illustrates this combined measure on all roadways, all freeways and all arterials and collector streets, respectively.

MEASURABLE OBJECTIVE

The MTP sets a target for a region-wide Uncertainty Index of 1.25 by 2040.

TRAVEL TIME UNCERTAINTY INDEX

"Travel Time Uncertainty Index" compares the worst traffic conditions in a given time period to average traffic conditions for the same time period considered. This index is calculated as a ratio of 95th percentile travel time to average travel time for a specific roadway segment. The 95th percentile travel time represents the worst congestion condition in one month.

Travel time data were obtained from ODOT for the NHS segments in MORPC's MPO area. An index was calculated for each segment with travel time available, and then a region-wide index was estimated by averaging individual indices across the segments weighted on their average travel time. The numbers shown in Figure 3.5 are the travel time uncertainty indices from 2010 to 2014, for AM and PM peak periods, respectively. For example, the index for 2014 PM peak period is 1.324, which means that compared to a typical PM peak period, it could take a traveler 32.4% more time to make a trip than in average travel conditions. This measure is meant to provide an indicator of how much extra time a traveler should plan to add to one's trip when traveling during peak periods, to account for delays caused by "worst-case scenario" congestion.

With continued growth and development as forecast in Chapter 2, the region will experience increased demands on the roadway system. Chapter 6 describes the strategies and projects identified to meet these new demands.

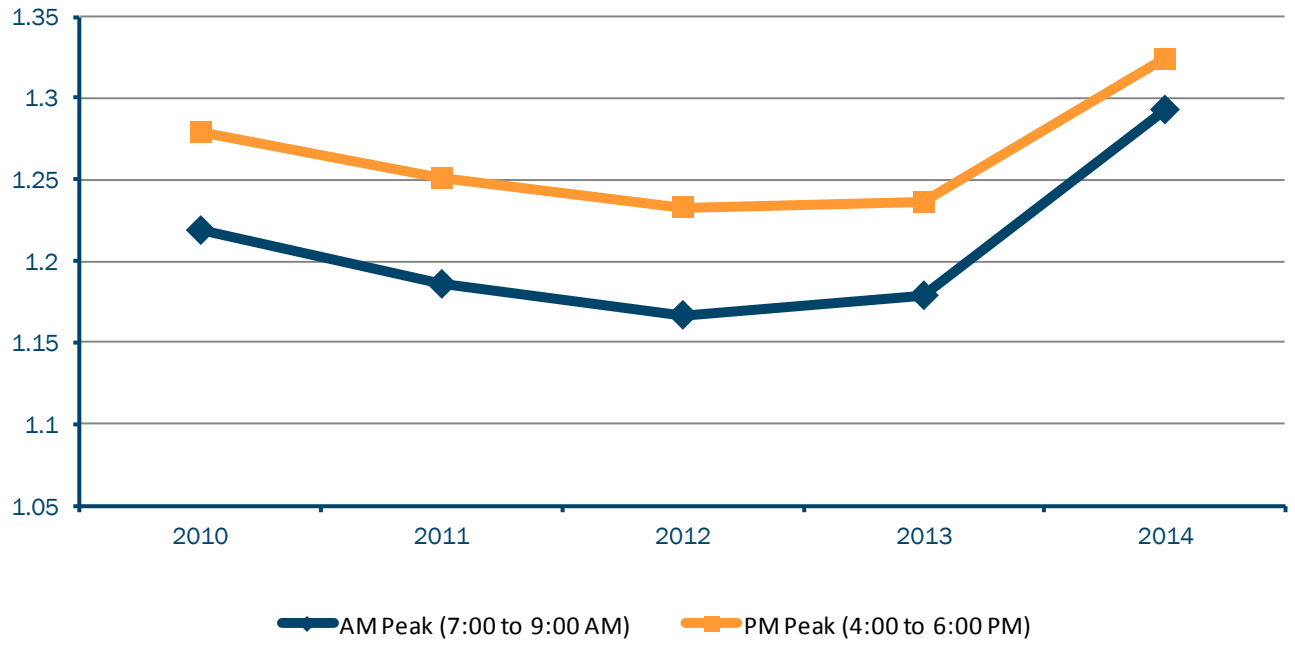


FIGURE 3.5

Travel Time Uncertainty Index, Peak Periods, 2010-2014

3.2 Transit Systems

Public transit can offer a more convenient, economical and/ or environmentally prudent choice over other modes of transportation.

Public transit serves the transportation needs of many central Ohio residents. The need and demand for transit is changing in response to both underlying demographic changes in central Ohio's population and cultural preferences. Changing cultural preferences for transportation are evident from foreign born populations, younger and older generations. A large portion of these populations have expressed a desire to live in communities with access to transit that are pedestrian and bike friendly.

Transit dependent individuals may not be able to drive. Individuals may be unable to afford personal transportation, or lack the ability, interest to drive; public transit may provide the only independent means of transportation. It preserves the connection to work, daily living needs, medical appointments and other destinations.

For riders of choice, public transit may offer a more convenient, economical and/ or environmentally prudent choice over other modes of transportation. The very presence of a convenient and accessible transit system may help attract and retain a skilled workforce and enhance the quality of life.

The transit systems that operate within the MPO area range from large urban to coordination programs. These system classifications relate to the size of the urbanized area or cluster they serve, which, in turn, determines eligibility for different sections of federal funding. Federal Transit Administration (FTA) formula funding is often determined by area population, population density, transit system ridership and operating costs. Three types of transit systems operate within the planning area.

- Large Urban Transit Systems serve an urbanized area (UZA) defined by the Census with a population over 200,000. In the planning area the Columbus urbanized area has two urban systems the Central Ohio Transit Authority (COTA) and Delaware Area Transit Agency (DATABus). As a result of the 2010 Census, in 2013 as defined by the US Census Bureau the Delaware Area Transit Agency (DATABus), which is owned and operated by the Delaware County Transit Board (DCTB), was reclassified from a rural transit system (in an urbanized cluster with less than 50,000 people) to a small transit system in a large urban area with population over 200,000.
- Small Urban Transit Systems serve urbanized clusters with a population of 50,000 or more. The Licking County Transit Board (LCTB) is the only small urban system in the MPO area.
- Rural Transit Systems serve areas that do not meet the above population thresholds. Two such systems operate in the MPO area—the Lancaster Public Transit System (LPTS) and Union County Agency Transportation Service (UCATS)

System service areas are shown in Figure 3.6. Table 3.1 displays statistics for each system.

Other transit systems adjacent to the planning area include Pickaway and Madison counties. The Pickaway Area Rural Transit (PART) is a rural transit system that offers demand-response, point deviation, Columbus Shuttle, rural route and other immediate response services. Madison and Union counties participate in the ODOT Office of Transit's Coordination Program with Madison County Ride and UCATS.

These transit service areas are shown in Figure 3.6

CENTRAL OHIO TRANSIT AUTHORITY (COTA)

COTA primarily serves Franklin County but extends into portions of adjacent counties that are part of charter municipalities, including the cities of Columbus, Dublin, Reynoldsburg and Westerville. Charter municipalities and Franklin County have representation on COTA's Board of Trustees and agree to tax areas of the municipality outside of Franklin County; in return service is provided to al areas of that pay COTA's sales tax. Cities may join COTA's charter.

TABLE 3.1

Transit System Trip Statistics

Provider		Annual Data	2011	2012	2013	2014	2015
COTA	Fixed-Route	Passenger Trips	18,764,047	18,423,352	18,472,039	19,041,382	18,920,014
		E&D Passengers	2,685,794	2,707,358	2,761,030	2,723,436	2,719,405
		Vehicle Miles	11,518,844	9,761,337	10,350,019	10,886,551	11,786,635
		Vehicle Hours	835,880	789,910	842,794	892,727	943,178
	Demand-Response	Passenger Trips	259,888	268,960	277,137	285,913	282,505
		E&D Passengers	259,888	268,960	277,137	285,913	282,505
		Vehicle Miles	2,829,784	3,082,210	3,011,978	3,379,515	3,495,998
		Vehicle Hours	141,779	159,306	167,045	172,163	178,038
DATABus	Fixed-Route	Passenger Trips	17,192	22,276	37,559	56,506	67,055
		E&D Passengers	2,834	3,898	6,187	10,480	11,320
		Vehicle Miles	105,511	108,948	123,648	254,005	317,051
		Vehicle Hours	6,474	8,803	12,929	18,503	22,340
	Demand-Response	Passenger Trips	47,879	48,459	34,222	11,745	15,065
		E&D Passengers	26,316	24,204	19,685	10,046	12,861
		Vehicle Miles	404,451	448,562	411,043	176,679	194,114
		Vehicle Hours	24,333	24,679	19,816	8,885	10,615
LPTS		Passenger Trips	78,505	55,321	73,819	92,290	111,787
		E&D Passengers	43,415	31,185	45,832	70,434	73,743
		Vehicle Miles	498,454	382,816	440,391	516,979	562,003
		Vehicle Hours	30,706	22,070	27,538	25,934	34,647

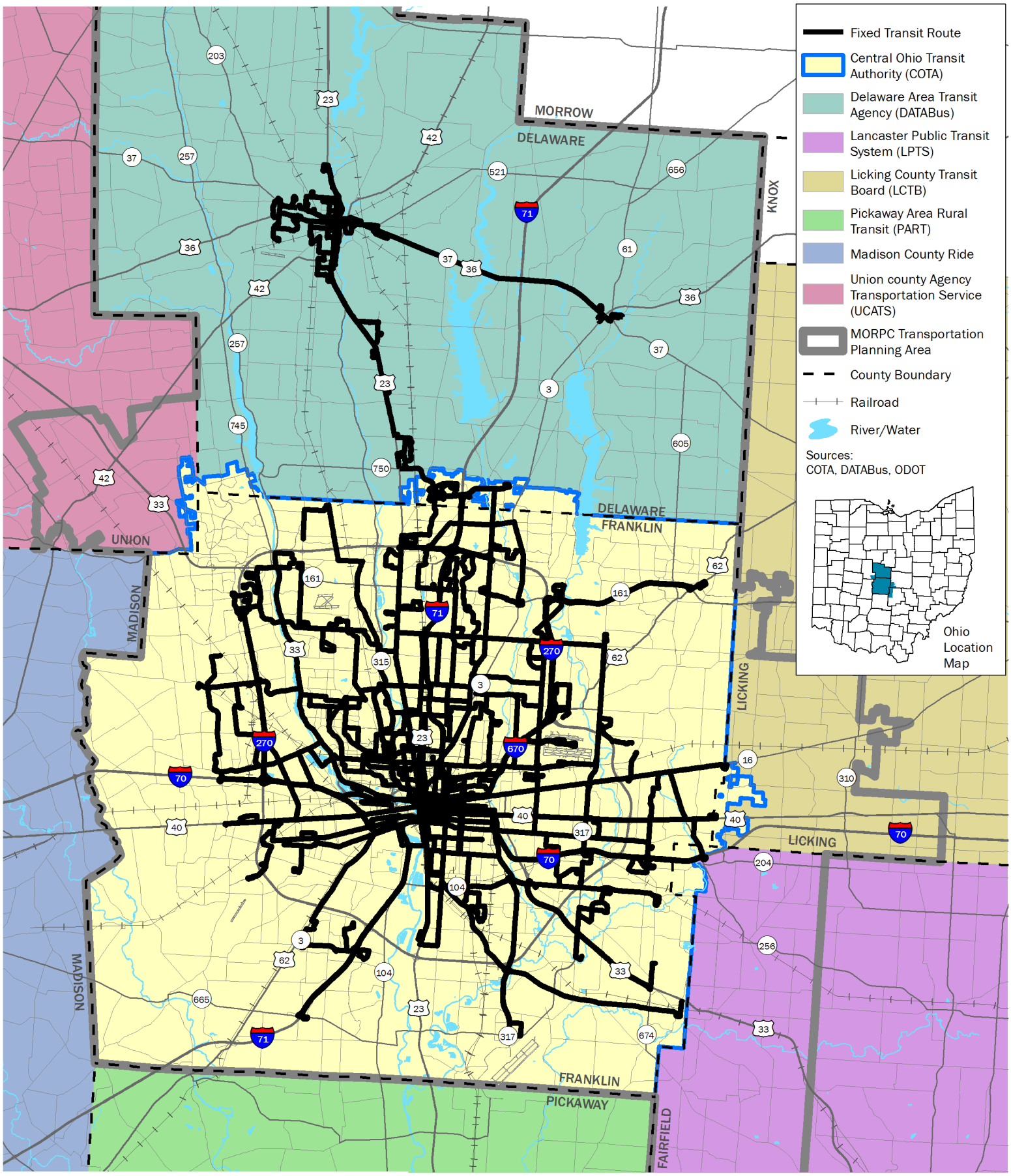


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FIGURE 3.6

Public Transit Systems

COTA provides four types of fixed route service, as shown in Figure 3.7:

- Local bus service makes frequent stops along routes that run into or through Downtown Columbus.
- Crosstown service is similar to local but does not run through Downtown Columbus
- Express service, which makes infrequent stops, typically operate one direction in the morning and the reverse in early evening.
- Circulators are short routes that connect nearby neighborhoods such as the CBUS circulator service in Downtown Columbus.

COTA's Mobility Services

- Mainstream paratransit service provides demand response service within three-quarters of a mile of fixed route service for qualifying customers as required by the Americans with Disabilities Act (ADA). "Demand response" refers to a system that dispatches transit vehicles to a destination upon request instead of a fixed schedule. Such a system requires users to call ahead of time for scheduling.
- Mainstream also provides non-ADA demand response transportation service for clients who want to travel outside COTA's ADA service area beyond three-quarters of a mile of a fixed route line but within COTA's service area.
- Customers who require long-term medical treatment such as dialysis, or chemotherapy can use COTA's Will Call Program. The program was designed to supplement Mainstream service and help alleviate situations where customers have to wait for the vehicle after finishing their treatment.

COTA provides four types of fixed route service:

- Local bus service
- Crosstown bus service
- Express bus service
- Downtown circulator

CBUS Downtown Circulator

In May, 2014, COTA began a free circulator service in downtown Columbus that provides a connection between the Brewery District, Downtown and the Short North. The service operates 7 days a week every 15 minutes (10 minutes in weekday peak).

The CBUS averages 1,500 boardings a day, reducing automobile use and promoting economic activity. To improve air quality and reduce operating costs, the CBUS service uses specially branded compressed natural gas (CNG) buses. In less than two years, on March 18, 2016 COTA celebrated one million trips on CBUS.

As a good community partner, COTA has been dedicated to providing CBUS service for free to promote the use of transit by Downtown workers, residents and visitors. The unique brand of the buses and stops as well as simple schedule and alignment makes the service very easy to use.

DELAWARE AREA TRANSIT AGENCY (DATABUS)

DATABus became part of the Columbus Urbanized Area from an urban cluster as a result of the 2010 Census. The reclassification to an urban transit system changed the way DATABus receives FTA funding from Section 5311 funds administered by ODOT to Section 5307 formula funding administered by DATABus directly with FTA and reporting to NTD. With this shift, the federal operating funds available to assist in subsidizing transportation were severely reduced.

DATABus serves all of Delaware County with demand-response, and six fixed routes (shown in Figure 3.9) and paratransit service. Current fixed routes include the Green Route from Delaware City to COTA's Crosswoods Park-N-Ride via the Polaris area, four Delaware City Routes and one route to the Village of Sunbury. DATABus receives no county sales tax levy funds. Instead, local funding comes directly from the budgets of participating jurisdictions in Delaware County. DATABus and COTA accept transfers between their fixed-route systems.

The DATABus Board provides Mobility Management to the Delaware County community. Mobility Management strives to provide a one-stop information source for transportation options in Delaware County by linking passengers' needs with the most appropriate form of transportation. Mobility Management also provides referral services to passengers who may qualify for financial assistance with their transportation needs.

The governing board of DATABus made a decision to move away from subsidizing the more costly demand-response transportation and to focus on fixed-route transportation since it is a more efficient service as it relates to the cost per passenger. As a result, the limited federal operating funds available are now used to support fixed-route transportation. Demand-response transportation is no longer subsidized and the fares increased significantly, making it less affordable for the majority of general public passengers.

In 2015, DATABus commissioned a study to determine what services the community wanted and expected from DATABus and if the community would support the services with local funding. The preliminary results of the study indicate that Delaware County is a very affluent county and that the need for public transportation is not of high demand. The study also indicated that the current DATABus fixed-route structure is adequate and that any further expansion should be developed primarily with demand-response service and not the implementation of additional fixed routes.

LICKING COUNTY TRANSIT BOARD (LCTB)

LCTB provides demand-response service in almost all of Licking County. Its service area includes the City of Pataskala and Etna Township, which are both in the MPO area. In addition to its fares, LCTB receives local funding from Licking County general revenue funds and local service contracts. LCTB receives state funding from ODOT's Office of Transit and federal funding through FTA.

LANCASTER PUBLIC TRANSIT SYSTEM

LPTS provides curb-to-curb demand-response service and three deviated-fixed routes in Fairfield County. Unlike the other transit agencies in the MPO planning area, a countywide board does not govern LPTS. At present, it remains a department of the City of Lancaster. Like DATABus, it receives no county sales tax levy funds. With local support, it began serving Violet Township and the city of Pickerington in 2010. With the financial support of jurisdictions across Fairfield County, in 2011 the service went countywide. LPTS receives state and federal funding through the ODOT Office of Transit. As shown in Table 3.1 , the two townships served by LPTS have increased over recent years.

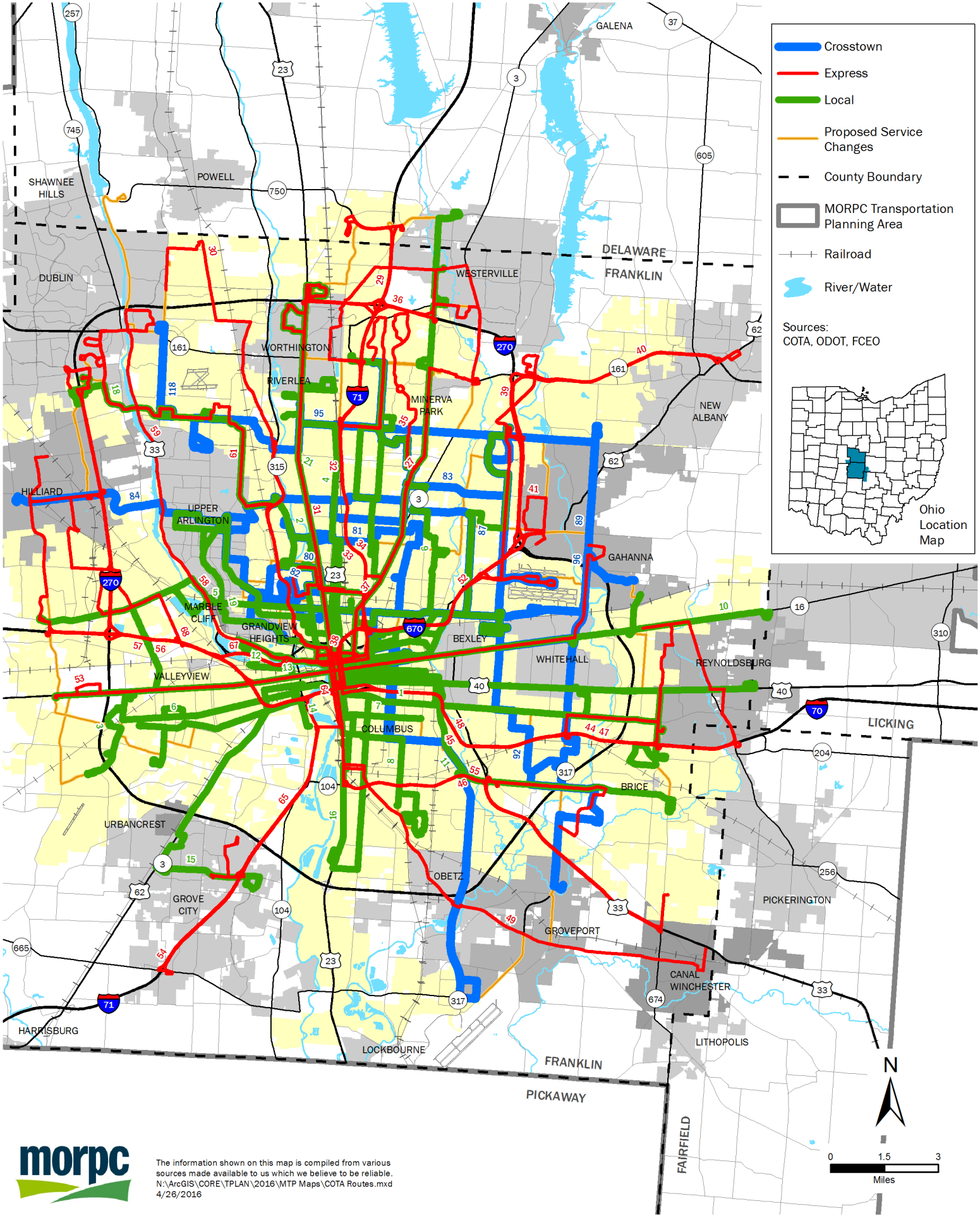

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FIGURE 3.7
COTA Transit Service

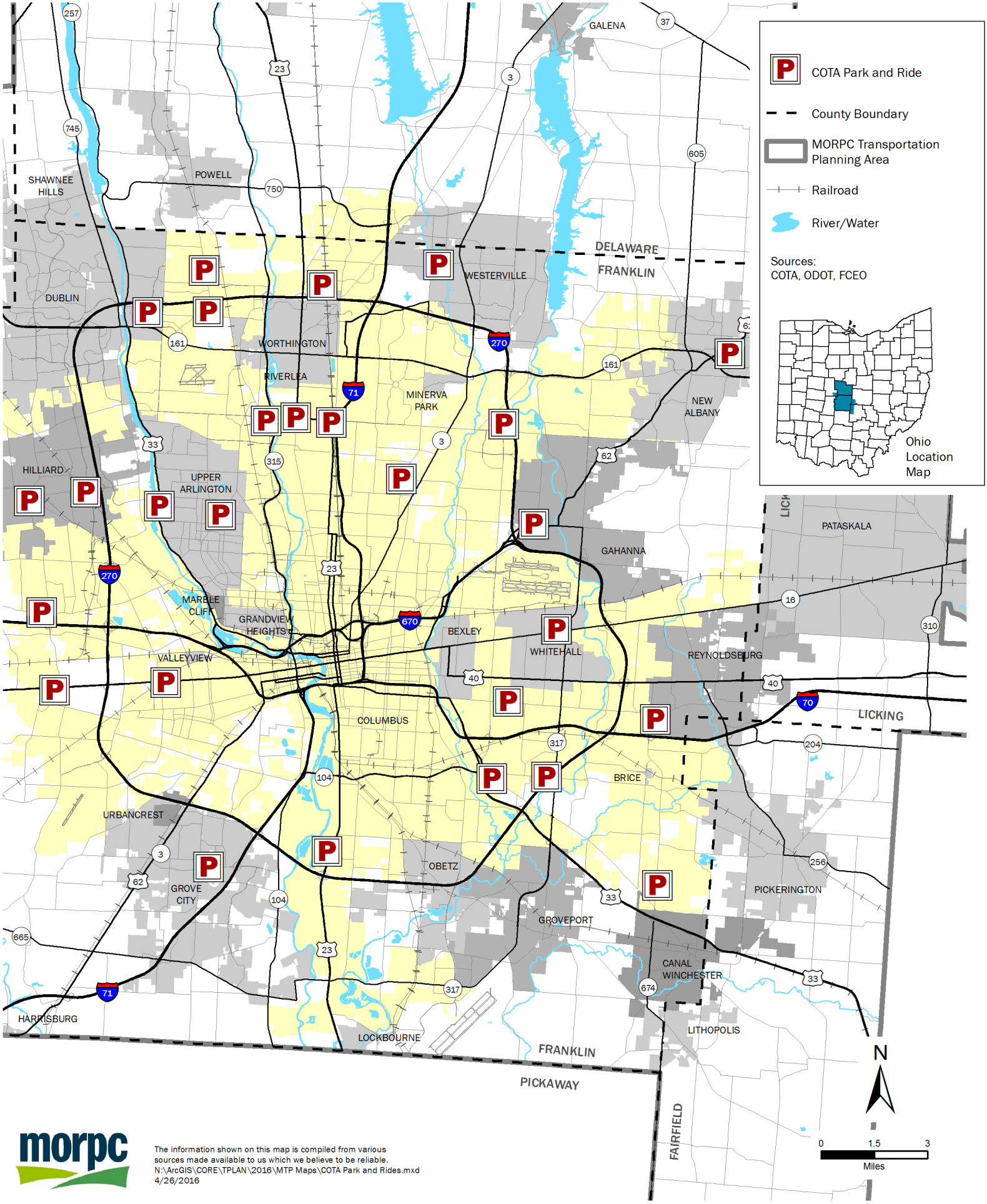

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FIGURE 3.8

COTA Park and Ride Facilities

Each transit system in the counties surrounding Franklin receives requests for transportation into Franklin County and the City of Columbus. Employment opportunities, specialized medical treatment, shopping and entertainment all draw passengers beyond their country of origin. However, the distance that transit providers must travel beyond their normal service area can be cost prohibitive. It also deprives that transit system from a fleet vehicle for a long period when it could be serving other customers instead. Systems that do provide such trips add a significant premium to the fare.

INTER-CITY TRANSIT SERVICES

In addition to the local transit systems, three companies provide inter-city motor coach service in the planning area.

Greyhound operates the largest intercity bus system in the nation. It offers service to over 2,300 destinations and maintains interline partnerships to facilitate transfers to destinations beyond its network. Greyhound also offers passengers the opportunity to connect with Amtrak service in Cleveland or Cincinnati. The company maintains a station in Downtown Columbus.

MegaBus offers service to Chicago through Indianapolis and direct service to Cincinnati. It runs from two posted on-street stops in Columbus close to the Columbus Greyhound Station and at the OSU Student Union. MegaBus offers low-cost, limited-stop service. Others nationally are using this same model, replacing old amenities, such as centralized stations, with on-board Wi-Fi internet access and electrical outlets. These services also appeal to new generations of riders in terms of speed by minimizing the number of stops and cost.

GoBus is a Rural Inter-City Bus Service. This service is designed to address low-cost and geographically accessible intercity bus transportation needs of the entire state by supporting projects that provide transportation between non-urbanized areas and urbanized areas that result in connections of greater regional, statewide, and national significance. Funding for the Rural Inter-City Bus is administered by ODOT, and the service is currently operated by Lakefront Lines.

Buses are equipped with amenities, such as bike racks, wireless internet and electrical outlets, offering service similar levels to those found on MegaBus or Greyhound, with connections to other transportation options such as Amtrak and airports. Passengers are also able to connect with healthcare and educational opportunities.

GoBus operates five lines, some of which can be transferred between each other listed below.

- Columbus, Athens, OH and Parkersburg, WV, facilitating transfers at Port Columbus International Airport and the Greyhound Station in Downtown Columbus
- Cincinnati and Athens, OH, facilitating transfers to the Greyhound Station in Cincinnati
- Cleveland, OH and Parkersburg WV, and Athens, OH with transfers to the Greyhound Stations in Cleveland, Akron and Canton

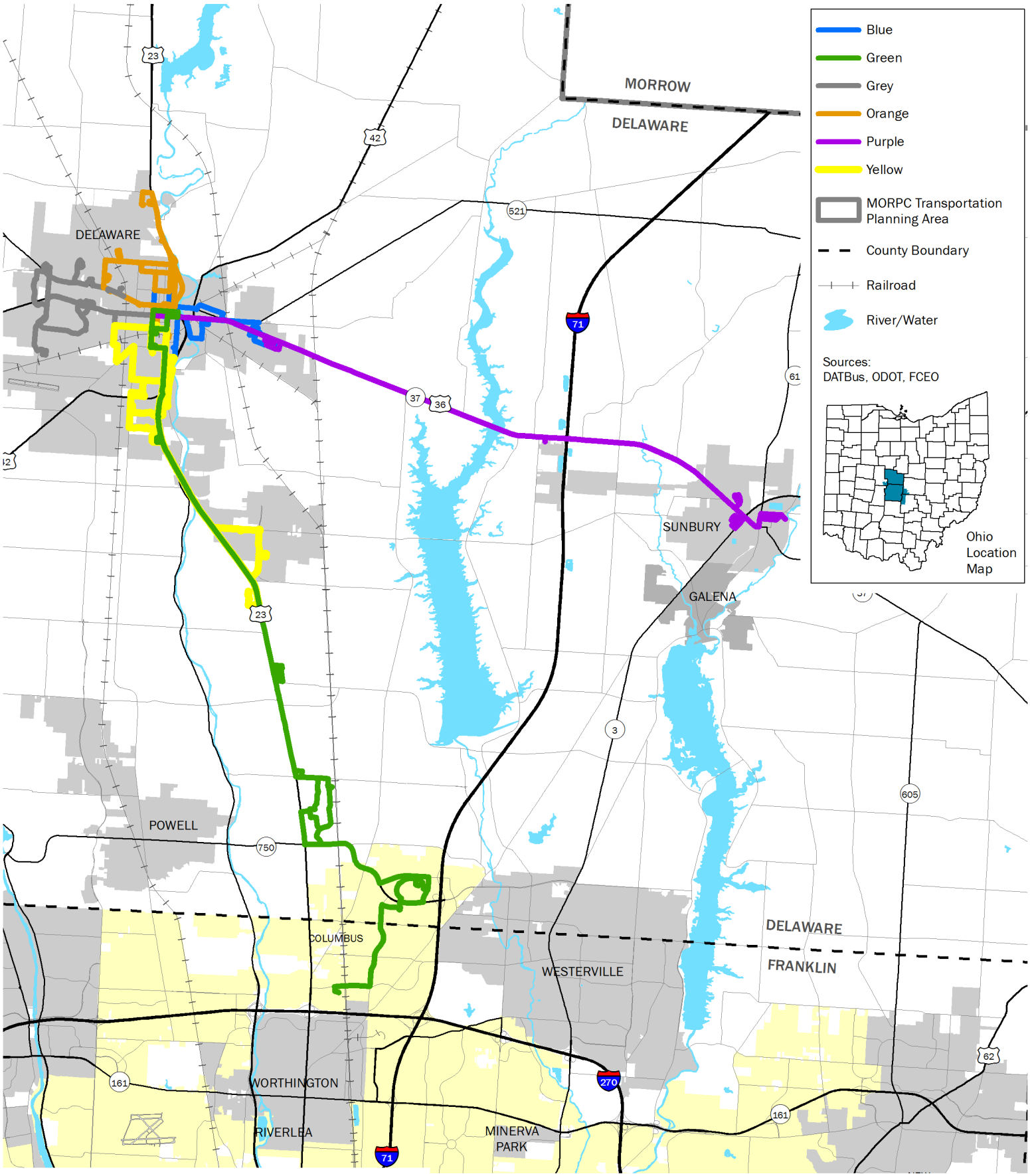

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FIGURE 3.9

DATABus Transit Service

- Columbus to Wooster, OH, with transfers to the Licking County Transit Board office, Port Columbus International Airport and the Greyhound station in Downtown Columbus
- Columbus to Van Wert, OH, with transfers to the Greyhound station in Downtown Columbus

COORDINATED TRANSPORTATION PLANS

Transportation needs that go unmet by transit systems may sometimes be fulfilled through other government departments, non-profit organizations and private companies. Federal, state and local funding programs beyond those specifically designated for public transit can generate alternate transportation service offerings. Coordination of these programs offers the chance to better use these funds so that fewer needs go unmet.

All five counties covered or partially covered by the MPO planning area maintain their own Public Transit-Human Services Transportation Coordination Plan, or Coordinated Plan. Local coordinating councils or boards typically carry the responsibility for implementing these plans. These boards include representatives from the transit system and human service agencies, such as county boards of developmental disabilities, groups focused on senior transportation, and county departments of job and family services. The funding and operating picture behind human services transportation remains as diverse as the needs of the populations served. Coordinated plans and these boards seek to find opportunities to coordinate services and meet the transportation needs of the elderly, low- income and persons with disabilities.

FTA Section 5310 funds to enhance the mobility of seniors and persons with disabilities are available to transit providers, local jurisdictions, non-profits and private for-profit companies to help implement a county's Coordinated Plan. MORPC is the designated recipient for the Columbus UZA, and ODOT's Office of Transit serves the same role in the small urban and rural areas outside the MPO.

3.3 Bicycle and Pedestrian System

Bicycle and pedestrian facilities, or active transportation facilities, are important links in the transportation network. Bicycling is a viable transportation option, especially for trips that are two miles or less. Every trip, whether it involves travel by car, bus, bike, rail or air, begins and ends with a pedestrian trip. At least one-third of the region's population does not drive because they are unable due to age, economics, health, or simply choose not to. A convenient and safe active transportation network accommodates these users and could attract others to make short trips by biking or walking, rather than by automobile.

MEASURABLE OBJECTIVE

The MTP sets a target for 100% of MORPC member communities that have adopted complete streets policies or policies that contain those elements by 2040.

MORPC and several jurisdictions have adopted Complete Streets Policies. The policy requires all transportation project sponsors using MORPC-attributable funding to accommodate all users along project roadway corridors. In 2011, the National Complete Streets Coalition recognized MORPC's policy as the best among large MPOs.

BICYCLE FACILITIES

To date, the MPO planning area has 580 miles of bikeways (see Figure 3.10). The bikeway system includes a diverse set of facilities. It includes "multi-use paths," which are facilities physically separated from the roadway and intended for multiple, non-automotive uses, including biking. The bikeway system also includes on-road facilities such as bike lanes, paved shoulders, and shared lanes.

A skeletal system of north-south shared-use paths is developing along the region's six rivers and major streams. While local communities are building more bikeways, east-west access across the region remains limited. Issues with the bicycle network include:

MEASURABLE OBJECTIVE

The MTP sets a target for 80% of population to live within 3/4 mile of a bikeway by 2040.

- Lack of east-west connections
- Crossing wide, heavily traveled arterials, rivers, and freeways
- Lack of continuity among jurisdictions (MORPC's Active Transportation Plan, discussed in Chapter 6, strives to address this issue)
- Lack of complete bicycle facilities
- Inadequate signage
- Lack of driver awareness and respect for cyclist use of the roadway

Chapter 6 will describe the strategies and projects identified to address these issues.

In 2009, MORPC and local partners created a Bike User Map for the region that is available both as a printed map and as an interactive online map. The base for this map was Bicycle Level-of-Service (LOS) data, which illustrate the usability of roads for bicycling. It was created using public input. The map has been reprinted several times since then, including minor updates, and has been distributed to over 180,000 people.

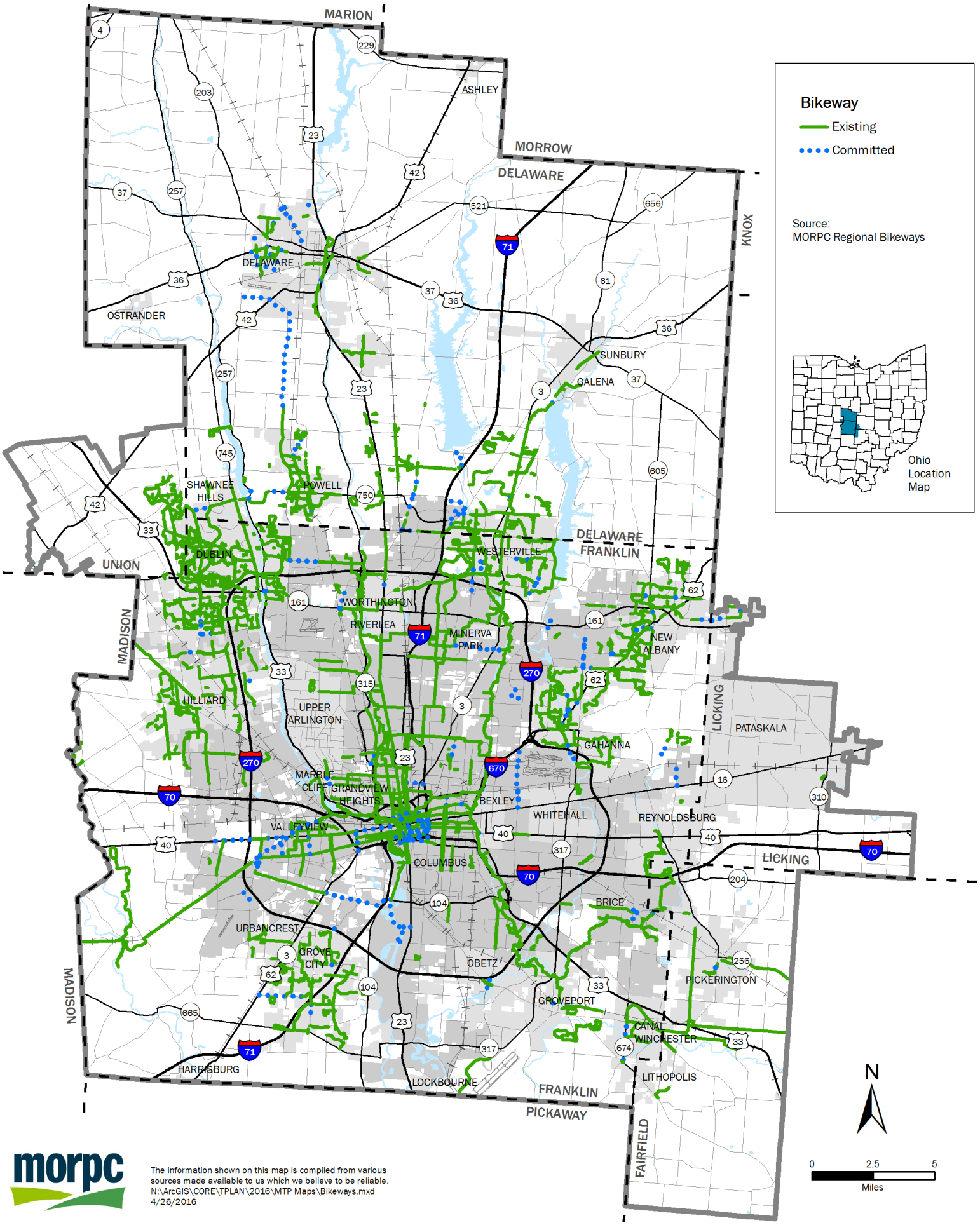

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FIGURE 3.10

Bicycle Facilities, 2015

MEASURABLE OBJECTIVE

The MTP sets a target for 85% of arterials and collectors to have sidewalks by 2040.

PEDESTRIAN FACILITIES

The MPO planning area lacks a comprehensive system of pedestrian facilities. Past construction of components of the roadway system did not always include consideration for pedestrians. In 2015 MORPC partnered with the City of Columbus and the Ohio Department of Transportation (ODOT) to compile an inventory of sidewalk facilities in the MPO planning area. The inventory is available online in an interactive web map format and includes attributes such as where sidewalks are and are not located, and the location of marked and unmarked crosswalks. The inventory is maintained by ODOT, and local jurisdictions are responsible for providing and updating data. The inventory is used to support transportation planning activities throughout the region. Existing sidewalk facilities are shown in Figure 3.11.

A pedestrian network should provide comfortable and safe walking conditions for everyone. To provide such conditions, one must consider street widths, travel lanes, traffic volumes, travel speeds, and roadside connections, which include sidewalk width and separation from moving traffic. A comprehensive network of pedestrian facilities provides for direct and convenient pedestrian travel within and between residential areas, places of employment, neighborhood activity centers, and other destinations. In very rural areas, a paved shoulder may be an appropriate pedestrian facility; in more urban areas, a sidewalk is most appropriate. Multi-use paths are an important component of a pedestrian network as well.

ACTIVE TRANSPORTATION PLAN

The Active Transportation Plan (ATP) identifies regionally significant active transportation corridors that include pedestrian, bicycle, and transit facilities around Central Ohio. The ATP was created as part of the MTP to help communities identify regionally significant projects that include pedestrian, bicycle, and transit accommodations – or complete streets.

The ATP focused on 12 Key Regional Corridors across the Central Ohio Region and looked at the character of those corridors and grouping them into different segment types. These segments were created to better understand the needs of the area based on the land use surrounding it, and other factors. The ATP created a set of best management practices that were assigned to the corridor segments to reflect appropriate complete streets accommodations.

IMPACT OF TRAILS STUDY

In 2014 an Impact of Trails Study for Central Ohio was conducted by local and regional planning partners. The study includes counts of trails users, intercept and online surveys of trail users, interviews of local leaders about the importance of trails in the region, analyses of property values near trails, and analysis of the costs of trail construction and maintenance. The results show that trails provide many values to local residents and communities. Some of these values can be measured in dollars; others cannot. Central Ohio trails enhance the lives of thousands of Central Ohio residents who travel millions of miles on them annually for recreation, fitness and health, commuting, and other purposes. Trail users value trails, visit them frequently, are satisfied with management by local agencies, and want greater connectivity for bicycling and walking throughout the region.

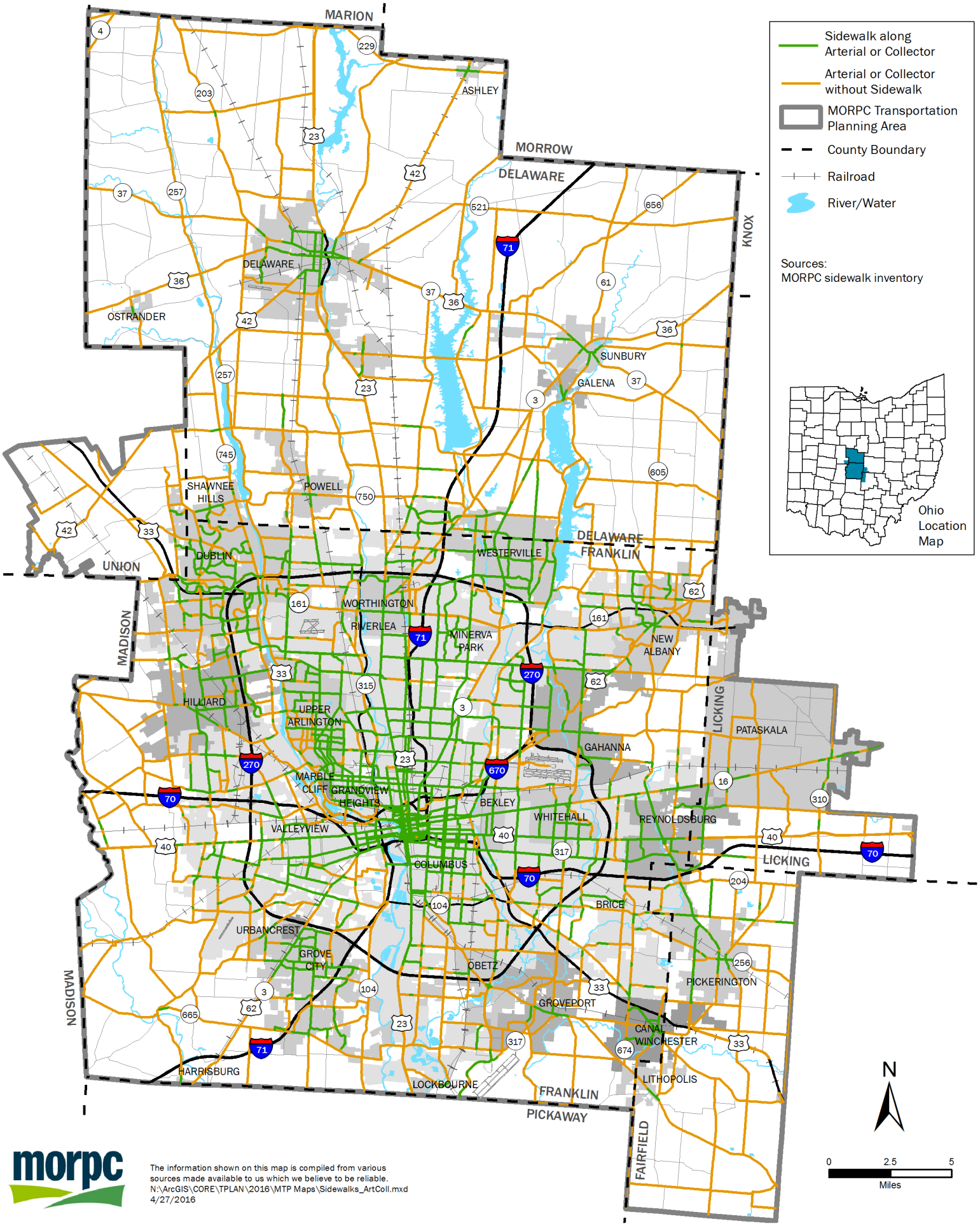

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FIGURE 3.11
Sidewalk Inventory, 2015

3.4 Intermodal Freight & Aviation

Over 4,000 logistics and distribution operations employ 77,000 people in the Central Ohio region.

Goods are moved, transferred, and distributed from the Central Ohio region to destinations across the United States and around the world. Whether by truck, rail, or air, our region's efficiency in the movement of goods is an important part of the nation's security, economic competitiveness, trade, and commodity flow. MORPC's planning activities consider strategies and projects that support the area's economic vitality, increase the mobility of freight, and enhance the integration and connectivity of the transportation system across and between modes, including freight.

Central Ohio has historically held an important place in national freight movements. Our region's economy has benefited from its multimodal transportation assets for many decades. Today, the Central Ohio region is home to an inland port and is crossed by two of the nation's arterial rail corridors as well as two major interstate highways that traverse the country coast to coast.

Central Ohio is strategically located within a 10-hour truck drive of 47 percent of the United States population and 61 percent of its manufacturing. This historic proximity to people and jobs has led the Columbus region to establish a strong logistics sector that contributes to our region's economic vitality. Over 4,000 logistics and distribution operations employ 77,000 people in the Central Ohio region. Our location is critical to the movement of goods at the state and national stage.

Our region's freight activities are contingent on shifts in the global supply chain, such as the expansion of the Panama Canal, slated for completion in mid- 2016. Currently the port with the most depth, most container traffic enters the United States at the Port of Los Angeles/Long Beach. However, in preparation of the Panama Canal expansion, other ports such as the Port of Virginia have included dredging into their Master Plans to meet the needs of larger barges. This increase in imports along the east coast ports is expected to impact the flow of freight in Central Ohio, and increases the competitive advantage of our location in attracting and retaining logistics businesses.

While ports on the east coast continue to prepare for the potential influx of container traffic, Central Ohio public and private partners made strides to complete its Heartland Corridor project, linking the Port of Virginia to Columbus and on to Chicago. This public/private partnership involved not only funding, but also the development of its facilities (like Buckeye Intermodal Yard and the Rickenbacker Intermodal Facility) and the infrastructure to serve them. These partnerships have resulted in sustaining existing businesses, and created new economic development in our region. Some quick facts about the MPO's freight/economic assets:

- Four intermodal lift and rail yard facilities
- 2 Class 1 rail service providers (CSX and Norfolk Southern), and a third Class 1 (Genesee & Wyoming) operates in the region
- Rickenbacker Airport, dedicated mostly to air freight cargo
- Rickenbacker Inland Port, which includes Foreign Trade Zone #138
- In 2014, the region exported $6.2 billion in goods

These assets translate into more higher-paying jobs, a greater tax base, and an improved quality of life for Central Ohio residents.

CENTRAL OHIO FREIGHT FACILITIES

Today's economy requires rail, truck, water and air modes to work together to provide the best value for their customers. The MPO area is home to significant air, rail and truck intermodal hubs, and it is within this multi/intermodal framework that the needs of our regional freight network continue to be considered. MORPC works closely with its regional partners to meet the needs of Central Ohio's freight facilities. Below is an overview of our region's most important freight assets. These are shown in Figure 3.12.

INTERMODAL LIFT AND RAIL YARDS

Central Ohio's public and private sectors have long recognized the importance of the logistics industry to the region's economy. As such, investments have occurred across the region to position the MPO area competitively in the retention of existing businesses and to attract new businesses as the economy fluctuates. The MPO area is home to four major intermodal lift and rail yards, most of which have experienced improvements to accommodate growth in the region's logistics sector.

CSX Buckeye Yard

Also referred to as CSX Columbus, Buckeye Yard is one of five CSX intermodal terminals in Ohio. Buckeye Yard is owned by two railroads, CSX and Norfolk Southern (NS). NS owns the classification yard and western portion of the yard, and uses Buckeye Yard primarily for storage. CSX Columbus is located on the eastern side of the classification yard.

In 2010, CSX purchased land to enable an expansion of Buckeye Yard to accommodate increases in container traffic stemming from improvements at the CSX's Northwest Ohio Intermodal Transfer Container Facility (ITCF). The $59 million expansion of Buckeye Yard was completed in 2013, adding 24 acres to a total of 36 acres and doubling capacity from 180,000 to 360,000 lifts per year.

Rickenbacker Global Logistics Park

This facility is part of one of the MPO area's most critical intermodal assets that connect air, rail and truck freight modes. The rail component is serviced by Norfolk Southern and CSX. The Norfolk Southern Rickenbacker Intermodal Terminal covers 175 acres and can handle more than 400,000 containers annually.

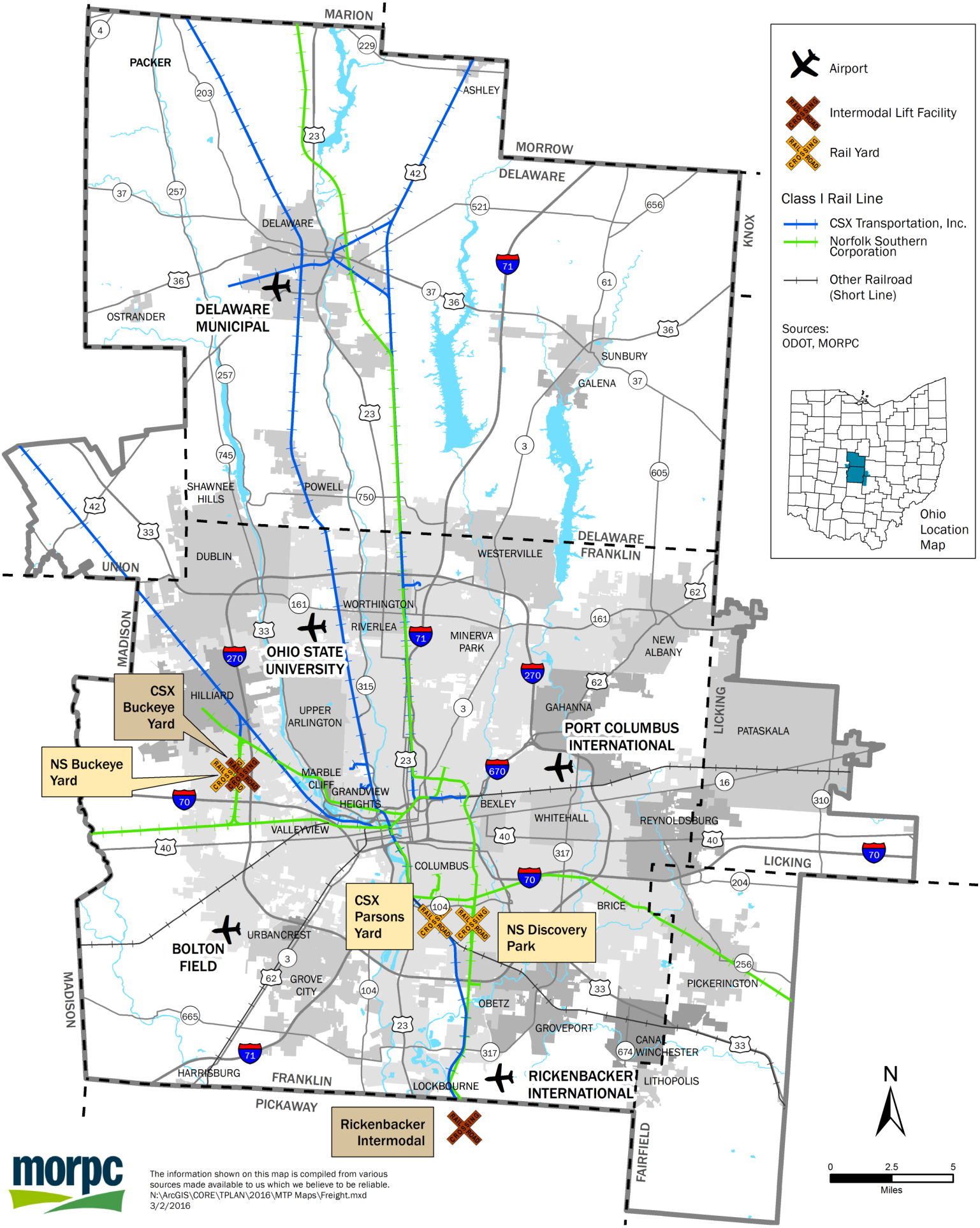


FIGURE 3.12
Freight Facilities

Discovery Park Intermodal Yard

Discovery Park Intermodal Yard is located in southeast Columbus with rail and truck access to warehouse and distribution facilities in nearby Rickenbacker. Operated by Norfolk Southern, it opened in 1990 and underwent one major expansion in 1994, followed by a second in 1999. These expansions occurred to provide more parking and container storage, but did not expand rail track length to accommodate lift expansion.

Discovery Park is a 40-acre yard that has experienced a steady increase of rail lifts since 1993, and growth has reached a plateau as the intermodal yard has passed its designed efficient capacity of 125,000 lifts per year.

Parsons Yard

Parsons Yard is an intermediate- sized yard on the south side of Columbus operated by CSX. It is used primarily to serve local industry, but it is also a support yard for coal operations, handling loaded and empty hopper cars/trains. Spot car repair and locomotive service tracks are also located in the yard. Regional and short-line railroads use this yard to switch service between them and the Class I railroads.

As one of the world's only cargo-dedicated airports, Rickenbacker International Airport offers an uncongested option to move air cargo to, from and within the United States.

AIR FREIGHT CARGO FACILITIES

Rickenbacker International Airport

While there are five airports in our region that are part of the Federal Aviation Administration (FAA) National Plan of Integrated Airport Systems (NPIAS), only two engage in air cargo activities: Port Columbus and Rickenbacker International airports. Port Columbus Airport's air cargo operations are minimal and secondary to its passenger operations, with Rickenbacker Airport as the region's primary air cargo airport. The presence of these air facilities increases the multimodal opportunities for freight movements in the region and leverage our region's competitiveness at a national and global level. In 2015, over 900 million pounds of freight were handled at Rickenbacker, nearly 150 million pounds more than the total weight handled in 2014.

As one of the world's only cargo-dedicated airports, Rickenbacker International Airport offers an uncongested option to move air cargo to, from and within the United States. The airport offers over 200,000 square feet of air cargo facility space, two parallel 12,000-foot runways and Category II Instrument Landing System for all-weather landing capabilities.

Rickenbacker's success in recent years is resulting in the need for expansions of the airport to accommodate adequate cargo storage as well as an overall increase of airport operations. The region's public and private stakeholders are working collectively to fund these needed improvements, including infrastructure needs to meet the growth of an area that houses one of the region's most critical freight assets.

Rickenbacker Inland Port (Foreign Trade Zone #138)

Considered an inland port, Rickenbacker provides Central Ohio with air, truck and rail intermodal capabilities. The area includes the Rickenbacker International

Airport, which is dedicated primarily to air cargo and Foreign Trade Zone #138. A Foreign Trade Zone is a site within the United States that is legally considered outside of Customs territory, so goods may be brought into the site duty-free and without formal customs entry, providing users the opportunity to lower costs and remain competitive with international companies. FTZ #138, the seventh most active FTZ in the U.S., encompasses Rickenbacker, surrounding industrial parks and a 25-county service area. International freighter service continues to expand, with destinations including Shanghai, Singapore, and Shannon, Ireland. In 2014, Cargolux and Cathay Pacific Airways began multiple freighter flights a week between Rickenbacker and Hong Kong.

The land development within the Inland Port has the capacity to grow to 70 million square feet of industrial space. Recognizing the importance of this asset, MORPC is working with regional partners, including the Columbus Regional Airport Authority to address infrastructure investment needs and ensure Rickenbacker's continued success.

AVIATION FACILITIES AND GROUND ACCESS

While air transportation is not directly within the purview of MPO planning activities, connectivity of airports to the rest of the region through surface transportation is a part of the Metropolitan Transportation Plan, and it is important to plan for the continued success of this relationship.

Five airports in the MPO planning area are part of the Federal Aviation Administration (FAA) National Plan of Integrated Airport Systems (NPIAS). As shown in Table 3.2, the Columbus Regional Airport Authority (CRAA) owns and operates three of the five, with Port Columbus International Airport serving most of the region's passenger flight needs. Rickenbacker Airport also provides passenger flights to the southern U.S. through low-cost carrier Allegiant Air, but this number is minimal compared to the number of passengers using Port Columbus. In 2015, Rickenbacker had over 166,000 passengers travel through its facilities, while 6.8 million passengers departed and arrived from Port Columbus.

TABLE 3.2

MPO Area Airports

Airport	Operator	NPIAS Category
Port Columbus International	Columbus Regional Airport Authority	Primary
Rickenbacker International	Columbus Regional Airport Authority	Primary
Bolton Field	Columbus Regional Airport Authority	Reliever
Ohio State University (Don Scott)	Ohio State University	Reliever
Delaware Municipal	City of Delaware	General Aviation

Port Columbus

Port Columbus is the region's main commercial passenger airport. Port Columbus provides 140 daily departures to 34 airports. In 2015, 6.8 million passengers used Port Columbus. This facility also handles a small amount of air freight relative to its sister airport Rickenbacker, with a total 7.7 million pounds of freight being handled at Port Columbus in 2015. Port Columbus is responsible for nearly

33,500 jobs, with an annual payroll over $1.1 billion, and a total of $3.7 billion in annual economic output to the Central Ohio Region.

Regional stakeholders recognize the potential for economic growth that the Port Columbus International Airport represents for Central Ohio. In April 2014, the Jobs, Expansion and Transportation (JET) Task Force was convened to provide recommendations on how to position the Port Columbus International Airport area for an economic development boom. Comprised of leaders from the business, economic development and transportation sectors, the task force focused on how best to redefine our airport as an economic hub and the center of transportation for the region. Three working groups were created: Economic Development, Regional Transportation and Air Service. MORPC led the transportation working group and contributed to a report and recommendations to the city and its regional project partners: the Columbus Regional Airport Authority and Franklin County.

Chapter 4: System Management

Chapters 2 and 3 described the growing demands being placed upon the transportation system and how the existing system is currently serving Central Ohio travelers. Looking to the future, most important is ensuring the existing system is maintained and operated as efficiently as possible.

This chapter focuses on preserving and managing the existing transportation systems. The MTP strategies and projects in this chapter focus on keeping the existing system in a state of good repair, managing the system through the use of technology and innovation, and making the system as safe and secure as possible.

4.1 System Preservation & Maintenance

Activities focused on preserving, maintaining, and operating the transportation system are an important component of the MTP. The most recent federal legislation, Fixing America's Surface Transportation, or FAST Act, places emphasis on system preservation and maintenance. This includes projects related to operation of the transportation system (e.g., plowing, mowing, painting, and traffic control), bridge replacement/rehabilitation, road resurfacing and reconstruction.

Spending on preservation, maintenance, and operations makes up the largest single category of what the region spends on the transportation system. Even as the needs of the MPO planning area continue to grow, there is a limit to how many resources can be directed toward building new facilities. The existing system needs to be maintained and operated efficiently to ensure the health, safety, and welfare of the region.

> Spending on preservation, maintenance, and operations makes up the largest single category of what the region spends on the transportation system.

While operations, maintenance, and system preservation in aggregate are significant, the individual projects are often so small they seem regionally trivial. Consequently, the MTP does not individually identify these types of projects.

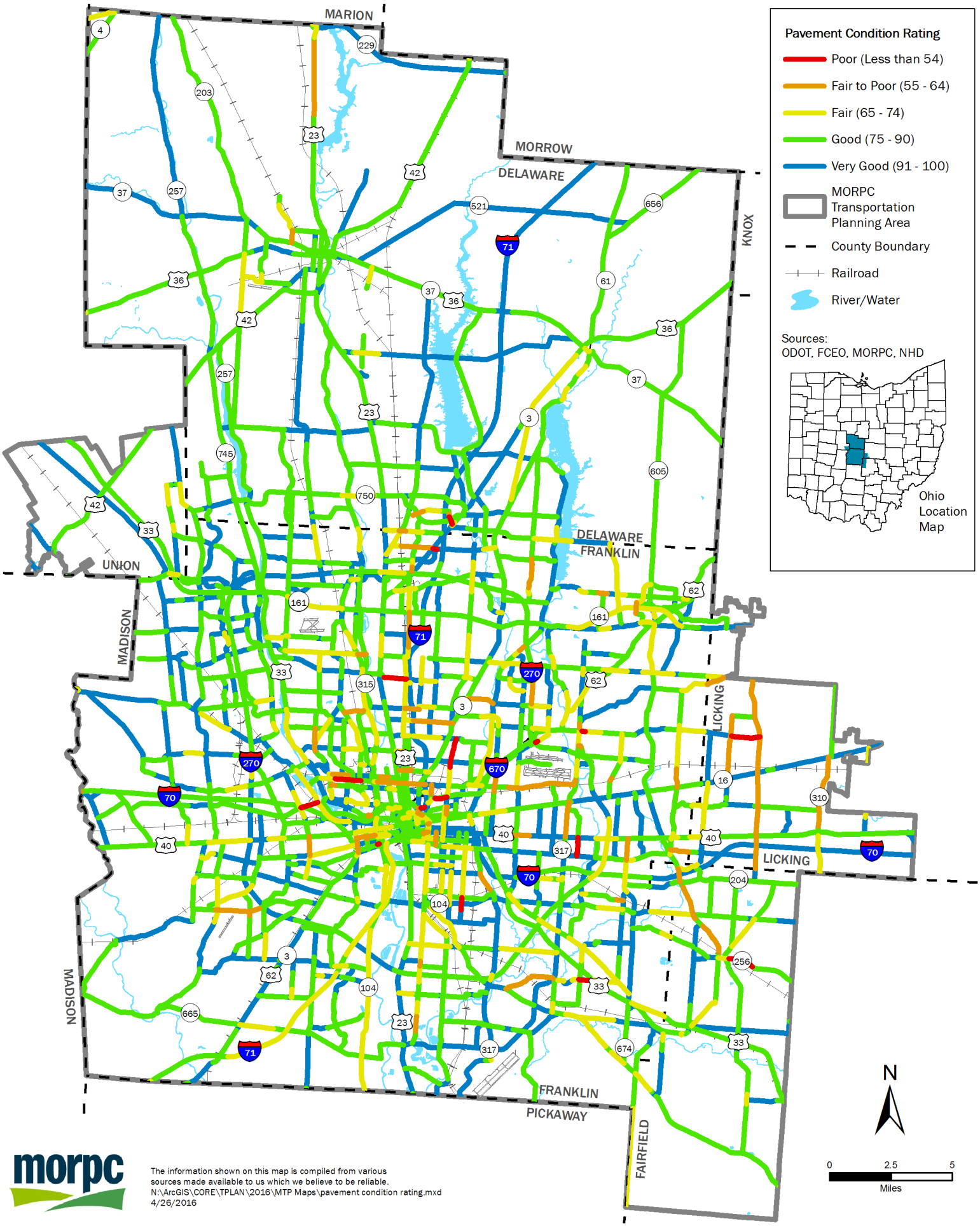
Historically, Ohio has provided adequate resources to preserve and maintain its roads and bridges. Significant portions of federal, state, and local budgets fund system preservation and maintenance activities. Often funding used on regional system expansion projects, such as those identified throughout the MTP, address system preservation through the rehabilitation of existing facilities when adding capacity.

MORPC has worked with many local governments to gather the information necessary to estimate future spending. Spending on maintenance and operations comes in no standardized or detailed form. For example, some activities are obscured in general operating budgets. Consequently, without better information, the MTP assumes adequate funding for operations, maintenance, and preservation, as described in the Preservation and Maintenance Strategies section of this chapter.

SYSTEM MANAGEMENT ACTIVITIES

As part of its Transportation Information Management System, ODOT collects pavement condition rating (PCR) data, which uniformly measure conditions on roadways classified as collector and above in Central Ohio, as shown in Figure 4.1.

ODOT's goal is to maintain the best PCR for each "pavement subsystem" of the state system. Each subsystem refers to the type of roadway and its function in the system. Each subsystem has different acceptable PCR criteria, as shown in Table 4.1. The table also shows what portion of that subsystem currently meets the acceptable PCR criteria. Consistent with ODOT's Access Ohio, the MTP sets a



The information shown on this map is compiled from various sources made available to us which we believe to be reliable.
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FIGURE 4.1

Pavement Condition Ratings

TABLE 4.1

Pavement Condition Ratings

ODOT Pavement Subsystem	Subsystem PCR Criteria	Lane Miles Meeting Criteria	Lane Miles Below Criteria	Percent Meeting Criteria	MTP Target
Priority - Interstates, divided and multi-lane	PCR ≥ 65	1,603.29	13.23	99.18%	95%
General - Two-lane	PCR ≥ 60	3,972.61	83.03	97.95%	95%
Urban - US & State Routes	PCR ≥ 55	735.39	27.82	96.35%	95%

target that 95 percent of roads classified as collector and above have an acceptable PCR.

Ohio law requires an annual inspection for all bridges. This law applies to all bridges in the state, regardless of who owns them. In general, bridge conditions change slowly. Dramatic, year-to-year fluctuations are rare.

Composite condition measures, called "general appraisal," look at the major structural items of a bridge, such as its superstructure, piers, and abutments. This rating system is unique to ODOT and measures the structural conditions of bridges. The general appraisal summarizes the conditions of the bridge. It helps schedule replacements or maintenance work. On a scale from 0 to 9, 9 indicates the best condition, and below 5 indicates the need for bridge replacement. If a bridge on ODOT's system ranks between 6 and 8, it identifies the need for deck overlay, deck replacement, substructure sealing, or other work. Figure 4.2 shows the General Appraisal rating for bridges. Consistent with ODOT's Access Ohio, the MTP set a target based upon the General Appraisal rating of bridges. The short-term (2020) target is that 95% of bridges have a GA rating of 5 or better. The long-term (2040) target is that 98% of bridges have a GA rating of 5 or better.

MEASURABLE OBJECTIVE

The MTP sets a target that 95% of roads classified as collector and above have an acceptable PCR.

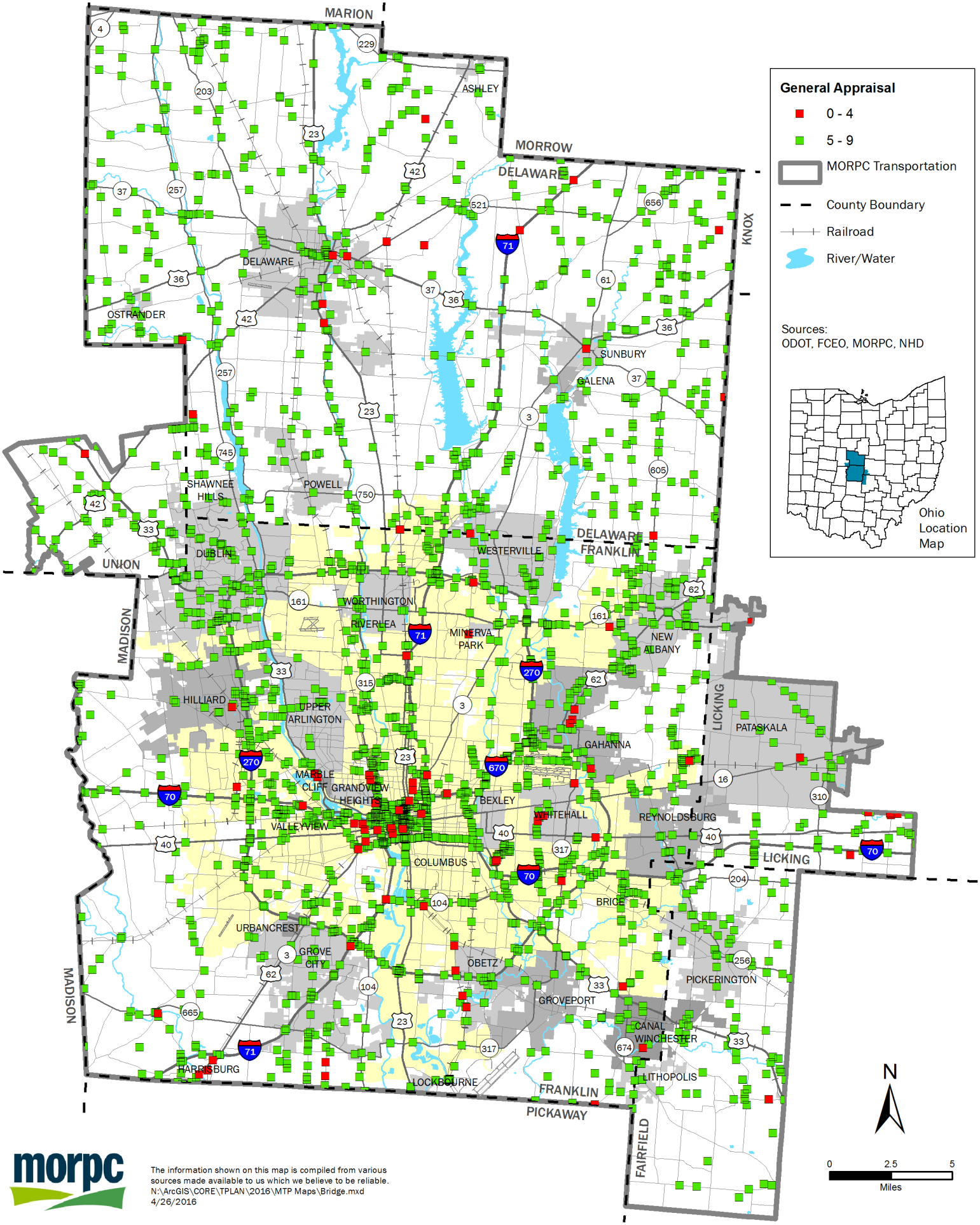
MEASURABLE OBJECTIVE

The MTP sets a target that 98% of bridges have a GA rating of 5 or better by 2040.

PRESERVATION AND MAINTENANCE STRATEGIES AND PROJECTS

As the owner of the most important roadways, ODOT is committed to building upon the tradition of preserving, maintaining, and modernizing one of the most well-regarded transportation systems in the nation. ODOT promotes "Fix it First" programs. "Fix it First" includes ODOT's Transportation Asset Management Plan, which emphasizes making steady, systematic improvements rather than waiting to make repairs until the asset needs major reconstruction. "Fix it First" also includes the Pavement & Bridge Preservation Program. The local jurisdictions, responsible for maintaining the remainder of the system, take a similar approach of allocating significant portions of their transportation funding to maintaining the system.

Strategies presented throughout the MTP may help preserve and maintain the transportation system. Strategies and projects to expand the system will also improve the condition of the system. However, the following strategies and projects specifically address system preservation and maintenance.



The information shown on this map is compiled from various sources made available to us which we believe to be reliable.
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FIGURE 4.2

Bridge General Appraisal Ratings

1. Multi-jurisdictional dialogue to improve opportunities for collaboration.

Working together across agencies and jurisdictions will help reduce overall costs by combining and sharing resources and information. Through the TIP, MORPC reviews community CIPs and includes their system preservation projects—even those that are completely locally funded. The Paving the Way program, funded by MORPC, collects and disseminates upcoming construction project information throughout the region.

2. Establish consistent data collection procedures and standard rating systems concerning roadway condition.

Although ODOT collects data on the majority of the most important roadways, there are data gaps. When it comes to the local agencies, how they collect transportation data differs greatly. Such disparity impedes having a complete and accurate set of regional data. In order to standardize such processes, local governments are encouraged to account for their road and bridge infrastructure network using the "modified approach" permitted by the General Accounting Standards Board (GASB) when completing their Comprehensive Annual Financial Report (CAFR).

The asset management system would have to provide an up-to-date inventory of the infrastructure. It also must perform a condition assessment of the network at least every three years. It must estimate the annual amount each year required to maintain and preserve the asset network at the established minimum condition level. Using this methodology, only the costs of network additions and capacity improvements are capitalized.

MORPC has worked to create and maintain a uniform Location-Based Response System (LBRS) roadway centerline Geographic Information System (GIS) file. MORPC is working on a web interface that will allow other jurisdictions to submit changes to the file. Such a system could help collect and organize consistent condition data.

3. Preserve and maintain the existing transportation system.

State and local officials are encouraged to employ cost-effective preservation strategies and to optimize every dollar spent. It is important to develop training for low-cost, long-term treatment strategies, forecasting for program budgets and optimization of expenditures. A number of programs at the state level focus on maintaining the existing system. These include:

District Pavement & Bridge Preservation Program

- Provides funding for the preservation and rehabilitation of the Priority, Urban and General System pavements and the state-maintained bridge structures.
- The goal is to maintain pavements and bridges at "steady state" conditions, or a relatively low and stable level of deficiencies where a predictable rate of preventive maintenance and regular repairs can efficiently sustain the system conditions.

MORPC estimates approximately $6.6 billion in federal, state and local funds will be expended through 2040 to preserve the transportation system.

ODOT Major Bridge Program

- Provides a source of funds separate from each ODOT district's bridge allocation.
- For high-cost bridge rehabilitation and replacement, typically projects over one million dollars.

Multi-Lane Major Rehab Program

- Focuses on almost 3,000 miles of multi-lane roadways in the state.

County Bridge Program

- Provides funds to counties for bridge replacement or rehabilitation.
- The County Engineers Association of Ohio (CEAO) serves as the program manager and is responsible for project selection, funding criteria and program priorities.

Local Major Bridge Program

- Provides funds to counties and municipalities for bridge replacement or major bridge rehabilitation projects that have County Maintenance Responsibility.

Municipal Bridge

- Provides funds to municipalities for bridge replacement or rehabilitation.

ODOT Bridge Partnership Program

- Funds eligible bridges with 100% federal dollars and requires no local match.
- Reduces inventory of structurally deficient county and municipal bridges across the state.

Urban Paving Program

- Provides funds for eligible surface treatment and resurfacing projects on state and U.S. routes within municipal corporations.

State Capital Improvement Program (SCIP)

- Administered by the Ohio Public Works Commission (OPWC).
- Funds road, bridge, water, storm, and sanitary sewers.
- Carries a statutory requirement for districts to give priority to projects that repair or replace existing infrastructure.
- OPWC also administers the Local Transportation Improvement Program (LTIP). LTIP is available only for road and bridge projects.

Local Capital Improvement Programs

- Document spending in local government operating budgets.

MORPC estimates approximately $6.6 billion in federal, state, and local funds will be expended through 2040 to preserve the transportation system in the MPO planning area. Section 7.2 has detailed information about the financial forecast for the MPO planning area. As listed above, a number of agencies provide federal, state, and local funding to address the maintenance and preservation of the existing transportation system in the region. Depending on the agency, the programs address separate, but sometimes overlapping, portions of the transportation system.

4.2 Intelligent Transportation Systems

Intelligent transportation systems (ITS) is a "system of systems," envisioned to evolve using communication technologies and real-time coordination to allow for more effective operations/use of the transportation system without adding pavement. ITS refers to an assortment of technologies, systems, and transportation management concepts. ITS plays a key role in a safe, efficient, and innovative transportation system for all travelers. A key aspect of ITS is providing information to travelers because when travelers know traffic conditions in real-time, they can make more informed travel decisions. Examples of ITS technologies include coordinated signal systems, dynamic message signs, portable changeable message signs, ramp meter signals on freeways, CCTV traffic cameras that monitor traffic flow and incidents, and transit-related systems such as the Automated Vehicle Locator (AVL), which helps determine the real-time location of public fleet vehicles.

ITS is a proven alternative solution to reduce congestion, increase traffic flow, enhance safety and improve air quality.

ITS enables collaboration, communication and cross-jurisdiction/agency system integration. ITS is a proven solution to reduce congestion, increase traffic flow, enhance safety and improve air quality. It is imperative to create one transportation system that works across jurisdictions and agencies and utilizes limited resources most efficiently.

BACKGROUND

FHWA developed the national ITS architecture to provide a unifying framework for ITS infrastructure deployment. As the MPO for the region, MORPC houses and maintains the regional ITS architecture. ITS has been and will continue to be an integral part of transportation planning in Central Ohio.

In 2014, ITS workshops were sponsored by FHWA to assist MORPC in conducting an update of the Regional ITS Architecture, which was completed in 2015. For this update MORPC utilized Turbo Architecture v7.0 to generate more detailed listings of system inventory and system interconnections. The 2015 Central Ohio Regional ITS Architecture is available online at: http://morpc.org/itsArchitecture/. The website displays all existing and planned systems and demonstrates the information flow between them. The regional ITS architecture serves as a tool to educate both professionals and the public of the importance of ITS and information exchange. The architecture ensures that institutional agreements and technical integration for the implementation of ITS projects are in place. Its primary goal is to facilitate the efficient deployment and use of ITS equipment, networks and management structures to create a safer and more efficient transportation system across jurisdictions. All ITS projects using federal funding must conform to the Regional ITS Architecture.

THE SYSTEM TODAY

There are two ways MORPC looks at the extent of the ITS system. First is to inventory how many of the roadways classified as principal arterial and above em-

MEASURABLE OBJECTIVE

The MTP sets a target to have 90% of functionally classified Principal Arterials and above utilizing coordinated ITS technologies by 2040.

ploy ITS to coordinate signals, utilize ramp meters or message signs, all of which optimize the traffic flow. Second is to inventory how many of the principal arterials and above have coverage by video surveillance to monitor and respond to incidents or other changing travel conditions.

The extent of the ITS coverage is shown in Figures 4.3 and 4.4. These corridors are regionally significant because they accommodate a high volume of through traffic. The MTP sets a target to have 90% of functionally classified Principal Arterials and above utilizing coordinated ITS technologies by 2040. The City of Columbus continues to talk to neighboring jurisdictions about opportunities to connect their signals to the regional system. MORPC will continue to work with its member jurisdictions and through the Columbus Traffic Signal System update to establish multi-jurisdictional partnerships.

The USDOT will make an award of up to $40 million for one mid-sized city that can demonstrate how advanced data and intelligent transportation systems (ITS) technologies and applications can be used to reduce congestion, promote safety, protect the environment, respond to climate change, connect underserved communities, and support economic vitality. The City of Columbus has submitted an application for this Smart City grant. The USDOT will announce the recipients of the Smart City Challenge in June 2016.

ITS STRATEGIES AND PROJECTS

Along with continued deployment of existing ITS technologies, new ITS technology, such as autonomous and connected vehicles, has the potential to significantly alter the demands placed on the region's transportation system. Since opportunities for system integration and operational coordination extend beyond jurisdictional boundaries, it is important to have collaboration in planning for both system and inter-jurisdictional integration. MORPC will continue to work with its stakeholders to implement the following strategies and projects:

1. Improve traffic and transit operations by increasing efficiency through investment in advanced technology.

MEASURABLE OBJECTIVE

The MTP sets a target to have 90% of functionally classified Principal Arterials and above under video surveillance by 2040.

MORPC will continue to monitor development in transportation system management and operations and evolving transportation technologies in order to improve traffic flow in our region. New technologies are being investigated at federal, state, and regional levels.

MORPC fosters system integration and agency cooperation concerning ITS technologies. Working together across agencies and jurisdictions is important in order to reduce overall costs by combining and sharing resources and information.

ODOT Statewide Traffic Management Center (TMC)

The ODOT Statewide TMC operates the traffic management and traveler information system on Ohio's interstates, freeways, expressways, and state highways. The mission of the TMC is to increase transportation safety, reduce congestion, and increase efficiency on Ohio's state highways. The Statewide Traffic Management Center is located at ODOT's Central Office. The TMC has dedicated operators who monitor traffic in each major metropolitan area across the state including Akron/Canton, Cincinnati/Northern KY, Cleveland, Columbus,

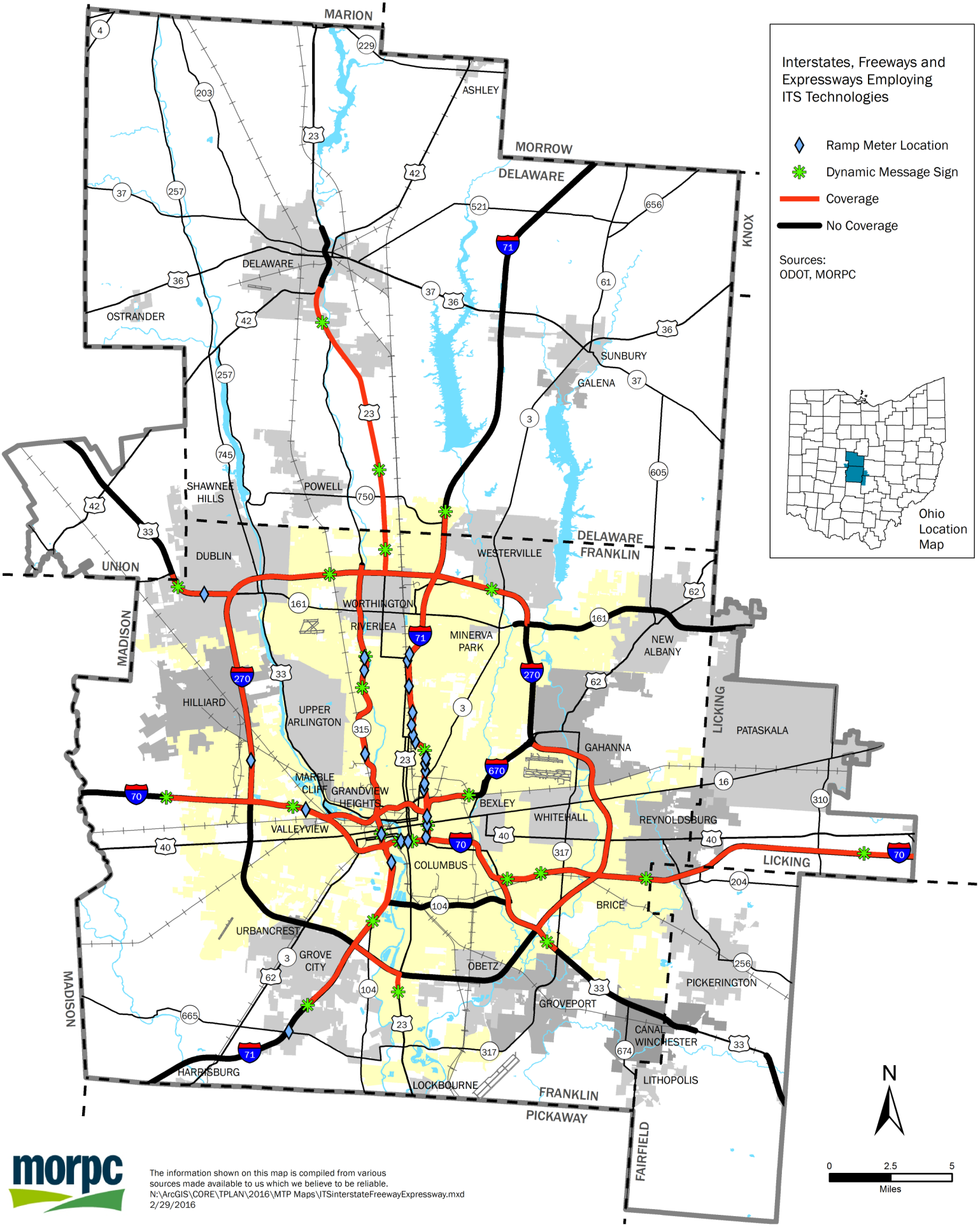

FIGURE 4.3

Interstates, Freeways, & Expressways Employing ITS Technologies

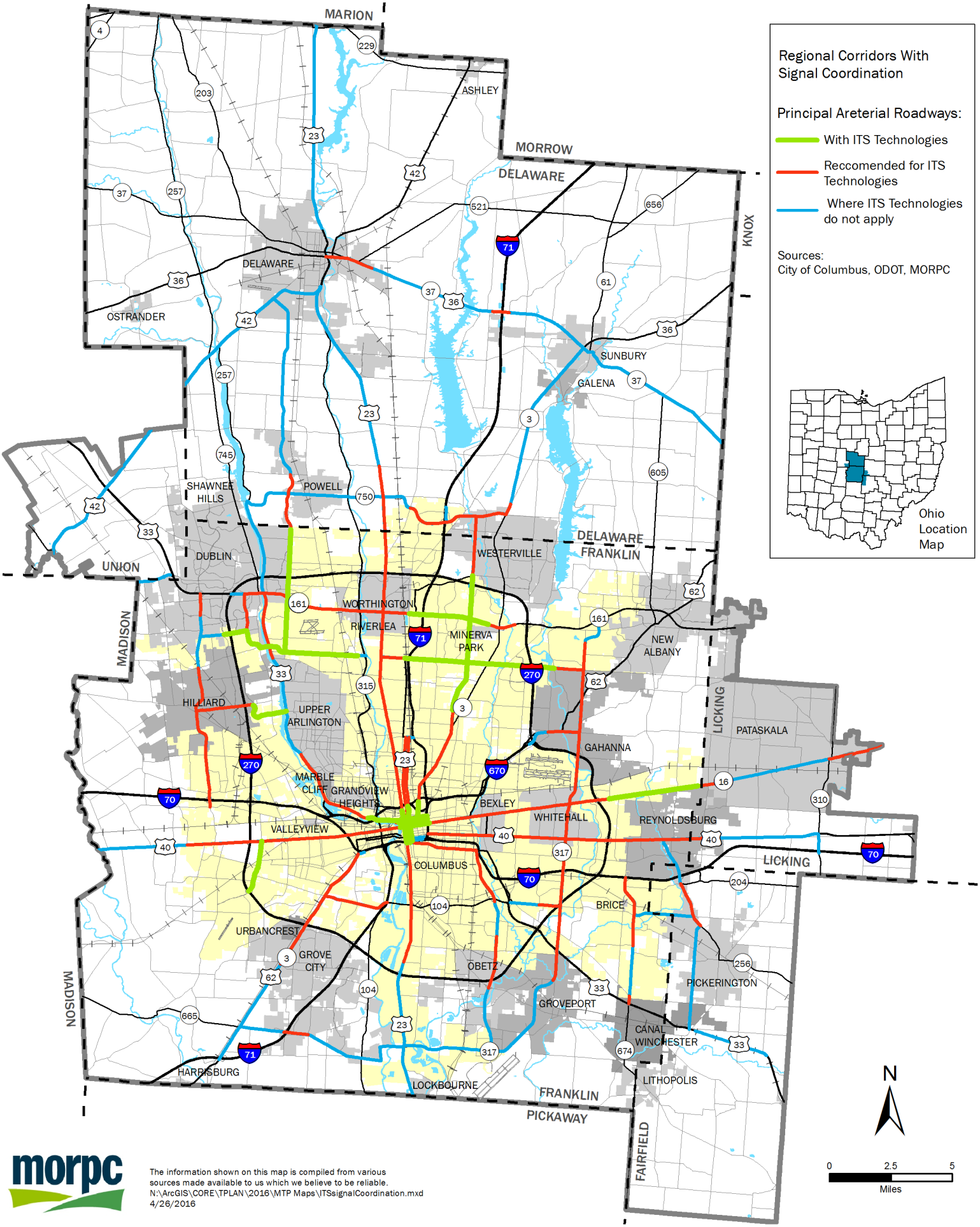

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FIGURE 4.4

Principal Arterials Employing ITS Technologies

Dayton/Springfield, and Toledo. The operators can control cameras, post messages to DMS, HAR, and the Buckeye Traffic website, etc. The operators are monitoring more than 500 traffic cameras around the state in all the major metro areas and also a couple in the more rural areas.

ODOT Active Traffic & Demand Management (ATDM) Study

At the state level, ODOT's ATDM study examined potential pilot programs for the Central Ohio area and other regions in the state to improve travel time reliability, reduce vehicle delays and improve safety through the utilization of strategies other than typical highway expansion projects. ATDM is the dynamic management, control, and influence of travel demand, traffic demand, and traffic flow of transportation facilities. ATDM strategies can provide significant capacity benefits at a fraction of the cost to build traditional capacity projects. Some examples of ATDM are Ramp Metering, Hard Shoulder Running (HSR), Variable Speed Limits, and Dynamic Lane Assignment. Four corridors are identified in the MTP for ATDM strategy by 2040.

US 33 Intelligent Corridor

MORPC and respective local and regional planning partners have started to move the US 33 Intelligent Corridor (US 33 from Marysville to Dublin) project forward in 2016. The US 33 corridor uniquely ties the physical assets of the Transportation Research Center (TRC) and many companies along the corridor to the abundance of physical and intelligence assets available at The Ohio State University. The intelligent corridor project includes the installation of next generation ITS. Improvements may include fiber-optic extensions in the public right-of-way, dedicated short-range communication technology (DSRC) fixtures, and enhanced cellular infrastructure to allow for the deployment of test-bed connected vehicles, or partial autonomous vehicles.

All ITS projects using federal funding in Central Ohio must conform to the Regional ITS Architecture.

2. Broaden the transportation system managed in a coordinated manner.

Since funding is limited, the region must prioritize ITS projects based on the overall need and the ability to integrate them with other projects to maximize regional value.

Columbus Traffic Signal System (CTSS)

The City of Columbus' Computerized Traffic Signal System is a significant ITS system in the Central Ohio region. Established in the 1980s, the system has control of nearly 1,000 intersections in Columbus and surrounding areas and is considered a backbone for the region's ITS network due to its size and the investment that has been made. The city is implementing a multiphase project to create a modern, open-architecture, computerized traffic signal system and communications network. The work includes new central control system hardware and software, as well as fiber optic and wireless communications infrastructure. Columbus has contacted neighboring jurisdictions to better understand their signal plans and to see if there are opportunities to connect their signals to the regional system.

Transportation Improvement Program (TIP)

The Transportation Improvement Program (TIP) lists the various ITS projects with allocated funding. All ITS projects using federal funding in Central Ohio must conform to the Regional ITS Architecture and be included on the TIP.

3. Develop a regional multi-modal traveler information system.

Central Ohio ITS Committee

MORPC reinitiated the ITS Committee for the Central Ohio region in January 2014. The Central Ohio ITS Committee will allow for collaboration and coordination between various stakeholders on regional traffic operations investments and practices in the Central Ohio region. Its main purpose is to coordinate ITS activities in Central Ohio and assist MORPC in maintaining and updating the regional ITS architecture and ensuring compliance with it.

Regional ITS Architecture

In 2015, MORPC completed the fourth update to the Regional ITS Architecture. MORPC utilized Turbo Architecture v7.0 to generate more detailed listings of system inventory and system interconnections. The ITS Architecture identifies all entities (device types) and how they interface among agencies. The regional ITS architecture should be used to verify that all ITS projects fall in line with the existing structure. If the project includes a new interface that isn't already identified within a stakeholder's inventory, then the stakeholder should reference the ODOT Traffic Engineering Manual (TEM), Part 1301-2, to identify the required steps that need to be taken to qualify for ITS funding. It is in the best interest of the project stakeholders to keep the ITS architecture updated, by communicating any changes to ODOT and MORPC.

4.3 Transportation Safety

Between 2009 and 2013, 165,340 individuals lost their lives as a result of motor vehicle crashes occurring within the United States. This translates to someone being killed on average every 15 minutes on our nation's roadways, or around 91 deaths every day. Traffic collisions are consistently ranked among the 5 leading causes of death within both the United States and the State of Ohio, and represent a major public health concern globally. Central Ohio is not immune to these issues. The MPO planning area had 182,761 crashes reported between 2010 and 2014 and involved almost half a million people (465,471). Of these individuals, 483 lost their lives and another 66,315 were injured, with 4,451 suffering incapacitating (life-changing) injuries. Aside from the devastating human impact caused by these crashes, the economic impact is staggering - around $10 billion dollars in associated loss observed annually for the State of Ohio.

While it's not likely these transportation safety issues will be resolved tomorrow, nationally, reductions in the number of fatalities and serious injuries have been realized over the last few decades. Traffic deaths and serious injuries are preventable and transportation safety needs to be continuously prioritized as investments are being made in our transportation system. By doing this, not only will past improvements be sustained, but further reductions in fatal and serious injuries will be observed, with the ultimate goal of achieving zero deaths on the regional transportation system.

MEASURABLE OBJECTIVE

The MTP sets a target of 0.42 fatalities per 100 million VMT.

LEGISLATIVE BACKGROUND

In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP), structured and funded to make significant progress in reducing the occurrence of fatalities and serious injuries on all public roadways. It stressed a data-driven, strategic approach to improving highway safety and nearly doubled the funds allocated for safety-related infrastructure projects. With its focus on performance, SAFETEA-LU also required states to develop a Strategic Highway Safety Plan (SHSP).

In 2012, The Moving Ahead for Progress in the 21st Century Act (MAP-21) continued the primary features of HSIP, including the requirement for a comprehensive, data-driven, approach to transportation safety that is intended to underlay any defined goals and strategies. MAP-21 further required MPOs, like MORPC, to coordinate with state departments of transportation on setting a minimum of four safety performance targets for the region: number of fatalities, number of serious injuries, fatality rate and serious injury rate.

Like its recent predecessors, the Fixing America's Surface Transportation (FAST) Act continues the tradition of providing a data-driven framework for reducing fatalities and serious injuries and maintained current funding levels of HSIP.

MEASURABLE OBJECTIVE

The MTP sets a target of 3.91 serious injuries per 100 million VMT.

MORPC'S TRANSPORTATION SAFETY PROGRAM

With the passage of the SAFETEA-LU, MORPC began to engage more directly in activities surrounding the improvement of transportation safety within the Columbus region. This resulted in the creation of a dedicated Transportation Safety Program in 2006. Today, transportation safety is among the top priorities at both the state and regional levels and continues to see significant attention and funding. MORPC's Transportation Safety Program is based on a model of cooperation within the State of Ohio and aims to deliver the resources and information our partners need to create a safer region. MORPC works closely with the Ohio Department of Transportation in its development and implementation of the Ohio SHSP.

SAFETY STRATEGIES AND PROJECTS

In order to improve safety and realize efficiencies, collaboration and resource sharing are required. This involves bringing various agencies to the table, including law enforcement, emergency responders, state transportation officials, local transportation officials, political leaders and the public. As a result, MORPC's approach to safety planning involves substantial collaboration and is multi-jurisdictional in nature. And while strategies presented throughout the MTP involve collaborating with stakeholders to indirectly improve transportation safety, MORPC will continue to seek opportunities to work with member agencies and other partners to implement the following strategies and projects that deal directly with the safety of Central Ohio's transportation system.

1. Ensure the accuracy, availability, and timeliness of crash data and information.

MORPC stresses a data-driven, strategic approach to improving highway safety and making informed investment decisions. The data generated through motor vehicle crash reporting are fundamental aspects of any program seeking to reduce the number of fatalities and serious injuries resulting from these crashes. MORPC will continue to work both locally and statewide to pursue investments in the accuracy and timeliness of regional crash data and ensure relevant crash data and information are available and useable by all of our partners.

Participate in the Traffic Records Coordinating Committee (TRCC)

MORPC, serving as a representative for the Ohio Association of Regional Councils, is one of several stakeholders involved in the TRCC. This statewide committee brings together law enforcement, legal professionals and transportation officials, among others, to improve crash reporting in Ohio. Recent work of the TRCC includes providing resources to local jurisdictions that enable the electronic submission of crash reports, improving the accuracy and availability of crash data, along with providing resources to police agencies to improve overall reporting accuracy.

Regional Crash Fact Sheets

Each year, MORPC analyzes crash data from the most recent five-year period (i.e., 2010-2014) and develops a set of Regional Crash Fact Sheets. This annual publication provides a comprehensive picture of the transportation safety issues facing the Central Ohio region and reports on major crash trends. They include in-depth analyses of various crash types, such as pedestrian and bicycle crashes, and their associated contributing factors. They also provide insight into behav-

ioral issues such as speeding and impaired driving. The Regional Crash Fact Sheets serve as an important resource for both the region and the state as they provide the type of actionable information needed to reduce serious injuries and fatalities.

Promote the use of Crash Data and Tools

Through the efforts of both the Ohio Department of Transportation and the Ohio Department of Public Safety, Ohio maintains some of the best crash data within the nation. These data, along with tools and trainings, are available to professionals and the general public across the state. MORPC continues to promote and advocate for the use of these data and tools, such as ODOT's GIS Crash Analysis Tool (GCAT), when making investment decisions.

2. Reduce the occurrence of severe crashes and address high-crash locations.

As noted earlier, the HSIP requires the allocation of federal funds through a data-driven process to make the best use of these limited resources. The process of identifying and working with our partners to address high-crash locations is central to MORPC's safety planning program. By providing local jurisdictions with a better understanding of where locations exist within the region that experience an overabundance of crashes, MORPC can better work with our partners to acquire the resources necessary to address them.

Annual Identification of High-Crash Locations

Every year, using crash data from the most recent three-year period (i.e., 2012-2014), MORPC analyzes locations within the MPO to identify those that are experiencing an overabundance of severe crashes. This results in a number of "High-Crash Location lists" that are made available to local governments and the general public including: the *Top 40 Regional High-Crash Locations (Table 4.2, Figure 4.5)*, the *Top High-Crash Intersections by Jurisdiction*, as well as the *Top Pedestrian and Bicycle High-Crash Clusters*. These high-crash location lists serve as a starting point for the identification and resolution of traffic safety issues in the region. MORPC continues to work with jurisdictions after these lists are published to further understand the crash patterns at a given location and identify specific strategies and resources to improve them.

Develop and Implement a Regional Systematic Safety Improvement Program

In 2013, MORPC and ODOT's Highway Safety Program launched a pilot project to develop and implement a replicable process for the identification of locations with a high risk of severe crash types (i.e., pedestrian, intersection crashes) and address them using proven low-to-medium safety countermeasures. To date, this pilot has provided additional safety resources to over 12 local jurisdictions within the MPO planning area and has resulted in the installation of treatments at over a hundred locations. MORPC will continue to work with ODOT to ensure these resources are available to local governments, as they provide these agencies with enhanced ability to prevent severe crashes on the locally maintained system.

MEASURABLE OBJECTIVE

The MTP sets a target of 39% reduction in fatalities and serious injuries

TABLE 4.2

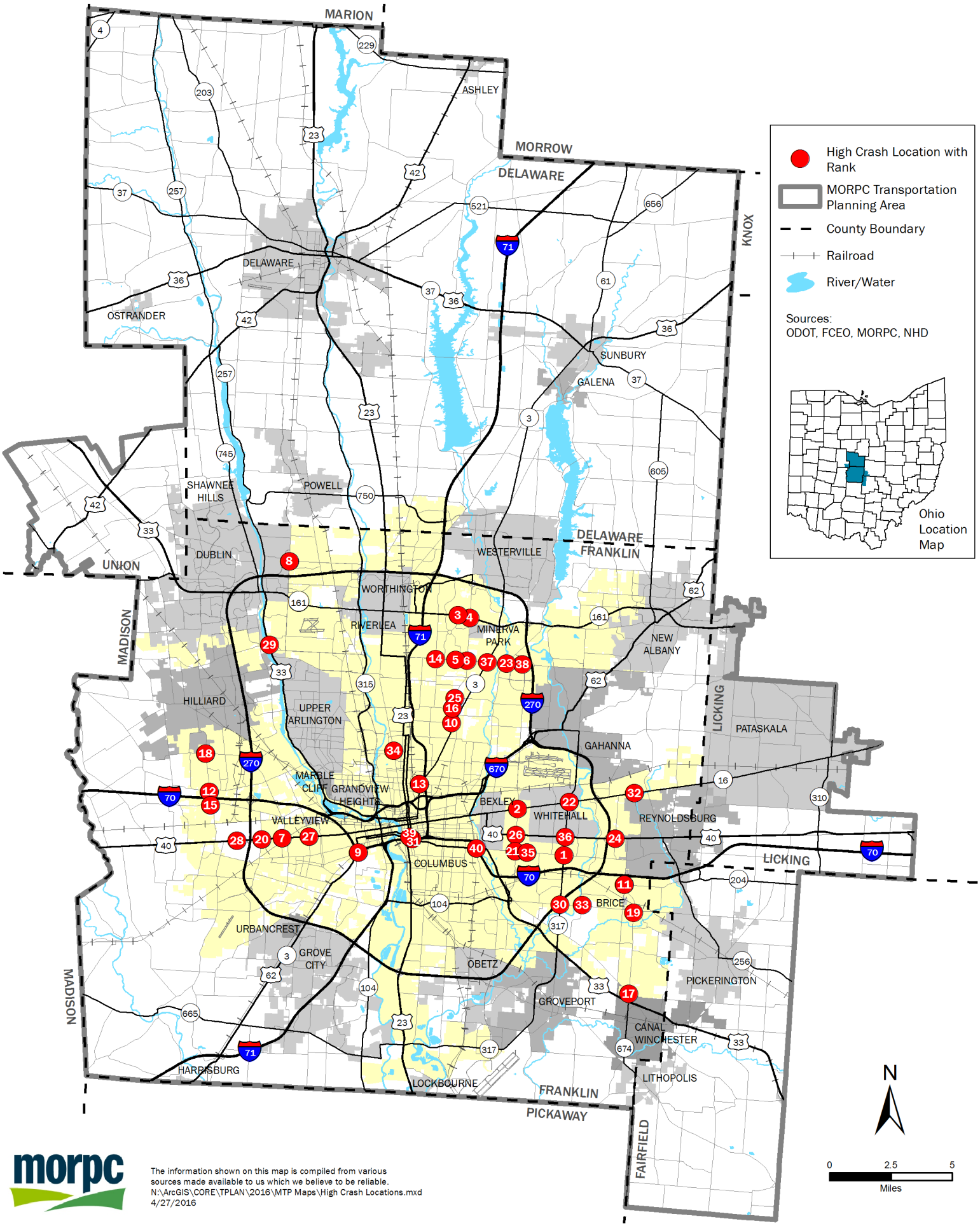
Top 40 Regional High-Crash Locations

Rank	Location	Jurisdiction	Total Crashes (Freq.)	Crash Severity					Severity (EPDO)	Average Daily Traffic (ADT)	Crash Rate (MEV)	Annual Crashes		
				Fatal	Serious Injury	Visible Injury	Possible Injury	PDO				2012	2013	2014
1	E Livingston Ave @ Hamilton Rd / SR 317	Columbus	152	1	4	22	16	109	3.48	36,100	3.85	53	48	51
2	Broad St / SR 16 @ James Rd	Columbus	165		5	17	29	114	3.40	50,100	3.01	56	61	48
3	Dublin Granville Rd / SR 161 @ Maple Canyon Dr	Columbus	152		3	19	20	110	2.96	36,700	3.78	39	54	59
4	Cleveland Ave @ Dublin Granville Rd / SR 161	Columbus	162		3	18	24	117	2.89	50,200	2.95	50	54	58
5	Morse Rd @ Northtowne Blvd / Walford St	Columbus	115		4	14	8	89	3.29	40,100	2.62	33	50	32
6	Cleveland Ave @ Morse Rd	Columbus	250	1	2	27	33	187	2.57	55,600	4.11	72	72	106
7	Broad St / US 40 @ N Wilson Rd	ODOT	108		2	13	22	71	3.15	37,000	2.67	41	27	40
8	Hard Rd @ Sawmill Rd	Columbus	114		4	12	19	79	3.56	49,600	2.10	39	36	39
9	S Central Ave / Harrisburg Pike @ W Mound St	Columbus	89		2	14	11	62	3.23	30,700	2.65	25	29	35
10	Cleveland Ave @ Weber Rd	Columbus	84		2	10	14	58	3.21	28,200	2.72	34	24	26
11	Brice Rd @ Scarborough Blvd / Tussing Rd	Columbus	129	1	1	10	22	95	2.66	54,600	2.16	42	35	52
12	Hilliard Rome Rd @ Renner Rd	Columbus	150		2	15	9	124	2.31	49,600	2.76	42	48	60
13	Cleveland Ave / SR 3 @ E 5th Ave	Columbus	95		1	11	14	69	2.61	25,700	3.38	36	31	28
14	Karl Rd @ Morse Rd	Columbus	128		2	14	10	102	2.52	46,400	2.52	43	41	44
15	Feder Rd / Fisher Rd @ Hilliard Rome Rd	Columbus	101		2	11	18	70	3.04	46,100	2.00	23	33	45
16	Cleveland Ave @ Oakland Park	Columbus	81		1	16	12	52	3.16	28,800	2.57	31	22	28
17	Gender Rd / SR 674 @ Winchester Pike	Columbus	74		4	10	12	48	4.44	26,200	2.58	27	24	23
18	Hilliard Rome Rd @ Roberts Rd	Columbus	87		2	14	11	60	3.28	39,000	2.04	16	28	43
19	Gender Rd @ Refugee Rd	Columbus	161			14	19	128	1.94	35,900	4.10	51	56	54
20	Georgesville Rd @ W Broad St / US 40	ODOT	99			11	24	64	2.53	35,200	2.57	35	39	25

TABLE 4.2

Top 40 Regional High-Crash Locations, continued

Rank	Location	Jurisdiction	Total Crashes (Freq.)	Crash Severity					Severity (EPDO)	Average Daily Traffic (ADT)	Crash Rate (MEV)	Annual Crashes		
				Fatal	Serious Injury	Visible Injury	Possible Injury	No Injury				2012	2013	2014
21	James Rd @ Livingston Ave	Columbus	81		3	9	12	57	3.60	35,900	2.06	25	21	35
22	E Broad St / SR 16 @ Hamilton Rd / SR 317	Whitehall	97	1		11	21	64	2.84	42,200	2.10	22	31	44
23	Morse Rd @ Sunbury Rd	Columbus	99		3	10	13	73	3.22	52,300	1.73	38	29	32
24	E Main St / US 40 @ McNaughten Rd	Columbus	127			18	20	89	2.40	52,200	2.22	37	39	51
25	Cleveland Ave @ Innis Rd	Franklin County	81		1	11	17	52	3.03	29,700	2.49	28	23	30
26	E Main St / US 40 @ S James Rd	Columbus	96		1	14	10	71	2.63	39,700	2.21	33	32	31
27	N Hague Ave @ W Broad St / US 40	Columbus	80		2	6	10	62	2.85	26,100	2.80	31	26	23
28	S Murray Hill Rd @ W Broad St / US 40	ODOT	103			13	19	71	2.41	42,300	2.22	29	32	42
29	Hayden Rd @ Riverside Dr / US 33	ODOT	107		2	13	15	77	2.93	57,100	1.71	42	33	32
30	Hamilton Rd / SR 317 @ Refugee Rd	Columbus	102		2	7	15	78	2.68	47,800	1.95	31	36	35
31	E Fulton St @ S 4th St / US 23	Columbus	106		1	6	10	89	2.03	25,200	3.84	29	33	44
32	E Broad St / SR 16 @ Rosehill Rd	Columbus	86		2	9	11	64	2.96	38,200	2.06	27	36	23
33	Chatterton Rd / Refugee Rd @ Noe -Bixby Rd	Franklin County	98			12	13	73	2.20	27,000	3.31	31	33	34
34	High St @ Lane Ave	Columbus	80		3	7	5	65	3.17	35,400	2.06	34	22	24
35	Barnett Rd @ Livingston Ave	Columbus	69		1	16	10	42	3.43	24,700	2.55	24	23	22
36	E Main St / US 40 @ Hamilton Rd / SR 317	Whitehall	90		1	8	16	65	2.59	37,500	2.19	29	27	34
37	Morse Rd @ Westerville Rd / SR 3	Columbus	128		2	11	7	108	2.30	57,900	2.02	39	42	47
38	Morse Rd @ Stelzer Rd	Columbus	124		2	9	19	94	2.60	64,600	1.75	50	35	39
39	E Mound St @ S 3rd St	Columbus	82		1	9	10	62	2.55	27,600	2.71	22	22	38
40	Alum Creek Dr @ E Livingston Ave / US 33	Columbus	98		2	7	8	81	2.49	42,600	2.10	26	40	32
Total (all sites combined)			**4,430**	**4**	**75**	**498**	**608**	**3,245**	**2.88**	**1.6M**	**2.58**	**1,415**	**1,427**	**1,588**



The information shown on this map is compiled from various sources made available to us which we believe to be reliable.
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FIGURE 4.5

Top 40 Regional High-Crash Locations

Columbus Area Pedestrian Safety Committee

The Columbus Area Pedestrian Safety Committee is part of the Franklin County Safe Communities program. The objective of the committee is to plan and implement pedestrian safety interventions as outlined in the Safe Communities grant and address local safety issues. The Columbus Area Pedestrian Safety Committee (CAPS) is a coalition working toward making Columbus a more pedestrian-friendly city for children and adults.

Safety Projects & Studies

MORPC continues to work with local jurisdictions to help secure the resources and expertise needed to address the safety issues with which they are confronted. This includes assistance with safety funding applications, project-level crash data analysis, before-and-after analyses, and evaluation of effective countermeasures. Specially, MORPC offers direct technical assistance on safety planning projects and fulfills requests for crash data and analysis. The evaluation techniques used reflect those currently used at the state level, with an increased reliance on the predictive methodologies contained within the Highway Safety Manual (HSM).

3. Advance initiatives that address high-risk drivers and behaviors.

MORPC also engages in various efforts to encourage safe behavior. Through these activities, MORPC recognizes that safety is a complex problem; the region must address safety on many levels, not just engineering.

Ongoing Regional Safety Education

Throughout the year, MORPC coordinates with the Ohio Department of Public Safety (ODPS) on the promotion of national safety initiatives within the MPO area. MORPC also supports regional/state safety campaigns on local issues through in-kind contributions and technical assistance. Finally, MORPC will promote national best practices and professional development opportunities occurring within Central Ohio such as LTAP and webinars.

Progressive Safety Legislation

MORPC works with policy makers at the federal, state, and local levels to ensure an understanding of the safety implications of adopting, or not adopting, specific pieces of transportation legislation. This will entail continued legislative tracking of key transportation legislation.

Franklin County Fatality Review Board

The Franklin County Fatality Review Board meets once per month to review all fatal crashes that occur in the county. Stakeholders, among other purposes, provide an opportunity for law enforcement, engineers, planners and educators to better understand fatal crashes and develop countermeasures, as well as make suggestions for crash reporting improvements.

4. Expand bicycle and pedestrian networks through the implementation of complete streets and multi-use path connections.

While the strategies discussed above deal with safety directly, another effective strategy is to promote the use of alternatives to motorized travel. Greater use of alternative modes along with other strategies that reduce motorized travel would reduce the overall amount of vehicle miles traveled. This, in turn, would result in fewer crashes and fatalities. Chapter 6 includes many activities that further this strategy. Chapter 5 focuses on all opportunities to reduce single-occupancy vehicle travel.

4.4 Transportation Security

Security planning involves monitoring the transportation system to ensure against infrastructure failures. It also requires preparation to deal with situations where the roadway network could fail. Commerce and quality of life in communities require functioning regional transportation networks. During emergencies, these networks allow first responders to reach the event site and to stage and manage their operations. Regional transportation agencies support traffic control, damage assessments and the restoration of critical services. Effective public safety objectives for these agencies range from alternate routing around an incident scene, to evacuations, to long-term mode shifts during recovery.

BACKGROUND

Central Ohio is home to various threats, such as floods, tornadoes, dam failures, severe thunderstorms and winter storms. This list of threats for which the region must prepare now includes terrorism. The unexpected and complex nature of these natural and human-caused incidents requires extensive coordination, collaboration and flexibility among all the agencies and organizations involved in the planning, mitigation, response and recovery.

Regional cooperation and coordination are essential to security and emergency preparedness. No significant event is truly local, as political boundaries are permeable and local critical infrastructure may serve the entire region. No jurisdiction stands alone. The high-risk, well-resourced municipality may be as dependent on a smaller jurisdiction for support in an emergency as the smaller jurisdiction is on the larger ones. The complexity of the region, with a range of potential events, presents significant challenges to coordinating and implementing effective homeland security programs.

MORPC'S SECURITY PROGRAM

MORPC has no direct role in responding to emergencies. MORPC has federally mandated transportation planning functions, which it should maintain despite the results of a natural or human-created event. Various other organizations carry the primary responsibility for security planning and response. MORPC's role must enhance security planning and activities already in place. To do so, MORPC helps the region coordinate planning in preparation for and anticipation of potential future incidents. It plays a similar role helping to coordinate public information dissemination strategies.

MORPC works with leaders in the Central Ohio region to increase the security of the transportation system for motorized and non-motorized users through initiatives that reduce or eliminate system deficiencies and enhance the integration and connectivity of the transportation system for the purposes of safety, security, and emergency evacuation.

MORPC can serve as a forum for cooperative decision-making outside the imme-

Top Ranked Threats and Hazards

1. Tornadoes
2. Dam Failure
3. Flooding
4. WMD Terrorist Incident
5. Cyber-Terrorism
6. Infectious Disease
7. Severe Winter Weather
8. Hazardous Material Incident
9. Transportation Accident—Aircraft
10. Severe Summer Weather
11. Utility Interruptions or Failures
12. Civil Disturbance
13. Lone-Wolf Terrorist
14. Air and Water Pollution/Contamination
15. Extreme Heat
16. Drought
17. Invasive Species
18. Earthquakes

diate urgency of emergencies. MORPC can help fund regional transportation strategies and projects related to security. MORPC has capabilities in technical analysis of the transportation network that can play a critical role in emergency preparedness and security planning.

For example, MORPC works with county emergency management agencies (EMAs), such as Franklin County Emergency Management and Homeland Security (FCEM&HS). MORPC participated recently as FCEM&HS updated the *Risk Assessment for Franklin County.* MORPC participates in a variety of other councils and committees on issues related to security and the transportation system.

SECURITY STRATEGIES AND PROJECTS

Recommendations presented throughout the MTP may help improve transportation security. MORPC and security partners will continue to implement the following strategies and projects.

1. Promote and strengthen security and emergency preparedness efforts

Homeland Security Advisory Council

The director of ODPS convenes the Homeland Security Advisory Council (HSAC) to discuss security issues with a variety of state agencies and first responders. MORPC represents the Ohio Association of Regional Councils (OARC).

Chemical Emergency Preparedness Advisory Council

The Chemical Emergency Preparedness Advisory Council (CEPAC) serves as the official local emergency planning committee (LEPC) for Franklin County.

Franklin County Emergency Management and Homeland Security (FCEM&HS)

Franklin County Emergency Management & Homeland Security coordinates and prepares for county-wide all-hazards disaster planning, community education, warning, training, grant funding, response, and recovery efforts in order to prepare and protect the citizens of Franklin County before, during, and after natural and man-made disasters.

Natural Hazards Mitigation

FCEM&HS updated the *Franklin County Natural Hazards Mitigation Plan* in 2012. This plan guides the mitigation actions communities in the region take to reduce or eliminate the impact of natural hazards. This plan is federally mandated. It allows Franklin County to receive federal funding for mitigation projects. MORPC participated in the update with multiple agencies and jurisdictions and will assist as necessary with ongoing implementation.

Strategic Highway Network

The Strategic Highway Network (STRAHNET) routes within the MORPC region are essential to accommodate the movement of military supplies and personnel in times of national emergency. STRAHNET routes include the National Interstate System, as well as key non-interstate routes, such as connectors to ports and military installations. MORPC, through its planning processes, identifies the operation and maintenance needs of the interstate and state highway systems within the MPO area, including STRAHNET.

Automated Critical Asset Management System

The Ohio Department of Public Safety (ODPS) Homeland Security Division maintains the state Constellation/Automated Critical Asset Management System (ACAMS). ACAMS is a web-based system of tools, resources and related training to assist in protecting critical infrastructure and key resources. MORPC continues to work with stakeholders to inventory critical facilities in and elements of the transportation system (e.g., transit system, rails, airports, Interstate system, National Highway System routes, etc.).

Regional, State and National Security Efforts

MORPC will continue to monitor state and federal legislation for its impact on Central Ohio's transportation security efforts. In addition to these efforts, MORPC will continue to participate in regional groups as appropriate, such as Meta-Leadership, Citizen Corps, and Metropolitan Medical Response System.

2. Broaden the transportation system managed in a coordinated manner.

Intelligent Transportation Systems

The region will continue to deploy ITS technologies that enhance transportation security, such as the dynamic message signs that share important information about incidents to roadway users (as shown in Figure 4.3). MORPC will promote the use of ITS for transportation security. The Regional ITS Architecture will help integrate emergency preparedness components into ITS projects. See Section 4.2 for more information on ITS.

ODOT Statewide Traffic Management Center (TMC)

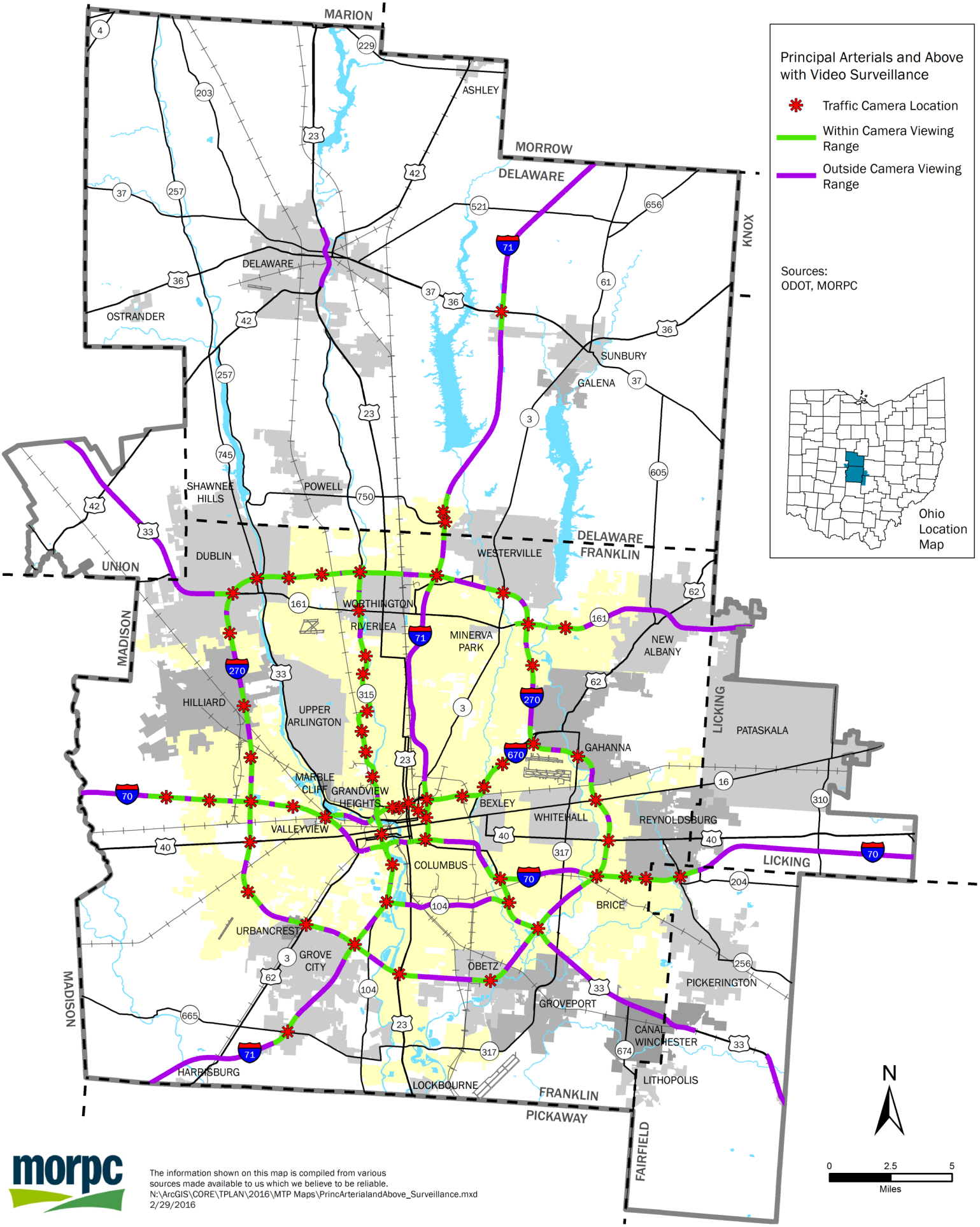
Also described in Section 4.2, the ODOT Statewide TMC operates traffic management and traveler information system on Ohio's interstates, freeways, expressways, and state highways. The TMC has dedicated operators who monitor traffic in each major metropolitan area across the state. The operators can control cameras, post messages to DMS, HAR, and the Buckeye Traffic website, etc. The operators are monitoring more than 500 traffic cameras around the state in all the major metro areas and also a couple in the more rural areas. The MTP sets a target for 90% of functionally classified arterials and above to be under video surveillance by 2040. Figure 4.7 shows the 18% of arterials and above that are currently monitored by video surveillance.

MEASURABLE OBJECTIVE

The MTP sets a target for 90% of functionally classified arterials and above to be under video surveillance by 2040.

Transit Operations Video Surveillance

Video surveillance on transit vehicles and at transit stops or stations creates a safer environment for transit users. For the safety and security of employees and customers, the Central Ohio Transit Authority utilizes video surveillance equipment on all of its fixed-route buses and facilities. The Delaware Area Transit Agency does not currently employ video surveillance on any of its vehicles or facilities. The MTP sets a target for 100% of transit vehicles and facilities to have surveillance capabilities by 2040.



The information shown on this map is compiled from various sources made available to us which we believe to be reliable.
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FIGURE 4.7

Video Surveillance of the Roadway System

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Chapter 5:
Demand Management

Limited funding for expanded highways, unstable fuel prices, increased congestion, and concern for our air quality emphasize the need for reducing driving alone. For many years now, transportation demand management (TDM) strategies have shown effectiveness in reducing traffic congestion and environmental pollution caused by motor vehicles.

This chapter focuses on managing transportation demand by advancing alternatives to using one's personal vehicle to make a trip alone. The TDM strategies and projects focus on the opportunities to rideshare, use transit, bike, or walk to meet some of the travel needs of the region. Alternatives that reduce travel demand also include telecommuting and alternate work schedules that compress the work week or allow for commuting at non-peak hours.

5.1 Demand Management

TDM refers to a myriad of programs and strategies that encourage more efficient use of existing transportation infrastructure by reducing the amount of vehicle miles traveled (VMT) on the system. As the name implies, TDM aims to reduce the demand side of congestion (i.e., reducing the number of people commuting alone in private vehicles) rather than expanding the supply side (i.e., costly infrastructure). By reducing the number of people commuting alone in private vehicles, benefits such as the following can be achieved.

- Reduced roadway congestion
- Reduced commuting and travel costs
- Reduced energy use and greenhouse gas emissions
- Improved air quality
- Improved public health

MEASURABLE OBJECTIVE

The MTP targets a 7% reduction in commuters driving alone, from 82% to 75% by 2040.

THE CASE FOR TDM

The Central Ohio region finds itself in a unique predicament as it pertains to commuting trends and congestion rates. Land use policies that encourage low-density development have caused decades of sprawling suburban and exurban growth. This growth has fueled the need for substantial roadway investments that provide the Columbus area with a large network of streets, arterials, and highways to help shorten commute times throughout the region. However, heavy dependence upon the automobile, coupled with significant growth projections, will likely lead to an abundance of major congestion issues if TDM measures are not implemented simultaneously with this expected growth.

TDM ACTIVITIES

MORPC updated the *Transportation Demand Management Strategic Plan* in 2015. This internal document will guide the Transportation Demand Management (TDM) activities of MORPC. It is one of the many occurrences where MORPC has been engaged in providing a fully multi-modal transportation system in Central Ohio.

MEASURABLE OBJECTIVE

The MTP targets a 30% reduction in VMT per capita from 9,700 to 6,800 by 2040.

The intent of the TDM Strategic Plan is to deliver a strategy for accomplishing predetermined TDM-related goals identified in the MTP and analyze the effectiveness of MORPC's current TDM actions. The strategies and actions developed in this plan are meant to help MORPC implement TDM throughout the region. MORPC's *RideSolutions* program currently coordinates TDM activities in the region.

The primary focus of RideSolutions is maintaining and administering ridematching services for Central Ohio commuters. Commuters may call in or search online for other commuters who live and work in similar locations and commute at similar times. Through this matching service, RideSolutions accomplishes the TDM mission by forming carpools or vanpools of two or more riders, thus reducing the

TABLE 5.1

RideSolutions Vanpool Program Impact

Impact	2013	2014
Vehicle Miles Traveled (VMT)	689,035	677,821
Passenger Miles	4,159,668	4,146,900
VMT Savings	3,470,633	unavailable

number of vehicles on Central Ohio roads. Table 5.1 summarizes the impact of the vanpool program. The service has mostly been advertised at local events such as job fairs or with individual employers, and has also been promoted through a PSA partnership with the Air Quality team.

While ridesharing is the predominant function of the RideSolutions program, other modes of transportation are also supported such as transit, biking, walking, or telecommuting. Interested commuters may seek guidance from RideSolutions in finding a safe biking route, determining which bus to take, or by matching with a bike/walk buddy of similar commute interests.

TDM STRATEGIES & PROJECTS

The TDM Strategic Plan suggests taking the following actions to execute the MTP strategies focused on reducing vehicular demand on the roadway.

1. Create travel demand management (TDM) partnerships among the facilitators and providers of alternative modes of transportation, community leaders, and institutions that make up high-density trip generating districts.

Promote Coordination among Local TDM Agencies

The scope of TDM services varies widely and requires buy-in from a variety of local agencies if they wish to be an effective means of reducing congestion. Doing so will require a unified front that exists both at the state and regional levels. Effective local implementation will be enhanced by partnering with other agencies in Central Ohio that promote a TDM service, such as Yay Bikes, COTA, and DATABus. Partnerships such as these and catalytic stakeholders like the Columbus Mayor's Green Team will aid in the creation of a regional umbrella for organizations that wish to promote the advancement of TDM within the Central Ohio region. This "TDM Consortium" will offer frequent coordination among participating agencies in order to create a framework that will best utilize the complimentary TDM services currently existing throughout the region. This consortium will be a hub of discussion and research that will help expand upon current TDM activities by exploring new policies and TDM implementation techniques.

Promote Coordination among Statewide Rideshare MPOs

From a statewide perspective, MORPC is working toward a united multi-regional rideshare service that will be implemented at the local level. This includes working with other MPOs such as OKI, TMACOG, MVRPC, Eastgate, NOACA, and AMATS to create a statewide partnership when delivering TDM services. Coordinating ridesharing efforts among MPOs will be a more efficient method of spending funds.

Rideshare Service Area Review

As it currently stands, several counties in Central Ohio do not have official Memoranda of Understanding with MORPC regarding the rideshare service area. Seeing as this area helps distinguish the different geographies as they relate to NTD reporting, taking action to formalize MORPC's rideshare service area should be a top priority. This area can then be reviewed on a yearly basis and updated on an as-needed basis.

RideSolutions: Total Program Participation (2012-2015)

- 5,982 commuters added to the database
- 8,296 carpool match-list requests
- 66.9% success rate in identifying a carpool match
- 1,050 commuters signed up for Guaranteed Ride Home (GRH) Program
- 83 approved GRH requests

2. Improve marketing of regional travel demand management (TDM) programs to increase use of transit, ride-share, bicycling, and walking.

Marketing & Outreach

A new RideSolutions Marketing Strategy is being developed that will include collecting data and performing analysis that will evaluate the effectiveness of suggested marketing techniques. Utilizing a newly developed *Marketing Tracking Database*, track the effectiveness of certain outreach events and coordination efforts. The data gathered will then contribute to the development of a new, combined marketing strategy with MORPC's Air Quality Program. A combined marketing strategy will allow for expanded budgets, enhanced programming & messaging, and opportunities to develop a greater base of TDM partners.

In addition to exploring the proper marketing balance, determining effective outreach techniques is another key issue that will be addressed in the Marketing Strategy. RideSolutions will continue to investigate Best Practices and will continue to incorporate them into future Marketing Strategies.

In addition to the new Marketing Strategy, RideSolutions is to undergo brand evaluation. The main impact of rebranding will allow the rideshare team to broaden the scope of TDM services that RideSolutions advertises, and may end up being a branch of a statewide rideshare re-brand. Timing of the brand evaluation should coordinate with the launch of the new RideshareOhio website. The feasibility and plausibility of rebranding will hinge largely upon the interest of MORPC's rideshare-MPO partners.

3. Improve employee and customer access to businesses through infrastructure and outreach.

Explore Funding Opportunities to Engage in Comprehensive TDM activities.

RideSolutions funding - predominantly CMAQ dollars - funds only projects associated with ridesharing, such as carpooling and vanpooling. These are the two main pillars of RideSolutions' current outreach. Expanding into transit, active transportation and land use components of TDM will potentially require more broad funding opportunities. In particular, land use regulations oftentimes inadvertently prohibit the use of alternative transit. Wide roads may deter commuters from walking and biking, while low-density developments make transit an infeasible option. Using appropriate funds to impact land use policy or zoning code (Action 7) may inherently improve alternative transit options across the region.

Policy Research & Planning Integration

Policy research pairs well with the need to integrate TDM into various plans throughout the region. One of the most effective ways to integrate TDM with local plans is simply through communication. MORPC is an effective communications hub between local governments. One of MORPC's services is educating its member governments about policy and legislation that impact the region. Finding ways to incorporate TDM into the policy discussion could be an effective approach in developing a relevant regional message. When appropriate, incorporating TDM strategies into local planning efforts can be used, such as influencing parking requirements, land use recommendations, and promoting MORPC's Complete Streets policy.

Chapter 6:
System Development

While Chapters 4 and 5 describe system maintenance and management activities and strategies, the expected growth and development of the region as described in Chapter 2 makes system expansion necessary

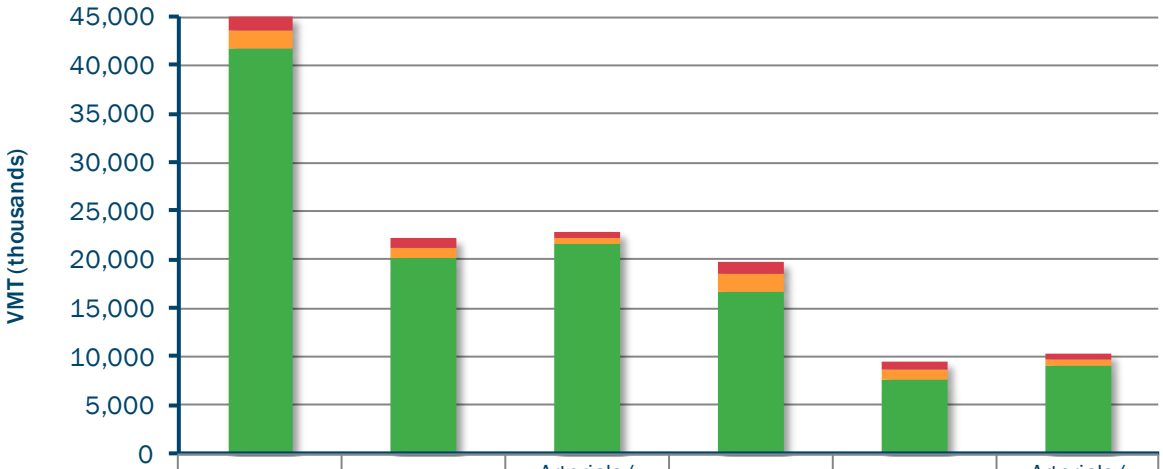
This chapter summarizes the system expansion, or development activities and strategies identified in the MTP for each mode. System development includes adding capacity to the roadway system, expansion of transit services, constructing bicycle and pedestrian facilities, and enhancing intermodal connections. Within each modal system the individual MTP strategies and projects are outlined.

6.1 Roadway System

As described in Chapter 3, one operational measure of how the roadway system functions is vehicle miles traveled (VMT) under congested conditions. Due to the growing travel demand resulting from the growth described in Chapter 2, it will be increasingly challenging to maintain VMT under congested conditions to no more than 5% daily and 10% during peak periods. In addition to the management strategies described in Chapter 5, it is also necessary to identify roadway capacity expansion projects to accommodate the additional travel demand. Figures 6.1 and 6.2 show expected congestion levels in 2040, should none of the projects described later in this chapter be implemented and travel behavior remains the same.

The roadway system is the primary component of the transportation system in Central Ohio. Because nearly all of the transportation systems described later in this chapter require access to the roadway system in order to function, MORPC's approach when identifying roadway expansion projects is to assume that the appropriate bicycle and pedestrian facilities will be included in all new roadway, roadway widening, or intersection projects. This is consistent with MORPC's Complete Streets Policy and complete street policies being adopted by communities throughout the region.

MORPC's approach when identifying roadway expansion projects is to assume that the appropriate bicycle and pedestrian facilities will be included in all new roadway, roadway widening, or intersection projects.



	Total (24hr)	Freeway (24hr)	Arterials/ Collectors (24hr)	Total (Peak)	Freeway (Peak)	Arterials/ Collectors (Peak)
Severe	1,417	862	554	1,292	784	508
Moderate	1,862	1,137	725	1,719	1,073	646
Uncongested	41,666	20,124	21,542	16,722	7,601	9,120

FIGURE 6.1

VMT by Congestion Level, 2040

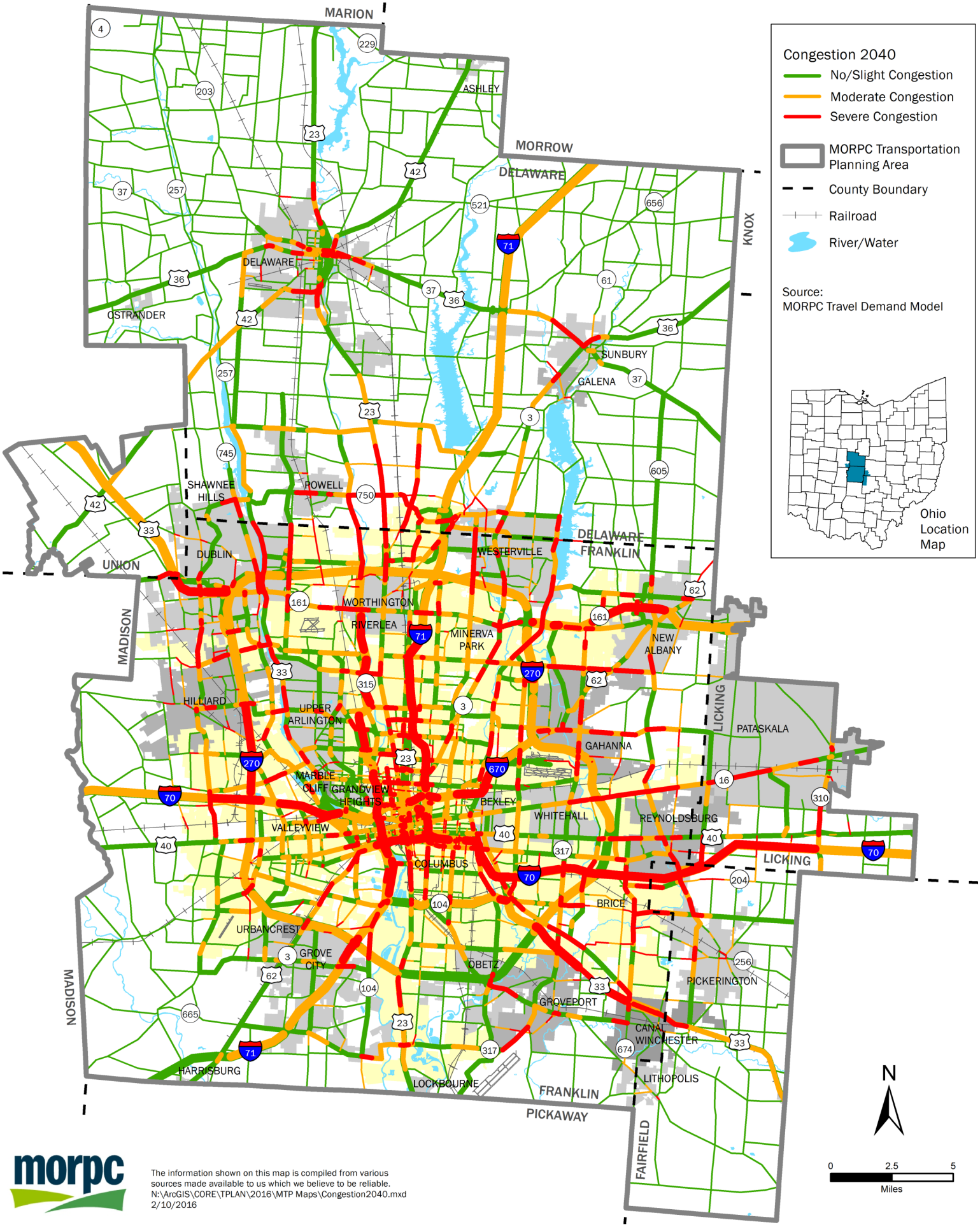


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FIGURE 6.2

Congestion Levels, 2040

ROADWAY STRATEGIES AND PROJECTS

Recommendations presented throughout the MTP will help improve conditions on the roadway system. For instance, strategies and projects that will address travel demand will also improve roadway congestion levels. One can make the same connection for any strategies and projects that improve alternative modes of transportation. However, the following strategies and projects specifically address roadway system development.

All project references in this section remain general. Detailed information on specific projects can be found in Chapter 8. While these relate primarily relate expanding the roadway system, Chapter 4 addresses the importance of maintaining and managing the existing system.

1. Alleviate existing or anticipated congestion.

The illustrations on the following pages provide examples of what the different projects types identified in this MTP might accomplish. The project types represented here are:

- Minor widening and safety improvements of surface roadway
- Major widening of surface roadway
- Intersection improvements
- Access management of roadways
- Removal or width reduction of automobile travel lanes to accommodate other modes
- Major widening of freeways
- New interchanges
- Interchange modifications

2. Collaborate on a selection process that advances short-term project priorities through the Transportation Improvement Program (TIP).

MORPC maintains an Attributable Funding Committee that helps decide what transportation projects receive MORPC's federal funding in the short-term. The committee will derive decision criteria for the next rounds of funding from the MTP. Additionally, MORPC monitors local capital improvement plans (CIPs) as well as ODOT's plans to ensure the TIP reflects all short-term project priorities.

Minor Widening and Safety Improvements of Surface Roadways

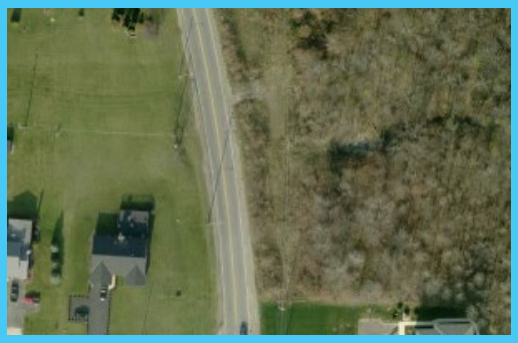
Addition of a center median and/or center turn lane or widening existing travel lanes to standard width.

BEFORE

AFTER

Major Widening of Surface Roadways

Addition of a travel lane



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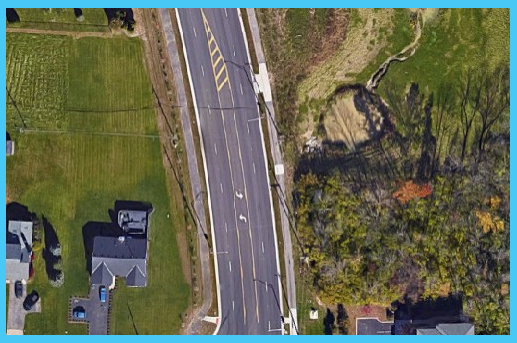
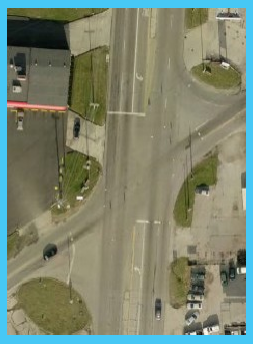


AFTER

Intersection Improvements

Addition of turn lanes or other reconfiguration such as a round-about.



BEFORE

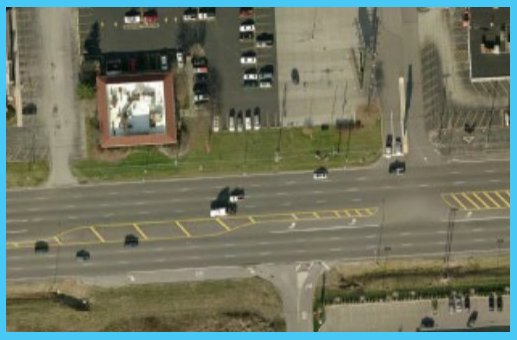
AFTER

BEFORE

AFTER

Access Management of Roadways

Limiting access points to and from a roadway by consolidating drive-ways and/or limiting turning movement options.



BEFORE

AFTER

Removal of or Width Reduction of Travel Lanes to Accommodate Other Modes

BEFORE

AFTER

Major Widening of Freeways

Addition of travel lanes.

BEFORE

AFTER

New Interchange

Adding a grade-separated interchange where an at-grade intersection or no intersection existed previously.

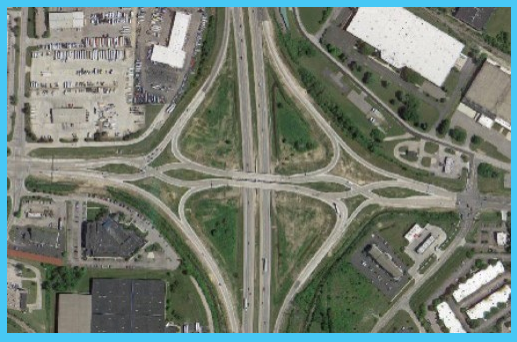
BEFORE

AFTER

Interchange Modification

Modification of existing interchange to improve operations and accommodate additional capacity, widen an overpass, and/or modify ramp intersections.

BEFORE



AFTER

6.2 Transit Systems

The growth of the region cannot be accommodated by expansion of the highway system alone. As the costs of automobile ownership, fuel and congestion continue to grow, there is a need to provide alternative means of transportation to sustain the social and economic well-being of Central Ohio. Investment in new and expanded transit services can ease growing congestion while reducing harmful emissions and providing an equitable transportation system.

TRANSIT STRATEGIES AND PROJECTS

The regional transit service providers and their planning partners are actively working to improve transit services in Central Ohio. Specific improvements to local and express bus service are not listed in this MTP due to the frequent changes made by the service providers, however the financial plan does include funds for these types of improvements. Additionally, the following activities and strategies demonstrate other regional efforts to move transit forward.

1. Improve fixed route and demand response transit service.

COTA Transit System Redesign (TSR)

COTA's bus network has kept up with past growth through incremental changes to the radial system centered on Downtown Columbus.

The TSR was developed through a comprehensive review of the existing bus system. This modernization plan is aimed at crafting a system that better serves COTA's customers and stakeholders, while remaining within COTA's current and projected funding limits. Benefits include:

- Simpler, easy to understand alignments
- More direct service with straighter routes and fewer deviations
- More frequent service
- More consistent, easy to remember schedules, 7 days a week
- New connections to major destinations and employment centers
- More cross-town service to provide transfer points outside of Downtown
- Less congestion on High Street in Downtown
- Serving more residents and jobs overall
- 11% increase in service hours between 2016 and 2019

Planning partners are actively working to improve transit services in Central Ohio.

Bus On Shoulder Program (BOS)

COTA began operating express buses on freeway shoulders in 2006. Buses traveling on I-70 between downtown Columbus and SR 256 east of Downtown are able to merge onto the freeway shoulder to avoid congestion delays. Buses may use the shoulder when traffic speeds drop below 35 mph, and buses may not exceed traffic speeds by more than 15 mph.

Utilized under bus operator discretion, the I-70 BOS project has resulted in reduced travel times and improved schedule adherence for the express routes using this freeway. The region will continue to implement BOS where appropriate. In 2015, COTA, ODOT, and MORPC partnered and implemented the region's second BOS corridor – I-670 between downtown Columbus and I-270 east of Downtown. While the first corridor along I-70 utilizes the outside (or right) berm, the I-670 corridor utilizes the inside, or left shoulder, similar to Cincinnati's I-71 BOS corridor. To date, coordination continues with state and local police agencies following installation of freeway marker signs and training of COTA operators.

DATABus

The challenge for DATABus is to determine how to best serve the entire county with limited operating funds in the future. The idea of providing this service through demand-response is the most logical way to proceed, but the service needs to be affordable for the passengers so the service will need to be subsidized.

DATABus will continue to explore opportunities to provide this expanded service through grants and potential other local funding sources. In addition, DATABus will continue to monitor the growth and need in the county and will continue to modify its services to best meet the needs and desires of the county.

2. Improve connections and coordination among transit system operators and other modes of transportation.

ODOT Statewide Transit Needs Study

As the demand for public transit increases and budgets shrink, the Ohio Department of Transportation has developed recommendations to bring the most efficient and cost-effective improvements to transit riders and taxpayers alike.

Travel trends show that there is a definite rise in the need for convenient, affordable public transportation to jobs, medical appointments, shopping and recreational activities. Ohio transit agencies are struggling to fund this existing service, let alone meet the increased demand.

As of January 2015, ODOT's transit spending per capita at $0.63 ranks among the lowest in the nation at 38th out of 51. The study identified nine strategies to meet needs and better position the state to strengthen services overall.

Transit Tech Ohio

ODOT received a $6.8 million TIGER VII Discretionary Grant to help rural transit agencies purchase hardware, software and improve broadband access that will allow them to schedule and dispatch transit vehicles. Vehicles will be equipped with GPS, automatic vehicle location systems, tablets, and mobile data terminals. These upgrades will promote the ability for multiple agencies to share services. In MOPRC's planning area the Lancaster Public Transit System will benefit from this grant.

Regional Coordination Meetings

MORPC hosts a monthly coordination meeting with COTA and DATABus to develop a better understanding of common issues, ideas and planning needs.

These meetings have been helpful to DATABus as it transitions into a large urban area.

5310 Apportionment

Due to MAP-21 provisions, during FFY 2015, Columbus began receiving apportionments to administer Section 5310 funds. MORPC was declared a Designated Recipient on October 9, 2014. Under the FASTAct MORPC will continue to administer this program according to its FTA-approved Program Management Plan.

Workforce Mobility

There are a growing number of employment centers in Central Ohio outside of Downtown Columbus. In an effort to connect inner-city residents to suburban job opportunities, COTA offers several reverse-commute express lines that travel from Downtown Columbus to outlying areas. Because these lines often end at transit centers or Park & Rides, they do not directly connect employees to their job sites. In an effort to address this gap in "last-mile" service, COTA has partnered with local municipalities, employers, and MORPC to offer shuttle service from COTA facilities to employment centers. In 2014, COTA partnered with the City of New Albany to launch the SmartRide shuttle. Funded by New Albany, the service connects COTA's New Albany Park & Ride to all employers in the New Albany International Business Park, which boasts more than 12,000 jobs.

In 2015, MORPC and COTA partnered with the City of Groveport to launch the GREAT shuttle service funded by Groveport with additional assistance from the Village of Obetz. This service provides safe last-mile trips in the Rickenbacker area to over 34 large employer job sites in a low-density industrial area of Franklin County without safe pedestrian or bicycle infrastructure.

The shuttle service is free for employees. This service is being provided with the working goal for the employers to contribute. DATABus has identified not being able to connect people to job sites as an issue to address.

Technology and Safety

COTA will complete the implementation of an updated ITS system including dynamic message signs at key high ridership stops, park and rides, transit centers, and selected shelters that provide riders of fixed-route and paratransit with next bus arrival information via web-enabled mobile technologies such as smart phones, and tablets.

Park-and-Rides, Bicycle Racks, and Sidewalk Connections

COTA's *NextGen Plan,* described in Strategy 4 of this section, will identify potential future strategic investments, including the expansion of, improvement to, and addition of park-and-ride locations and transit centers to support potential improvements to transit services. Such investments help make the transfer out of personal automobiles to transit more attractive and convenient.

Both COTA and DATABus have bike racks mounted on the front of their fixed-route vehicles, enabling bicyclists to complete a part of their trips with transit. Lancaster Public Transit System plans to add this capacity within the next few years. This bike-bus combination helps transit riders when their origin or destination remains far from a transit stop. Where suitable, COTA continuously seeks to

add other bicycle amenities, such as racks, near transit stops to improve modal connection. COTA also participates in any updates to MORPC's Columbus Metro Bike map with park-and-ride and other route information.

COTA's plans also include the improvement of sidewalk connections that improve accessibility to passenger shelters and stops. The *Franklin County Coordinated Plan* also identifies these sidewalk deficiencies as a barrier to fixed-route transit, especially for the elderly and persons with disabilities. In response, COTA's Mobility Advisory Board convenes a subcommittee that advocates for sidewalk improvements, and funds limited improvements through FTA Section 5310, Enhancing the Mobility of Seniors and Persons with Disabilities. MORPC's Complete Streets Policy also encourages and, in some cases, requires the completion of such connections to transit.

COTA, MORPC RideSolutions, CoGo (bikeshare), car2go (carshare) and YayBikes!, a bike education and advocacy group, will continue to work together to educate employees and employers about using transit or rideshare and the other support options available for getting around downtown Columbus. This group has conducted education sessions and attended information events.

COTA and DATABus were involved in the development and will continue to be part of MORPC's Active Transportation Plan (ATP), described in Section 6.3. The ATP is a coordinated effort across the MPO to create interaction and integration of pedestrian, bicycle and transit facilities within the regional transportation network.

3. Improve human services transportation, and coordination with public transit.

MORPC will be combining and updating the locally developed Coordinated Public Transit Human Services Transportation Plans for Delaware and Franklin counties to match the MPO planning area. As required by FTA Section 5310 funding to enhance the mobility of seniors and persons with disabilities, any program or projects selected must be included in the Coordinated Plan.

Since FFY 2013, MORPC has grown in the role of being a designated recipient for FTA Section 5310 funds. Going forward MORPC will have more connection and contact with recipients to work toward more coordination efforts. To date and going forward, public transit, private operator, and private non-profit projects have been selected.

COTA, DATABus, LPTS and LCTB participate in or host the coordinating councils or boards for their counties. Such forums provide an opportunity to identify, maintain and expand human services and public transit coordination. Each seeks to implement its county's coordinated plan.

DATABus, LPTS and LCTB continue to contract with human services agencies to provide transportation for human service agency clients. Such coordination eliminates potentially overlapping service and provides the transit agencies an additional source of revenue to maintain and operate their fleets.

4. Support efforts to introduce fixed-guideway transit service.

CMAX Bus Rapid Transit

The Central Ohio Transit Authority (COTA) has conducted design, engineering and environmental clearance for the proposed Cleveland Avenue Bus Rapid Transit (BRT)/Enhanced Bus Service Project, the CMAX. During project development, the proposed project received environmental review approval from the FTA on July 25, 2014, indicating no significant impacts anticipated for the project. The CMAX BRT is expected to begin in January 2018.

CMAX will transport riders between Downtown Columbus and Polaris Parkway/ Africa Road, connecting them with major destinations and transit services. The new service will complement Local Line 1 Cleveland Avenue – COTA's second busiest line – and stop at 64 designated platforms in both directions along the corridor. CMAX will operate on High Street in dedicated bus lanes during rush hours in downtown Columbus; traffic signals will be coordinated to provide priority for CMAX buses between Fort Hayes and SR 161, reducing travel times.

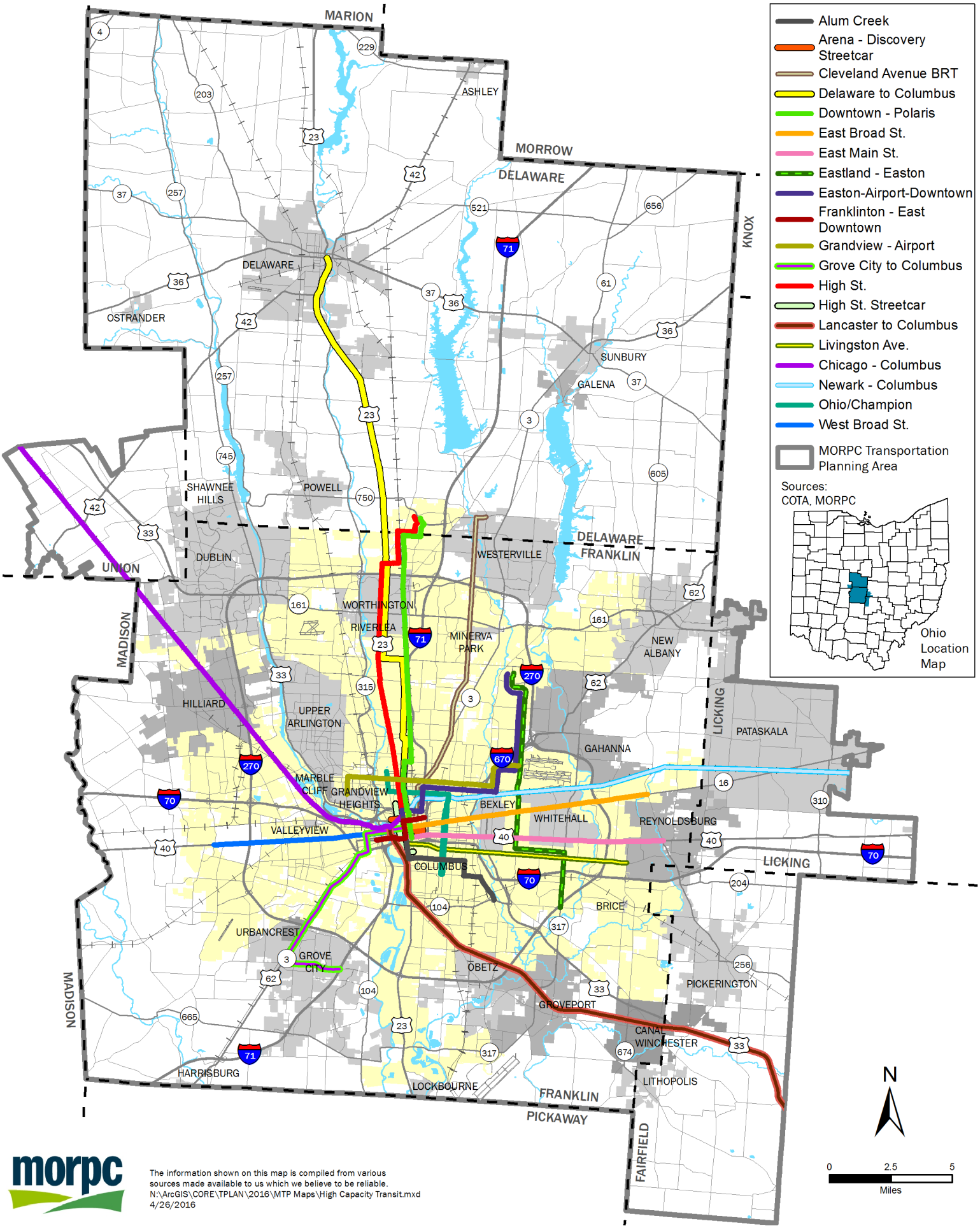
The CMAX service includes weekday 10-minute service frequency during peak hours and 15-minute service frequency during off-peak hours between downtown Columbus and SR 161, and 30-minute service frequency on weekends. This provides approximately 21 percent travel time savings with estimated 35-39 minute trip times between Downtown and SR 161, and 48-56 minutes between Downtown and Polaris Parkway/Africa Road. Service will operate seven days a week.

COTA NextGen Initiatives

As the primary provider of public transit services in Central Ohio, COTA is undertaking a long-range planning effort, NextGen, to identify public transportation needs and opportunities through 2050. NextGen will comprehensively consider how changing growth and demographic trends will shape opportunities and demand for public transportation. NextGen is expected to be completed in Spring 2017.

NextGen goals:

- Lead the community in envisioning what our public transportation system needs to accomplish in the coming decades to ensure Central Ohioans have access to jobs, housing, education, and services.
- Prepare Central Ohio for future growth by identifying transit investments that integrate with regional plans and goals. Critical regional goals include maintaining regional competitiveness, minimizing sprawl, and responding to demographic preferences.
- Create transit investment options to support local and regional efforts to develop transit-oriented and multi-modal communities.
- Identify conventional and creative revenue options that offer potential to support the recommended plan and ensure the plan can be implemented.



The information shown on this map is compiled from various sources made available to us which we believe to be reliable.
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4/26/2016

FIGURE 6.3
High Capacity Transit Corridors for Further Study

Columbus StreetRailway Company

The Columbus StreetRailway Company is a non-profit corporation (501(c)3) dedicated to assisting the greater Columbus Community in designing, financing, building, and operating a modern street car circulator system for the center city area.

High-Capacity Corridor Planning

Coordination between the MTP project evaluation process (described in Chapter 7), and other regional transit planning initiatives resulted in 19 high-capacity transit corridors being identified for further study. Included are 15 intra-regional routes and 4 commuter routes connecting to other regions. The corridors, described below and shown in Figure 6.2, are routes that have a high potential to support high-capacity transit, but further study is still necessary. The corridors have been identified through several sources including COTA's NextGen, Columbus Street Railway Company studies, and public outreach. Specific transit modes have not been identified for these corridors, but high-capacity transit could include:

- Commuter Rail (connecting cities in adjacent counties with Columbus)
- Light Rail (providing service to Columbus and adjacent communities)
- Streetcar (shorter lines in denser, urban areas)
- Bus Rapid Transit (expanded bus service with light-rail-like amenities)

The corridors are described below, and shown in Figure 6.3.

- CMAX Upgrade: Re-align CMAX service to utilize former Mt. Vernon PRR line between E. 5th Ave and Ferris Rd. Extend alignment to Polaris. Light Rail (providing service to Columbus and adjacent communities)
- 5th Avenue Grandview-Airport: Connects Grandview, Short North, and the Milo-Grogan neighborhood to the Airport using 5th Avenue Bus Rapid Transit (expanded bus service with light-rail-like amenities)
- East Broad: Connects downtown Columbus, Bexley, Whitehall, and Reynoldsburg via East Broad Street
- East Main: Connects Reynoldsburg and downtown Columbus via East Main Street
- East Livingston: Connects Reynoldsburg and downtown Columbus via Livingston Avenue
- High Street-Polaris: Connects downtown Columbus, OSU, and Polaris via High Street (with alternative alignment via 3rd Street through the Short North)
- Eastland Mall–Easton: Connects Eastland Mall, the Airport and Easton Town Center via Stelzer Road
- Alum Creek-Whittier: Connects downtown Columbus to Alum Creek Drive via Whittier and 3rd
- West Broad: Connects Lincoln Village with downtown Columbus via West Broad Street
- Franklinton-East Downtown: Connects Franklinton to east downtown via West Town, High Street, and East Spring Street

- Downtown-Polaris via North Corridor: Connects downtown Columbus and Polaris via High Street, 3rd Street/Summit Street and the North Corridor
- Downtown-Airport-Easton: Connects downtown Columbus, the Airport, and Easton Town Center with a direct high-speed service
- Grove City: Connects downtown Columbus and Grove City via Harrisburg Pike
- High Street Streetcar: Study of streetcar service along High Street from Frankfort St. to Buttles Ave.
- Arena District-Discovery District Streetcar: Study of streetcar service connecting the Arena District and the Discovery District via Neil Ave, Spring St., High St., Broad St., and Mt. Vernon Ave.
- Columbus-Newark: Connects downtown Columbus to Newark, the largest city in Licking County
- Columbus-Lancaster: Connects downtown Columbus to Lancaster, the largest city in Fairfield County
- Columbus-Delaware: Connects downtown Columbus to Delaware, the largest city in Delaware County
- Columbus-Chicago: Connects Port Columbus to Chicago, with potential stops in Ohio and Indiana along the way.

Transit-Oriented Development (TOD)

MORPC is convening a group of stakeholders to identify locations and funding for coordinating transit-oriented development in economically distressed areas. Multijurisdictional stakeholders are being identified that specialize in planning, housing, public service and development. As part of TOD and other efforts, MORPC will be reviewing vehicle and pedestrian crash locations in proximity to bus stop locations. MORPC and COTA will work with elected leaders, developers, and community members. As growth and density increase lessons learned can be applied to the DATABus service area and potential transit transfer locations.

6.3 Bicycle and Pedestrian System

Bicycling and walking continue to receive higher demand and recognition as modes of transportation in Central Ohio. The region is working to collect data on active transportation facilities and their usage to justify their importance and identify gaps that limit the mobility of people throughout the region, build bicycle and pedestrian facilities, and ensure that educational, enforcement and encouragement programs are available to support bicycling and walking.

BICYCLE AND PEDESTRIAN STRATEGIES AND PROJECTS

1. Make neighborhoods walkable, bikeable, and accessible by transit through both infrastructure and non-infrastructure projects and programs

Active Transportation Plan

The Active Transportation Plan (ATP) provides tools to assist Central Ohio communities in the Metropolitan Planning Area with planning efforts to ensure their residents and visitors can efficiently and safely access and move between pedestrian, bicycle, and transit facilities. The ATP includes an interactive Story Map with active transportation best practices, and a Cost Estimator Tool to help communities budget for the incorporation of active transportation infrastructure into an already programmed infrastructure project. The key regional corridors of the ATP are incorporated into the MTP's project evaluation criteria, as well.

Bicycling and walking continue to receive higher demand and recognition as modes of transportation in Central Ohio.

MORPC staff will encourage communities to work with them to schedule collaborative meetings with adjacent communities and other stakeholders regarding specific active transportation projects within the Key Regional Corridors addressed in the plan. Staff will also update the ATP on a regular basis with up-to-date best practices information, links to communities' newly adopted transportation-related plans, and cost data for the Cost Estimator Tool. More information is available in Appendix F.

This MTP prioritizes bicycle and pedestrian projects such as multi-use paths, bicycle lanes, and sidewalks focused along the key regional corridors identified in the Active Transportation Plan. Chapter 8 provides a list and map of specific projects included.

Green Infrastructure Best Management Practices

Changes in our climate, development pressures, stormwater impacts to water quality, and interest in fiscal sustainability have resulted in communities being interested in learning about best practices for green infrastructure when retrofitting and constructing transportation facilities. In order to assist Central Ohio communities with building an environmentally and fiscally sustainable transportation infrastructure network, MORPC is compiling information on best practices for green infrastructure for communities to reference when planning and designing transportation projects. The resource will include local examples of best practices so that its users can visit green infrastructure sites for hands-on learning and

ease of communication with those projects' managers for information to help them implement similar best practices.

Active Transportation Safety Initiatives

As detailed in Section 4.3, MORPC continues to facilitate activities aimed at improving pedestrian and bicyclist safety through its various safety initiatives.

Assist in Community Active Transportation Plans and Committees

MORPC will participate in the development of local active transportation plans to ensure regional consistency and continuity.

Host Central Ohio Greenways Meetings

Since 2005, MORPC has held a quarterly forum related to greenways and trails development in the region. This forum is suited for local governments, parks and recreation groups, and local bicycle advocacy groups. The goals are to develop a united regional trail system, raise awareness of the importance of greenway trails and create the usability of the greenway trail system.

COG Board

Central Ohio Greenways (COG) is a trail network of national significance spanning over 180 miles, connecting Central Ohio to other parts of the state and country. These trails are traveled more than 12 million miles annually, providing economic, quality of life, and health benefits to the community.

An informal network of trail developers and trail advocates began meeting in 2005 to plan and prioritize additional trail development, install unified wayfinding signage, and study the impacts of trails. Ten years later, the effort was formalized to reenergize, refocus, and strategically pursue the vision of increasing trail miles and trail usage. The COG Board was formed and became embedded within MORPC's Sustainability Advisory Committee in order to coordinate with other regional priorities. Board members represent the public, private, and nonprofit sectors. The Board is supported by working teams that address key regional issues including: trail development, programming, partnership, and marketing/communications.

This MTP prioritizes trail projects that are part of the proposed COG trail network. Chapter 8 provides a list and map of specific projects included.

Active Transportation Professional Training Opportunities

MORPC continues to work with partners such as FHWA, the American Association of State Highway and Transportation Officials (AASHTO), the Institute of Transportation Engineers (ITE), the Association of Pedestrian and Bicycle Professionals (APBP), The League of American Bicyclists, the National Safe Routes to School Partnership, and YayBikes! – a Columbus-based bicycle advocacy group – to educate local engineers, planners and residents on bicycle- and pedestrian-related topics through a variety of webinars and trainings. Additional training opportunities are provided at conferences, such as ODOT's Ohio Transportation Engineering Conference, the Ohio Bicycle Summit, and the Central Ohio Chapter of the American Planning Association's annual conference.

Encourage Bicycle-Friendly America and Bicycle-Friendly Business Applicants

The League of American Bicyclists issues Bicycle-Friendly America and Bicycle-Friendly Business designations. The designations recognize municipalities, universities and businesses for actively supporting bicycling. The League has awarded a "Bronze" designation to the cities of Columbus (2009), Dublin (2012), and Westerville (2012). The League has also awarded a Bronze designation to the following businesses: Ulmer and Berne, Gahanna YMCA, Columbus Food League, The Ohio State University, and Breakaway Cycling, while also awarding Silver designations to EWI, Trek Bicycle Store, Wheelie Fun Bike Shop, Columbus Public Health, and Café Brioso.

insight2050

As summarized in Chapter 2, MORPC and project partners ULI Columbus and Columbus 2020 developed insight2050, a community-wide effort to proactively plan for population growth and development. By 2050, Central Ohio is expected to grow by at least 500,000 people, most of whom will be young adults, ages 16 to 34, and seniors aged 65 and over. Both generations share a preference for smaller homes in more compact, walkable neighborhoods. insight2050 demonstrates that communities that accommodate these development preferences for more walkable, bikeable, and transit-accessible neighborhoods will not only enhance their attractiveness to the region's growing population of young adults and seniors, but will also reduce infrastructure costs and the amount of land needed for development.

Bike Share

The City of Columbus introduced its "CoGo"bikeshare system in 2013 and has since grown to over 40 stations. Bikeshare is also available on The Ohio State University campus and at Easton Town Centre. As demand for bikeshare grows, so will the desire of Central Ohio communities to incorporate some form of bikeshare within their jurisdictions. In an effort to build upon existing linkages, MORPC will be available as a resource to communities who wish to implement some sort of bikeshare system. Keeping in alignment with the MTP theme of collaboration, MORPC will work with communities to help guide bikeshare expansion in a way that capitalizes upon existing and planned biking infrastructure, promotes bikeable communities, and is accessible to the diverse populations of Central Ohio.

Park & Pedal

MORPC's Park-and-Pedal initiative encourages commuters who live in the outlying suburbs to park their cars before arriving into congested areas such as downtown Columbus where parking is sparse, and ride a bike for their last few miles to work. Working in conjunction with the City of Columbus, MORPC has identified parking lots owned by the City that are connected to bike-friendly roads or multi-use paths that safely lead into downtown. Lots will be branded with clear signage at their entrances and indicated on MORPC's digital bike map. Lots will be located within a 5-mile radius of downtown. Two lots have already been established ad Dodge and Academy parks, and other locations throughout are pending.

Bike Events

Bike to Work Week, Bike Month, and Pelotonia are among the variety of bike events happening in the region. The goal of these events is to encourage more commuters and residents to bike. MORPC is involved in planning and promotion of many of these events.

2. Increase the quantity and quality of data on bicycle and pedestrian travel behavior.

Update Columbus Metro Bike User Map

In 2016, a revised Bike User Map will be distributed throughout the region. This will include updates to the current map based on new facilities built since the last map update in 2014, and input from local jurisdictions, advocacy groups and the public on Level-of-Service for the facilities. Additional periodic updates to the map will take place after 2016.

Complete Streets Equipment Library

In 2010, using grant funding from ODH, MORPC acquired two automatic bicycle tube counters and eight active infrared counters. This equipment is available to local jurisdictions interested in collecting data on pedestrian and bicycle traffic in order to provide the information needed to adequately accommodate non-motorized traffic in facility design decisions.

Bikeway Inventory

MORPC continuously updates bikeway data based on information from local jurisdictions. The updates track both regionally significant bikeways and local bikeways. These data are available to local jurisdictions and the public using an interactive online map. MORPC also shares these data with ODOT and other MPOs in Ohio.

Sidewalk Inventory

In 2015, MORPC partnered with the City of Columbus and the Ohio Department of Transportation (ODOT) to compile an inventory of sidewalk facilities in the MPO planning area. The inventory is available online in an interactive webmap format and includes attributes such as where sidewalks are and are not located, and the location of marked and unmarked crosswalks. The inventory is maintained by ODOT, and local jurisdictions are responsible for providing and updating data. The inventory is used to support transportation planning activities throughout the region.

Bicycle and Pedestrian Counting

Since 2005, MORPC, together with many different volunteers and regional partners, has routinely collected bicycle and pedestrian volume counts across the Central Ohio region. This includes manual counts occurring in concert with the National Bicycle and Pedestrian Documentation Project. Such counts occur twice a year at selected locations throughout the region. In addition to manual counts, automated counting devices are being used to continuously collect counts at select locations across the Central Ohio trail system and are being supplemented with additional short-duration counts. These efforts allow MORPC to create a regional inventory of non-motorist activity, better understand the factors that impact activity levels, and observe trends over several years.

Bicycle and Pedestrian Crash Data

Every year, MORPC identifies pedestrian and bicycle high-crash locations in the region as well as crash fact sheets with more detailed statistics related to bicycle crashes. This information helps identify areas in need of physical safety improvements as well as safety education programs.

Bicycle and Pedestrian Trip Data

The MORPC Travel Demand Model and data from COTA will be used to identify and forecast bicycle activity.

3. Expand bicycle and pedestrian networks through the implementation of complete streets and multi-use path connections.

Complete Streets Toolkit Update

In 2010, MORPC was awarded a grant from the Ohio Department of Health (ODH) to create a Complete Streets Toolkit. This toolkit contains factsheets related to engineering, education, enforcement, encouragement and evaluation. An online supplement to the toolkit provides model policies for different types of communities. The supplement also addresses a variety of additional topics. MORPC is updating the toolkit, focusing on both content and format to ensure that it is pertinent and convenient for all of its users.

Complete Streets Outreach

MORPC staff will continue to hold workshops and give presentations to local governments, city councils, and the public on the concepts of Complete Streets and age-friendly communities. The goal of these presentations is to encourage local communities to think differently about their community development and adopt complete streets policies and other policies that support their implementation.

Review Projects for Complete Streets Policy Compliance

MORPC continues to review projects using the checklists developed as part of the Complete Streets Policy. Projects using MORPC-attributable funding must comply with MORPC's Complete Streets Policy.

4. Develop transportation system to serve all demographic population groups.

Age-Friendly Communities

In light of the findings of insight2050 that indicate that Central Ohio's population of 65 years or older is expected to double over the next 35 years, MORPC is working with communities about the importance of incorporating age-friendly components into the revitalization of their downtowns and neighborhoods. The Age-Friendly Columbus project is a major step in ensuring that older adults can remain in their own environments and live an active and safe lifestyle in Central Ohio.

Over a 2-year period (2016 – 2018) and through the lens of the eight domains (i.e., transportation, the built environment, respect and inclusion, etc.) as outlined by AARP in partnership with the World Health Organization (WHO), this project will assess the age-friendliness of the City of Columbus through research, field work, and outreach to create a 3-year city-wide action plan that ensures Columbus

embraces age-friendliness as a core value of its work and services to residents. The city-wide assessment around these domains will provide a clear picture of where the City needs to improve. The plan will be written in such a way that it includes both site and service-specific action items for Columbus, but also recommendations that are broader, policy-based, and applicable to other communities around the region. It is our goal that Age-Friendly Columbus will create broad collaboration among cross-sector stakeholders and a strong foundation for continuous improvements within all domains.

Coordinate Safe Routes to School (SRTS)

MORPC encourages and supports efforts to increase walking and bicycling to school among students in grades K-8.

Bicycle and Pedestrian System Expansion

The non-freeway projects identified in this MTP are all assumed to include appropriate complete streets elements. The stand-alone bicycle and pedestrian projects identified are focused on the 12 key regional Active Transportation Plan corridors and proposed Central Ohio Greenways trails, which are regionally significant. The financial forecast of this MTP sets aside funding for other stand-alone bicycle and pedestrian projects that local communities identify as priorities, however most of these local priorities are not mapped or specifically listed.

6.4 Intermodal Freight & Aviation

Our region's freight planning program actively supports a number of the Metropolitan Transportation Plan's goal strategies, particularly when it comes to positioning Central Ohio to attract and retain businesses that enhance our economic prosperity and position the region to compete on a global scale.

MORPC works to position the Central Ohio region as an attractive area to attract workers and businesses.

The intermodal freight and aviation industries have an impact beyond local, regional, state, and even national borders. Global trading patterns are shifting, and a competitive advantage will belong to regions that cannot only attract high skilled workers and businesses that employ them, but places that provide affordable housing options, a high quality of life, and transportation hubs that act as gateways to the global economy. Through its work in freight planning and other activities, MORPC works to position the Central Ohio region as an attractive area to attract workers and businesses. However, MORPC also understands its role in the larger picture, and that freight challenges span beyond regional boundaries.

INTERMODAL FREIGHT AND AVIATION STRATEGIES AND PROJECTS

Recognizing the importance that goods movement plays in the regional, state, and national economies, Central Ohio stakeholders actively collaborate to address the needs of this important sector of our economy. Strategies presented throughout the MTP seek to improve the flow of all modes of transportation, including intermodal freight and ground access to the region's passenger airports. For example, strategies and projects that address congestion not only help the commuting traffic but also the movement of goods. However, this section directly addresses four strategies related to intermodal freight and aviation ground access, and the activities and projects that implement these strategies.

1. Collect information on and analyze freight activity to identify developing trends and work to disseminate that information among partners and peers.

Freight Trends Study

The Central Ohio Freight Trends Study focuses on the impact the freight industry has, globally and locally, on the region's infrastructure. The study will focus on the need for infrastructure improvements and, in doing so, leverage discussions among private and public partners to determine future infrastructure funding. This study includes information from the Federal Highway Administration (FHWA)'s latest version of the "Freight Analysis Framework," known as FAF4. The Freight Trends Study is currently underway and is expected to be completed in Summer 2016.

Inventory of Railroad Operations and Right-of-Way in Central Ohio

An update to the Inventory of Railroad Operations and Right-of Way in Central Ohio is slated for 2017. Updated every 10 years, the report was originally released in 1968 and previously updated in 1985 and 1995, with the most recent update completed in 2007. The purpose of this study is to examine the rail lines within Central Ohio in order to identify physical constraints and operating pa-

rameters that affect the potential use of excess right of-way for other transportation purposes. This inventory is was originally intended to provide a planning tool to assist in an objective analysis of a rail line's potential in other uses, such as trails or environmental buffers, as well as assist in intermodal planning, rail crossing studies, and potential infrastructure improvements. The 2017 update intends to broaden its scope and will feature web-based mapping to increase the public's access to this information.

Freight Fact Book

MORPC will update the Freight Fact Book in 2016. Like the rail inventory, this fact book will be web-based and will frame Central Ohio's freight story relative to the movement of goods in the rest of the state, the nation, and the world. This fact book will include a "Freight Performance Measures" component. Freight-specific performance measures for the region allow MORPC and its partners to gauge the effectiveness of the region's work to improve the freight transportation system. This system will build upon an already established freight indicator profile, updated annually as part of MORPC's State of the Region. It will complement performance measurement for the MTP.

Freight Scanning Tours

Previous freight-scanning tours have provided policy makers opportunities to get behind-the-scenes glimpses of major companies doing business in the region. In addition, it allows business leaders to ask questions of the group of policy makers with respect to future transportation plans and funding in the region. MORPC plans to conduct a freight scanning tour once a year.

FHWA's Freight Professional Development Program

MORPC will continue to work with FHWA and other U.S. Department of Transportation (USDOT) partners to help build freight planning staff capacity to ensure the long-term integration of the subject into all transportation planning initiatives.

2. Forge public/private partnerships to provide resources to maintain and expand key linkages among air, rail and roadway transportation modes.

Regional Policy Roundtable

The Regional Policy Roundtable is a group composed of representatives from diverse interest groups across the Central Ohio region, including local governments, businesses, non-profits and citizens. The Regional Policy Roundtable aims to sustain a strong, prosperous 15-county Central Ohio region by providing a voice on policy and legislative matters. The Roundtable's main task is to agree on the public policy initiatives that MORPC staff pursues.

MORPC will continue to monitor state and federal legislation for its impact on Central Ohio's freight transportation system. In the past, MORPC's Policy Committee has passed resolutions reacting to potential legislative and administrative decisions. Other resolutions have supported local partners' applications for funding under various programs, such as the US 33 and I-270 Interchange project to address congestion issues at this bottleneck that affects regular as well as freight traffic flows. MORPC will monitor federal and state policy and inform the Roundtable when applicable, and, as required, pursue the Policy Roundtable's

identified freight-related priorities.

FAST Act Freight Provisions

In December 2015, the FAST Act was signed into law to address funding of federal surface transportation programs for highways, highway safety and transit. The FAST Act includes funding for two new freight-specific programs. One is apportioned to state DOTs and will total $42 million per year for the State of Ohio, while the other is discretionary and provides $4.5 billion over five years for freight -significant projects. MORPC staff will work with its regional partners to capture federal freight funding for the region.

Over the past few years, several non-traditional funding sources have emerged that can address freight issues, such as TIGER I, II, III, IV (Transportation Investment Generating Economic Recovery), and the Ohio State Stimulus Logistics and Distribution program. MORPC continues to support and provide technical assistance for funding applications for area projects.

Freight TIP

MORPC will continue to refine the Freight TIP and the evaluation criteria used to identify priority freight projects while evaluating the conditions and performance of the NHS (National Highway System) connectors to move freight more effectively and efficiently through Ohio.

Rickenbacker Area Study

The Rickenbacker Intermodal Yard is Central Ohio's connection to the NS Heartland Corridor. Infrastructure connections are still necessary to maximize the value of this asset. MORPC is working with stakeholders in the area to conduct an infrastructure needs assessment. This study is slated for completion in 2017.

3. Make transportation decisions that positively impact freight movements and maximize the effectiveness of the region's integrated freight transportation system.

Columbus Region Logistics Council

The Columbus Region Logistics Council is an industry-led group, which is an initiative of the Columbus Chamber. The group also serves on MORPC's Transportation Advisory Committee. Likewise, MORPC serves as the Logistics Council's government liaison. This relationship has led to several tactical and strategic successes for the region's freight transportation system. This close partnership will continue into the future.

Innovative Financing Initiatives

Traditional funding for transportation projects, including rail and roadway, is becoming increasingly more and more challenging. MORPC will work with transportation funding stakeholders, such as ODOT, counties, local agencies, and the private sector to increase knowledge and use of new innovative financing strategies for Central Ohio, such as Transportation Improvement Districts (TIDs), toll financing, automated truck corridors and other public-private partnership (P3) opportunities.

OARC Freight Working Group

Through the Ohio Association of Regional Councils (OARC), MORPC coordinates the state's metropolitan areas to facilitate a statewide freight group. This group allows the state's MPOs to assist each other on freight-related issues when needed. The freight working group also enables ODOT and FHWA staff to share information on state and federal freight activities.

Ohio Conference on Freight

The Toledo Metropolitan Area Council of Governments (TMACOG) organizes the Ohio Conference on Freight. MORPC continues to support TMACOG's efforts. MORPC represents Central Ohio's freight infrastructure interests at this annual event and utilizes knowledge gained in the development of our region's freight planning activities.

Highway System Maintenance, Management, and Expansion

The maintenance, management, and expansion of the region's freeways, surface roads, last-mile facilities, and intermodal connectors is essential for efficient freight movement through and within Central Ohio. This MTP identifies funding for maintenance and preservation activities, management activities including coordinated Intelligent Transportation Systems, as well as specific freeway and surface roadway improvement projects.

4. Improve traffic and transit operations by increasing efficiency through investment in advanced technology.

Automated and Connected Vehicles

Along with other regional stakeholders, MORPC is working with The Ohio State University Center for Automotive Research (OSU CAR) to explore innovative transportation technologies such as automated freight vehicles. Currently, MORPC is working with OSU CAR and its partners to fund a pilot project along US 33.

Chapter 7:
Project Evaluation & Fiscal Constraint

The MTP is required to be fiscally balanced, meaning the projects identified must be financially feasible based on estimated project costs and forecasted revenue through 2040. This chapter describes the assumptions used for estimating project costs, and then summarizes the revenue sources used in forecasting the amount of transportation funding that will be available in the future.

Because the plan must be fiscally balanced, all of the candidate projects cannot be included, due to the cost being greater than the forecasted revenues. To help determine which projects will best help advance the regional transportation goals and therefore should be included in the MTP, project evaluation criteria were developed and a selection process put in place. This chapter also describes the selection process used to identify projects to be included in that plan that will both advance the transportation goals and be financially feasible.

7.1 Project Cost Estimates

An estimate of the cost of the proposed projects is necessary to determine the number of projects that could be funded within the MTP horizon year of 2040. For projects that are included in the TIP or other special studies, individual project-specific costs are readily available and these are incorporated. Where the project-specific costs are not readily available, a generic project cost estimating procedure is used. This generic cost estimating methodology is based on the prevailing unit cost estimates from "Budget Estimating Guidelines" prepared by the ODOT Office of Estimating, and uses the unit costs of different types of roadway work based on ODOT's let projects. The unit costs are developed to be in 2015 dollars.

The projects included in the MTP must be cost-feasible based on cost estimates and revenue forecasts.

Projects in the MTP are classified into the following primary types:

Freeway-Related

- New Freeway - The construction of a new limited access freeway where none previously existed.
- Convert to Freeway – The conversion of an existing roadway (typically a divided 4- or more lane expressway) to a full limited access freeway.
- Major Freeway Widening – The addition of one or more lanes in each direction along an existing freeway.
- New interchange – The construction of an interchange where none existed. It could be to replace an existing at-grade intersection along an expressway or a new access point on a freeway.
- Interchange Modification – Modification to an existing interchange to provide for additional capacity.
- Lane Management – Involves inclusion of technology to manage travel lanes along a freeway corridor, which would allow the use of shoulders for vehicles during higher volume periods of the day.

Non-Freeway Roadways

- Major Surface Street Widening – Typically involves the addition of one or more travel lanes in each direction.
- Minor Widening - Typically involves the addition of a continuous center turn and/or the addition of turn lanes at a series of intersections along a corridor.
- New Roadway – The construction of a new road where none existed previously.
- New Bridge – Typically isolated locations for which only a new bridge is needed and not related roadwork. Could be for vehicle use or a railroad bridge.
- Intersection Modification – Typically involves the addition modification of an existing isolated intersection to add turn lanes and/or signals or construct a roundabout to provide more capacity.

Bike/Pedestrian

- Sidewalk – a stand-alone project to add sidewalk to at least one side of roadway.
- Bike lane or wide shoulder – A stand-alone project to add bike lanes or wide shoulders alongside existing vehicle travel lane(s).
- Multiuse Path – A stand-alone project to provide a path allowing for two-way bike & pedestrian travel. This could be alongside a roadway or a waterway.
- Add complete street facilities – This description is used where a stand-alone project to have a bike and/or pedestrian facility has been identified but the specifics of how that would be accomplished are not yet known.

Transit

- Local or Express Bus Service – Individual local and express bus routes are not listed in the MTP. These are captured by line items in the project listing.
- High-Capacity Transit – Corridors for transit beyond local or express bus service. These could be Bus Rapid Transit (BRT), Light-Rail Transit (LRT), Commuter Rail or intercity rail.

Management and Operations

- Management and Operations – These are general MTP line items that provide for maintaining the existing roadway facilities such as resurfacing, reconstruction and other maintenance activities.
- ITS – These are projects beyond regular maintenance of the system that will employ technologies to improve the operations and efficiency of the transportation system.
- Access Management Controls – Modifications along a corridor to consolidate intersections/driveways to improve safety and preserve capacity of a corridor without adding additional lanes.
- Operational Changes – Modifications within the roadway that will reallocate the pavement to be more multimodal, perhaps removing travel lanes to make the facility more of a complete street or adding parking.
- Convert to/from One-Way – Modification of the corridor to turn existing one-way street to two-way or a two-way street to one-way.

For the freeway, non-freeway and bike/pedestrian project types a generic cost estimating methodology was applied when a more specific cost was not available. For both the freeway and non-freeway projects they would include appropriate pedestrian facilities and bike facilities to make the facility a complete street. MORPC works with the transit agencies to develop costs related to transit projects. Cost estimates for other project types or strategies are taken from special studies or estimated on a case-by-case basis. Furthermore, specific management and operations projects generally are not individually identified. The line items in the project listing for these encompass aggregate amounts expected to be expended on these activities during the transportation plan time frame.

The cost of each project or strategy identified in the project listing is shown in expected year of expenditure dollars, thus incorporating expected future inflation. ODOT tracks inflation trends and estimates inflation rates into the future. The MTP inflation rates shown in Table 7.1 are based on the ODOT projections.

TABLE 7.1

Annual Inflation Rates

Years	Annual Inflation Rate
2016	5.0%
2017	3.6%
2018	4.0%
2019-2020	3.5%
2021-2023	3.0%
2024-2040	2.5%

7.2 Financial Plan and Constraints

The 2016-2040 MTP assumes that funding will grow at moderate levels as outlined in the FAST Act. This growth would then continue beyond the time period of the FAST Act with subsequent Federal legislation. Likewise, at the state and local levels there will be modest growth in overall transportation revenue through 2040. However, overall more growth will come more from local and private sectors for expansion of the system, as preservation, maintenance and management of the existing system are the priorities for the state and federal transportation dollars.

The forecast is that $19.6 billion in funding will be available through 2040.

TRANSPORTATION FUNDING SOURCES

Numerous sources of funding have traditionally been used to finance transportation. The state and federal governments levy gasoline taxes and transportation-related fees. Some of the proceeds are shared directly with local governments. Local governments also levy license fees. In addition, many of them have property and income taxes used for operations and capital improvements. The private sector is often required to contribute new or improved transportation infrastructure to facilitate their developments.

Currently, sales taxes constitute the bulk of the funding for transit. Transit also receives Federal Transit Administration funding as well as funds from the Ohio general fund. No state gas tax dollars assist with funding transit operations or capital.

The following list shows the major sources of funding available for transportation system improvements in Central Ohio.

Federal Sources

- National Highway Performance Program (NHPP) Funds
- Interstate Maintenance Funds
- Surface Transportation Program (STP) Funds
- Transportation Alternatives Program (TAP) Funds
- Congestion Mitigation and Air Quality (CMAQ) Improvement Program
- Bridge Replacement and Rehabilitation Program (BR)
- Safety Program
- Special Project Earmarks
- Federal National Discretionary programs (TIGER, Freight, etc.)
- Urbanized Area Formula Program Grants—Sections 5307 and 5340
- Enhanced Mobility of Seniors and Persons with Disabilities—Formula Grant Section 5310
- Bus and Bus Facilities Discretionary Grants—Section 5339 State Sources
- Capital Investment Grants (CIG) - Section 5309

ODOT

- State-Controlled Gas Tax Allocated Across Many State Programs
- General Revenue Funds for Transit
- Ohio Public Works Commission – State Capital Improvement Program (SCIP)
- Ohio Public Works Commission – Local Transportation Improvement Program (LTIP)
- Ohio Development Services Agency – Roadwork Development (629) Program

Local

- License Plate Registration Fees
- Portion of State Gas Tax
- Sales Tax
- General Revenue (primarily from income tax)
- Special Purpose Sources (tax-increment financing, transportation improvement districts, joint economic development districts, development assessments, etc.)

FUNDING FORECAST

The majority of the federal and state sources listed previously are funneled through ODOT. ODOT has various programs to manage its transportation system, utilizing funds from the appropriate sources. In addition, portions of some of the federal and state funding are passed on to MORPC, the County Engineers Association of Ohio (CEAO) and the Ohio Public Works Commission (OPWC) Central Ohio districts to distribute to projects. Furthermore, local funding varies greatly from one community to another. For these reasons, the forecast of available funding is divided into the following categories:

- TRAC
- ODOT
- STP-M (MORPC-controlled STP funds)
- CMAQ-M (MORPC-controlled CMAQ funds)
- TAP-M (MORPC-controlled TAP funds)
- CEAO
- OPWC
- Local Public
- Private
- Other
- FTA, State and Local Transit

These categories were selected because they most easily could be distinguished from each other from the point of view of who controls them and how the funds are used. In balancing the transportation plan budget, the most likely funding sources are assigned to each of the potential projects. The source is identified based on the scope of the project and its eligibility for that funding source, combined with historical practice for the community and projects of that scope. Each of the categories is briefly described below with base forecasting assumptions for each. Generally, historical information was used as the basis for the forecasts with growth to reflect year of receipt dollars.

Transportation Review Advisory Council (TRAC)

The TRAC manages ODOT's funding for new facilities and major expansion projects. These projects add lanes to freeways, build bypasses, expand existing interchanges, build new interchanges, fund major transit expansion and intermodal/multimodal terminals. ODOT funds the TRAC from a variety of sources depending upon the nature of the project, the funding sources for which it is eligible, and the funding available in a specific program.

In January 2016, the TRAC approved the list of projects to use TRAC funding through 2025. The TRAC has committed approximately $495 million to projects in the MORPC area from 2016 through 2025, out of a statewide total of $1.94 billion (an average of $194 million a year). The MTP assumes that approximately $200 million will be available statewide in 2026, grow at an annual rate of 2.5 percent, and that the MORPC area will receive its proportional share based on population through 2040. The slight increase in amount per year will come from the historical increase that occurs with a new federal transportation bill and perhaps adjustments to state funding. These assumptions are shown in Table 7.2.

ODOT

The ODOT category encompasses the remainder of the funds controlled by ODOT that the TRAC does not manage. The majority of these funds are for management and operations activities across a variety of program areas, such as major bridge, major rehabilitation, safety and ODOT district bridge and pavement programs. Funds from these programs are also occasionally used for minor and major arterial widening projects. Increasingly, these funds are used to supplement TRAC funds on large expansion projects to the extent that the project is also addressing the physical decay of the facility.

One component of the ODOT funds addresses safety problems. ODOT currently budgets $102 million statewide annually for its safety program. This amount is assumed to have a 2.5% annual growth and that the MORPC area will receive its population proportion share through 2040. These assumptions are shown in Table 7.3.

A second component of the ODOT category is used for intersection improvements and minor and major widening projects along non-freeways. These are generally included in the ODOT district office allocations. These funds are generally used for projects on state and US routes. Occasionally, these funds support projects funded primarily by TRAC. The SFY 16-19 TIP was reviewed to identify the amount of ODOT-controlled funds (not TRAC or safety) used for minor and major widening projects. The MTP assumes this trend will continue through 2040 with a small annual growth. These assumptions are shown in Table 7.4.

A third component of the ODOT category is general system preservation funds used on major freeway-related rehabilitation projects that also include capacity expansion. The SFY 16-19 TIP was reviewed to identify the amount of ODOT-controlled funds (not TRAC) used for freeway expansion. There are several freeway expansion projects ODOT is pursuing that are using preservation funds. The annual average was $46.4 million. This is an exceptionally high number and is

TABLE 7.2

Forecast of TRAC Funding (millions)

TRAC Commitment	Amount
TRAC Commitments to MPO Area, 2017-2025	$495
TRAC Commitments Statewide, 2017-2025	$1,941
MPO Share of TRAC Commitments, 2017-2025	26%
Assumed Statewide Budget, 2026	$200.0
Assumed Budget Growth Rate, 2026-2040	2.5%
Assumed Statewide Budget, 2026-2040	$3,586
Projected MPO Share of Population, 2026-2040	14.6%
Projected MPO Share of TRAC, 2026-2040	$526
Projected MPO Share of TRAC, 2017-2040	$1,021

TABLE 7.3

Forecast of ODOT Safety Funds

ODOT Safety Funds	Amount
Available Statewide, 2016	$102 million
Annual Growth Rate, 2017-2040	2.5%
Average Proportion of MORPC Area to State Population, 2017-2040	14.2%
Number of Years, 2017-2040	24
Safety Funds Available to Area, 2017-2040	$484 million

TABLE 7.4

Forecast of ODOT Arterial Widening Funds

ODOT Funds	Amount
MORPC SFY 16-19 STIP annual average	$4.1 million
Annual Growth Rate	2.0%
Number of Years, 2017-2040	24
Funds Available to Area, SFY 2017-2040	$125 million

TABLE 7.5

Forecast of ODOT Non-TRAC Freeway Widening Funds

ODOT Funds	Amount
Assumed Base Year Amount	$20 million
Annual Growth Rate	2.0%
Number of Years, 2017-2040	24
Funds Available to Area, SFY 2017-2040	$608 million

TABLE 7.6

Forecast of ODOT Management and Operations Funds

ODOT Funds	Amount
MORPC SFY 16-19 TIP Annual Average	$82.3 million
Annual Growth Rate	2.0%
Number of Years, 2017-2040	24
Funds Available to Area, SFY 2017-2040	$2,554 million

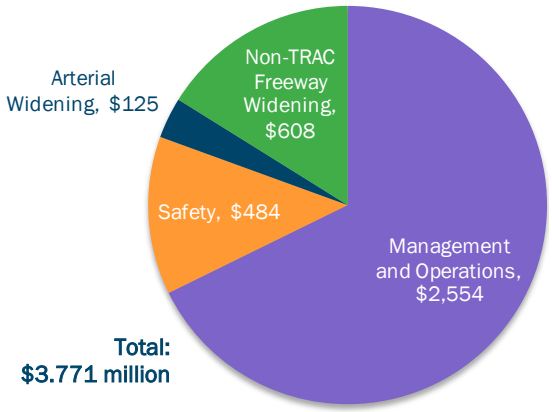

FIGURE 7.1

Forecast of all Non-TRAC ODOT Funds (in millions)

likely not representative of the annual average through 2040. Although we expect the use of preservation funds for certain types of freeway expansion projects to continue, the MTP assumes a more realistic annual amount of $20 million with a small annual growth through 2040. These assumptions are shown in Table 7.5.

The ODOT funding summarized in Tables 7.4 and 7.5 would be funding that would be used on the individually listed transportation system expansion projects. However, ODOT emphasizes a "fix it first" approach that provides funding for management, operations and preservation activities to keep pace with the anticipated inflation levels. Thus, a large part of ODOT funding is on just preserving and maintaining the existing system without expansion. To estimate the amount of funding for these activities, three methods were used.

First, ODOT published its FY 15 annual report in which it reports that it spent $1.26 billion statewide on system preservation in FY15. The MORPC area has a little over 4% of the statewide road mileage and bridges. Between 2016 and 2040 the MORPC area is forecasted to have an average of about 14.2% of the statewide population. Using approximately the average of those two (9%), assuming FY 15 value of $1.26 billion with a 2% annual growth continues through 2040, the amount for the MORPC area would be about $3.4 billion total through 2040.

A second method is based on the funding programmed statewide according to the ODOT SFY 16-19 STIP. The SFY 16-19 STIP states that capital preservation and safety programs are funded at $1.15 billion and $1.23 billion in SFY 16 and SFY 17 respectively. Taking out the $102 million per year for the safety program discussed above leaves an average of $1.088 billion for preservation. Assuming an annual growth rate of 2% through 2040 and approximately 9% for the MORPC area, the amount for the MORPC area would be about $3.0 billion total through 2040.

Finally, since the previous two methods likely include some ODOT funding going to arterial and freeway expansion projects, which were included in other forecasts described previously, a third method was used. The SFY 16-19 MORPC TIP was reviewed to look at ODOT funding for projects that were only maintenance and preservation projects. The annual average was $82.3 million. Assuming an annual increase of 2% per year yields approximately $2.554 billion through the year 2040. This value will be used for the MTP financial forecast and is also shown in Table 7.6.

The total of all non-TRAC ODOT funding is shown in Figure 7.1.

Federal National Discretionary programs (TIGER, Freight, etc.)

Since 2009, the U.S. Department of Transportation has annually conducted a solicitation and selection process for the Transportation Investment Generating Economic Recovery (TIGER) competitive grant program. In its initial year as part of the American Recovery and Reinvestment Act of 2009 (ARRA), $1.5 billion was available nationally. From 2010 through 2015, the annual amount has ranged from $474 to $600 million. In 2012, the MORPC area received $16 million in TIGER funds for a project in the Rickenbacker area. In December 2015, it was announced that $500 million would again be available for a 2016 solicitation

and project selection process.

The FAST Act also established a new national competitive freight grant program. The average annual funding for it over the 5-year FAST Act is $900 million. With the Columbus area a growing region with freight and logistics an emphasized and important part of our economy, several projects in the MTP will be strong candidates for either the TIGER or the freight competitive grant programs. The awarding of a 2012 TIGER grant is evidence of the region's ability to acquire these national discretionary funds. The $16 million award in 2012 represents approximately 0.35% of the TIGER funds awarded to date. The region's population represents about 0.45% of the nation's population. The MTP assumes the continuation of national competitive grant programs through 2040 at the current funding levels and that two to four projects will receive funding totaling $135 million, or approximately 0.40% of the $33.6 billion estimated to be available through 2040.

STP-M

MORPC has available a certain amount of STP funds both by formula and at ODOT's discretion. These funds are used primarily for arterial major widening projects. The average amount of these funds that has been made available historically, including the effects of obligation limitations, was reviewed. MORPC used ODOT's projected allocation for SFY 2017, which has been flat for the last couple of years. FHWA has published state apportionment tables for the FAST Act for FYs 2016-2020. They show Ohio's STP apportionment will increase 8.5 percent in FY 2016, with an annual growth rate of about 2.5 percent for the remainder of the bill. The MTP assumes that MORPC's allocation will not increase 8.5 percent until SFY 2018 and continue to grow at 2.5 percent through 2040. Table 7.7 shows the resulting projection.

CMAQ-M

At ODOT's discretion, MORPC has had a certain amount of CMAQ funds available. These are typically used for transit bus replacements, intersection improvements, minor arterial widening projects, travel demand management programs and air quality awareness programs. As of the fall of 2013, MORPC no longer receives a direct allocation from ODOT of CMAQ funds specifically for the planning area. The funds historically allocated to MORPC are now pooled with the funds formerly provided to each of the eight large MPOs in the state. The eight large MPOs have cooperatively developed (with ODOT's concurrence) the Ohio Statewide Urban CMAQ Committee (OSUCC) to solicit, evaluate, and select projects to use the pooled CMAQ funding.

The FAST Act does not include any increase to CMAQ funding, except for an annual growth rate of about 2.5 percent. Even with the newly pooled CMAQ funding, the MTP assumes that MORPC will receive its population share of funding as shown via ODOT's projection for SFY 2017 of what would have been allocated to MORPC prior to the pooling policy. The MTP assumes that the allocation will continue to grow at 2.5 percent annually through 2040. Table 7.8 shows the resulting projection.

TAP-M

MORPC has available a certain amount of TAP funds both by formula and at

TABLE 7.7

Forecast of STP-M Funds

Fund	Amount
ODOT Allocation SFY 2017	$20.0 million
FAST Act Increase	8.5%
Base Year Allocation, SFY 2018	$21.7 million
Annual Growth Rate	2.5%
Number of Years, 2019-2040	22
Total Available	**$685 million**

TABLE 7.8

Forecast of CMAQ-M Funds

Fund	Amount
ODOT Allocation SFY 2017	$10.1 million
Annual Growth Rate	2.5%
Number of Years, 2018-2040	23
Total Available	**$327 million**

TABLE 7.9

Forecast of TAP-M Funds

Fund	Amount
ODOT Allocation SFY 2017	$2 million
FAST Act Increase	8.5%
Base Year Allocation, SFY 2018	$2.2 million
Annual Growth Rate	2.5%
Number of Years, 2019-2040	22
Total Available	**$69 million**

TABLE 7.10

Forecast of CEAO Funds

Fund	HSIP	STP	HBP
Annual Statewide Sub-Allocation, 2016	$14.3 million	$14.3 million	$34.4 million
Annual Growth Rate, 2017-2040	2.5%	2.5%	2.5%
Average Proportion of MORPC Area to State Population, 2017-2040	14.2%	14.2%	14.2%
Number of Years, 2017-2040	24	24	24
Total Available by Source	$68 million	$68 million	$163 million
Total Available CEAO	**$299 million**		

ODOT's discretion. These are primarily used for pedestrian and bikeway projects. The average amount of these funds that have been made available historically, including the effects of obligation limitations, was reviewed. MORPC used ODOT's projected allocation for SFY 2017, which has been flat for the last couple of years. Like STP, FHWA has published state apportionment tables for the FAST Act for FYs 2016-2020. They show Ohio's TAP apportionment will increase 8.5 percent in FY 2016, with an annual growth rate of about 2.5 percent for the remainder of the bill. The MTP assumes that MORPC's allocation will increase 8.5 % in SFY 2018 and continue to grow at 2.5 percent through 2040. Table 7.9 shows the resulting projection.

County Engineers Association of Ohio - CEAO

ODOT sub-allocates funding to County Engineers Association of Ohio. The allocation statewide for 2016 is $14.3 million of HSIP funds for safety projects, $14.3 million of STP that are generally used for minor arterial widening projects; and $34.4 million of HBP that are used for bridge replacements. No matching funds are required for HSP funds, but project sponsors must provide a 20 percent match to STP and the LBR funds. The MTP assumes that the planning area will receive an amount proportional to its share of the state's population, and that the program will grow at a rate of 2.5% annually. Table 7.10 shows the CEAO funds expected to be available to the planning area for road and bridge projects through the year 2040.

OPWC

Ohio Public Works Commission District 3 (Franklin County), District 17 (Delaware, Licking and Fairfield counties, among others) and District 11 (Union County, among others) awards funds to projects in MORPC's planning area. In most cases, local agencies making use of District 3 OPWC funds to upgrade their highway systems include some improvements that are equivalent to MTP project type of "minor widening/safety improvement." Central Ohio communities are more likely to use OPWC funds than federal funds for these purposes because of the greater administrative burden of using federal funds.

OPWC allocates funding to districts around the state based on population. OPWC awards funding from the State Capital Improvements Program (SCIP) and the Local Transportation Improvement Program (LTIP). In estimating the amount of OPWC funds (SCIP + LTIP) available to the area, the six-year average of road and bridge grant awards in the area from the three OPWC districts was calculated compared to the amount of funds available statewide. Road and bridge projects in the MTP area received approximately 9.8 percent of all statewide funding. Ohio voters in 2014 approved an amendment to the state constitution to extend the SCIP program through SFY 2026. It allows the state to fund the program by issuing general obligation bonds up to $175 million in SFYs 2017 to 2021 and $200 million in SFYs 2022 to 2026. The MTP assumes that the SCIP program will continue at $200 million annually through 2040. The LTIP program receives about $60 million per year from a one-cent state fuel tax. The MTP assumes that

LTIP funding would remain at these levels through 2040.

Table 7.11 shows the OPWC funds expected to be available to the planning area for road and bridge projects through the year 2040. As stated above, these funds are most often used on minor widening types of projects. Funds used for other infrastructure (sewers, water, etc.) and loans were excluded.

TABLE 7.11

Forecast of OPWC Funds

Fund	Amount
SCIP plus LTIP Funding Statewide, 2016	$235 million
Total Statewide, 2017-2040	$6,115 million
Average % to MTP Area Roads & Bridges, 2011-2016	9.8%
Total Available OPWC	**$600 million**

Local Public Funds

Most local governments allocate their own dollars through a capital improvement program that includes transportation improvements. This may include funds from general revenue or other special-purpose sources. Although local governments go through cycles of experiencing budget problems, it is expected that the local governments will continue to have funds available for system management, operations, preservation and expansion.

Local funds are often used to match state and federal dollars or repay OPWC loans. The amount of local funds typically needed to match the state and federal funds is shown in Table 23. For OPWC projects, local funding sources provided approximately 45 percent of the total costs over the last six years. ODOT and other non-local sources have provided additional funds for these projects.

In addition to the funds for matching state and federal funds, local governments completely fund some projects themselves. During the development of the TIP, MORPC contacts the local governments and reviews the CIPs to identify significant locally funded projects to include in the TIP. The 2016-2019 TIP was analyzed, and approximately $49 million of local dollars per year (not matching federal or state funding) in system expansion projects were included. These projects include major and minor widening, intersection/interchange upgrade, new roadway and new bikeway projects.

Finally, local governments also spend funds on management, operations and system preservation projects such as resurfacing, minor repairs, signal system maintenance and others. These items are not typically included in the TIP due to their small scale. MORPC reviewed local CIPs and estimates that approximately $100 million is currently spent per year, in aggregate, on these activities. The total local government funds available are shown in Table 7.12.

TABLE 7.12

Forecast of Local Public Funds

Source	Available	Minimum Local Match	Local Amount
STP-M	$685 million	20%	$137 million
CMAQ-M	$327 million	10%	$32.7 million
TAP-M	$69 million	20%	$13.8 million
ODOT Safety	$484 million	20%	$96.8 million
OPWC	$600 million	45%	$273 million
CEAO Safety	$68 million	0%	$0
CEAO STP	$68 million	20%	$13.6 million
CEAO BR	$163 million	20%	$32.6 million
629	$68 million	20%	$13.6 million
COTF	$30 million	25%	$7.5 million
Local Expansion	$49 million/ year 2% growth per year	n/a	$1,569 million
Local M&O	$100 million/ year 2% growth per year	n/a	$3,203 million
			$5,393 million

Private Funds

Various private sources may include direct contribution of dollars or improvement of the facility by the private sector. These are mostly done as new facilities through vacant land that is being developed or modifications to existing facilities impacted by the development of vacant land. Local governments are increasing the burden on developers to pay for transportation and other infrastructure changes needed to

TABLE 7.13

Forecast of Private Funds

Fund	Amount
Estimated Available 2016	$20 million
Projected annual growth	2.5%
Number of years, 2016-2040	24
Total Available Private Funds	**$683 million**

support the new developments they are building. Table 7.13 shows the amount of private funds expected through the year 2040.

Other Funds

Other funds include four small programs and other unique situations. These are Roadwork Development (629) Program, Safe Routes to School (SRTS), Clean Ohio Trail Fund (COTF) and Recreational Trails Program (RTP). Other funds may also be congressional earmarks, innovative financing techniques, or other unique situations.

The purpose of the 629 program is to fund public roadwork improvements that support the expansion or attraction of businesses. Transfers from the Highway Operating Fund, averaging $14.4 million per year, fund the program. The transportation plan assumes that the planning area will receive an amount proportional to its share of the state's population. Table 7.14 presents the resulting projection.

TABLE 7.14

Forecast of Other Funds

Fund	Amount
Available Statewide, 2016	$14.4 million
Annual Growth Rate, 2017-2040	2.5%
Average Proportion of MORPC Area to State Population, 2017-2040	14.2%
Number of Years, 2017-2040	24
629 Funds Available to Area, 2017-2040	**$68 million**

SAFETEA-LU established the Safe Routes to School (SRTS) program to improve the ability of primary and middle school students to walk and bicycle to school safely. MAP-21 folded the federal program into the TAP. However, ODOT continues to administer the SRTS, making statewide TAP funds available to local sponsors in the planning area. The program provides federal transportation funds for right-of-way and construction phases of infrastructure projects, among other eligible activities. ODOT continued to use a range of 10 to 30 percent of SRTS funds for non-infrastructure activities. The program does not require local matching funds. The program is currently funded at $4 million per year. The MTP assumes the state's allocation will show small growth annually from 2017 to 2040, and that the planning area will receive an amount proportional to its share of the state's population. The MTP also assumes that infrastructure projects will receive 80 percent of available funding.

The state created the Clean Ohio Trails Fund, administered by the Ohio Department of Natural Resources (ODNR), as part of the Clean Ohio Fund program. ODNR currently provides $6.25 million per year. The MTP assumes that the state will continue the program with $6.25 million available statewide for 2016, growing at an annual rate of 2.5 percent thereafter. MORPC projected the funding available to the planning area by assuming it will receive an amount proportional to its share of the state's population.

TABLE 7.15

Forecast of SRTS Funds

Fund	Amount
Available Statewide, 2016	$4 million
Estimated portion for infrastructure projects	80%
Annual Growth Rate, 2017-2040	2.5%
Average Proportion of MORPC Area to State Population, 2017-2040	14.2%
Number of Years, 2017-2040	24
SRTS Funds Available to Area Infrastructure, 2017-2040	**$15 million**

The Recreational Trails Program makes federal transportation funds available for recreational trails and facilities for both non-motorized and motorized users. The RTP funds are distributed to states by legislative formula that accounts for the estimated amount of non-highway recreational fuel use in each state. The Ohio Department of Natural Resources administers the program in Ohio. Right-of-way and construction for trail development are among several eligible activities. The MTP assumes that $1.6 million will be awarded statewide each year in 2016 and 2017. Like STP & TAP, FHWA has published state apportionment tables for the FAST Act for FYs 2016-2020. They show Ohio's RTP apportionment will increase 8.5 percent in FY 2016, with an annual growth rate of about 2.5 percent for the remainder of the bill. The MTP assumes that MORPC's allocation will increase 8.5

% in SFY 2018 and continue to grow at 2.5 percent through 2040. The MTP also assumes that the planning area will receive an amount proportional to its share of the state's population.

The MTP also includes projects for the region's rail system, which could include upgrades to intermodal yards, new tracks, bridge clearance projects or road modifications to increase access to intermodal yards. Likewise, access road projects at the major airports are included in the transportation plan. These projects are not likely to be done with the traditional transportation system resources. These are expected to be funded by the private sector, the airports themselves or perhaps a port authority mechanism. Approximately $100 million for these projects is estimated in the region through 2040.

Other funds may become available such as congressional earmarks or tolling, but these cannot be forecasted at this time. Figure 7.2 provides a summary of all of the other funding forecasted.

FTA, State and Local Transit

As described in Chapter 4 two urban transit systems provide the majority of the transit service to the region. DATABus is a very small urban system, while COTA provides the vast majority of the service. Currently, the total local state and federal funding supporting DATABus is about $2.5 million per year. COTA, on the other hand, has an annual capital and operating budget of approximately $165 million per year. The MTP assumes DATABus will continue with moderate growth. The remainder of this subsection will focus on COTA's funding forecast.
COTA currently operates on a 0.5 percent sales tax. Half of that is permanent and half is a 10-year levy approved in 2006. The sales tax is collected in Franklin County and portions of most of its municipalities that extend into contiguous counties.

COTA's sales tax base is projected to grow an average of 3.0 percent annually through 2040. This projection is based on FY 2011 Congressional Budget Office's Economic Outlook where GDP & CPI are projected over a 20-year horizon. The 3.0 percent projection represents a simple average of those two key drivers of taxable sales, plus an increment representing the stronger-than-average growth in the Central Ohio Region.

Federal Section 5307 Urban Formula grants are based on various demographic, service level, and ridership variables. Factors in the formula that allocates grants to urbanized areas are estimated based on an assumed annual growth in total Section 5307 funds, adjusted to account for increases in COTA's transit service and demographic base over which these grants are applied, to the extent necessary.

Section 5339 Bus and Bus-Related discretionary and formula grants can be used to purchase buses and bus-related assets. The Transportation Plan assumes COTA will receive matching grants on bus purchases subject to an annual cap of $1.0 million in base-year dollars.

Fare revenues are based on COTA's projected ridership for existing bus services,

TABLE 7.16

Forecast of COTF Funds

Fund	Amount
Available Statewide, 2016	$6.2 million
Annual Growth Rate, 2017-2040	2.5%
Average Proportion of MORPC Area to State Population, 2017-2040	14.2%
Number of Years, 2017-2040	24
COTF Funds Available to Area, 2017-2040	**$30 million**

TABLE 7.17

Forecast of RTP Funds

Fund	Amount
Annual Statewide Allocation, 2017	$1.6 million
FAST Act Increase	8.5%
Base Year Allocation, SFY 2018	$1.8 million
Annual Growth Rate	2.5%
Number of Years, 2019-2040	22
Total Available	**$7.6 million**

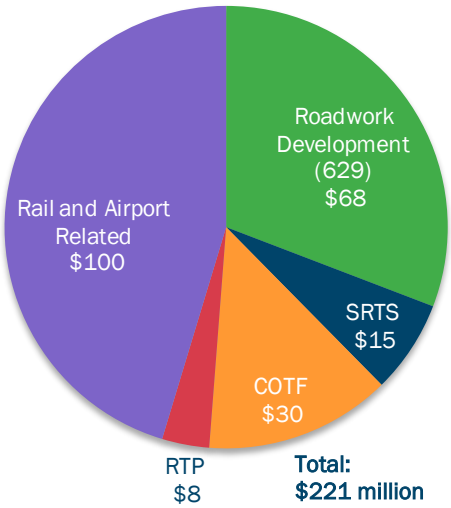

FIGURE 7.2

Summary of Forecast of Other Funds (in millions)

TABLE 7.19

Forecast of Transit Funds

Fund	Amount
FTA Federal (formula-based)	$492 million
FTA Federal (competitive grants)	$288 million
State	$36 million
Local	$5,583 million
Total	**$6,399 million**

as well as projected ridership from COTA's Long-Range Transit Plan. Average fare paid per passenger is assumed to grow with inflation, adjusted every three years. Other transit-related revenue such as advertising, lease income and some state operating assistance, is based on current budget values adjusted annually to account for growth in inflation, level-of-service, ridership, and/or demographics. In FY 16 COTA was successful in receiving a small starts FTA grant of $38 million for the Cleveland Avenue BRT. The discretionary Capital Investment Grant (CIG) program provides funding for small starts investment projects such as bus rapid transit. As COTA works to develop additional high-capacity transit corridors in the region, the MTP assumes it will be successful in obtaining future FTA grants for these. In total over the next 24 years, the amount of grants for these would be an additional $250 million.

In summary, Table 7.19 provides the forecasted funding from federal, state, and local sources for transit from 2016-2040.

TABLE 7.20

Summary of Forecast of Transportation System Funds

Funding Category	Total
TRAC	$1,021 million
ODOT	$3,771 million
National Discretionary	$135 million
STP-M	$685 million
CMAQ-M	$327 million
TAP-M	$69 million
CEAO	$299 million
OPWC	$600 million
Local	$5,393 million
Private	$683 million
Other	$221 million
Transit: FTA, State, Local	$6,399 million
	$19,602 million

TRANSPORTATION SYSTEM FUNDING SUMMARY

Table 7.20 and Figure 7.3 provide a summary of the expected funds available through the year 2040 for the transportation system from all sources. Figure 7.3 collapses the 12 categories from Table 7.20 into 8 funding categories.

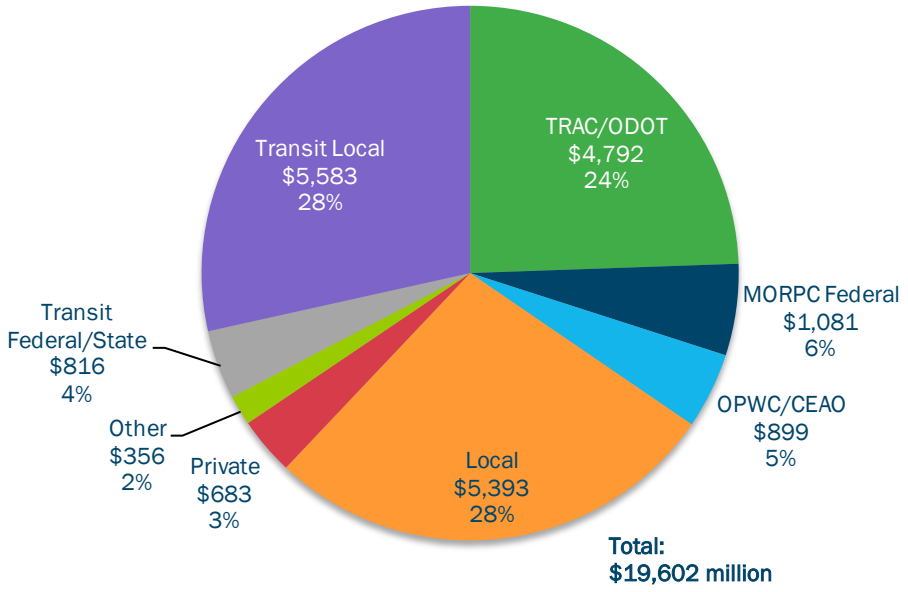

FIGURE 7.3

Summary of Forecast of Transportation System Funds (in millions)

7.3 Additional Funding Options

MORPC is proactively seeking additional funding for the transportation system. MORPC is active at both the state and federal level to explain the need for additional funding. A variety of options is continuously being discussed. These options include a variety of potential options to raise revenue for transportation projects. Some of these alternative financing mechanisms are briefly described below, with a few being new to Ohio.

ADJUSTING MOTOR FUEL TAXES

The Ohio General Assembly last acted to raise the state motor fuel tax in 2003. The tax rate was increased in two-cent increments over the course of three years for a total increase of six cents, from 22 cents per gallon in 2003 to the current rate of 28 cents in 2005.

Some states allow for automatic increases in their fuel taxes by indexing the taxes to the Consumer Price Index or a similar metric, to try to keep revenues for transportation improvements in line with cost increases. A variation on this is to index the motor fuel excise tax to fuel prices, to try to maintain the level of revenues, even as prices of fuel increase, and the amount of fuel sold drops. Indexing can also include a ceiling or floor on the indexed rate. The neighboring states of West Virginia and Kentucky, for example, have some variability built into their fuel taxes.

Another option to adjust for the amount of fuel sold, used by some states, is to implement a fuel sales tax. Some states use this in combination with the more traditional fuel excise tax.

ADJUSTING VEHICLE REGISTRATION FEES

Adjusting vehicle registration fees can be another method to generate additional funds for transportation. Vehicle registration fees are relatively inexpensive to administer and can be collected from non-gasoline vehicles that may not be subject to fuel taxes. Registration fees can be keyed to a vehicle's size and its effect on the roads (larger vehicles pay higher rates).

Vehicle fees can also be based on the vehicle value. Such a tax would be a progressive tax and would have good revenue-generating potential and less cost to taxpayers. This type of tax may also be deductible for individual federal income tax purposes.

TAX ON SALE OF NEW AND USED VEHICLES

A tax on the sale of new or used vehicles could be dedicated to transportation purposes. This is done in several states and has potential to generate significant funds.

CONGESTION-RELATED FEES

Congestion fees are charged to drivers based on the current level of congestion and may vary throughout a day. It is not widely used in the U.S., except on some existing toll facilities and on some public transit systems. This is a potential revenue generator and also a tool to discourage travel during the busiest times. The fee can also be indexed to inflation.

TOLLS ON ROADS, LANES, OR BRIDGES

With appropriate legislation, private entities could initiate proposals for a new toll facility. Tolls also could be used on new truck lanes or high-occupancy vehicle lanes. Tolls can also be added to capacity additions to existing facilities.

VEHICLE-MILES-OF-TRAVEL (VMT) FEES

This is a concept, where fees would be tied to the amount of travel someone does; those who put more miles on their vehicles would pay more. This is made increasingly feasible by new technology. This a longer term option and could be used to supplement or replace fuel taxes. A few states have completed preliminary studies on the use of this new concept.

PUBLIC-PRIVATE PARTNERSHIPS

Public-private partnerships (PPP) can be used to fund road construction, operation or maintenance. Public-private partnerships are more commonly used in Europe and have been tried by some states in the U.S. It has the potential for significant cost savings and can facilitate access to private capital. ODOT recently initiated one of its first large PPPs in southern Ohio for the Portsmouth bypass, which is now under construction.

7.4 Project Evaluation and Selection Process

The development of this plan, covering the years 2016-2040, is a collaborative effort of all the jurisdictions within the MORPC MPO area. The strategies projects included in the MTP represent the consensus of these jurisdictions as to the transportation system investments that are to take place through the year 2040 with the federal, state, local, private and other financial resources reasonably expected to be available within the planning area.

Most of the strategies mentioned throughout the previous chapters and summarized in Chapter 8 address maintaining and expanding the transportation system. The specific transportation infrastructure projects included in the MTP are listed in Section 8.#. These include a few general listings, which provide for maintaining the existing transportation system, including transit operations. The majority, however, are individual projects to add capacity to the transportation system. The planning process leading to this MTP identified over 1000 candidate projects to expand the transportation system. The total cost for these far exceeds the amount of financial resources reasonably expected to be available through the year 2040. Therefore, a selection process was established to determine which projects and strategies to include in the MTP.

As discussed in Chapter 1, goals and measureable objectives were established for the MTP. During the establishment of these, evaluation criteria were also established to evaluate the transportation system expansion projects. The evaluation criteria are tools to help ensure consistency between plan recommendations and the goals. These criteria were applied to the candidate transportation projects considered for inclusion in the MTP.

In applying the evaluation criteria, the projects were divided into similar project types. Quantitative measures were compared against the distribution of values within that project type to help gauge how a project measures relative to similar projects. Each project also received a statement about qualitative criteria, taken into consideration in assigning the score for the corresponding goal. In evaluating the projects, each received a score on a 0 to 20 point scale relative to each of the six goals. The criteria measures helped MORPC staff subjectively assign a score to the project relative to each goal. One can find more information on the criteria, scores and rankings in Appendix B.

As mentioned above, the criteria were tools in the development of the MTP. The scores provided a starting point to identify the projects that would likely best help achieve the measurable objectives. The score for each goal was considered, along with knowledge of the communities' desires and input received through 2015, which led to the development of the first draft of projects that was made available for member and public comment in January 2016.

Another consideration in the selection of projects as discussed in Section 7.2 is

The score for each goal was considered, along with knowledge of the communities' desires and input received.

the forecasts of funds reasonably expected to be available through the year 2040. The different funding sources generally are used for different project types. Each strategy or project was matched to the appropriate funding source(s). In aggregate, the compilation of project types and strategies in the transportation plan must align with the funding available to fund those types of projects and strategies.

Although the evaluation process attempts to capture the major considerations in selecting projects, there are always special considerations that need to be addressed either as a general strategy or with regard to a particular project. These could include the needs of special populations, environmental considerations and development and economic impacts. Additionally, public input always plays a role in determining the final MTP strategies and projects. MORPC received comments continually throughout the process.

Based on feedback during the various comment periods and additional refinement of the funding forecasts, an updated project list was included as part of the draft of the complete MTP that was made available for public comment in early March 2016. Further comments were received through mid-April 2016. These comments we considered for additional refinement to the funding forecast and to the projects to be included in the MTP.

7.5 Fiscal Constraint Summary

The project listing in Chapter 8 identifies the estimated time period for each project. Projects that are on the SFY 2016-2019 TIP or a local government capital improvement program have a specific year identified for construction. These are near-term projects that are actively under development and for which the project sponsor is able to provide a construction year. Correspondingly, the cost shown in the project listing is in construction year dollars. Most of the remaining projects are classified into a period of by 2020 (near-term), 2021-2030 (medium-term), or 2031 to 2040 (long-term). For the latter two categories of projects, a total cost range is provided to reflect the uncertainty in the year of construction and the ultimate scope of the project since there has been little to no project development work completed for it at this time. A few project listings are line items to reflect ongoing activities throughout the transportation plan period with the cost reflecting an estimate of the aggregate amount to be expended between 2016 and 2040.

Table 7.22 summarizes the estimated cost by project type for the specific projects and strategies presented in the project listing.

In total, the MTP includes $19.5 billion in strategies and projects. Of this $8 billion is for expansion of the transportation system, while the majority, $11.5 billion, is to maintain the existing system.

The specific projects identified in the MTP are a type of strategy. Some items in the project list encompass the ongoing operation, maintenance, and preservation of the existing transportation system. This includes, in general, the operation and expansion of transit service. However, most of the items listed are projects to expand the physical components of the transportation system. The MTP includes projects that add approximately 88 lane miles of freeways, modify 17 freeway interchanges and build two new ones. Projects to expand the arterial and collector roadways include 45 new road segments and through lane additions on 49 road segments, totaling approximately 275 new lane miles. There are also 135 minor widening or intersection projects on arterial and collector roadways impacting approximately 150 miles of existing roads. The arterial and collector projects will include accommodations for pedestrians and bicyclists. The MTP also includes approximately 240 miles of off-road shared-use paths. It also includes a 15 percent increase in fixed-route transit service hours.

TABLE 7.22

Estimated Costs by Project Type

Project Type	Total Cost (millions)
Management & Operations	
General Preservation & Maintenance	$6,659
ITS	$119
Access Management	$15
Operational Changes & One-way/Two-way Conversions	$25
Freeway-Related	
New Freeway	$0
Convert to Freeway	$306
Major Freeway Widening	$965
New Interchange	$267
Interchange Modification	$1,286
Lane Management	$426
Non-Freeway Roadways	
Major Surface Street Widening	$865
Minor Widening	$914
New Roadway	$850
New Bridge	$0
Intersection Modification	$178
Bicycle & Pedestrian Stand-Alone	
Multi-use Path	$256
Bike Lane or Wide Shoulder	$64
Sidewalk	$11
Complete Street Facility	$166
Transit	
Local & Express Bus Service	$6,069
High-Capacity Transit	$49
Other (airport or railroad-related, studies)	$105
Total	**$19,597**

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Chapter 8:
Summary of Strategies and Projects

The strategies and projects included in the MTP specific to various elements of development, transportation components, and travel demand have been described in Chapters 2 through 6. This chapter summarizes all of the strategies and projects, focusing back on the plan goals. This chapter also addresses air quality, environmental justice, and an overview of environmental mitigation with regard to the projects.

8.1 Strategies

Just as objectives were developed to measure progress in achieving each goal, strategies were identified as a plan of action for moving the region forward. Many of the strategies apply to more than one of the goals. These strategies are meant to be executed through collaborative efforts among MORPC and other regional planning partners.

The strategies proposed throughout the MTP are summarized in Table 8.1. The notation to the right of each item shows the related goals. Several strategies

TABLE 8.1

Summary of Strategies

Strategy	Related Goals
Collaborate to reduce the need for vehicle travel through development regulations.	
Create travel demand management (TDM) partnerships among the facilitators and providers of alternative modes of transportation, community leaders, and institutions that make up high-density trip-generating districts.	
Improve marketing of regional travel demand management (TDM) programs to increase use of transit, ride-share, bicycling, and walking.	
Create plans and partnerships to attract investment in alternative fuel vehicles and infrastructure.	
Alleviate existing or anticipated congestion.	
Improve employee and customer access to businesses through infrastructure and outreach.	
Improve fixed-route and demand-response transit service.	
Improve connections and coordination among transit system operators and other modes of transportation.	
Support efforts to introduce fixed-guideway transit service.	
Collect information on and analyze freight activity to identify developing trends, and work to disseminate that information among partners and peers.	
Forge public/private partnerships to provide resources to maintain and expand key linkages among air, rail and roadway transportation modes.	
Make transportation decisions that positively impact freight movements and maximize the effectiveness of the region's integrated freight transportation system.	
Make neighborhoods walkable, bikeable, and accessible by transit through both infrastructure and non-infrastructure projects and programs.	
Increase the quantity and quality of data on bicycle and pedestrian travel behavior.	

relate to expanding the transportation system through projects. These include projects that add roadway capacity, expand the transit system, or provide more bike and pedestrian facilities. Details about each of the strategies and projects can be found in the previous chapters.

The specific projects identified in the MTP are a type of strategy. Some items in the project list encompass the ongoing operation, maintenance, and preservation of the existing transportation system. This includes, in general, the operation and expansion of transit service. However, most of the items listed are projects to expand physical components of the transportation system.

TABLE 8.1

Summary of Strategies, continued

Strategy	Related Goals
Expand bicycle and pedestrian networks through the implementation of complete streets and multi-use path connections.	
Collect, develop, maintain, and share data and information to improve local decision-making.	
Multi-jurisdictional dialogue to improve opportunities for collaboration.	
Collaborate on a selection process that advances short-term project priorities through the Transportation Improvement Program (TIP).	
Promote and strengthen security and emergency preparedness efforts.	
Improve traffic and transit operations by increasing efficiency through investment in advanced technology .	
Establish consistent data collection procedures and standard rating systems concerning roadway condition.	
Preserve and maintain the existing transportation system.	
Broaden the transportation system managed in a coordinated manner.	
Develop a regional multi-modal traveler information system.	
Develop a transportation system to serve all demographic population groups.	
Ensure the accuracy, availability, and timeliness of crash data and information.	
Reduce the occurrence of severe crashes and address high-crash locations.	
Support and advance initiatives that address high-risk drivers and behaviors.	
Improve human services transportation and coordination with public transit.	

8.2 List and Map of Projects

The MTP includes projects that:

- Add approximately 102 lane miles of freeways
- Modify 16 freeway interchanges
- Build 4 new freeway interchanges
- 79 new arterial or collector roadway segments, totaling 82 miles
- Lane additions on 42 segments of roadway, totaling 66 miles
- Minor widening/safety improvements on 65 segments of roadway, totaling 96 miles
- 234 miles of off-road multi-use paths
- 42 miles of bike lanes or wide shoulders
- 9 miles of new sidewalks
- 11% increase in fixed route transit service hours
- 19 high capacity transit corridors identified for further study

The project listing on the following pages provides a brief project description and identifies the cost for each project. Projects that are on the SFY 2016-2019 TIP or a local government capital improvement program have a specific year identified for construction. These are short-term projects that are actively under development and for which the project sponsor is able to provide a construction year. Correspondingly, the cost shown in the project listing is in construction year dollars. Most of the remaining projects are classified into a period of 2020-2030 (medium-term), and 2030-2040 (long-term). For these projects, an estimated cost range is provided to reflect the uncertainty in the year of construction and the ultimate scope of the project. A few project listings are line items to reflect ongoing activities throughout the transportation plan time frame, with the cost reflecting an estimate of the aggregate amount to be expended between 2016 and 2040.

Map 8.1 shows all of the projects, labeled with the project ID that corresponds to the project listing.

2016-2040 Metropolitan Transportation Plan Project Listing

Unmapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
5	COTA & DATA Expand Bus Service Beyond 2016 Levels, Local or express bus service	*6*	2016-2040	$750.9
142	Transit Replacement Buses and Other Capital Expenses, Local or express bus service	*6*	2016-2040	$1162.7
143	Air Quality Planning and Demand Management, Studies/Other	*6*	2016-2040	$25
144	Transportation Planning Studies, Studies/Other	*6*	2016-2040	$10
185	Isolated Intersection Improvements to Improve Safety and/or Operations, Management and Operations	*6*	2016-2040	$74
186	Stand alone bike/ped projects not on TIP or along ATP or COG corridors,	*6*	2016-2040	$75
200	Maintain COTA and DATA Service at 2016 Levels through 2020, Local or express bus service	*6*	2016-2040	$587.4
201	Maintain COTA and DATA Service at 2016 Levels 2021-2030, Local or express bus service	*6*	2016-2040	$1484.4
202	Maintain COTA and DATA Service at 2016 Levels 2031-2040, Local or express bus service	*6*	2016-2040	$2084.1
203	Repair/Replace Deficient Bridges, Management and Operations	*6*	2016-2040	$600.2
204	Freeway/Arterial/Collector 2016-2020, Management and Operations	*6*	2016-2040	$810.9
205	Freeway/Arterial/Collector 2021-2025, Management and Operations	*6*	2016-2040	$1108.2
206	Freeway/Arterial/Collector 2026-2030, Management and Operations	*6*	2016-2040	$1223.5
207	Various Intermodal Yards, rail improvements and access roads, Railroad Related	*6*	2016-2040	$30
215	Various Airport Intermodal and access roads improvements, Airport Related	*6*	2016-2040	$40
334	Various Corridor Coordinated Signalization Activities, Management and Operations/ITS	*6*	2016-2040	$75
1180	Freeway/Arterial/Collector 2031-2035, Management and Operations	*6*	2016-2040	$1350.9
1181	Freeway/Arterial/Collector 2036-2040, Management and Operations	*6*	2016-2040	$1491.5

*Time Period: 1=Construction is on the SFY 16-19 TIP; 2=Non-Construction Phase on the SFY 16-19 TIP, 3=Construction by 2020, 4=Construction between 2020 and 2030, 5=Construction between 2030 and 2040; 6=Ongoing from 2016-2040, 7=Under study

2016-2040 Metropolitan Transportation Plan Project Listing

morpc

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
1	Lockbourne Rd. from SR 104 (Frank-Refugee Freeway) to Livingston Ave. (US 33), Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$30.7 - $36.4
2	Mckinley Ave. from Grandview Ave. to Central Ave., Add turn lanes and complete street facilities to 4 lane roadway	*5*	2030-2040	$13.1 - $16.8
3	Williams Rd. from Alum Creek Dr. to Hamilton Rd., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$19 - $24.7
7	Hayden Run Blvd. from Golden Cascade Dr. to Avery Rd., New Roadway 2 lane(s) each direction with complete street facilities	*1*	2016	$15.3
8	Cosgray Rd. extension from Alton & Darby Creek Rd. s. of Davis Rd. to Scioto & Darby Creek Rd. at Cosgray Rd., New Roadway 2 lane(s) each direction with complete street	*1*	2019	$13.3
9	Leppert Rd. from Scioto Darby Rd. to Hayden Run Rd., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$6.9 - $9
11	Lazelle Rd. from Flint Rd. to Sancus Blvd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*1*	2018	$23.4
12	Sunbury Rd. from Agler Rd. to Morse Rd., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$14.6 - $19
13	Hamilton Rd. ext. from Hamilton Rd. (s. of old Dub.-Granvl. Rd) to Dublin-Granville Rd., New Roadway 2 lane(s) each direction with complete street facilities	*1*	2017	$7.1
14	Watkins Rd. from Groveport Rd. to Alum Creek Dr., Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$22.5 - $28.9
17	Veterans Pkwy. from US 23 at US 42 to US 36/SR 37, New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$40 - $51.9
18	Galloway Rd.-Hilliard Rome Rd. connector from Broad St. (US 40) to Feder Rd., New Roadway 2 lane(s) each direction with complete street facilities	*5*	2030-2040	$15.5 - $19.3
23	Tuttle Crossing Blvd. extension from Avery Rd. to Wilcox Rd., New Roadway 2 lane(s) each direction with complete street facilities	*1*	2019	$12.1
26	Avery Rd. from Rings Rd. to Woerner-Temple Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*3*	2016-2020	$7.4 - $8.6
33	Gender Rd. from US 33 (Southeast Freeway) to Brice Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*5*	2030-2040	$52.7 - $67.5
34	Alum Creek Dr. from Refugee Rd. to Frebis Ave., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*1*	2017	$16.3
36	US 23 at Pennsylvania Ave., Interchange modification	*1*	2016	$3.5
39	Trabue Rd./Renner Rd. from Hilliard-Rome Rd. to Conrail overpass, Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*5*	2030-2040	$31.4 - $39.9
40	I-270 (North Outerbelt) at SR 315 (Olentangy Freeway), Reconfigure slip, loop and/or directional interchange ramps	*5*	2030-2040	$67.7 - $86.7
42	Avery Rd. from Britton-Cosgray connector to Tuttle Crossing Blvd. extension, Widen road from 2 lanes to 6 lanes total both directions with complete street facilities	*4*	2020-2030	$9.3 - $12.1
43	Kinnear Rd. from North Star Rd. to Olentangy River Rd., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$9.4 - $12.1
48	Sunbury Rd. from Morse Rd. to SR 161, Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$13.5 - $17.5
49	Hudson St. from McGuffey Rd. to Cleveland Ave. (SR 3), Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$9.7 - $12.4
53	Cassady Ave. from Bexley north corp. limit to Agler Rd., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$23.1 - $30
54	Hamilton Rd. from Chilmark Dr. to Hamilton Rd. realignment (ID 13), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*4*	2020-2030	$11.2 - $14.3
55	Sunbury Rd. from Leonard Ave. to Agler Rd., Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$20.9 - $26.7
58	I-70 (East Freeway) at Brice Rd., Interchange modification	*4*	2020-2030	$20.8 - $27
59	Courtright Rd. from Refugee Rd. to Livingston Ave., Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$28.9 - $37
60	I-70 (East Freeway) at SR 256 and at Taylor Rd./SR 204, Interchange modification	*4*	2020-2030	$99.2 - $128.8

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2016-2040 Metropolitan Transportation Plan Project Listing

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
62	Williams Rd. from Corr Rd./Lockbourne Rd. to Alum Creek Dr., Add turn lanes and complete street facilities to 2 lane roadway	4	2020-2030	$11.9 - $15.4
63	Groveport Rd. from Watkins Rd. to Williams Rd., Add turn lanes and complete street facilities to 2 lane roadway	5	2030-2040	$10.5 - $13.4
64	I-70 (East Freeway) from SR 256 (Baltimore-Reynoldsburg Rd.) to SR 310 (Hazelton-Etna Rd.), Widen freeway from 4 lanes to 6 lanes total both directions	4	2020-2030	$76.4 - $99.2
66	Trueman Blvd.-Edwards Farms Rd. connector from Davidson Rd. to Edwards Farms Rd., New Roadway 2 lane(s) each direction with complete street facilities	1	2021	$6.4
67	US 33 (Riverside Dr.) from Lane Ave. to Fishinger Rd., Add turn lanes and complete street facilities to 4 lane roadway	5	2030-2040	$34.6 - $44
69	Worthington-Galena Rd. from Wilson Bridge Rd./Huntley Rd. to Sancus Blvd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	1	2018	$7.8
70	Worthington-Galena Rd. from Sancus Blvd. to Lazelle Rd., Add turn lanes and complete street facilities to 2 lane roadway	4	2020-2030	$27.6 - $35.9
72	Sunbury Rd. from County Line Rd./Smothers Rd. to Maxtown Rd., Widen road from 2 lanes to 3 lanes total both directions with complete street facilities	1	2017	$7.7
75	SR 310 (Hazelton-Etna Rd.) from I-70 (East Freeway) to US 40 (National Rd.), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	4	2020-2030	$10 - $12.8
76	I-70 (East Freeway) at SR 310 (Hazelton-Etna Rd.), Interchange modification	1	2016	$14.8
77	SR 256 (Hill Rd.) from Diley Rd. to Town Square Dr., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	4	2020-2030	$22.6 - $29.3
79	Hamilton Rd. (SR 317) from Refugee Rd. to I-70 (East Freeway), Add turn lanes and complete street facilities to 4 lane roadway	1	2018	$21.7
80	I-270 (South Outerbelt) at US 33 (Southeast Freeway), Reconfigure slip, loop and/or directional interchange ramps	4	2020-2030	$151.2 - $196.5
81	US 33 (Southeast Freeway) from Gender Rd. (SR 674) to Hill Rd./Diley Rd., Convert 4 lane roadway to 4 lane freeway	5	2030-2040	$3.1 - $4
82	US 33 (Southeast Freeway) from Hamilton Rd. (SR 317) to Gender Rd. (SR 674), Convert 4 lane roadway to 4 lane freeway	5	2030-2040	$3.1 - $4
83	US 33 (Southeast Freeway) at Bixby Rd., New interchange	5	2030-2040	$72.8 - $93.2
84	Tussing Rd. from Brice Rd. to SR 256 (Reynoldsburg-Baltimore Rd.), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	4	2020-2030	$23.6 - $30.2
85	US 62/SR 3 (Harrisburg Pk.) from Hyde Rd. to Eakin Rd./Hopkins Ave., Add turn lanes and complete street facilities to 2 lane roadway	4	2020-2030	$15.9 - $20.4
88	Home Rd. extension from US 23 (Columbus Pk.) to Lewis Center Rd. (east of railroad), New Roadway 2 lane(s) each direction with complete street facilities	1	2020	$15.2
90	Glenn Pkwy. Extension from Existing Glenn Pkwy. to Berlin Station Rd., New Roadway 2 lane(s) each direction with complete street facilities	4	2020-2030	$2.6 - $3.3
91	Scioto & Darby Creek Rd. from Cosgray Rd. to Bradford Dr., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	4	2020-2030	$9.2 - $12
92	Broad St. (SR 16) from McNaughten Rd. to Taylor Rd., Widen road from 4 lanes to 6 lanes total both directions with complete street facilities	5	2030-2040	$77.8 - $98.9
93	Roberts Rd. from Alton & Darby Creek Rd. to Hilliard Rome Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	5	2030-2040	$23.6 - $30.2
94	Cosgray Rd. from Scioto & Darby Creek Rd. to Hayden Run Rd, Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	4	2020-2030	$19.1 - $24.4
95	Valleyside Dr. from US 36 (William St.) to SR 37 (Central Ave.) at Lexington Blvd., New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$0.2 - $0.3
96	Sawmill Pkwy. extension from US 42 at Sawmill Pkwy. (s. of Slack Rd.) to Section Line Rd. (south of Airport Rd.), New Roadway 1 lane(s) each direction with complete stree	5	2030-2040	$13.1 - $16.8
97	Home Rd. from Section Line Rd. to US 23 (Columbus Pk.), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	5	2030-2040	$22.6 - $29
98	Old State Rd. from Polaris Pkwy. (SR 750) to Orange Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	1	2017	$22.2
99	US 36/SR 37 from I-71 to SR 3, Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	4	2020-2030	$27.9 - $35.5

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2016-2040 Metropolitan Transportation Plan Project Listing

morpc

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
100	SR 665 (London-Groveport Rd.) from Hoover Rd. to SR 104 (Jackson Pk.), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*4*	2020-2030	$18.3 - $23.2
102	SR 665 (London-Groveport Rd.) from US 62 (Harrisburg Pk.) to Gateway West Dr., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$11.5 - $14.7
104	Houk Rd. from US 36 (William St.) to SR 37 (Central Ave.), Add turn lanes and complete street facilities to 2 lane roadway	*3*	2016-2020	$3 - $3.4
108	Britton Pkwy. from Davidson Rd. to Hayden Run Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*3*	2016-2020	$10.6 - $12.2
110	Waggoner Rd. from Main St. (US 40) to Broad St. (SR 16), Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$18.3 - $23.4
111	SR 310 (Hazelton-Etna Rd.) from US 40 (National Rd.) to Mill Street Rd., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$15 - $19.2
113	Noe Bixby Rd. from Winchester Pk. to Main St. (US 40), Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$51.6 - $66.1
118	Livingston Ave. from Country Club Rd. to Briceton Dr., Add turn lanes and complete street facilities to 4 lane roadway	*4*	2020-2030	$29.1 - $37.5
122	Johnstown Rd. from Goshen La. to Stygler Rd., Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$3.4 - $4.3
126	I-71 (East Innerbelt) from I-70/I-71 (South Innerbelt) to I-670/Fort Hayes Interchange, Widen freeway from 6 lanes to 8 lanes total both directions	*4*	2020-2030	$101.5 - $131.9
127	Cemetery Rd. from Main St. (Hilliard) to Norwich St., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*4*	2020-2030	$5.1 - $6.6
129	Courtright Dr. extension from SR 256 (Hill Rd.) to Milnor Rd., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$4.4 - $5.7
133	US 23 (Columbus Pk.) at SR 315 and Stratford Rd., Add/Modify turn lanes and add complete street facilities	*1*	2016	$3.4
135	I-70 (East Freeway) at I-270 (East Outerbelt), Reconfigure slip, loop and/or directional interchange ramps	*4*	2020-2030	$71 - $92.3
140	I-71 (South Freeway) at I-270 (South Outerbelt), Reconfigure slip, loop and/or directional interchange ramps	*4*	2020-2030	$32.3 - $42
146	Polaris Pkwy. from I-71 (North Freeway) to to Worthington Rd., Widen road from 4 lanes to 6 lanes total both directions with complete street facilities	*1*	2018	$8.1
147	James Rd. from Livingston Ave. to Main St. (US 40), Add turn lanes and complete street facilities to 4 lane roadway	*1*	2016	$9.7
148	Rings-Tuttle Crossing connector from Rings Rd. (at Rings Rd. relocation) to Tuttle Crossing Blvd., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$2 - $2.5
152	Hill Rd. from Hill Rd. relocation (n. of Busey Rd.) to Columbus St. (SR 256), Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$3.8 - $4.9
153	Busey Rd. from Bowen Rd. to Allen Rd., Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$23.9 - $30.1
155	Bixby Rd. from US 33 (Southeast Freeway) to Winchester Pk., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*5*	2030-2040	$16.7 - $21.4
166	US 33/SR 161 at Frantz Rd/Post Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.8 - $2.3
168	Taylor Rd. from Taylor Rd. SW to Windsor Rd., Add turn lanes and complete street facilities to 2 lane roadway	*1*	2016	$5.3
173	Waggoner Rd. from Broad St. (SR 16) to Havens Corners Rd., Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$20.4 - $25.8
174	Bixby Rd. from Ebright Rd. to US 33 (Southeast Freeway), Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$10.2 - $13.2
175	Bixby-Sims connector from Bixby Rd. (west of US 33) to Sims Rd. (at Winchester Blvd. extension), New Roadway 2 lane(s) each direction with complete street facilities	*5*	2030-2040	$7.5 - $9.4
176	SR 317 (London-Groveport Rd.) from Alum Creek Dr. to Main St. (Groveport Rd.), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*4*	2020-2030	$25.7 - $32.9
177	Groveport Rd. from Williams Rd. to Alum Creek Dr., Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$23.1 - $29.6
178	I-71 (South Freeway) at Stringtown Rd., Interchange modification	*4*	2020-2030	$32.2 - $41.9

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2016-2040 Metropolitan Transportation Plan Project Listing

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
182	Courtright Rd. extension from Milnor Rd. to Pickerington Rd. at Stemen Rd., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$1.6 - $2.1
183	Stygler Rd. from Johnstown Rd. to US 62, Add turn lanes and complete street facilities to 2 lane roadway	*1*	2016	$0.6
187	Third Ave. from Edgehill Rd. to Olentangy River Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*5*	2030-2040	$7.8 - $9.9
188	I-270 (South Outerbelt) at High St. (US 23), Interchange modification	*4*	2020-2030	$20 - $25.9
189	I-70/I-71 (South Innerbelt) at I-71S/SR 315 (west interchange), Reconfigure slip, loop and/or directional interchange ramps	*5*	2030-2040	$338.1 - $432.8
192	Frantz Rd. extension from Post Rd. to High St. (Dublin Rd./SR 745), New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$3.3 - $4.3
193	Eiterman Rd. relocation from Cosgray Rd. to Eiterman Rd., New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$4.8 - $6.3
196	Broad St. (SR 16) at James Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.8 - $2.3
197	Cleveland Ave. at Oakland Park Ave., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.8 - $2.3
199	Livingston Ave. (US 33) at Alum Creek Dr., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.8 - $2.3
208	High St. (US 23) at Obetz Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.8 - $2.3
209	Morse Rd. at Westerville Rd. (SR 3), Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.3 - $1.7
211	Henderson Rd. at Olentangy River Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.3 - $1.7
212	Dublin-Granville Rd. (SR 161) at Karl Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.3 - $1.7
213	Cleveland Ave. (SR 710) at Schrock Rd. (SR 710), Add/Modify turn lanes and add complete street facilities	*1*	2016	$13.9
214	Goodale Blvd. from Edgeworth St. to Olentangy River Rd./Twin Rivers Dr., Add turn lanes and complete street facilities to 4 lane roadway	*4*	2020-2030	$3.6 - $4.7
218	Ebright-Bixby interchange connector from Ebright Rd. (north of rail line) to Bixby-Sims connector (future), New Roadway 2 lane(s) each direction with complete street faciliti	*5*	2030-2040	$9.9 - $12.6
221	Big Walnut Rd. at Tussic Street Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$2.3 - $2.9
222	South Old State Rd. at Cheshire Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.5 - $1.9
223	Hills Miller Rd. at Troy Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.1 - $1.5
224	Cheshire Rd. at Africa Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.9 - $2.4
225	Cheshire Rd. at Galena Rd./Rome Corners Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$2.3 - $2.9
226	Liberty Rd. at Jewett Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.9 - $2.4
227	Churchman Rd. (Rings Rd. relocation) from Marmion Dr. to Rings Rd. (west of 3rd Ave in Amlin), New Roadway 1 lane(s) each direction with complete street facilities	*1*	2016	$2.8
232	Scioto Darby Rd. at Walcutt Rd., Add/Modify turn lanes and add complete street facilities	*1*	2018	$4.4
233	Milnor Rd. from Pickerington Rd. to Refugee Rd., Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$9.5 - $12.2
235	Hill Rd. (SR 256) at Refugee Rd., Add/Modify turn lanes and add complete street facilities	*3*	2016-2020	$1.8 - $2.1
236	Pickerington Rd. (Center St.) at Milnor Rd./Meadows Blvd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$2.8 - $3.5
239	Winchester Pike at Ebright Rd./Shannon Rd., Add/Modify turn lanes and add complete street facilities	*1*	2017	$2.5

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morpc

Mapped Projects - Sorted by Project ID -

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242	Gender Rd. at Refugee Rd., Add/Modify turn lanes and add complete street facilities	*1*	2016	$7
248	Avery-Muirfield Dr. at Perimeter Dr. & Perimeter Loop Dr., Construct roundabout with complete street facilities	*3*	2016-2020	$6.8 - $7.8
250	Columbus St. (Wright Rd.) from Diley Rd. to Hill Rd. (SR 256), Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$9.2 - $11.7
251	SR 521 at Bowtown Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$0.3 - $0.4
257	William St. (US 36) at Carson Farms Blvd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$0.3 - $0.4
258	Central Ave. (SR 37) at Locust Curve Dr., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$0.3 - $0.4
260	US 23 (Columbus Pk.) at Cheshire Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.4 - $1.8
261	Glenn Pkwy. from Berlin Station Rd. to Glenn Rd. (south of US 36/SR 37), New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$15.7 - $20.4
262	Lazelle Rd. from Sancus Blvd. to Worthington-Galena Rd., Add turn lanes and complete street facilities to 2 lane roadway	*1*	2018	$6
263	Old State Rd. from Orange Rd. to Lewis Center Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*5*	2030-2040	$19.7 - $25.3
264	US 23 from Pennsylvania Ave. to Hills-Miller Rd., Access Management to limit and consolidate intersections and driveways	*5*	2030-2040	$2.2 - $2.9
270	I-70/I-71 (South Innerbelt) from I-71S/SR 315 (west interchange) to I-70E/I-71N (east interchange), Widen freeway from 6 lanes to 10 lanes total both directions	*4*	2020-2030	$212.8 - $276.5
271	I-70 (East Freeway) from I-71 (East Innerbelt) to Kelton Ave., Widen freeway from 8 lanes to 10 lanes total both directions	*5*	2030-2040	$100.2 - $128.2
272	Riggins Rd. extension from Wilcox Rd. to Avery Rd., New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$6.9 - $9
273	Darby Creek Trail from US 40 (National Rd.) to I-70 (East Freeway), Multiuse path	*5*	2030-2040	$3.4 - $4.3
274	Darby Creek Trail from Harrisburg-Georgesville Rd./Norton Rd. to north of Alkire Rd., Multiuse path	*5*	2030-2040	$5.3 - $6.8
275	Scioto Trail from Summit View Rd. to Powell Rd./Glick Rd. (SR 750), Multiuse path	*4*	2020-2030	$1.9 - $2.5
276	Scioto Trail from Henderson Rd. to Hanna Hills Dr., Multiuse path	*4*	2020-2030	$3.3 - $4.3
277	Scioto Trail from Fishinger Rd. to Henderson Rd., Multiuse path	*4*	2020-2030	$4.6 - $6
278	Scioto Trail from Fifth Ave. to Trabue Rd., Multiuse path	*3*	2016-2020	$1.1 - $1.3
280	Scioto Trail from south of I-270 (South Outerbelt) to Frank-Refugee Freeway (SR 104), Multiuse path	*4*	2020-2030	$4.6 - $5.9
281	Scioto Trail from London-Groveport Rd. (SR 665) to south of I-270 (South Outerbelt), Multiuse path	*4*	2020-2030	$4.5 - $5.9
282	Olentangy Trail from Mingo Park to Oakhurst Park (south of Hills-Miller Rd.), Multiuse path	*3*	2016-2020	$1.7 - $2
283	Olentangy Trail from Chapman Rd. to Armstrong Rd., Multiuse path	*3*	2016-2020	$2.4 - $2.8
284	Alum Creek Trail from Worthington Rd. to Lewis Center Rd., Multiuse path	*3*	2016-2020	$2.2 - $2.5
285	Alum Creek Trail from Existing trail end (Abb, Inc. parking lot) to Worthington Rd.., Multiuse path	*3*	2016-2020	$0.9 - $1
291	Ohio to Erie Trail (paralleling SR 3) from Cherry St. (Sunbury) to N. County Line Rd. (Licking Co. line), Multiuse path	*5*	2030-2040	$6.1 - $7.8
294	Big Walnut Trail from SR 161 to north of Central College Rd., Multiuse path	*3*	2016-2020	$1.9 - $2.2
295	Big Walnut Trail from Academy Park to SR 161, Multiuse path	*3*	2016-2020	$3 - $3.4

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2016-2040 Metropolitan Transportation Plan Project Listing

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
297	Big Walnut Trail from Livingston Ave. to Hamilton Rd. (SR 317) near Sawyer Rd., Multiuse path	*3*	2016-2020	$3 - $3.5
298	Big Walnut Trail from Hamilton Rd. (SR 317) south of Refugee Rd. to near Lattimer Dr. (south of Livingston Ave.), Multiuse path	*4*	2020-2030	$3.4 - $4.4
299	Big Walnut Trail from Groveport Rd. to Hamilton Rd. (SR 317) south of Refugee Rd., Multiuse path	*4*	2020-2030	$4.2 - $5.4
300	Big Walnut Trail from London-Groveport Rd. (SR 317) to Groveport Rd., Multiuse path	*4*	2020-2030	$4.3 - $5.5
301	Rocky Fork Trail from roughly parallel to Skipping Stone Dr. to Central College Rd., Multiuse path	*3*	2016-2020	$1.9 - $2.1
302	Rocky Fork Trail from Morse Rd. to Thompson Rd., Multiuse path	*3*	2016-2020	$0.8 - $0.9
303	Blacklick Creek Trail from J.F. Kennedy Park. (north of Broad St.) to Havens Corners Rd., Multiuse path	*3*	2016-2020	$3.4 - $3.9
306	Little Walnut Creek Trail from London & Lancaster Rd. (Pickaway Co. line) to Richardson Rd., Multiuse path	*5*	2030-2040	$5.2 - $6.6
307	Little Walnut Creek Trail from Richardson Rd. to Gender Rd. (SR 674), Multiuse path	*5*	2030-2040	$3.8 - $4.9
308	Big Run Trail from Harrisburg Pike (US 62/SR 3) to near Phelps Rd., Multiuse path	*4*	2020-2030	$3.4 - $4.4
309	Big Run Trail from I-270 (West Outerbelt) to Harrisburg Pike (US 62/SR 3), Multiuse path	*4*	2020-2030	$2.9 - $3.8
310	Camp Chase Trail from Sullivant Ave. to Eureka Ave., Multiuse path	*3*	2016-2020	$1.8 - $2
314	Hellbranch Trail from Broad St. (US 40) to Roberts Rd., Multiuse path	*5*	2030-2040	$3.8 - $4.9
315	Hellbranch Trail from parallel to Alkire Rd. to Broad St. (US 40), Multiuse path	*5*	2030-2040	$3.3 - $4.2
316	Heritage Trail from Main St (Old Hilliard) to Hilliard City Hall, Multiuse path	*1*	2016	$2.9
317	Heritage Trail from Leap Rd. to Trabue Rd., Multiuse path	*3*	2016-2020	$2.7 - $3.2
318	Hayden Run Trail from Avery Rd. to Edwards Farms Rd., Multiuse path	*4*	2020-2030	$1.7 - $2.2
319	Hayden Run Trail from Camden Place Dr. to Riverside Dr. (US 33), Multiuse path	*4*	2020-2030	$3.1 - $4.1
320	US 23 (Columbus Pk.) from Lazelle Rd. (Franklin Co. line) to US 42, Access Management to limit and consolidate intersections and driveways	*3*	2016-2020	$5 - $5.8
321	Wilson Rd. south extension (future) from Cheshire Rd. to US 36/SR 37, New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$12.6 - $16.3
322	Sunbury Pkwy. (east section) from Wilson Rd. south extension (future) to US 36, New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$16.6 - $21.5
323	Four Winds Dr. (south extension) from 3B's & K Rd. (north of Cheshire Rd.) to US 36/SR 37, New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$12 - $15.6
324	Sunbury Pkwy. (west section) from US 36/SR 37 to Four Winds Dr. extension (future), New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$11.1 - $14.5
325	Sunbury Pkwy. (middle section) from Four Winds Dr. extension (future) to Wilson Rd. south extension (future), New Roadway 2 lane(s) each direction with complete street fac	*4*	2020-2030	$10 - $13
326	Four Winds Dr. (north extension) from US 36/SR 37 to 3B's & K Rd., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$4.2 - $5.5
328	US 36/SR 37 from SR 521 to I-71, Access Management to limit and consolidate intersections and driveways	*4*	2020-2030	$3.5 - $4.5
330	Lyra Dr. from Gemini Pl. to Powell Rd., New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$17.5 - $22.7
338	Old 3C Hwy. from Mt. Royal Ave. to Freeman Rd., Add turn lanes and complete street facilities to 2 lane roadway	*1*	2016	$7.7
339	Old 3C Hwy. from Tussic Street Rd. to Harrison St. (Galena), Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$8.5 - $11.1

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2016-2040 Metropolitan Transportation Plan Project Listing

morpc

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
342	US 23 (Columbus Pk.) at Orange Rd., Add/Modify turn lanes and add complete street facilities	*1*	2016	$1.2
343	Shanahan Rd. from US 23 (Columbus Pk.) to Piatt Rd., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$7.1 - $9.3
344	3B's & K Rd. from Plumb Rd. to US 36/SR 37, Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$17.2 - $22.3
345	Cannon Dr. from Kinnear Rd. extension (future) to Lane Ave., New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$5.3 - $6.9
346	Refugee Rd. from Wheatfield Dr. to Woodstock Ave., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*1*	2019	$12
347	US 33 (College Ave.) at Petzinger Rd., New interchange	*4*	2020-2030	$28.8 - $37.4
349	SR 37 (Cherry St./Granville St.) from US 36/SR 3 to Walnut St., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$9.3 - $12.1
350	Cannon Rd. (relocation) from King Ave. to Kinnear Rd. extension (future), New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$3.2 - $4.1
359	Lazelle Rd. from High St. (US 23) to Flint Rd., Add turn lanes and complete street facilities to 2 lane roadway	*1*	2018	$4.4
360	Glick Rd. from Carnoustie Dr. to Muirkirk Dr., Multiuse path	*1*	2016	$0.6
368	Dublin Rd. from Rings Rd. to Karrer Pl., Multiuse path	*1*	2016	$2.6
369	Maxtown Rd. from Wake Dr. to Sunbury Rd., Bikelane or wide shoulder	*5*	2030-2040	$0.9 - $1.1
371	Big Walnut Creek Trail from McCorkle Park (west of Creek) to Cherry Bottom Rd. (east of Creek), Multiuse path	*1*	2016	$1.8
372	Big Walnut Creek Trail (east side of Creek) from Pizzurro Park Dr. (east of Hamilton Rd.) to Galloway Reserve (nw of I-270/Hamilton Rd.), Multiuse path	*1*	2017	$1.6
373	Cleveland Avenue Bus Rapid Transit from Downtown to Polaris Parkway, High Capacity Transit	*1*	2017	$48.6
375	I-270 from I-70 to US-33/SR-161, Widen freeway from 6 lanes to 8 lanes total both directions	*1*	2019	$65.2
376	I-71 from Pickaway County Line to SR-665, Widen freeway from 4 lanes to 6 lanes total both directions	*1*	2019	$61.6
379	US 33 from Hamilton Road to I-270 EB ramps, Widen freeway from 4 lanes to 6 lanes total both directions	*1*	2018	$5.6
380	SR 161 from US-62 to Beech Road, Widen freeway from 4 lanes to 6 lanes total both directions	*4*	2020-2030	$47.7 - $61.9
383	I-71 at TR 109 (Big Walnut Road), New interchange	*4*	2020-2030	$22.5 - $29.2
384	I-71 at Sunbury Parkway, New interchange	*4*	2020-2030	$109.9 - $142.7
385	I-71 at Jackson Pike Ramp at SR 104 (Frank Road), Modify ramp termni intersection(s)	*4*	2020-2030	$4.4 - $5.7
386	US 33 at SR-161/Post Road, Interchange modification	*5*	2030-2040	$50.5 - $64.6
387	I-270 at Cemetery Road, Interchange modification	*5*	2030-2040	$31.3 - $40.1
414	US 33 (Columbus-Lancaster Rd) from Hill Rd/Diley Rd to Lancaster Bypass, Convert 4 lane roadway to 4 lane freeway	*5*	2030-2040	$56.6 - $72.4
419	US 33/SR 161 from Dublin-Plain City Rd (SR 161/Post Rd) to Avery-Muirfield Dr, Widen freeway from 4 lanes to 6 lanes total both directions	*5*	2030-2040	$59.2 - $75.7
422	Winchester Blvd from Kroger/Home Depot Shopping Center to West, New Roadway 1 lane(s) each direction with complete street facilities	*5*	2030-2040	$21.6 - $27.6
423	High St (Canal Winchester) at US 33, New Roadway 1 lane(s) each direction with complete street facilities	*5*	2030-2040	$27.8 - $35.6
425	Brand Rd. from Avery Rd to Hyland-Croy Rd, Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*4*	2020-2030	$7.7 - $10

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2016-2040 Metropolitan Transportation Plan Project Listing

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
426	Cosgray Rd. from Dublin South Corp Limit to Tuttle Crossing Blvd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*4*	2020-2030	$2.1 - $2.7
427	Cosgray Rd. from Tuttle Crossing Blvd. to Shier Rings Rd., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$7.3 - $9.5
428	Cosgray Rd. from Shier Rings Rd. to Fishel Drive South, Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$4.3 - $5.5
430	Eiterman Rd. from Bobcat Way to Shier Rings Rd., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$4.5 - $5.9
433	Hyland-Croy Rd. from Post Rd. to Brock Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*4*	2020-2030	$23.1 - $30.1
434	Industrial Pkwy from US 42 to Memorial Dr (Plain City), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*4*	2020-2030	$33.3 - $43.3
435	Perimeter Dr. from Holt Rd./Perimeter Loop Dr. to Emerald Pkwy, Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*4*	2020-2030	$6.7 - $8.7
437	Research Pkwy. from Eiterman Rd. to SR 161/Post Rd., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$5.1 - $6.6
442	Tuttle Crossing Blvd. extension from Cosgray Rd. to Avery Rd., New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$12.4 - $16.1
443	Tuttle Crossing Blvd. extension from Amity Pike to Cosgray Rd., New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$2.6 - $3.4
444	Morrison Claycraft Trail - Morrison Rd. from Tech Center Dr. to Claycraft Rd., Multiuse path	*1*	2016	$0.4
445	Morrison Claycraft Trail - Claycraft Rd. from Morrison Rd. to Taylor Station Rd., Multiuse path	*1*	2016	$0.4
453	Norwich St. from Cemetery Rd. to Scioto Darby Rd., New Roadway 1 lane(s) each direction with complete street facilities	*5*	2030-2040	$7 - $8.9
457	Market St. extension from Reynoldsburg-New Albany Rd./High St. to 3rd St. extension, New Roadway 1 lane(s) each direction with complete street facilities	*5*	2030-2040	$0.7 - $1
458	Third St. extension (New Albany) from E. Dublin Granville Rd. to Market St. extension, New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$1.4 - $1.8
459	South Horshoe Rd. from E. Dublin-Granville Rd. to East Beech Rd., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$14.6 - $19
460	West Beech Rd. from E. Dublin-Granville Rd. to South Horseshoe Rd., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$7.7 - $10
461	Beech Rd. connector from West Beech Rd. to East Beech Rd., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$6.6 - $8.6
462	Smith's Mill Rd. extension from Smith's Mill Rd. North to Harrison Rd., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$11.1 - $14.4
463	Clover Valley Rd. extension from Jug St. to Innovation Way extension, New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$3.8 - $5
464	SR-161 from Harlem Rd. to US-62, Widen freeway from 4 lanes to 6 lanes total both directions	*4*	2020-2030	$57.1 - $74.2
465	Dublin-Granville Rd. at Fodor Rd./Market St., Construct roundabout with complete street facilities	*5*	2030-2040	$1.1 - $1.4
468	Kitzmiller Rd. at Smith's Mill Rd., Construct roundabout with complete street facilities	*5*	2030-2040	$1.1 - $1.4
471	Palmer Rd. from Graham Rd. to Ravine Way (corp limit), Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$1.4 - $1.7
474	Dublin-Granville Rd. from Sawmill Rd. to Linworth Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*5*	2030-2040	$49.2 - $63
475	East Beech Rd. from South Horseshoe Rd. to Worthington Rd., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$4.4 - $5.7
478	Johnstown Rd. Trail from Cassady Ave. to Goshen Ln., Multiuse path	*3*	2016-2020	$0.9 - $1
482	Champion Ave. at Mt. Vernon Ave., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.3 - $1.7
483	Champion Ave. at Broad St., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.3 - $1.7

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2016-2040 Metropolitan Transportation Plan Project Listing

morpc

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
494	Olentangy River Rd. from Kinnear Rd. to Henderson Rd., Access Management to limit and consolidate intersections and driveways	*5*	2030-2040	$3 - $3.8
502	Scioto Darby Rd. from Walcutt Rd. to Dublin Rd., Bikelane or wide shoulder	*4*	2020-2030	$2.8 - $3.6
505	Broad St. from Hamilton Rd. to McNaughten Rd., Multiuse path	*4*	2020-2030	$5.6 - $7.3
512	Central Ave. from Mound St. to McKinley Ave., Bikelane or wide shoulder	*4*	2020-2030	$1.9 - $2.4
513	Broad St. from Central Ave. to SR 315, Bikelane or wide shoulder	*4*	2020-2030	$1.2 - $1.6
514	Town St. from Pineridge Ave. to Grubb St., Bikelane or wide shoulder	*4*	2020-2030	$1.6 - $2
520	Galena Brick Trail (Ohio to Erie Trail) from Holmes St. to Village property line, Multiuse path	*3*	2016-2020	$0.7 - $0.8
521	Old 3C Hwy/Vans Valley Rd/Joe Walker Rd Trail from Hoover Scenic Trail to Galena Brick Trail (north of Melimare Dr.), Multiuse path	*3*	2016-2020	$0.6 - $0.7
523	Olentangy River Trail North from SR 315 to US 23 (via Taggart and Chapman), Multiuse path	*4*	2020-2030	$2.8 - $3.7
529	Scioto River Trail (west side of Riverside Dr.) from Powell Rd. to Home Rd., Multiuse path	*4*	2020-2030	$2.5 - $3.3
530	Innovation Way from Existing Innovation Way end to Mink St. Rd., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$4.1 - $5.4
537	Old 3C Hwy from Freeman Rd. to Tussic Rd., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$6.2 - $8
538	Heritage Trail from Hilliard City Hall to Leap Rd., Multiuse path	*4*	2020-2030	$0.8 - $1
539	Johnstown Rd. from Stygler Rd. to Olde Ridenour Rd., Add turn lanes and complete street facilities to 2 lane roadway	*1*	2018	$2.4
540	Johnstown Rd. from Olde Ridenour Rd. to James Rd., Add turn lanes and complete street facilities to 2 lane roadway	*1*	2018	$2.4
541	Winchester Pike at Bixby Rd./Brice Rd., Add/Modify turn lanes and add complete street facilities	*1*	2016	$5
542	US 62/SR 3 (Harrisburg Pk.) from Eakin Rd./Hopkins Ave. to Brown Rd., Add turn lanes and complete street facilities to 2 lane roadway	*1*	2017	$5.9
546	Joyce Ave. from Seventeenth Ave. to Kenmore Rd., Add turn lanes and complete street facilities to 2 lane roadway	*1*	2016	$6
547	Front St. from Broad St. to Hickory St., Convert from 4 one-way lanes to 4 lanes total both directions with complete street facilities	*1*	2016	$3.7
548	Marconi Blvd. from Broad St. to Hickory St., Convert from 3 one-way lanes to 2 lanes total both directions with complete street facilities	*1*	2016	$3.7
549	Hamilton Rd. from Morse Rd. to Chilmark Dr., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*1*	2020	$12.6
550	Sawmill Rd. from I-270 to Hard Rd., Widen road from 4 lanes to 6 lanes total both directions with complete street facilities	*1*	2020	$12
551	Cosgray Rd. from Scioto Darby Rd. to Heritage Rail Trail, Multiuse path	*1*	2017	$3
552	Parsons Ave. from Obetz Rd. to Dering Ave., Sidewalk	*1*	2017	$3.2
554	Flint Ridge Dr. from Rocky Fork Dr. S to Granville St., Sidewalk	*1*	2016	$0.2
555	Kenny Rd. from Kendale Rd. to Francisco Rd., Add complete street facilities	*1*	2017	$1
556	Campus View Blvd & Huntington Park Dr. from High St. to Crosswoods Park and Ride, Add complete street facilities	*1*	2017	$1
557	Dierker Rd. from Henderson Rd. to Bethel Rd., Add complete street facilities	*1*	2017	$1
558	Olentangy Trail from Worthington Hills Park to Highview Dr., Multiuse path	*1*	2017	$0.6

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2016-2040 Metropolitan Transportation Plan Project Listing

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
559	Olentangy Trail from Olentangy River Rd./Bethel Rd. to Antrim Park, Multiuse path	*1*	2019	$2.8
560	Refugee Rd. from Winchester Pike to Hamilton Rd., Multiuse path	*1*	2020	$4.4
561	Johnstown Rd. from Alum Creek Trail to Cassady Ave., Multiuse path	*1*	2018	$1.8
562	Taylor Rd. from Cleveland Rd. to Havens Corner Rd., Multiuse path	*1*	2017	$0.6
564	Wilcox Rd. at Hayden Run Rd., Add/Modify turn lanes and add complete street facilities	*1*	2018	$4.1
565	Reynoldsburg-New Albany Rd. at Clark State Rd., Add/Modify turn lanes and add complete street facilities	*1*	2019	$2
566	SR 315 at Home Rd., Add/Modify turn lanes and add complete street facilities	*1*	2018	$11.1
567	Georgesville Rd. at Holt Rd./Automall Dr., Add/Modify turn lanes and add complete street facilities	*1*	2016	$3.1
568	Worthington Rd. at Big Walnut Rd., Add/Modify turn lanes and add complete street facilities	*1*	2016	$1.8
569	William St. (US 36) from Lewis St. to E. Central ave. (SR 37), Add turn lanes and complete street facilities to 2 lane roadway	*1*	2018	$3.8
570	Alkire Rd. at Darby Creek Dr., Add/Modify turn lanes and add complete street facilities	*1*	2017	$2
571	Westerville Rd. at Innis Rd., Add/Modify turn lanes and add complete street facilities	*1*	2017	$1.2
575	Merrick - Troy Connector from Merrick Blvd. to Troy Rd., New Roadway 1 lane(s) each direction with complete street facilities	*5*	2030-2040	$2 - $2.5
581	Ferguson - Vernon Connector from Ferguson Ave. to Vernon Ave., New Roadway 1 lane(s) each direction with complete street facilities	*5*	2030-2040	$1.8 - $2.3
594	Refugee Rd. from Woodstock Ave. to Milnor Rd., Multiuse path	*5*	2030-2040	$1.3 - $1.6
598	Hyatts Rd. at Liberty Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$0.6 - $0.8
604	Hilliard-Rome Rd. at Feder Rd./Fisher Rd., Add/Modify turn lanes and add complete street facilities	*1*	2020	$7.7
605	Livingston Ave. at Barnett Rd., Add/Modify turn lanes and add complete street facilities	*1*	2017	$1.3
607	Delaware Northeast Bypass from US 23 to US 36, New Roadway 2 lane(s) each direction with complete street facilities	*4*	2020-2030	$45.9 - $59.7
610	Hayden Run Rd. at Horseshoe Falls Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$0.6 - $0.8
619	East Main St. from High St. to Lancaster Ave., Corridor under study for High Capacity Transit	*7*	2016-2040	TBD
632	SR 3 at Galena Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$0.6 - $0.8
633	Big Walnut Rd. from Africa Rd. to Worthington Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*4*	2020-2030	$20.4 - $26.5
636	Powell Rd. from Old State Rd. to I-71, Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$12.5 - $16.2
637	Powell Rd. from I-71 to Worthington Rd., Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$9.8 - $12.8
639	Powell Rd. from Liberty Rd. to Olentangy Ridge Pl., Multiuse path	*4*	2020-2030	$2 - $2.6
641	High St. from German Village to Crosswoods/Polaris, Corridor under study for High Capacity Transit	*7*	2016-2040	TBD
644	Schrock Rd. at Brooksedge Blvd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.8 - $2.3
645	Chicago - Columbus Commuter Rail from Chicago to Port Columbus, Corridor under study for High Capacity Transit	*7*	2016-2040	TBD

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2016-2040 Metropolitan Transportation Plan Project Listing

morpc

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
646	Easton-Airport-Downtown from Easton to Downtown Columbus, Corridor under study for High Capacity Transit	7	2016-2040	TBD
648	Hudson St. at Indianola Ave., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.8 - $2.3
651	Olentangy River Rd. at Goodale Blvd., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.8 - $2.3
652	King Ave. at Olentangy River Rd., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.8 - $2.3
654	Seventeenth Ave. at I-71 off ramp, Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.8 - $2.3
657	Summit St. from Eleventh Ave. to Schiller Park, Bikelane or wide shoulder	3	2016-2020	$7.6 - $8.8
661	Newark - Columbus Commuter Rail from Newark to Downtown Columbus, Corridor under study for High Capacity Transit	7	2016-2040	TBD
666	Refugee Rd. from Milnor Rd. to Saylor Rd., Multiuse path	5	2030-2040	$2.1 - $2.7
676	Trabue Rd. at Dublin Rd., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.8 - $2.3
679	US 23 from I-270 S to Pickaway County Line, Convert 4 lane roadway to 4 lane freeway	5	2030-2040	$207.4 - $265.4
682	Rickenbacker Pkwy Extension from Ashville Pike to Pontious Rd., New Roadway 2 lane(s) each direction with complete street facilities	4	2020-2030	$15.5 - $20.1
689	Grove City to Columbus from Grove City to Columbus, Corridor under study for High Capacity Transit	7	2016-2040	TBD
693	Smothers Rd. at Schott Rd./Red Bank Rd., Construct roundabout with complete street facilities	1	2018	$0.9
695	Glick Rd. from Muirkirk Dr. to Riverside Dr., Bikelane or wide shoulder	4	2020-2030	$3.1 - $4.1
696	Olentangy Trail from Worthington Hills to Highbanks Metro Park, Multiuse path	3	2016-2020	$0.9 - $1
700	Hayden Rd./Bethel Rd. from Riverside Dr. to Linworth Rd., Bikelane or wide shoulder	4	2020-2030	$2.8 - $3.6
704	Tremont Rd. at Redding Rd., Construct roundabout with complete street facilities	5	2030-2040	$1.1 - $1.4
710	Broad St. from Washington Blvd. to Parsons Ave., Bikelane or wide shoulder	4	2020-2030	$4.1 - $5.3
715	8th Ave. at Hamlet St., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$0.6 - $0.8
720	Dublin-Granville Rd. from Blendon Woods Metro Park to Hamilton Rd., Multiuse path	4	2020-2030	$0.8 - $1.1
721	Dublin-Granville Rd. from Hamilton Rd. to Harlem Rd., Multiuse path	4	2020-2030	$1.4 - $1.8
723	Refugee Rd. at Pickerington Rd., Construct roundabout with complete street facilities	5	2030-2040	$1.1 - $1.4
727	Scioto-Darby Rd. at Leap Rd., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$0.8 - $1.1
731	Livingston Ave. from High St. to Brice Rd., Corridor under study for High Capacity Transit	7	2016-2040	TBD
735	High St. at Greenlawn Ave., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.8 - $2.3
738	Olentangy Trail from W Rathbone Ave./Morse Rd. to Bethel Rd., Multiuse path	4	2020-2030	$0.2 - $0.2
745	Cottswold Dr. extension from US 23 to Stratford Rd., New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$1.7 - $2.2
746	Jeg's Blvd. extension from US 42 to Sawmill Pkwy., New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$4.4 - $5.8
748	SR 37 (W Central Ave.) from CSX Railway to Lexington Blvd., Add turn lanes and complete street facilities to 2 lane roadway	4	2020-2030	$10.8 - $14

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2016-2040 Metropolitan Transportation Plan Project Listing

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749	SR 37 (E Central Ave.) from US 23 to US 36, Add turn lanes and complete street facilities to 2 lane roadway	*4*	2020-2030	$15.8 - $20.5
750	US 36/SR 37 from Bowtown Rd. to SR 37 split, Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*5*	2030-2040	$11.9 - $15.1
751	Merrick Pkwy from Troy Rd. to US 23, New Roadway 1 lane(s) each direction with complete street facilities	*5*	2030-2040	$12.5 - $15.9
752	Polaris Connector from Old State Rd/Lazelle Rd. to I-71, Multiuse path	*4*	2020-2030	$3.7 - $4.8
759	Scioto Trail from Bright Rd. to Summit View Rd., Multiuse path	*4*	2020-2030	$0.9 - $1.1
762	Delaware to Columbus from US 36 to Nationwide Blvd. (via US 23), Corridor under study for High Capacity Transit	*7*	2016-2040	TBD
764	Gender Rd. at Groveport Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1.3 - $1.7
765	Lewis Center Rd. at Worthington Rd./Rome Corners Rd., Construct roundabout with complete street facilities	*1*	2018	$2.4
766	Sunbury Rd. at Agler Rd./Cassady Ave., Add/Modify turn lanes and add complete street facilities	*1*	2018	$0.7
767	Mound St. at Central Ave./Harrisburg Pk., Add/Modify turn lanes and add complete street facilities	*1*	2017	$0.7
769	Home Rd. at Steitz Rd., Add/Modify turn lanes and add complete street facilities	*1*	2016	$1.6
770	High St. at Rathmell Ave., Add/Modify turn lanes and add complete street facilities	*1*	2016	$0.2
772	Main St. from I-270 to McNaughten Rd., Add turn lanes and complete street facilities to 4 lane roadway	*1*	2017	$1.7
773	Glick Rd. from Davington Dr. to Muirfield Dr., Multiuse path	*1*	2016	$0.9
775	Livingston Ave. from Front St. to High St., Convert from 2 one-way lanes to 2 lanes total both directions with complete street facilities	*1*	2016	$4.2
780	Dublin-Granville Rd./Worthington Rd. from SR 605/High St. (New Albany) to New Albany Municipal Boundary, Multiuse path	*4*	2020-2030	$2 - $2.6
781	SR 161 at Cosgray Rd., Construct roundabout with complete street facilities	*5*	2030-2040	$1.1 - $1.4
782	Refugee Rd. from Mink Rd. to SR 310, Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$14.6 - $18.7
787	I-70 from I-270 to Brice Rd.., Widen freeway from 6 lanes to 8 lanes total both directions	*4*	2020-2030	$72.7 - $94.5
791	Groveport Rd. at Groveport Park entrance, Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$0.6 - $0.8
792	Groveport Rd. from Swisher Rd. to SR 317, Add turn lanes and complete street facilities to 2 lane roadway	*5*	2030-2040	$9.3 - $11.9
805	Allen Rd. extension from Stemen Rd. to Auult Rd., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$6.4 - $8.3
808	Cleveland Ave. from County Line Rd. to Polaris Pkwy., Widen road from 4 lanes to 6 lanes total both directions with complete street facilities	*5*	2030-2040	$6.8 - $8.7
809	State St. from County Line Rd. to Polaris Pkwy., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities	*5*	2030-2040	$9.6 - $12.3
810	County Line Rd. from Cleveland Ave. to Africa Rd., Widen road from 4 lanes to 6 lanes total both directions with complete street facilities	*4*	2020-2030	$3.5 - $4.5
811	Altair Pkwy extension from Altair Pkwy (existing) to State St. (at Hoff Rd.), New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$6.2 - $8
812	Westar Blvd. extension from Westar Blvd. (existing) to County Line Rd. (at Thompson Ave.), New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$4.3 - $5.6
813	Thompson Ave. from Countyl Line Rd. to Polaris Pkwy., New Roadway 1 lane(s) each direction with complete street facilities	*4*	2020-2030	$4.5 - $5.8
815	Stygler Rd. at Agler Rd., Add/Modify turn lanes and add complete street facilities	*5*	2030-2040	$1 - $1.3

*Time Period: 1=Construction is on the SFY 16-19 TIP; 2=Non-Construction Phase on the SFY 16-19 TIP, 3=Construction by 2020, 4=Construction between 2020 and 2030, 5=Construction between 2030 and 2040; 6=Ongoing from 2016-2040, 7=Under study

2016-2040 Metropolitan Transportation Plan Project Listing

morpc

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
818	Havens Corners Rd. from Hamilton Rd. to Taylor Station Rd., Add turn lanes and complete street facilities to 2 lane roadway	5	2030-2040	$14.5 - $18.5
819	Tech Center Dr. extension from Science Blvd. to Taylor Station Rd., New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$1.9 - $2.5
823	Indianola Ave. at Arcadia Ave., Bikelane or wide shoulder	4	2020-2030	$0.5 - $0.6
824	Fourth St. at Hudson St., Bikelane or wide shoulder	4	2020-2030	$0.6 - $0.8
825	Hill Rd. at Basil-Western Rd., Construct roundabout with complete street facilities	3	2016-2020	$2.6 - $3
834	Etna Rd. from Hamilton Rd. to Country Club Rd., Add turn lanes and complete street facilities to 2 lane roadway	5	2030-2040	$4.2 - $5.3
836	I-70 - US 33 Connector (SE) from I-70 (East Freeway) to US 33 (SE), New Roadway 2 lane(s) each direction with complete street facilities	5	2030-2040	$107.2 - $137.3
838	I-70 at Hamilton Rd., Modify ramp termni intersection(s)	5	2030-2040	$25 - $32
841	SR 317/Hamilton Rd. at Venture Place/Homer Ohio Ln., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$0.6 - $0.8
852	SR 204 at Milnor Rd., Construct roundabout with complete street facilities	5	2030-2040	$1.1 - $1.4
853	SR 204 at Harmon Rd., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.3 - $1.7
854	SR 204 at Taylor rd., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.3 - $1.7
856	Ackerman Rd. at Fred Taylor, Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.8 - $2.3
867	Lane Ave. at Carmack Rd., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$0.8 - $1.1
868	Kinnear Rd. at Kenny Rd., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.8 - $2.3
875	West Case St. (proposed) from Big Bear Ave. to Traditions Way, New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$1.7 - $2.2
876	Village Pointe Dr. extension from Case Ave. to West Case St. (Proposed), New Roadway 1 lane(s) each direction with complete street facilities	3	2016-2020	$0.5 - $0.6
877	Depot St. extension (north) from Case Ave. to Adventure Park Dr., New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$0.9 - $1.1
878	Sharp St. extension (west) from N. Liberty St. to Depot St. (proposed), New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$1.4 - $1.9
879	Sharp St. extension (east) from existing Sharp St. end to Grace Dr., New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$0.3 - $0.4
880	Hall St. extension from Scioto St. to Sharp St. (proposed), New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$0.8 - $1
881	Depot St. extension (south) from Powell City Hall to Liberty St., New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$1.4 - $1.8
882	Grace Dr. extension from Powell Rd. to Liberty St., New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$1.8 - $2.4
883	Liberty - Grace connector (north) from Liberty St. to Grace Dr extension (proposed), New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$0.5 - $0.7
884	Liberty - Grace connector (south) from Liberty St. to Grace Dr. extension (proposed), New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$0.4 - $0.5
892	Perry Rd. from Orange Rd. to Home Rd., Multiuse path	4	2020-2030	$1 - $1.3
894	Olentangy Trail from Sherborne Ln. to Highbanks Metro Park (end of proposed 696), Multiuse path	3	2016-2020	$1.1 - $1.3
899	Lancaster - Columbus from Lancaster to Columbus, Corridor under study for High Capacity Transit	7	2016-2040	TBD
904	Tuttle Crossing Blvd. extension from Rings Rd. to Houchard Rd., New Roadway 2 lane(s) each direction with complete street facilities	4	2020-2030	$13.5 - $17.6

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2016-2040 Metropolitan Transportation Plan Project Listing

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
906	US 33 from Dublin city limits to Marysville city limits, Implementation of ITS technologies along corridor	4	2020-2030	$38.5 - $50
907	I-670 from 4th St. to I-270, Apply traffic management strategies to specific lanes during specified times of day	4	2020-2030	$60.6 - $78.7
908	I-70 (east freeway) from Alum Creek Dr. to SR 310, Apply traffic management strategies to specific lanes during specified times of day	4	2020-2030	$93.3 - $121.2
910	SR 315 from I-670 to I-270, Apply traffic management strategies to specific lanes during specified times of day	5	2030-2040	$110.2 - $141.1
911	I-71 (North Freeway) from I-670 to I-270, Apply traffic management strategies to specific lanes during specified times of day	5	2030-2040	$110.2 - $141.1
921	John Shields Pkwy. from Riverside Dr. to Shawan Falls Dr. (proposed), New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$13.5 - $17.5
922	Shawan Falls Dr. extension from Existing Shawan Falls Dr. to John Shields Pkwy (proposed), New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$1 - $1.3
923	Post Rd. extension from Kilgour Pl to High St./Dublin Rd., New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$5.3 - $6.9
924	John Shields Pkwy Phase 2 from Dale Dr. to Village Pkwy., New Roadway 1 lane(s) each direction with complete street facilities	1	2016	$7.3
925	Village Center Pkwy extension from Existing Village Center Pkwy to SR 161, New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$1.6 - $2.1
935	College Ave. from Otterbein Ave. to Spring Rd., Add turn lanes and complete street facilities to 2 lane roadway	5	2030-2040	$14.7 - $18.9
936	Dempsey Rd. from I-270 to Sunbury Rd., Add turn lanes and complete street facilities to 2 lane roadway	4	2020-2030	$13.7 - $17.8
937	Schrock Rd. at Cooper Rd., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$2.6 - $3.3
938	High St. Streetcar (Blue Line) from Frankfort St. to Buttles Ave., Corridor under study for High Capacity Transit	7	2016-2040	TBD
939	Arena - Discovery Streetcar (Green Line) from Nationwide Blvd. to State St. (via Neil, Spring, High, Broad, Mt. Vernon), Corridor under study for High Capacity Transit	7	2016-2040	TBD
947	Northwest Blvd. at Chambers Rd., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.8 - $2.3
948	Grandview Ave. at Fifth Ave., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.3 - $1.7
949	Grandview Ave. at Third Ave., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.3 - $1.7
953	Livingston Ave. from High St. to Mohawk St., Convert from 3 one-way lanes to 2 lanes total both directions with complete street facilities	5	2030-2040	$3.5 - $4.5
961	Main St. from High St. to Grant Ave., Convert from 2 one-way lanes to 2 lanes total both directions with complete street facilities	5	2030-2040	$8.7 - $11.1
973	Broad St. from Wilson Rd. to Phillippi rd., Sidewalk	4	2020-2030	$0.6 - $0.8
980	Westerville Rd. from Morse Rd. to Huber Village Blvd., Sidewalk	4	2020-2030	$3.8 - $5
987	East Broad St. from High St. to Lancaster Ave., Corridor under study for High Capacity Transit	7	2016-2040	TBD
988	West Broad St. from Norton Rd. to High St., Corridor under study for High Capacity Transit	7	2016-2040	TBD
990	Grandview - Airport from Grandview Ave/5th Ave. to International Gateway, Corridor under study for High Capacity Transit	7	2016-2040	TBD
994	Eastland - Easton from Morse Crossing to Refugee Rd./Hamilton Rd., Corridor under study for High Capacity Transit	7	2016-2040	TBD
995	Alum Creek - Whittier from Alum Creek Dr./SR 104 to High St. /Spring St., Corridor under study for High Capacity Transit	7	2016-2040	TBD
996	Ohio/Champion - OSU from Neil Ave/11th Ave. to Ohio Ave/Frebis Ave., Corridor under study for High Capacity Transit	7	2016-2040	TBD
997	Franklinton - East Downtown from Rich St./SR 315 to Main St./Fourth St., Corridor under study for High Capacity Transit	7	2016-2040	TBD

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2016-2040 Metropolitan Transportation Plan Project Listing

morpc

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
1018	Broad St. from Hilliard-Rome Rd. to Hague Ave., Bikelane or wide shoulder	4	2020-2030	$3.9 - $5.1
1020	Broad St. from Hamilton Park to Alum Creek Trail, Bikelane or wide shoulder	4	2020-2030	$1.9 - $2.5
1023	Cleveland Ave. from Broad St. to McCoy St., Bikelane or wide shoulder	4	2020-2030	$0.7 - $1
1024	Cleveland Ave. from McCoy St. to Oakland Park Ave., Bikelane or wide shoulder	4	2020-2030	$5.7 - $7.4
1029	Dublin-Granville Rd. from Alumb Creek Trail to Big Walnut Trail, Multiuse path	4	2020-2030	$6.6 - $8.6
1030	Dublin-Granville Rd. from Sinclair Rd. to Alumb Creek Trail, Multiuse path	4	2020-2030	$4.7 - $6.1
1042	Hamilton Rd. from Blacklick Trail to Refugee Rd., Multiuse path	4	2020-2030	$4.1 - $5.3
1045	Hayden Run Rd. from Hayden Run Blvd. to Bow Falls Blvd., Multiuse path	4	2020-2030	$0.3 - $0.4
1046	Hayden Run Trail from Avery Rd. to Franklin/Madison County Line, Multiuse path	5	2030-2040	$2.2 - $2.8
1047	Henderson Rd. from Lummisford Ln. to Olentangy Blvd., Multiuse path	4	2020-2030	$1.3 - $1.6
1049	High St. from Hosack St. to Livingston Ave., Bikelane or wide shoulder	4	2020-2030	$1.4 - $1.8
1051	High St. from I-270 (South Outerbelt) to Hosack St., Multiuse path	4	2020-2030	$3.2 - $4.2
1052	Hilliard-Rome Rd. from Fisher Rd. to Westchester Wood Blvd., Bikelane or wide shoulder	5	2030-2040	$3.1 - $3.9
1053	Hudson St. from High St. to McGuffey Rd., Bikelane or wide shoulder	4	2020-2030	$3 - $3.9
1054	Indianola Ave. from Hudson St. to Morse Rd., Bikelane or wide shoulder	4	2020-2030	$2.3 - $3
1068	Morse Rd. from Alum Creek Trail to Trellis Ln., Bikelane or wide shoulder	4	2020-2030	$4.7 - $6
1069	Morse Rd. from High St. to Indianola Ave., Bikelane or wide shoulder	4	2020-2030	$0.7 - $1
1070	Morse Rd. from Cleveland Ave. to Westerville Rd., Bikelane or wide shoulder	4	2020-2030	$0.6 - $0.8
1078	Olentangy River Rd. from North Broadway to Bethel Rd., Multiuse path	4	2020-2030	$1.6 - $2.1
1084	Refugee Rd. from Gender Rd. to Wheatfield Dr., Multiuse path	4	2020-2030	$1.4 - $1.8
1106	State St. at Mill St., Construct roundabout with complete street facilities	5	2030-2040	$1.1 - $1.4
1107	Sullivant Ave. at Hague Ave., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.3 - $1.7
1108	Easton Square Place extension from Morse Crossing to Stelzer Rd., New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$3.3 - $4.2
1117	I-70/I-71 (South Innerbelt) at I-70E/I-71N (east interchange), Reconfigure slip, loop and/or directional interchange ramps	1	2017	$193.2
1119	Dublin-Granville Rd. at Linworth Rd., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.8 - $2.3
1120	Dublin-Granville Rd. at Olentangy River Rd., Add/Modify turn lanes and add complete street facilities	5	2030-2040	$1.8 - $2.3
1121	Scioto Trail from Home Rd. to Delaware/Marion County Line, Multiuse path	5	2030-2040	$16 - $20.5
1122	Rocky Fork Trail from Walnut St. to SR 605, Multiuse path	4	2020-2030	$1.8 - $2.3
1123	Blacklick Creek Trail from Havens Corners Rd. to Walnut St., Multiuse path	4	2020-2030	$5.4 - $7

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2016-2040 Metropolitan Transportation Plan Project Listing

Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
1124	Little Walnut Creek Trail from Gender Rd. to Carroll-Northern Rd., Multiuse path	5	2030-2040	$5.7 - $7.2
1125	Big Walnut Trail from Franklin/ Pickaway Co Line to SR 317, Multiuse path	5	2030-2040	$3.5 - $4.5
1126	Scioto Trail from Franklin/Pickaway Co Line to SR 665, Multiuse path	5	2030-2040	$2.6 - $3.3
1127	Darby Creek Trail from Franklin/Pickaway Co Line to Harrisburg-Georgesville Rd./Norton Rd., Multiuse path	5	2030-2040	$3.8 - $4.9
1128	SR 37 from Homestead Ln. to Delaware/Union Co Line, Add complete street facilities	5	2030-2040	$6.2 - $7.9
1129	SR 37 from Lexington Blvd. to Homestead Ln., Add complete street facilities	5	2030-2040	$1.2 - $1.5
1130	US 36/SR 37 from SR 521 to SR 37 split, Add complete street facilities	5	2030-2040	$8.7 - $11.1
1131	SR 37 from Hawthorne Rd. to Delaware/Licking Co Line, Add complete street facilities	5	2030-2040	$5.4 - $6.9
1133	SR 750 from US 23 to S Old State Rd., Multiuse path	4	2020-2030	$0.9 - $1.2
1134	Smothers Rd. from Sunbury Rd. to Harlem Rd., Multiuse path	5	2030-2040	$1.9 - $2.4
1135	Harlem Rd. from Smothers Rd. to Fancher Rd., Multiuse path	5	2030-2040	$0.4 - $0.5
1136	Fancher Rd. from Harlem Rd. to SR 605, Multiuse path	5	2030-2040	$1.5 - $1.9
1137	Powell Rd. from Valley Run Dr. to High Banks Metro Park, Multiuse path	4	2020-2030	$0.8 - $1
1138	Morse Rd. from US 62 to Reynoldsburg-New Albany Rd., Multiuse path	5	2030-2040	$1.5 - $1.9
1139	Morse Rd. from Reynoldsburg-New Albany Rd. to Clark State Rd., Multiuse path	5	2030-2040	$2.5 - $3.2
1140	Broad St. from Hubbard Rd. to Cole Rd., Add complete street facilities	5	2030-2040	$2.3 - $2.9
1141	Broad St. from Cole Rd. to Hilliard Rome Rd., Add complete street facilities	5	2030-2040	$1.5 - $1.9
1142	Broad St. from Taylor Rd. to Mink St. SW, Add complete street facilities	5	2030-2040	$1.8 - $2.3
1143	Broad St. from Mink St. SW to Vine St., Add complete street facilities	5	2030-2040	$2.4 - $3.1
1144	Broad St. from Vine St. to Corylus dr., Add complete street facilities	5	2030-2040	$1 - $1.2
1145	Broad St. from Corylus Dr. to Pataskala Boundary, Add complete street facilities	5	2030-2040	$1.3 - $1.6
1146	Refugee Rd./Chatterdon Rd. from Big Walnut Trail to Dunloe Rd., Add complete street facilities	4	2020-2030	$0.3 - $0.5
1147	SR 665 from Darby Blvd. to Lambert Rd., Add complete street facilities	5	2030-2040	$1.1 - $1.4
1148	SR 665 from Lambert Rd. to US 62, Add complete street facilities	5	2030-2040	$1.6 - $2
1149	SR 665 from SR 104 to US 23, Add complete street facilities	5	2030-2040	$2 - $2.6
1150	SR 317 from US 23 to Alum Creek Dr., Add complete street facilities	5	2030-2040	$3.1 - $4
1151	SR 317 from Groveport Rd. to Blacklick Creek Trail, Add complete street facilities	4	2020-2030	$1.1 - $1.5
1152	Hamilton Rd. (SR 317) from I-70 to Simpson Dr., Add complete street facilities	4	2020-2030	$0.8 - $1
1153	Hamilton Rd. from Broad St. to Morrison Rd., Add complete street facilities	4	2020-2030	$1.6 - $2.1

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2016-2040 Metropolitan Transportation Plan Project Listing

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Mapped Projects - Sorted by Project ID -

ID	Project Description	Time Period*	Year	Cost (millions)
1154	SR 605 from Rocky Fork Trail (proposed) to SR 37, Add complete street facilities	5	2030-2040	$5.4 - $6.9
1155	SR 605 from New Albany Rd. to Rocky Fork Trail (Proposed), Add complete street facilities	5	2030-2040	$1.3 - $1.7
1156	New Albany-Condit Rd. from Central College Rd. to New Albany Rd., Add complete street facilities	5	2030-2040	$0.7 - $0.8
1157	Reynoldsburg-New Albany Rd. from Brandon Rd. to Clark State Rd./Blacklick Creek Trail (proposed), Add complete street facilities	4	2020-2030	$0.8 - $1.1
1158	SR 256/Lancaster Ave. from Main St. to Livingston Ave., Add complete street facilities	4	2020-2030	$0.6 - $0.7
1160	SR 61 from SR 3 to Delaware/Morrow Co Line, Add complete street facilities	5	2030-2040	$6.4 - $8.2
1162	Westerville Rd. from Innis Rd. to Morse Rd., Sidewalk	4	2020-2030	$1.2 - $1.5
1163	Westerville Rd. from Lakeview Ave. to Innis Rd., Sidewalk	4	2020-2030	$0.7 - $0.9
1166	US 23 from Hills-Miller Rd. to Delaware/Marion Co Line, Add complete street facilities	5	2030-2040	$6.2 - $7.9
1167	US 62 from Franklin/Pickaway Co Line to Rensch rd., Add complete street facilities	5	2030-2040	$4.8 - $6.2
1168	US 62 (SW) from Home Rd. to Hyde Rd., Add complete street facilities	4	2020-2030	$0.4 - $0.5
1170	Avery Rd. from Hayden Run Rd. to Britton-Cosgray Connector, Add complete street facilities	5	2030-2040	$0.8 - $1
1171	Hilliard-Rome Rd. from Broad St. to Fisher Rd., Add complete street facilities	5	2030-2040	$1.4 - $1.7
1172	Norton Rd. from Alkire Rd. to Hall Rd., Add complete street facilities	5	2030-2040	$1.2 - $1.5
1173	Norton Rd. from Lambert Rd. to Alkire Rd., Add complete street facilities	5	2030-2040	$3.1 - $3.9
1174	Norton Rd. from Darby Creek Trail (Proposed) to Lambert Rd., Add complete street facilities	5	2030-2040	$1.7 - $2.2
1175	Polaris Connector from Worthington Rd. to Cleveland Ave., Multiuse path	4	2020-2030	$0.5 - $0.7
1176	Hudson St. from Cleveland Ave. to Rankin Ave., Bikelane or wide shoulder	4	2020-2030	$0.7 - $0.9
1177	Scioto Trail from Trabue Rd. to Lane Ave., Multiuse path	3	2016-2020	$0.4 - $0.5
1179	Downtown - Polaris via North Corridor from 3rd St. to Polaris, Corridor under study for High Capacity Transit	7	2016-2040	TBD
1182	Alum Creek Dr. from SR 317 to Groveport Rd., Widen road from 4 lanes to 6 lanes total both directions with complete street facilities	4	2020-2030	$27.7 - $36
1183	Blaney Rd. (CR-15) Extension/Realignment from Home Rd. to US 42, New Roadway 2 lane(s) each direction with complete street facilities	4	2020-2030	$13.8 - $17.9
1184	Ravenhill Pkwy extension from Existing western terminus to Mitchell-Dewitt Rd., New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$14.9 - $19.4
1188	Watkins-California Rd. realignment from Watkins-California Rd. to US 42, New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$3 - $3.9
1190	Long Rd. from Columbus St. to Diley Rd., Add turn lanes and complete street facilities to 2 lane roadway	4	2020-2030	$2.5 - $3.2
1192	John Shields Pkwy from Village Pkwy to Dublin Center Dr., New Roadway 1 lane(s) each direction with complete street facilities	4	2020-2030	$1.1 - $1.5

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2016-2040 Columbus Area Metropolitan Transportation Plan

Project Location Map

Figure 8.1

- New Interchange
- Interchange Upgrade
- Intersection Improvement
- Access Management
- Bike/Pedestrian
- Convert to Freeway
- Management and Operations
- Lane Management
- Major Widening
- Minor Widening
- New Roadway
- Transit
- Corridor under study for high capacity transit
- # Project ID Number See Project Listing
- Railroad
- Water
- Transportation Planning Area
- County Boundary

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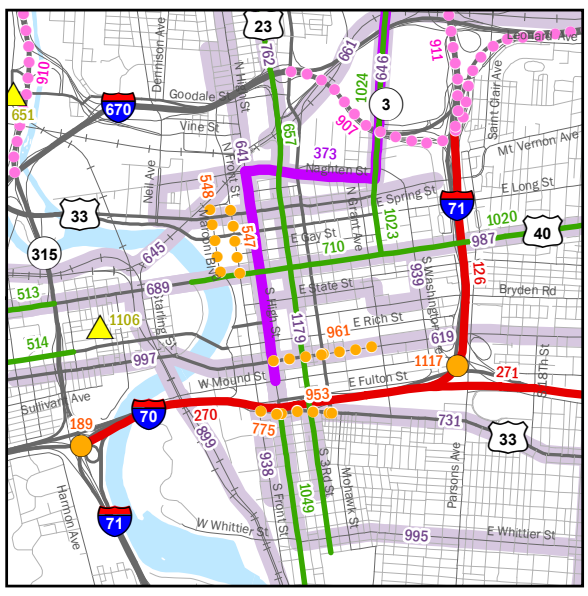
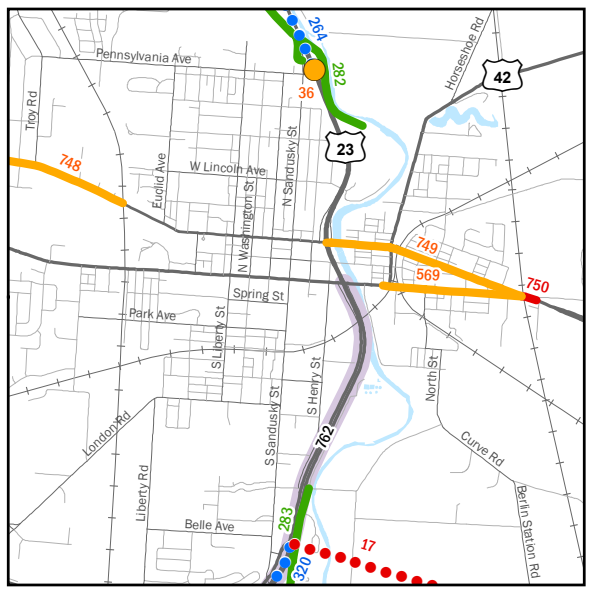
Downtown Columbus



Downtown Delaware



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The information shown on this map is compiled from various sources made available to us which we believe to be reliable.
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8.3 Impact Summary

The impact of the strategies and projects included in the MTP must avoid adverse impacts to environmental justice, air quality, and the natural environment. Thorough technical reviews are available in Appendices C, D, and E. A summary of the results follows:

AIR QUALITY CONFORMITY

The quality of the air we breathe is affected by many human activities such as burning fuels, dry cleaning, painting and manufacturing. These day-to-day activities add gases and particles to the air, thereby changing the environment and negatively impacting our health. The contribution of transportation to air quality problems includes vehicle tailpipe emissions, evaporation of fuels and use of non-road construction equipment to build transportation facilities.

MEASUREABLE OBJECTIVE

The MTP targets the EPA air quality standards for each criteria pollutant.

The U.S. EPA promulgated an 8-hour ozone standard in 2008, and on July 20, 2012, the 6-county region was designated marginal non-attainment. On August 27, 2015, the U.S. EPA proposed to reclassify the area to attainment based upon three years of clean data. As of this date, a final rule has not been issued. Four Central Ohio counties and part of a fifth were also designated as a non-attainment area for failing to meet standards for fine particulate pollution (referred to as PM2.5) in 2005. The area has since been re-designated to attainment for fine particulates. This situation requires the region to pursue strategies to reduce both ozone and fine particulate pollution. In addition to reducing ozone and fine particle pollution, the region will need to pursue strategies to reduce greenhouse gas emissions. Transportation accounts for 20 percent of Ohio's greenhouse gas emissions, and there is a growing global, national, state and local trend to reduce greenhouse gases through regulatory and voluntary measures due to their impact on global climate. Following this trend to limit greenhouse gas emissions contributing to global climate change, MORPC will work with various partner organizations and agencies to develop strategies to reduce emissions. Future transportation plans will address this growing concern in further detail. The following new and ongoing initiatives have been undertaken by MORPC to promote air quality improvement in the region:

- Daily air quality forecasts for ozone and fine particulate pollution
- Clean Air Fair education and outreach event
- Assisting heavy-duty diesel fleets with funding to install pollution control technology
- Joining Central Ohio Asthma Coalition
- RideSolutions ridesharing program
- Energy and Air Quality Workgroup – this group will help identify additional regional strategies for improving air quality.

The Clean Air Act requires that the projects in Transportation Plans in nonattainment areas lead to improvements in air quality. The process that shows that transportation plans lead to improvements in air quality, or maintain the air quality, is called a conformity determination.

A determination of conformity of the Metropolitan Transportation Plan was made by MORPC with technical assistance from ODOT. The technical procedures were developed by ODOT and agreed to by MORPC. The emissions analysis was based on the MOVES model. Complete documentation of the conformity process, the procedures used and the analysis results are contained in Appendix B and show that this plan is in conformity.

ENVIRONMENTAL JUSTICE

Transportation investments have both positive and negative impacts that may be localized in a particular community or portion of a community. Environmental justice requires that these impacts be distributed fairly among population groups, especially focusing on population groups that have been traditionally disadvantaged. MORPC, in its response to this important challenge, devised a process to assess the impacts of the transportation planning process, the Metropolitan Transportation Plan and the transportation improvement program on the target populations.

The target populations consist of minorities, Hispanics, senior citizens, people with disabilities, people in poverty, and households without cars. Information about these populations can be found in Appendix C. MORPC identified three principles to ensure environmental justice considerations were properly integrated into the transportation planning process:

- Adequate public involvement of target populations in regional transportation decision making.
- Assess whether there were disproportionately high and adverse impacts on the target populations resulting from federal programs.
- Ensure that the target populations receive a proportionate share of benefits of federal transportation investments.

Several quantitative measures were developed in order to assess the impacts of the plan. Although these measures cannot take into account every possible facet of environmental justice, MORPC believes they are good indicators as to whether significant environmental justice issues are present. When applied at the regional level, the measures indicated the Metropolitan Transportation Plan creates no environmental justice problems. It is important to keep in mind that this analysis was done at a regional, transportation system wide level. Additional refinement will be made as individual projects go through project development. The complete environmental justice analysis of the Metropolitan Transportation Plan is available in the separate Environmental Justice Technical Analysis Appendix.

MEASUREABLE OBJECTIVE

The MTP targets that the disadvantaged population average trip travel time remains within 5% of the regional average trip travel time.

Chapter 9:
Plan Implementation & Monitoring

The Metropolitan Transportation Plan is updated every four years, but the planning process is continuous. Key elements of this ongoing process are implementing the strategies and projects identified in the MTP and monitoring the progress in advancing the established goals. Implementation is primarily accomplished through state or local government action on the strategies and to advance projects through their respective Capital Improvements Programs and the MPO Transportation Improvement Program. MORPC program activities are accomplished through the development and execution of the annual Planning Work Program.

Monitoring of the progress in achieving the MTP goals is accomplished through the release of an annual report card, which tracks advancement toward the objectives and meeting the targets. The benchmarked data will provide a quantifiable way to measure the progress. This chapter summarizes the measurable objectives and quantifiable performance measures.

9.1 Performance Measures

The progress of advancing each of the six established goals will be measured by several objectives. Two to four objectives have been identified for each goal. Objectives were chosen to measure certain aspects of each goal that can be impacted through transportation or the transportation system, and are based on data availability and measurability. For each objective, the existing condition, or benchmark, is documented and used to establish a short– and long-term target (years 2020 and 2040). Also associated with each objective is the rationale for how the objective is measuring an aspect of the goal. The region's progress toward reaching these targets will be reported on annually. The objectives, benchmarks, and targets are shown in Table 9.1.

MORPC publishes an annual report card that identifies if the region is on track for reaching the established targets for each of the objectives. This is done by comparing current data to the benchmarks and targets, to assess if the region is moving in the right direction, and on track to meet the short– and long-term targets.

Objectives and targets were also adopted as part of the 2012-2035 Metropolitan Transportation Plan, which precedes this plan. The progress made toward those targets was reported annually in the MTP Report Card. The 2013, 2014, and 2015 Report Cards are published on MORPC's website.

Upon adoption of the 2016-2040 MTP, the new objectives, benchmarks, and targets will be reported on in the annual report card in a similar manner.

For each objective, the existing condition, or benchmark, is documented and used to establish a short– and long-term target.

TABLE 9.1

Objectives & Targets

Energy

OBJECTIVE: Reduce the percentage of commuters driving alone, and increase the percentage of commuters riding transit, bicycle, or walking

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Reducing single occupancy auto commutes and increasing commuters using alternative transportation modes will reduce per capita fuel and energy consumption.	**82%** of commuters drive alone **5%** of commuters ride transit, bicycle, or walk **2009-2013 American Community Survey*	**80%** of commuters drive alone **6%** of commuters ride transit, bicycle, or walk	**75%** of commuters drive alone **10%** of commuters ride transit, bicycle, or walk

OBJECTIVE: Reduce vehicle miles traveled (VMT) per capita

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Reducing vehicle miles traveled per person for any trip purpose will reduce per capita fuel and energy consumption.	**9,700** VMT per capita **2013 ODOT VMT on functionally classified Collectors and above, 2013 MORPC land use*	**9,200** VMT per capita (5% reduction)	**6,800** VMT per capita (30% reduction)

OBJECTIVE: Increase the percentage of vehicles using alternative fuels

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Increased use of alternative fuel vehicles is a direct measurement of alternative fuel usage.	**XX%** of registered vehicles use alternative fuels** **Data and methodology under development*	**XX%** of registered vehicles use alternative fuels**	**XX%** of registered vehicles use alternative fuels**

Economic Opportunity

OBJECTIVE: Increase the average number of jobs reachable within 20 minutes via automobile and within 40 minutes via transit

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Access to jobs within reasonable travel time is important for the vitality of a region's economy.	On average, **332,000** jobs reachable within 20 minutes via automobile On average, **32,000** jobs reachable within 40 minutes via transit **2014 Travel Demand Model*	On average, **350,000** (5% increase) jobs reachable within 20 minutes via automobile On average, **35,000** (10% increase) jobs reachable within 40 minutes via transit	On average, **365,000** (10% increase) jobs reachable within 20 minutes via automobile On average, **38,500** (20% increase) jobs reachable within 40 minutes via transit

OBJECTIVE: Minimize the percentage of total vehicle miles traveled under congested conditions

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Efficient mobility of people and freight is an important element of a vibrant economy.	Total vehicle miles traveled under congested conditions: Daily: **3.1%** Peak Periods **6.9%** **2014 Travel Demand Model on functionally classified Collectors and above*	Total vehicle miles traveled under congested conditions: Daily: **<5%** Peak Periods **<10%**	Total vehicle miles traveled under congested conditions: Daily: **<5%** Peak Periods **<10%**

OBJECTIVE: Minimize the amount of extra, or buffer, travel time necessary when planning expected trip travel time

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Freight carriers, commuters and businesses need reliable and consistent travel times to ensure the on-time delivery of goods and most efficient use of their time.	AM Peak Region-wide Uncertainty Index: **1.31** PM Peak Region-wide Uncertainty Index: **1.35** **Calculated from Oct 2013-Sept 2014 INRIX data, arterials and above*	Region-wide Uncertainty Index: **1.3**	Region-wide Uncertainty Index: **1.25**

TABLE 9.1

Objectives & Targets (continued)

Natural Resources

OBJECTIVE: Reduce emissions from mobile sources to continuously meet EPA air quality standards for each criteria pollutant

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Clean air is an essential natural resource and is a key indicator of a healthy community.	Ozone Non-Attainment PM2.5 Attainment	Ozone Attainment PM2.5 Attainment	Ozone Attainment PM2.5 Attainment

OBJECTIVE: Decrease the locations of freeway and expressway facilities that are at risk for flooding

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Flooding prohibits safe travel and is a result of vulnerabilities during extreme weather events.	**3** freeway/expressway locations at risk for flooding **2014 ODOT Communication*	**3** freeway/expressway locations at risk for flooding	**2** freeway/expressway locations at risk for flooding

Collaboration

OBJECTIVE: Increase the percentage of funding from non-public sources on transportation projects on functionally classified Principal Arterials and above

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Creative funding partnerships are a result of regional collaboration and seeking out innovative solutions.	**1%** of funding is from non-public sources on transportation projects** **projects completed 2010-2014*	**5%** of funding from non-public sources on transportation projects**	**20%** of funding from non-public sources on transportation projects**

OBJECTIVE: Increase the number of projects utilizing innovative initiatives on functionally classified Principal Arterials and above

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Encourage initiatives that advance innovation and partnership to deliver and build projects efficiently.	**1%** of projects utilized innovative initiatives** **projects completed with Every Day Counts initiatives utilized for projects 2010-2014*	**4%** of projects utilized innovative initiatives**	**8%** of projects utilized innovative initiatives**

OBJECTIVE: Increase the percentage of functionally classified Principal Arterials and above facilities employing coordinated Intelligent Transportation Systems (ITS) technologies

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
ITS provides for maximization of capacity on existing facilities and real-time response to incidents and security issues.	**20%** of mileage utilizes coordinated ITS technologies	**30%** of mileage utilizes coordinated ITS technologies	**90%** of mileage utilizes coordinated ITS technologies

OBJECTIVE: Increase the number of transit vehicles and facilities with surveillance capabilities and increase the miles of functionally classified Principal Arterials and above with video surveillance

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Surveillance capabilities allow for real-time response to incidents and security issues.	**79%** transit vehicles and facilities with surveillance capabilities **18%** of functionally classified Arterials and above are under video surveillance **2014 COTA, DATABus and ODOT Inventories*	**90%** transit vehicles and facilities with surveillance capabilities **25%** of functionally classified Arterials and above under video surveillance	**100%** transit vehicles and facilities with surveillance capabilities **90%** of functionally classified Arterials and above under video surveillance

TABLE 9.1

Objectives & Targets (continued)

Sustainable Neighborhoods

OBJECTIVE: Encourage and support MORPC member communities to adopt complete streets policies or policies that contain those elements

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Complete streets allow for transportation choices, which enhance quality of life.	**14%** of MORPC member communities have adopted complete streets policies or policies that contain those elements	**45%** of MORPC member communities have adopted complete streets policies or policies that contain those elements	**100%** of MORPC member communities have adopted complete streets policies or policies that contain those elements

OBJECTIVE: Target infrastructure development to serve a higher number of people and jobs and increase sidewalk coverage of arterials and collectors

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Activity density along major facilities and pedestrian access among the activity provides a more livable environment.	**4.3** people + jobs per acre are within 3/4 mile of arterials **36%** of arterials and collectors have sidewalks** **2015 MORPC Land Use Data, Sidewalk Inventory*	**5** people + jobs per acre are within 3/4 mile of arterials **40%** of arterials and collectors that have sidewalks**	**6** people + jobs per acre are within 3/4 mile of arterials **85%** of arterials and collectors have sidewalks

OBJECTIVE: Target transit and bikeway infrastructure development to serve a higher number or people

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Sustainable neighborhoods have access to multiple transportation modes.	**70%** of population live within 3/4 mile of a transit stop **71%** of population live within 3/4 mile of a bikeway **2015 MORPC Land Use Data*	**72%** of population live within 3/4 mile of a transit stop **72%** of population live within 3/4 mile of a bikeway	**80%** of population live within 3/4 mile of a transit stop **80%** of population live within 3/4 mile of a bikeway

Health, Safety, & Welfare

OBJECTIVE: Minimize the difference in trip travel time for disadvantaged populations relative to the regional trip travel time

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
The transportation system should equally serve all of the region's population.	Average trip travel time for disadvantaged populations is **5%** less than the regional average trip travel time **2014 Travel Demand Model*	Average trip travel time for disadvantaged populations within **5%** of regional average trip travel time	Average trip travel time for disadvantaged populations within **5%** of regional average trip travel time

OBJECTIVE: Maintain infrastructure in a state of good repair by minimizing the percentage of bridges with poor General Appraisals, minimizing pavement miles in unacceptable conditions, maintaining transit fleet of a useful life, and incorporating bike facilities

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Maintenance and enhancement of existing infrastructure ensures the maximum lifespan and safe use of public investments.	**95%** of bridges with GA rating of 5 or better **5%** of pavement miles in unacceptable conditions **6%** of transit fleet older than useful life **580** miles of bikeways **2013 ODOT, 2014 COTA, DATABus, 2015 MORPC Inventories*	**95%** of bridges with GA rating of 5 or better No more than **5%** of pavement miles in unacceptable conditions **0%** of transit fleet older than useful life **630** miles of bikeways	**98%** of bridges with GA rating of 5 or better No more than **5%** of pavement miles in unacceptable conditions **0%** of transit fleet older than useful life **830** miles of bikeways

OBJECTIVE: Reduce the number of fatalities and serious injuries from crashes

Rationale	*Benchmark*	*2020 Target*	*2040 Target*
Crash reduction is a direct measurement of safety.	**0.69** fatalities per 100 million VMT **6.4** serious injuries per 100 million VMT Number of fatalities: **96** Number of serious injuries: **896** Number of non-motorized fatal and serious injuries: **138** **average number of crashes occurring 2010-2014*	**0.63** fatalities per 100 million VMT **5.83** serious injuries per 100 million VMT **10%** reduction in fatalities and serious injuries **10%** reduction in non-motorized fatalities and serious injuries	**0.42** fatalities per 100 million VMT **3.91** serious injuries per 100 million VMT **39%** reduction in fatalities and serious injuries **39%** reduction in non-motorized fatalities and serious injuries

9.2 Plan Implementation

This Metropolitan Transportation Plan identifies numerous strategies and projects for the purpose of advancing the established regional transportation goals. MORPC will work with the state and local governments and regional planning partners to execute the strategies identified.

Some of the strategies identify specific infrastructure projects. While it is estimated that these projects will be financially feasible by the year 2040, specific funding has not yet been allocated to most of the projects. When ODOT or local governments decide to secure and commit funding for the design and construction of a project, the project is then added to the Transportation Improvement Program (TIP). The TIP is a schedule of transportation infrastructure projects within MORPC's transportation planning area that have specific funding committed and are expected to have design or construction work begin within a four-year horizon. The TIP is updated every two years. For a project to be included in the TIP, it must first be included in the MTP.

MORPC adopted the TIP for State Fiscal Years (SFY) 2016-2019 on May 14, 2015. The TIP will be updated again in 2017 to include the schedule of projects for SFY 2018-2021.

Many local governments also maintain their own Capital Improvements Program (CIP), which identifies projects within the local jurisdiction with committed funding. MORPC incorporates the most significant projects into the TIP.

CONCLUSION

The 2016-2040 Metropolitan Transportation Plan was developed through a continuous, coordinated, and comprehensive planning process, which includes ongoing public and stakeholder outreach, as well as active performance monitoring and reporting. This plan provides the framework for achieving the transportation goals of the region and improving residents' quality of life through the collaboration of local and regional planning partners.

As part of the continuous planning cycle, the Columbus Area Metropolitan Transportation Plan will be updated again in 2020.